

## **Bibliography of Tornado Research Current**

1. Storm Prediction Center, 2000: Total cost of damage (most recent) by state, 1950-1996. *statemaster.com*
2. Changnon, S. A., 2009: Tornado Losses in the United States. *Natural Hazards Review*, Vol. 10, Issue 4, 145-150.
3. Storm Prediction Center, 2000: Tornadoes and deaths by year and month, 1950-1999. *spc.noaa.gov*
4. Simmons, K. M., and Sutter, D., 2009: False Alarms, Tornado Warnings, and Tornado Casualties. *Weather, Climate, and Society*, 1: 38-53.
5. Simmons, K. M., and Sutter, D., 2008: Tornado Warnings, Lead Times, and Tornado Casualties: An Empirical Investigation. *Weather and Forecasting*, 23: 246-258.
6. Brooks, H. E., Doswell, C. A., and Sutter, D., 2008: Low-Level Winds in Tornadoes and Potential Catastrophic Tornado Impacts in Urban Areas. *Bulletin of the American Meteorological Society*, 89: 87-90.
7. OFCM/SDR, 2007: Multifunction Phased Array Radar (MPAR) Symposium Summary Report. *Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM), and the U.S. Office of Science and Technology Policy, Committee on Environment and Natural Resources, Subcommittee on Disaster Reduction*
8. McLaughlin, D. J., V. Chandrasekar, K. Droegemeier, S. Frasier, J. Kurose, F. Junyent, B. Philips, S. Cruz-Pol, and J. Colom, 2005: Distributed Collaborative Adaptive Sensing (DCAS) for Improved Detection, Understanding, and Prediction of Atmospheric Hazards. *9<sup>th</sup> Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS), American Meteorological Society*
9. Philips, B., Chandrasekar, V., Brotzge, J., Zink, M., Rodriguez, H., League, C., and Diaz, W., 2010: Performance of the CASA radar network during the May 13, 2009 Anadarko tornado. *15<sup>th</sup> Symposium on Meteorological Observation and Instrumentation, American Meteorological Society*
10. Krasilnikov, E. Y., 1994: Solar power station: Energy source for suppression of destructive tropical cyclonic hurricanes. *45<sup>th</sup> International Astronautical Congress, Jerusalem, Israel, Oct. 9-14*
11. Krasilnikov, E. Y., and Smakhtin, A. P., 1995: Microwave power from space for suppression of destructive tropical hurricanes. *46<sup>th</sup> International Astronautical Congress, Oslo, Norway, Oct. 2-6*
12. Eastlund, B. J., 1998: Systems considerations of "Weather modification experiments using high power electromagnetic radiation". *Workshop on Space Exploration and Resources Exploitation, ExploSPACE, European Space Agency*
13. Eastlund, B. J., 1999: Mesocyclone Diagnostic Requirements for the Thunderstorm Solar Power Satellite Concept. *Proceedings of The Second Conference on the Applications of Remote Sensing and GIS for Disaster Management*
14. Eastlund, B. J., and Jenkins, L. M., 2007: Taming Tornadoes Storm Abatement from Space. *Aerospace and Electronic Systems Magazine*, Vol. 22, Issue 6, 16-21.
15. Fiala, P., Sadek, V., and Kriz, T., 2008: Numerical Modeling of Electromagnetic Field a Tornado. *Progress In Electromagnetics Research Symposium, Hangzhou, China, 1193-1197.*

