CURRICULUM VITAE

LAWRENCE D. CAREY

Professor and Department Chair, Department of Atmospheric and Earth Science
The University of Alabama in Huntsville

Education

Ph.D. (1999) - Atmospheric Science, Colorado State University, Fort Collins, CO
Advisor: Prof. Steven Rutledge

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

2019 - now *Professor*, Department of Atmospheric and Earth Science, The University of Alabama in Huntsville, Huntsville, AL 35805

2023 - now, 2014 - 2018 *Department Chair and Interim Chair*, Department of Atmospheric and Earth Science, The University of Alabama in Huntsville, Huntsville, AL 35805

2012 - 2019 *Associate Professor*, Department of Atmospheric Science, The University of Alabama in Huntsville, Huntsville, AL 35805

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

2007 - 2009 *Research Scientist V,* Earth System Science Center (ESSC), The 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 Sciences, North Carolina State University, Raleigh, NC 27695

1999 - 2001 *Research Associate*, Cooperative Institute for Research in the Atmosphere (CIRA) 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

Thunderstorms and *cloud electrification:* studies of the environmental, kinematic and microphysical processes that lead to cloud electrification and lightning using polarimetric radar and mesoscale meteorological observations.

Citations (*Google Scholar Profile*: https://scholar.google.com/citations?user=eZ5FO0AAAAAJ)

Citations	8170
h-index	47
i10-index	93

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

2024

99. Harkema, S. S., E. R. Mansell, A. O. Fierro, **L. D. Carey**, C. J. Schultz, T. Matsui, and E. B. Berndt, 2024: Explicitly resolving lightning and electrification processes from the 10-12 April 2019 thundersnow outbreak. *Journal of Geophysical Research: Atmospheres*, **129,** e2023JD039987. https://doi.org/10.1029/2023JD039987.

98. Cummings K. A., K. E. Pickering, M. C. Barth, M. M. Bela, Y. Li, D. Allen, E. Bruning, D. R. MacGorman, C. L. Ziegler, M. I. Biggerstaff, B. Fuchs, T. Davis, **L. Carey**, R. M. Mecikalski, and D. L. Finney, 2024: Evaluation of lightning flash rate parameterizations in a cloud-resolved WRF-Chem simulation of the 29-30 May 2012 Oklahoma severe supercell system observed during DC3, *Journal of Geophysical Research: Atmospheres,* **129**, e2023JD039492. https://doi.org/10.1029/2023JD039492.

97. Murphy, K. M., **L. D. Carey**, C. J. Schultz, N. Curtis, and K. M. Calhoun, 2024: Automated and objective thunderstorm identification and tracking using Geostationary Lightning Mapper (GLM) data. *Journal of Applied Meteorology and Climatology*, **63,** 47-64. https://doi.org/10.1175/JAMC-D-22-0143.1.

2023

96. Harkema, S. S., **L. D. Carey**, C. J. Schultz, E R. Mansell, E. B. Berndt, A. O. Fierro, and T. Matsui, 2023: Electrification within wintertime stratiform regions sampled during the 2020/2022 NASA IMPACTS field campaign. *Journal of Geophysical Research: Atmospheres,* **128**, e2023JD038708. https://doi.org/10.1029/2023JD038708.

2022

95. Medina*, B., **L. Carey**, W. Deierling and T. Lang, 2022: Microphysical and kinematic characteristics of anomalous charge structure thunderstorms in Cordoba, Argentina. *Atmosphere*, **13**, 1329. https://doi.org/10.3390/atmos13081329.

94. Medina*, B. L., **L. D. Carey**, P. M. Bitzer, T. J. Lang, and W. Deierling, 2022: The relation of environmental conditions with charge structure in central Argentina thunderstorms. *Earth and Space Science*, **9,** e2021EA002193. https://doi.org/10.1029/2021EA002193.

93. Stough*, S. M., **L. D. Carey**, C. J. Schultz and D. J. Cecil, 2022: Supercell thunderstorm charge structure variability and influences on spatial lightning flash relationships with the updraft. *Monthly Weather Review*, **150**, 843-861. https://doi.org/10.1175/MWR-D-21-0071.1.

2021

92. Zhu, Y., P. Bitzer, V. Rakov, M. Stock, J. Lapierre, E. DiGangi, Z. Ding, B. Medina*, **L. Carey**, and T. Lang, 2021: Multiple strokes along the same channel to ground in positive lightning produced by a supercell. *Geophysical Research Letters*, **48,** e2021GL09671. https://doi.org/10.1029/2021GL096714.

91. Nesbitt, S. W., P. V. Salio, E. Avila, P. Bitzer, **L. Carey**, V. Chandrasekar, W. Deierling, F. Dominguez, M. E. Dillon, C. M. Garcia, D. Gochis, S. Goodman, D. A. Hence, K. A. Kosiba, M. R. Kumjian, T. Lang, L. M. Luna, J. Marquis, R. Marshall, L. A McMurdie, E. de Lima Nascimento, K. L. Rasmussen, R. Roberts, A. K. Rowe, J. J. Ruiz, E. F. M. T. São Sabbas, A. C. Saulo, R. S. Schumacher, Y. G. Skabar, L. A. T. Machado, R. J. Trapp, A. C. Varble, J. Wilson, J. Wurman, E. J. Zipser, I. Arias, H. Bechis, and M. A. Grover, 2021: A storm safari in Subtropical South America: Proyecto RELAMPAGO. *Bulletin of the American Meteorological Society*, **102**, E1621-E1644. https://doi.org/10.1175/BAMS-D-20-0029.1.

90. Stough*, S. M., **L. D. Carey**, C. J. Schultz, and D. J. Cecil, 2021: Examining conditions supporting the development of anomalous charge structures in supercell thunderstorms in the Southeastern United States. *Journal of Geophysical Research: Atmospheres*, **126**, e2021JD034582. https://doi.org/10.1029/2021JD034582.

89. Medina*, B. L., **L. D. Carey**, T. J. Lang, P. M. Bitzer, W. Deierling, and Y. Zhu, 2021: Characterizing charge structure in Central Argentina thunderstorms during RELAMPAGO utilizing a new charge layer polarity identification method. *Earth and Space Science*, **8**, e2021EA001803**.** https://doi.org/10.1029/2021EA001803.

2020

88. Stough*, S. M., and **L. D. Carey**, 2020: Observations of anomalous charge structures in supercell thunderstorms in the Southeastern United States. *Journal of Geophysical Research: Atmospheres*, **125**, e2020JD033012. https://doi.org/10.1029/2020JD033012.

87. Lang, T. J., E. E. Ávila; R. J. Blakeslee, J. Burchfield, M. Wingo, P. M. Bitzer, **L. D. Carey**, W. Deierling, S. J. Goodman, B. L. Medina*, G. Melo, and R. G. Pereyra, 2020: The RELAMPAGO Lightning Mapping Array: Overview and initial comparison with the Geostationary Lightning Mapper. *Journal of Atmospheric and Oceanic Technology*, **37,** 1457-1475**.** https://doi.org/10.1175/JTECH-D-20-0005.1.

86. Zhu, Y., P. Bitzer, M. Stewart, S. Podgorny, D. Corredor, J. Burchfield, **L. Carey**, B. Medina*, and M. Stock, 2020: Huntsville Alabama Marx Meter Array 2: Upgrade and Capability. *Earth and Space Science*, **7,** e2020EA001111. https://doi.org/10.1029/2020EA001111.

2019

85. **Carey, L. D.**, E. V. Schultz, C. J. Schultz, W. Deierling, W. A. Petersen, A. L. Bain, and K. E. Pickering, 2019: An evaluation of relationships between radar inferred kinematic and microphysical parameters and lightning flash rate in Alabama storms. *Atmosphere*, **10,** 796. https://doi.org/10.3390/atmos10120796.

84. Medina*, B. L, **L. D. Carey,** C. G. Amiot*, R. M. Mecikalski, W. P. Roeder, T. M. McNamara, and R. J. Blakeslee, 2019: A random forest method to forecast downbursts based on dual-polarization radar signatures. *Remote Sensing,* **11**, 826. http://dx.doi.org/10.3390/rs11070826.

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 LNOx production. *Journal of Geophysical Research: Atmospheres,* **123**, 12,796-12,813. https://doi.org/10.1029/2018JD029263.

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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

77. Stough*, S. M., **L. D. Carey**, C. J. Schultz, and P. M. Bitzer, 2017: Investigating the relationship between lightning and mesocyclonic rotation in supercell thunderstorms. *Weather and Forecasting*, **32,** 2237-2259**.** https://doi.org/10.1175/WAF-D-17-0025.1.

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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2016

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68. Schultz, E. V., C. J. Schultz*, **L. D. Carey**, D. J. Cecil, and M. Bateman, 2016: Automated storm tracking and the lightning jump algorithm using GOES-R Geostationary Lightning Mapper (GLM) proxy data. *J. Operational Meteor.*, **4** (7), 92–107. https://doi.org/10.15191/nwajom.2016.0407.

67. Mecikalski, J. R., C. P. Jewett; J. M. Apke, and **L. D. Carey**, 2016: Analysis of cumulus cloud updrafts as observed with 1-min resolution Super Rapid Scan GOES imagery. *Monthly Weather Review*, **144**, 811-830. https://doi.org/10.1175/MWR-D-14-00399.1.

2015

66. Schultz*, C. J., **L. D. Carey**, E. V. Schultz, and R. J. Blakeslee, 2015: Insight into the kinematic and microphysical processes that control lightning jumps. *Weather and Forecasting,* **30**, 1591-1621. https://doi.org/10.1175/WAF-D-14-00147.1.

65. Williams, C. R., V. N. Bringi, **L. D. Carey**, V. Chandrasekar, P. N. Gatlin, Z. S. Haddad, R. Meneghini, S. J. Munchak, S. W. Nesbitt, W. A. Petersen, S. Tanelli, A. Tokay, A. Wilson, and D. B. Wolff, 2015: Reply to "Comments on 'Describing the shape of raindrop size distributions using uncorrelated raindrop mass spectrum parameters'". *Journal of Applied Meteorology and Climatology*, **54**, 1977–1982. https://doi.org/10.1175/JAMC-D-15-0058.1.

64. Barth, M. C., C. A. Cantrell, W. H. Brune, S. A. Rutledge, J. H. Crawford, H. Huntrieser, **L. D. Carey**, D. MacGorman, M. Weisman, K. E. Pickering, E. Bruning, B. Anderson, E. Apel, M. Biggerstaff, T. Campos, P. Campuzano-Jost, R. Cohen, J. Crounse, D. A. Day, G. Diskin, F. Flocke, A. Fried, C. Garland, B. Heikes, S. Honomichl, R. Hornbrook, L. G. Huey, J. Jimenez, T. Lang, M. Lichtenstern, T. Mikoviny, B. Nault, D. O'Sullivan, L. Pan, J. Peischl, I. Pollack, D. Richter, D. Riemer, T. Ryerson, H. Schlager, J. St. Clair, J. Walega, P. Weibring, A. Weinheimer, P. Wennberg, A. Wisthaler, P. Wooldridge, and C. Ziegler, 2015: The Deep Convective Clouds and Chemistry (DC3) field campaign, *Bulletin of the American Meteorological Society*, **96**, 1281–1309, https://doi.org/10.1175/BAMS-D-13-00290.1.

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2014

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2013

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2012

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2011

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2010

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2009

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33. **Carey, L. D.**, J. Niu*, P. Yang, J. A. Kankiewicz, V. E. Larson, and T. H. Vonder Haar, 2008: The vertical profile of liquid and ice water content in midlatitude mixed-phase altocumulus clouds. *Journal of Applied Meteorology and Climatology*, **47**, 2487-2495. https://doi.org/10.1175/2008JAMC1885.1.

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29. Niu*, J., **L. D. Carey**, P. Yang, and T. H. Vonder Haar, 2008: Optical properties of a vertically inhomogeneous mid-latitude mid-level mixed-phase altocumulus in the infrared region. *Atmospheric Research*, **88,** 234-242. https://doi.org/10.1016/j.atmosres.2007.11.020.

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27. Steiger, S. M., R. E. Orville, and **L. D. Carey**, 2007: Total lightning signatures of thunderstorm intensity over North Texas, Part II: Mesoscale convective systems. *Monthly Weather Review*, **135**, 3303-3324. https://doi.org/10.1175/MWR3483.1.

26. Steiger, S. M., R. E. Orville, and **L. D. Carey**, 2007: Total lightning signatures of thunderstorm intensity over North Texas, Part I: Supercells. *Monthly Weather Review*, **135**, 3281-3302. https://doi.org/10.1175/MWR3472.1.

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23. Gauthier, M. L, W. A. Petersen, **L. D. Carey**, and H. J. Christian, Jr., 2006: Relationship between cloud-to-ground lightning and precipitation ice mass: A radar study over Houston. *Geophysical Research Letters,* **33***,* L20803. https://doi.org/10.1029/2006GL027244.

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22. Wang, J.-J. and **L. D. Carey**, 2005: The development and structure of an oceanic squall-line system during the South China Sea Monsoon Experiment. *Monthly Weather Review*, **133,** 1544-1561. https://doi.org/10.1175/MWR2933.1.

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18. Gauthier, M. L, W. A. Petersen, **L. D. Carey**, and R. E. Orville, 2005: Dissecting the anomaly. A closer look at the documented urban enhancement in summer season ground flash densities in and around the Houston area. *Geophysical Research Letters*, **32**, L10810. https://doi.org/10.1029/2005GL022725.

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.

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.

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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.

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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.

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.

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.

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.

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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.

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.

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.

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 Research Funding as UAH Principal Investigator (PI)

NASA KSC – Lightning Advisory Panel (LAP)	$ 42K
NASA MSFC – Precipitation Science & Measurements	$ 276K

Past Research Funding as Principal Investigator (PI)

NASA, NSF, NOAA, DoD, TVA, TCEQ	$ 8.63 Million

Professional Teaching Experience

2024	AES 672, *Dual-polarization Radar Meteorology*, Fall Semester, UAH AES 471/571, *Radar Meteorology*, Spring Semester, UAH
2023	AES 341, *Thermodynamic Meteorology*, Fall Semester, UAH AES 780/781, *Seminar/Student Seminar*, Fall Semester, UAH AES 471/571, *Radar Meteorology*, Spring Semester, UAH HON 499, *Honors Thesis*, Spring Semester, UAH AES 690, Special Topics: *Weather Radar Applications*, Spring and Fall Semesters, UAH
2022	AES 341, *Thermodynamic Meteorology*, Fall Semester, UAH AES 642, *Precipitation Physics for Radar*, Fall Semester, UAH ESS 471/ATS 571, *Radar Meteorology*, Spring Semester, UAH HON 499, *Honors Thesis*, Spring Semester, UAH
2021	ESS 341, *Thermodynamic Meteorology*, Fall Semester, UAH ATS 672, *Dual-polarization Radar Meteorology*, Fall Semester, UAH ESS 499, *Undergraduate Research*, Spring Semester, UAH ESS 471/ATS 571, *Introduction to Radar Meteorology*, Spring Semester, UAH ESS 454/ATS 554, *Forecasting Mesoscale Processes*, Spring Semester, UAH
2020	ESS 341, *Thermodynamic Meteorology*, Fall Semester, UAH (developed new undergraduate class) ATS 642, *Precipitation Physics for Radar*, Fall Semester, UAH ESS 471/ATS 571, *Introduction to Radar Meteorology*, Spring Semester, UAH ESS 454/ATS 554, *Forecasting Mesoscale Processes*, Spring Semester, UAH
2019	ESS 498, *Research & Professional Development Capstone,* Spring Semester, UAH ESS 471/ATS 571, *Introduction to Radar Meteorology*, Spring Semester, UAH

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

2018 ATS 672, *Dual-polarization Radar Meteorology*, Fall Semester, UAH
ESS 498, *Research & Professional Development Capstone,* Fall Semester, UAH (developed new 1 CH undergraduate class)
ESS 111, *Weather, Climate and Global Change*, Spring Semester, UAH
ATS 690 *ST: Supervised Teaching* (of Corey Amiot, PhD candidate, who student taught ATS 471/571, *Introduction to Radar Meteorology*), Spring Semester, UAH
ESS 499, *Undergraduate Research*, Spring Semester, UAH

2017 ATS 642, *Precipitation Physics for Radar*, Fall Semester, UAH, (developed new graduate class)
ESS 471/ATS 571, *Introduction to Radar Meteorology*, Spring Semester, UAH

2016 ATS 672, *Dual-polarization Radar Meteorology*, Fall Semester, UAH
ESS 498, *Undergraduate Capstone Proposal*, Fall Semester, UAH
ATS 690, *ST: GRA Capstone Research*, Fall Semester, UAH
ESS 471/ATS 571, *Introduction to Radar Meteorology*, Spring Semester, UAH
ESS 499, *Undergraduate Research*, Spring Semester, UAH

2015 FYE 101, *Charger Foundations*, Fall Semester, UAH
ATS 690, *Precipitation Physics for Radar*, Fall Semester, UAH
ESS 499, *Undergraduate Research*, Fall Semester, UAH
ESS 471/ATS 571, *Introduction to Radar Meteorology*, Spring Semester, UAH (developed new undergraduate/graduate class)
ESS 499, *Undergraduate Research*, Spring Semester, UAH
ESS 498, *Undergraduate Capstone Proposal*, Spring Semester, UAH

2014 ATS 672, *Dual-polarization Radar Meteorology*, Fall Semester, UAH
ATS490/590, *Introduction to Radar Meteorology*, Spring Semester, UAH
ESS 498, *Undergraduate Capstone Proposal*, Fall Semester, UAH

2013 ATS 672, *Dual-polarization Radar Meteorology,* Fall Semester, UAH (developed new graduate class)
ATS 690, *Precipitation Physics for Radar*, Spring Semester, UAH

2012 ATS 690, *ST: Dual-polarization Radar Meteorology*, Fall Semester, UAH
ATS 454/554, *Forecasting Mesoscale Processes*, Spring Semester, UAH

2011 ATS 690, *ST: Dual-polarization Radar Meteorology,* Spring Semester, UAH

2009 ATS 454/554, *Forecasting Mesoscale Processes*, Spring Semester, UAH

2008 Co-Instructor, ATS 690, *ST: Polarimetric Radar in Meteorology,* Fall Semester, UAH

2005-2006 ATMO489, *Radar Meteorology*, Fall Semester, Texas A&M University (TAMU)
(new undergraduate/graduate class)

2004-2007 ATMO352, *Severe and Mesoscale Weather Forecasting*, Spring Semester, TAMU

2004 ATMO689: *Polarimetric Radar Meteorology*, TAMU (new graduate class)

2003 ATMO201: *Atmospheric Science*, TAMU
MEA444: Mesoscale Analysis and Forecasting, North Carolina State University (NCSU)

2002 *MEA513: Radar Meteorology*, NCSU
MEA714: Atmospheric Convection, NCSU
Co-Instructor, *MEA140: Natural Hazards*, NCSU

2000 Co-Instructor, *AT741: Radar Meteorology,* Colorado State University (CSU)

Past Graduate Students Advised and Dissertation/Thesis Titles (4 PhD, 25 MS)

Bruno Medina, Ph.D., 2021: "Charge Structure in Central Argentina Thunderstorms: Characterization and Processes", University of Alabama in Huntsville
Sarah Stough, Ph.D., 2020: "Characterization of Supercell Thunderstorms Exhibiting Anomalous Charge Structures in the Southeastern United States", University of Alabama in Huntsville
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
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
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 QLCS 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
Christopher 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
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"
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	Kaitlyn Wheeler, University of Alabama in Huntsville, M.S. since 2024
Member	Vignesh Vasudevan Geetha, University of Alabama in Huntsville, Ph.D. since 2023
Chair	Kelly Carmer, University of Alabama in Huntsville, M.S. since 2023
Chair	Matthew Starke, University of Alabama in Huntsville, Ph.D. since 2022
Chair	Meredith Bean, University of Alabama in Huntsville, M.S. since 2022
Chair	Elizabeth Seiler, University of Alabama in Huntsville, M.S. since 2022
Chair	Joshua Huggins, University of Alabama in Huntsville, M.S. since 2022
Chair	Kiahna Mollette, University of Alabama in Huntsville, M.S. since 2022
Chair	Melissa Gonzalez-Fuentes, University of Alabama in Huntsville, M.S. since 2020
Member	Georgios Priftis, University of Alabama in Huntsville, Ph.D. since 2019
Chair	Austin Clark, University of Alabama in Huntsville, Ph.D. since 2019

Past

Chair	Benjamin Glass, University of Alabama in Huntsville, non-thesis M.S. completed 2024
Member	Lee Tiszenkel, University of Alabama in Huntsville, Ph.D. completed 2023
Chair	Clara Hochmuth, University of Alabama in Huntsville, non-thesis M.S. completed 2023
Chair	Shelby Melto, University of Alabama in Huntsville, non-thesis M.S. completed 2023
Member	Sebastian Harkema, University of Alabama in Huntsville, Ph.D. completed 2023
Chair	Mariama Feaster, University of Alabama in Huntsville, non-thesis M.S. completed 2023
Chair	J. Hunter Robinson, University of Alabama in Huntsville, non-thesis M.S. completed 2023
Member	Sydney Lybrand, University of Alabama in Huntsville, M.S. completed 2023
Chair	Corey Amiot, University of Alabama in Huntsville, Ph.D. completed 2023
Member	Michael Solomon, University of Alabama in Huntsville, M.S. completed 2023
Chair	Lena Heuscher, University of Alabama in Huntsville, Ph.D. completed 2023
Member	Michael Graham, University of Alabama in Huntsville, M.S. completed 2023
Chair	Amanda Richter, University of Alabama in Huntsville, M.S. completed 2022
Member	Preston Pangle, University of Alabama in Huntsville, M.S. completed 2022
Member	Adam Weiner, University of Alabama in Huntsville, M.S. completed 2022
Member	Peiyang Cheng, University of Alabama in Huntsville, Ph.D. completed 2022
Member	Dean Meyer, University of Alabama in Huntsville, M.S. completed 2022
Member	Matthew Starke, University of Alabama in Huntsville, M.S. completed 2022
Member	Jacquelyn Ringhausen, University of Alabama in Huntsville, Ph.D. completed 2021
Member	Shaina Wilburn, University of Alabama in Huntsville, non-thesis M.S. completed 2021
Member	Kelsey Thompson, University of Alabama in Huntsville, Ph.D. completed 2021
Chair	Douglas Khan, University of Alabama in Huntsville, M.S. completed 2020
Member	Kelcy Brunner, University of Alabama in Huntsville, Ph.D. completed 2020
Member	Kevin Bente, University of Alabama in Huntsville, non-thesis M.S., completed 2020
Member	Emily Foshee, University of Alabama in Huntsville, Ph.D. completed 2020
Member	Anthony Lyza, University of Alabama in Huntsville, Ph.D. completed 2019
Chair	Austin Clark, University of Alabama in Huntsville, M.S. completed 2019
Member	Brian Freitag, University of Alabama in Huntsville, Ph.D. completed 2019
Chair	Cameron Kowalski University of Alabama in Huntsville, non-thesis M.S., completed 2018

Chair	Megan McPeak, University of Alabama in Huntsville, non-thesis M.S., completed 2018
Chair	Kelby Gerhart, University of Alabama in Huntsville, non-thesis M.S., completed 2018
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
Chair	Marcus Hustedde, University of Alabama in Huntsville, non-thesis M.S., completed 2016
Chair	Patrick Burdick, University of Alabama in Huntsville, non-thesis M.S., completed 2016
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 Hulsey, 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	Katie Palermo, University of Alabama in Huntsville, non-thesis M.S., completed 2010
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	Kelsey Sippel, Texas A&M University, non-thesis M.S., completed 2006
Member	Kaycee Frederick, Texas A&M University, M.S., completed 2006
Member	Michael Gauthier, University of Alabama Huntsville, 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/Supervised

2023	University of Alabama in Huntsville: Emma Koontz (Summer RCEU)
2022	University of Alabama in Huntsville: Eliana Carter (Honors Capstone Summer Research)
2021	University of Alabama in Huntsville: Justin Province (Honors Capstone Summer Research)
2020	University of South Alabama: Mitchell Tsokatos (Summer Remote Sensing REU)
2019	University of Alabama in Huntsville: Shelby Bagwell (Summer RCEU); Mississippi State University: Christopher Pipkin (Summer Remote Sensing REU)
2018 – 2019	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 Paolo, Brazil
2012	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 - 2020	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 Haliczer, 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

1994 - now	Member, *American Geophysical Union*
1994 - now	Member, *American Meteorological Society*
2001 - 2019	Member, *National Weather Association*

Reviewer of Articles for the Following Peer-Reviewed Journals (year of first reviewer service)

2024 *npj Climate and Atmospheric Science*
2021 *Earth and Space Science*
2020 *Applied Sciences (MDPI)*
2019 *Sensors (MDPI)*
2018 *Remote Sensing (MDPI)*
2017 *Atmosphere (MDPI)*
2016 *Journal of Atmospheric and Solar Terrestrial Physics*
2008 *Weather and Forecasting*
2008 *Atmospheric Research*
2005 *Journal of Climate*
2004 *IEEE Transactions on Geosciences and Remote Sensing*.
2004 *Journal of Atmospheric Science*
2004 *Annales Geophysicae*
2002 *Bulletin of the American Meteorological Society*
2002 *National Weather Digest*
2002 *Radio Science*
2001 *Quarterly Journal of the Royal Meteorological Society*
2000 *Monthly Weather Review*
1999 *Journal of Hydrometeorology*
1999 *Geophysical Research Letters*
1998 *Journal of Applied Meteorology (and Climatology)*
1997 *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 *Journal of Geophysical Research*, *Atmospheres*

Panel Reviews

2021 Atmospheric System Research, Office of Biological & Environmental Research (BER), Department of Energy (DOE) Office of Science
2020 NASA ROSES 2019 Program Announcement
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
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

Reviewer of Grant Applications for the Following Agencies

European Research Council (ERC)
Israeli Science Foundation (ISF)
French National Research Agency (ANR)
Department of Energy (DOE),
- Atmospheric Radiation Measurement (ARM)
- Atmospheric System Research (ASR)
- Postdoctoral Fellowship

National Aeronautics and Space Administration (NASA),
- Research Opportunities in Space and Earth Science (ROSES)
- Tropical Cloud Systems and Processes (TCSP)
- Precipitation Measurement Missions (PMM)
- Tropical Rainfall Measurement Mission (TRMM)

Postdoctoral Program
National Science Foundation (NSF)
Pathways into the Earth, Ocean, Polar and Atmospheric & Geospace Sciences (GEOPAths)
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 (PDM)
AGS – Educational Linkages

Invited Seminars and Presentations

2021 Invited Keynote Speaker, *Society of Research Administrators International*, Joint Section Meeting

2019 Invited Speaker, *AGU Fall Meeting 2019*, A52B-01, "Advances in Radar Remote Sensing of Clouds and Precipitation", American Geophysical Union (AGU), San Francisco, CA

2019 Invited Seminar, *University of Nebraska – Lincoln, Earth and Atmospheric Sciences*, Lincoln, Nebraska

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*, Department of Atmospheric Sciences, 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, *Texas A&M Chapter of the American Meteorological Society (TAMSCAMS)*, College Station, TX

2004 Invited Seminar, *NASA Goddard*, *Tropical Rainfall Measuring Mission Validation Office*, Greenbelt, MD

2004 Invited Seminar, *Texas A&M University*, *Department of Atmospheric Sciences,* College Station, TX

2003 Invited Seminar, *Texas A&M Chapter of the American Meteorological Society (TAMSCAMS),* College Station, TX

2003 Invited Seminar, *National Severe Storms Lab (NOAA-NSSL)*, Norman, OK

2002 Invited Seminar, *Texas A&M University, Department of Atmospheric Science*, College Station, TX

2002 Invited Seminar, *Raleigh Forecast Office of the National Weather Service (NWS)*, Raleigh, NC

2002 Invited Seminar, *Central North Carolina Chapter of the American Meteorological Society*, Research Triangle Park, NC

2002 Invited Speaker, *NASA - NWS Joint Symposium on Short-Term Forecasting and the Convective Weather Warning Process in the Southeastern United States*, Huntsville, AL

2002 Invited Seminar, *Department of Marine, Earth and Atmospheric Sciences, North Carolina State University*, Raleigh, NC

2002 Invited Seminar, *North Carolina State University, Student Chapter of the American Meteorological Society*, Raleigh, NC

2001 Invited Seminar, *Department of Meteorology, University of Wyoming*, Laramie, WY

2000 Invited Seminar, *Department of Meteorology*, *University of Utah*, Salt Lake City, UT

2000 Invited Seminar, *Department of Marine, Earth and Atmospheric Sciences*, *North Carolina State University*, Raleigh, NC

2000 Invited Seminar, *Institute of Atmospheric Physics, ETH*, Zurich, Switzerland

1998 Invited Seminar, *University of Northern Colorado*, Greeley, CO

Professional Activities

2023 Session Proposer and Organizer, Community-driven topic: Polarimetric Radar Studies of Atmospheric Electricity and Lightning, Oral and Poster Sessions, *AMS 40th Conference on Radar Meteorology*, Minneapolis, MN, 28 August – 1 September 2023.

2022 – 2023 Graduate Director, *Department of Atmospheric & Earth Science (AES)*, UAH

2022 – Now Chair, NASA & US Space Force *Lightning Advisory Panel (LAP*)

2022 Speaker, Joint Session J15C, "Results from Recent Field Campaigns", Joint with the *31st Conference on Weather Analysis and Forecasting (WAF)/27th Conference on Numerical Weather Prediction (NWP) and 19th Conference on Mesoscale Processes*, American Meteorological Society 102nd Annual Meeting, Houston, TX and Virtual, 23-27 January 2022.

2021 Co-Moderator, *Virtual Workshop on Atmospheric Science Applications of Ground-Based Phased Array Radars*, Breakout Session on "Storm Electrification and Hail", 25 May 2021.

2020 – 2022 *Atmosphere*, Editorial Board Member

2019 – 2022 Member, NASA & US Space Force *Lightning Advisory Panel (LAP)*

2019 Invited Speaker, *AGU Fall Meeting*, Advances in Radar Remote Sensing of Clouds and Precipitation, American Geophysical Union (AGU), San Francisco, CA, 9-13 December 2019.

2019 Speaker (Remote), RELAMPAGO-CACTI Data Analysis Workshop (DAW), "Lightning" Session, Buenos Aires, Argentina.

2019 Session Chair, Session 3: Global Lightning Casualties, *Ninth Conference on the Meteorological Applications of Lightning Data*, American Meteorological Society 99th Annual Meeting, Phoenix, AZ, 6-10 January 2019.

2018 Session Co-chair, Meteorology and Severe Weather 3, *2018 International Lightning Detection Conference (ILDC)/International Lightning Meteorology Conference (ILMC)*, 12-15 March 2018, Fort Lauderdale, FL.

2017 – 2022 Lightning Scientist and PI, *NSF RELAMPAGO* (Remote sensing of Electrification, Lightning, And Mesoscale/microscale Processes with Adaptive Ground Observations), which also translates to "lightning", field project.

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 – 2022 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", A*MS 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

2015 – Now Associate Director*, Earth System Science Center (ESSC)*, UAH

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 – 2019 Member, American Meteorological Society (AMS) Scientific and Technological Activities Commission (STAC) *Committee on Radar Meteorology*

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 NOx 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 NOx 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-convener, 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", 3*6th 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 – 2009 Chair, American Meteorological Society (AMS) Scientific and Technological Activities Commission (STAC) *Committee on Atmospheric Electricity*

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 Member, American Meteorological Society (AMS) Scientific and Technological Activities Commission (STAC) *Committee on Atmospheric Electricity*

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

2024 Judge, *70th Annual North Alabama Regional Science & Engineering Fair (NARSEF)*, 6 March 2024, Huntsville, Alabama, Junior and Senior Divisions

2023 – 2024 Invited Panelist, Faculty/Scientist Researchers, *Rocket City WeatherFest*

2014 – 2023 Public Tour Leader, VIP tours, Severe Weather Institute - Radar & Lightning Laboratory (SWIRLL)

2014 – 2018 Rocket City WeatherFest, Booth volunteer representing UAH, 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.

2007 White Paper, "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 *)

2024

Exploring environmental and aerosol impacts on maritime tropical convection using airborne radiometer, radar, lidar, and dropsondes, *104th AMS Annual Meeting, 16th Symposium on Aerosol Cloud Climate Interactions,* Baltimore, MD, 28 January – 1 February 2024, (C. G. Amiot, T. J. Lang, S.C. van den Heever, C. Hostetler, O. Sy, **L. D. Carey**, S. Christopher, J. Mecikalski, G. G. Mace, S. W. Freeman, G. A. Sokolowsky, and S. Tanelli).

2023

Polarimetric radar characteristics of weakly electrified clouds over the Eastern Range, Poster #44, *AMS 40th Conference on Radar Meteorology*, Minneapolis, MN, 28 August – 1 September 2023, (**L. D. Carey**, E. Koontz, and K. L. Cummins).

2022

Radar Characteristics of non-thunderstorm electrified clouds at the Kennedy Space Center and Cape Canaveral Space Force Station, AE15A-1447, *Fall Meeting 2022, AGU*, iPoster, 12-16 December 2022, (**L. D. Carey** and K. L. Cummins).

Mesoscale Properties and Processes Associated with Anomalous Charge Structures in Thunderstorms during RELAMPAGO, Paper J15C.1, *102nd American Meteorological Society Annual Meeting, Joint with the 31st Conference on Weather Analysis and Forecasting (WAF)/27th Conference on Numerical Weather Prediction (NWP) and 19th Conference on Mesoscale Processes*, Houston, TX and Virtual, 23-27 January 2022, (**L. D. Carey**, B. L. Medina*, T. J. Lang, W. Deierling, and P. Bitzer).

The Mobile Atmospheric Profiling Network (MAPNet): Capabilities and Research Applications, Poster 154, *102nd American Meteorological Society Annual Meeting, 19th Conference on Mesoscale Processes,* Houston, TX and Virtual, 23-27 January 2022, (**L. D. Carey**, K. Knupp, R. Wade, P. Pangle, and D. Phillips).

2021

Environmental Conditions Associated with the Development of Anomalous Charge Structures in Central Argentinian Thunderstorms, Paper AE12A-07, *Fall Meeting 2021, AGU*, New Orleans, LA & Online Everywhere, 13-17 December 2021, (B. L. Medina*, **L. D. Carey**, T. J. Lang, W. Deierling and P. M. Bitzer).

The Mobile Atmospheric Profiling Network (MAPNet): Capabilities and Research Applications, Paper A55M-1568, *Fall Meeting 2021, AGU*, New Orleans, LA & Online Everywhere, 13-17 December 2021, (K. R. Knupp, **L. D. Carey**, R. A. Wade, D. Phillips, and P. Pangle).

Automated and objective thunderstorm identification and tracking using operational Geostationary Lightning Mapper (GLM) data, Paper 5.5, *101st American Meteorological Society Annual Meeting, 10th Conference on the Meteorological Application of Lightning Data,* Virtual, 10-15 January 2021, (K. M. Murphy, C. J. Schultz, K. M. Calhoun, and **L. D. Carey**).

Case study of a supercell thunderstorm in the Sierras de Córdoba region of Argentina during the RELAMPAGO project, Paper 143, *101st American Meteorological Society Annual Meeting, 20th Annual Student Conference,* 10-15 January 2021, (M. Tsokatos*, **L. D. Carey**, B. L. Medina*).

2020

Electrical, kinematic, and microphysical contrasts between supercells exhibiting normal and anomalous charge structures in the Southeastern United States, Paper AE011-01, *Fall Meeting 2020*, *AGU*, Virtual, 1-17 December 2020, (S. M. Stough*, **L. D. Carey**, C. J. Schultz, and D. J. Cecil).

A method to retrieve charge layer polarity applied to anomalous thunderstorms in Cordoba during the RELAMPAGO field campaign, Paper AE010-04, *Fall Meeting 2020*, *AGU*, Virtual, 1-17 December 2020, (B. L. Medina*, **L. D. Carey**, P. M. Bitzer, T. J. Lang, and W. Deierling).

Automated and objective thunderstorm identification and tracking using Operational Geostationary Lightning Mapper (GLM) data, Oral 4.2A, *100th American Meteorological Society Annual Meeting, 16th Annual Symposium on New Generation Operational Environmental Satellite Systems*, Boston, MA, 12-16 January 2020, (K. M. Murphy, **L. D. Carey**, C. J. Schultz, and N. Curtis).

A comparison of layered lightning and ice processes in stratiform precipitation, Poster S142, *100th American Meteorological Society Annual Meeting, 19th Annual Student Conference,* Boston, MA, 12-16 January 2020, (S. Bagwell* and **L. Carey**).

Comparing radar tornadic debris signature properties to damage and land classifications, Poster S197, *100th American Meteorological Society Annual Meeting, 19th Annual Student Conference*, Boston, MA, 12-16 January 2020, (C. A. Pipkin Jr.* and **L. D. Carey**).

2019

Microphysical process studies of severe storms using C-band dual-polarization radar (invited), Oral A52B-01, *Fall Meeting 2019, AGU*, San Francisco, CA, 9-13 December 2019, (**L. D. Carey**, S. M. Stough*, B. Medina*, and C. Amiot*).

Lightning and electrical properties of a high flash rate multicellular thunderstorm during RELAMPAGO, Poster AE11A-3186, *Fall Meeting 2019, AGU*, San Francisco, CA, 9-13 December 2019, (**L. D. Carey** and B. Medina*).

Observations of anomalous charge structures in supercells in the Tennessee Valley, Oral AE21A-03, *Fall Meeting 2019, AGU*, San Francisco, CA, 9-13 December 2019, (S. M. Stough* and **L. D. Carey**).

Characterization of charge structure and lightning in Argentinian thunderstorms, Poster AE11A-3188, *Fall Meeting 2019, AGU*, San Francisco, CA, 9-13 December 2019, (B. Medina* and **L. D. Carey**).

The RELAMPAGO lightning mapping array: Preliminary scientific results and application to GLM calibration and validation, eLightning AE43A-10, *Fall Meeting 2019, AGU*, San Francisco, CA, 9-13 December 2019, (T. J. Lang, R. J. Blakeslee, E. E. Avila, M. T. Wingo, J. Burchfield, **L. D. Carey**, W. Deierling, B. Medina*, and P. M. Bitzer).

Relating spectrum-width-derived eddy dissipation rate to lightning characteristics, Paper 15B-03, *AMS 39th International Conference on Radar Meteorology*, Nara, Japan, 16-20 September 2019, (W. Deierling, **L. Carey**, T. Lang, G. Meymaris, and J. Williams).

Automated and objective thunderstorm identification and tracking using Operational Geostationary Lightning Mapper (GLM) data, Poster 3.45, *2019 National Weather Association Annual Meeting*, Huntsville, AL, 8-12 September 2019, (K. Murphy, **L. Carey**, C. Schultz, and N. Curtis).

Characterization of optical energy output in thunderstorms to enhance severe thunderstorm identification, J2.3, *2019 National Weather Association Annual Meeting*, Huntsville, AL, 8-12 September 2019, (C. J. Schultz, K. Murphy, **L. D. Carey**, P. M. Bitzer, K. Calhoun, and E. C. Bruning).

Lightning observations during the RELAMPAGO field campaign, Poster 277, *99th American Meteorological Society Annual Meeting, Ninth Conference on the Meteorological Application of Lightning Data*, Phoenix, AZ, January 6-10, 2019, (W. Deierling, **L. Carey**, P. M. Bitzer, R. Marshall, A. Antunes de Sa, A. Sousa, J. Burchfield, B. L. Medina*, and T. J. Lang).

Early results from the RELAMPAGO Lightning Mapping Array, Poster 1014, *99th American Meteorological Society Annual Meeting, 15th Annual Symposium on New Generation Operational Environmental Satellite Systems*, 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 15th Annual Symposium on New Generation Operational Environmental Satellite Systems*, 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, 15th Annual Symposium on New Generation Operational Environmental Satellite Systems, 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, Paper 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 Lighting 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 Tornadic and Nontornadic 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-NOx 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-NOx 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, A*MS 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 QLCSs, 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. Roohr, 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, 39*th 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 NOx 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, 38*th 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, 38*th 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).

The GOES-R Geostationary Lightning Mapper (GLM), Abstract AE11A-01, presented at *2012 Fall Meeting, AGU*, San Francisco, December 3-7, 2012 (S. J. Goodman, R. J. Blakeslee, W. J. Koshak, D. M. Mach, J. C. Bailey, D. E. Buechler, **L. D. Carey**, C. J. Schultz*, M. G. Bateman, E. McCaul Jr., G. T. Stano).

An overview of the lightning – atmospheric chemistry aspects of the Deep Convective Clouds and Chemistry (DC3) Experiment, Abstract AE12A-02, presented at *2012 Fall Meeting, AGU*, San Francisco, December 3-7, 2012 (K. E. Pickering, M. C. Barth, K. Cummings, E. J. Bucsela, D. J. Allen, A. J. Weinheimer, T. B. Ryerson, H. Huntrieser, E. C. Bruning, D. R. MacGorman, M. I. Biggerstaff, P. R. Krehbiel, R. J. Thomas, S. A. Rutledge, W. J. Koshak, **L. D. Carey**).

Mid-latitude coastal DSD variability observed at the NASA Wallops Precipitation Research Facility: GPM Ground Validation context, Abstract H31M-07, presented at *2012 Fall Meeting, AGU*, San Francisco, December 3-7, 2012 (W. A. Petersen, D. B. Wolff, **L. D. Carey**, A. Tokay, P. N. Gatlin, V. N. Bringi, M. Thurai).

An overview of the 2 March 2012 morning tornadic supercells across Northern Alabama, Poster 7, *AMS 26th Conference on Severe Local Storms*, Nashville, TN, November 5-8, 2012, (A. L. Bain*, **L. Carey**, C. J. Schultz*, M. Saari, A. Sherrer, and K. Knupp).

Integration of the total lightning jump algorithm into current operational warning environment conceptual models, Poster 32, *AMS 26th Conference on Severe Local Storms*, Nashville, TN, November 5-8, 2012, (C. J. Schultz*, **L. D. Carey**, E. V. Schultz, G. T. Stano, P. N. Gatlin, D. Kozlowski* and S. Goodman).

An inter-comparison of S-band and C-band polarimetric radar signatures of large hail and tornado debris on 2 March 2012, Poster 33, *AMS 26th Conference on Severe Local Storms*, Nashville, TN, November 5-8, 2012, (**L. D. Carey**, C. J. Schultz*, A. L. Bain*, A. Sherrer, K. R. Knupp, B. Carcione, C. C. Crowe, C. B. Darden, and M. E. Anderson).

Nowcasting wet downbursts using polarimetric radar, Poster 44, *AMS 26th Conference on Severe Local Storms*, Nashville, TN, November 5-8, 2012, (M. Scott, **L. Carey**, E. V. Schultz, and W. P. Roeder).

Operational use of polarimetric tornadic debris signatures, Paper 16.5, *AMS 26th Conference on Severe Local Storms*, Nashville, TN, November 5-8, 2012, (T. Johnstone, S. E. Nelson, L. Belanger, M. E. Anderson, K. B. Laws, B. Carcione, C. J. Schultz* and **L. D. Carey**).

Radar applications for nowcasting lightning cessation, Paper A3.2, *NWA 37th Annual Meeting*, Madison, WI, October 6-11, 2012, (E. V. Schultz, G. T. Stano, **L. D. Carey**, and W. A. Petersen).

Lightning jump algorithm and relation to thunderstorm cell tracking, GLM proxy and other meteorological measurements, Paper E13.5, *NWA 37th Annual Meeting*, Madison, WI, October 6-11, 2012, (C. J. Schultz*, **L. D. Carey**, D. J. Cecil, and M. Bateman).

An overview of the total lightning jump algorithm: past, present and future work, *10th Annual Southeast Severe Storms Symposium*, March, 3, 2012, Starkville, MS, (C. J. Schultz, **L. D. Carey**, W. A. Petersen, W. Deierling, and C. Kessinger).

Dual-polarimetric radar-based tornado debris signatures and paths associated with tornadoes over northern Alabama during the historic outbreak of 27 April 2011, Paper J2.2, *Special Symposium on the Tornado Disasters of 2011, AMS 92nd Annual Meeting*, January 22-26, 2012, (C. J. Schultz, **L. D. Carey**, E. V. Schultz, W. A. Petersen, P.N. Gatlin, K. R. Knupp, A. L. Molthan, G. J. Jedlovec, B. Carcione, C. B. Darden, and C. C. Crowe).

A radar rainfall estimation tool for water resources management in California, Paper 8.2, *26th Conference on Hydrology*, *AMS 92nd Annual Meeting*, January 22-26, 2012, (P. N. Gatlin, **L. D. Carey**, and M. Felix Scott).

High resolution observations of drop size distribution for GPM ground validation, Paper 174, *18th Conference on Satellite Meteorology, Oceanography and Climatology, AMS 92nd Annual Meeting*, January 22-26, 2012, (P. N. Gatlin, W. A. Petersen, **L. D. Carey**, M. T. Wingo, A. Tokay, V. N. Bringi, M. Thurai, D. B. Wolff, and D. W. Phillips).

Regional comparison of GOES cloud-top properties, radar characteristics and lightning initiation, Paper 12A.2, *18th Conference on Satellite Meteorology, Oceanography and Climatology, AMS 92nd Annual Meeting*, January 22-26, 2012, (J. R. Mecikalski, X. Li, **L. Carey**, T. Coleman, E. W. McCaul, Jr.).

2011

Inter-comparison of convective cell-based lightning trends from ground-based networks: Applications toward GLM, Abstract AE31A-0265, presented at *2011 Fall Meeting, AGU*, San Francisco, 5-9 December, (**L. D. Carey**, C. J. Schultz, M. G. Bateman, D. J. Cecil, K. L. Cummins, S. D. Rudlosky, W. A. Petersen, R. J. Blakeslee, S. J. Goodman, and S. Heckman).

Coupling between Doppler radar signatures and tornado damage tracks, Abstract NH32A-03, presented at *2011 Fall Meeting, AGU*, San Francisco, 5-9 December, (G. Jedlovec, A. Molthan, **L. D. Carey**, B. Carcione, M. R. Smith, E. V. Schultz, F. Lafontaine, C. J. Schultz).

Total lightning within electrified snowfall using LMA, NLDN and WTLN measurements, Abstract AE12A-03, presented at *2011 Fall Meeting, AGU*, San Francisco, 5-9 December, (C. J. Schultz, E. C. Bruning, **L. D. Carey**, W. A. Petersen, and S. Heckman).

GLM proxy data generation: Methods for stroke/pulse level inter-comparison of ground-based lightning reference networks, Abstract AE33A-0287, presented at *2011 Fall Meeting, AGU*, San Francisco, 5-9 December, (K. L. Cummins, **L. D. Carey**, C. J. Schultz, M. G. Bateman, D. J. Cecil, S. D. Rudlosky, W. A. Petersen, R. J. Blakeslee, S. J. Goodman).

The CHUVA lightning mapping campaign, Abstract AE33A-0280, presented at *2011 Fall Meeting, AGU*, San Francisco, 5-9 December, (S. J. Goodman, R. J. Blakeslee, J. C. Bailey, **L. D. Carey**, H. Hoeller, R. I. Albrecht, L. A. Machado, C. Morales, O. Pinto, M. M. Saba, K. Naccarato, N. Hembury, A. Nag, S. Heckman, R. H. Holzworth, S. D. Rudlosky, H.-D. Betz, R. Said, and K. Rauenzahn).

Spatial correlations of rain drop size distribution from polarimetric radar and 2D-video disdrometers, Abstract H43C-1215, presented at *2011 Fall Meeting, AGU*, San Francisco, 5-9 December, (M. Thurai, V. Bringi, P. N. Gatlin, M. Wingo, W. A. Petersen, and **L. D. Carey**).

Dual-polarimetric radar-based tornado debris paths associated with EF-4 and EF-5 tornadoes over northern Alabama during the historic outbreak of 27 April 2011, 36*th NWA Annual Meeting*, Paper 5, Session III, October 15-20, 2011, Birmingham, AL, (**L. D. Carey**, C. J. Schultz, E. V. Schultz, W. A. Petersen, P. N. Gatlin, K. R. Knupp, A. L. Molthan, G. J. Jedlovec, and C. Darden).

The use of dual polarimetric tornadic debris signatures in an operational setting, 36*th NWA Annual Meeting*, Paper 7, Session III, October 15-20, 2011, Birmingham, AL, (C. J. Schultz, E. V. Schultz, C. B. Darden, B. C. Carcione, C. C. Crowe, D. J. Nadler, **L. D. Carey**, W. A. Petersen, P. N. Gatlin, and K. R. Knupp).

An overview of the total lightning jump algorithm: Past, present and future work, 36*th NWA Annual Meeting*, P1.9, October 15-20, 2011, Birmingham, AL, (C. J. Schultz, W. A. Petersen, **L. D. Carey**, W. Deierling, and C. Kessinger).

C-band dual-polarimetric radar signatures of hail, 36*th NWA Annual Meeting*, Poster 1.11, Poster Session 1, October 15-20, 2011, Birmingham, AL, (M. E. Anderson*, **L. D. Carey**, W. A. Petersen and K. R. Knupp).

The kinematic, microphysical and electrical characteristics of the 27 April 2011 Cullman EF-4 tornadic thunderstorm, 36*th NWA Annual Meeting*, P1.39, Poster Session 1, October 15-20, 2011, Birmingham, AL, (E. V. Schultz, C. J. Schultz, W. A. Petersen, **L. D. Carey**, and K. R. Knupp).

Evaluation of dual-polarimetric radar in a physically-based lightning cessation Nowcasting application, 36*th NWA Annual Meeting*, P2.11, Poster Session 2, October 15-20, 2011, Birmingham, AL, (E. V. Schultz, **L. D. Carey** and W. A. Petersen).

Use of dual-polarization radar to assess low-level wind shear in severe thunderstorm near-storm environments in the Tennessee Valley, 36*th NWA Annual Meeting*, Paper 2, Session IX, October 15-20, 2011, Birmingham, AL, (C. C. Crowe, C. J. Schultz, M. Kumjian, **L. D. Carey**, and W. A. Petersen).

NREPS applications for water supply and management in California and Tennessee, 36*th NWA Annual Meeting*, Poster 4.26, NWA/GUC Joint Poster Session, October 15-20, 2011, Birmingham, AL, (P. N. Gatlin, M. Felix Scott, and **L. D. Carey)**.

Sensitivity of C-band polarimetric radar-based drop size distribution measurements to maximum diameter assumptions, Paper 14B.3, *AMS 35th Conference on Radar Meteorology*, Pittsburgh, PA, September 26-30, 2011, (**L. D. Carey** and W. A. Petersen).

C-band dual-polarimetric observations of snowfall in a southeastern thundersnow event, Poster 209, *AMS 35th Conference on Radar Meteorology*, Pittsburgh, PA, September 26-30, 2011, (C. J. Schultz, W. A. Petersen, **L. D. Carey**, and E. C. Bruning).

Case study of a winter precipitation event using three 2D-video disdrometers and ARMOR radar, Poster 203, *AMS 35th Conference on Radar Meteorology*, Pittsburgh, PA, September 26-30, 2011, (G.-J. Huang, V. N. Bringi, W. A. Petersen, **L. Carey**, C. J. Schultz, and P. N. Gatlin).

Exploring the use of radar for a physically based lightning cessation Nowcasting tool, Paper 14B.2, *AMS 35th Conference on Radar Meteorology*, Pittsburgh, PA, September 26-30, 2011, (E. V. Schultz, W. A. Petersen, and **L. D. Carey**).

Lightning initiation forecasting: An operational dual-polarimetric radar technique, Poster 85, *AMS 35th Conference on Radar Meteorology*, Pittsburgh, PA, September 26-30, 2011, (C. J. Woodard*, **L. D. Carey**, W. A. Petersen, and W. P. Roeder).

Drop shapes versus fall velocities in rain: 2 contrasting examples, Paper 8A.5, *AMS 35th Conference on Radar Meteorology*, Pittsburgh, PA, September 26-30, 2011, (M. Thurai, V. N. Bringi, W. A. Petersen, **L. D. Carey**, P. N. Gatlin, and A. Tokay).

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