16. Rossow, V. J., 1966: Meteorology: A Short Circuit for Tornadoes. *Time*, Friday, Nov. 25.
17. Teramoto, K., and Ikeya, M., 2000: Experimental Study of Cloud Formation by Intense Electric Fields. *Japanese Journal of Applied Physics*, Vol. 39, Issue 5A, 2876.
18. Ikeya, M., 2004: Earthquakes and Animals: From Folk Legends to Science. *World Scientific Publishing Company*, pg. 178 in 295.
19. MacGorman, D. R., and Rust, W. D., 1998: The Electrical Nature of Storms. *Oxford University Press*, pgs. 52, 57, 73, 106, 110, 118, 164, 192 in 422.
20. Krasilnikov, E. Y., 2002: Prevention of destructive tropical and extratropical storms, hurricanes, tornadoes, dangerous thunderstorms, and catastrophic floods. *Nonlinear Processes in Geophysics*, 9: 51-59.
21. Okuda, H., and Kelly, A. J., 1996: Electrostatic atomization — Experiment, theory and industrial applications. *Physics of Plasmas*, 3: 2195.
22. Hall, R. J., 2008: Ionization energies. [wikipedia.org](http://wikipedia.org)
23. Nishida, K., Kiriya, K., Kanaya, T., Kaji, K., and Okubo, T., 2004: Theoretical calculation of the reduced viscosity of aqueous suspensions of charged spherical particles. *Journal of Polymer Science Part B: Polymer Physics*, 42 (6): 1068-1074.
24. Wood, T. L., Corke, T. C., and Post, M., 2010: Plasma actuators for drag reduction on wings, nacelles and/or fuselage of vertical take-off and landing aircraft. *United States Patent Application*, 20100224733.
25. El-Khabiry, S., and Colver, G. M., 2011: Drag reduction by DC corona discharge along an electrically conductive flat plate for small Reynolds number flow. *Physics of Fluids*, 9(3): 587.
26. Vonnegut, B., Moore, C. B., and Harris, C. K., 1960: Stabilization of a high-voltage discharge by a vortex. *Journal of the Atmospheric Sciences*, 17: 468-471.
27. Anderson, F. J., Freier, G. D., Liu, C. C., and Tam, F. M., 1966: The Electric Field Changes during Tornadoes Compared with Other Severe Thunderstorms. *Journal of Geophysical Research*, Vol. 71, 4279.
28. Winn, W. P., Hunyady, S. J., and Aulich, G. D., 2000: Electric field at the ground in a large tornado. *Journal of Geophysical Research*, Vol. 105, Issue D15, 20145-20154.
29. Burgess, D., 2006: Storm Electricity Aspects of the Blackwell/Udall Storm of 25 May 1955. [srh.noaa.gov](http://srh.noaa.gov)
30. Church, C. R., and Barnhart, B. J., 1979: A review of electrical phenomena associated with tornadoes. *11<sup>th</sup> Conference on Severe Local Storms, American Meteorological Society*, 342-377.
31. Markowski, P., Majcen, M., Richardson, Y., Marquis, J., and Wurman, J., 2011: Characteristics of the Wind Field in a Trio of Nontornadic Low-Level Mesocyclones Observed by the Doppler On Wheels Radars. *E-Journal of Severe Storms Meteorology, North America*, 610 04 2011
32. Beaty, W. J., 2009: Why does smoke "ring"? [amasci.com](http://amasci.com)
33. Lemon, L. R., and Doswell, C. A., 1979: Severe Thunderstorm Evolution and Mesocyclone Structure as Related to Tornadogenesis. *Monthly Weather Review*, 107: 1184-1197.
34. Davies-Jones, R., 1984: Streamwise Vorticity: The Origin of Updraft Rotation in Supercell Storms. *Journal of the Atmospheric Sciences*, 41: 2991-3006.

35. Klemp, J. B., 1987: Dynamics of Tornadic Thunderstorms. *Annual Review of Fluid Mechanics*, Vol. 19.
36. Lilly, D. K., and Jewett, B. F., 1990: Momentum and Kinetic Energy Budgets of Simulated Supercell Thunderstorms. *Journal of the Atmospheric Sciences*, 47: 707-726.
37. Doswell, C. A., and Burgess, D. W., 1992: Tornadoes and Tornadic Storms: A Review of Conceptual Models. *American Geophysical Union*, 161-172.
38. Davies-Jones, R. P., 1995: Tornadoes. *Scientific American*, Vol. 273, No. 2.
39. NWS Louisville, 2004: Structure and dynamics of supercell thunderstorms. *noaa.gov*
40. Shimose, K., and Kawano, T., 2004: Numerical Simulation of Tornadogenesis in a Supercell Storm. *Department of Earth and Planetary Sciences, Kyushu University, Fukuoka, Japan*
41. Hassenzahl, H., 2007: Numerical Investigations of a Tornado Vortex Using Vorticity Confinement. *wisc.edu*
42. Markowski, P. M., and Richardson, Y. P., 2009: Tornadogenesis: Our current understanding, forecasting considerations, and questions to guide future research. *Atmospheric Research*, Vol. 93, Issues 1-3, 3-10.
43. Brooks, H. E., and Wilhelmson, R. B., 1992: Numerical simulation of a low-precipitation supercell thunderstorm. *Meteorology and Atmospheric Physics*, Vol. 49, Numbers 1-4.
44. Steinhoff, J., and Underhill, D., 1994: Modification of the euler equations for "vorticity confinement": Application to the computation of interacting vortex rings. *Physics of Fluids*, 6(8): 2738-2744.
45. Snyder, C., and Zhang, F., 2003: Assimilation of simulated Doppler radar observations with an ensemble Kalman filter. *Monthly Weather Review*, 131, 1663-1677.
46. Dowell, D., Zhang, F., Wicker, L. J., Snyder, C., and Crook, N. A., 2004: Wind and thermodynamic retrievals in the 17 May 1981 Arcadia, Oklahoma supercell: Ensemble Kalman filter experiments. *Monthly Weather Review*, 132, 1982-2005.
47. Dowell, D. C., Wicker, L. J., and Stensrud, D. J., 2004: High resolution analyses of the 8 May 2003 Oklahoma City storm. Part II: EnKF data assimilation and forecast experiments. *22<sup>nd</sup> Conf. on Severe Local Storms, Hyannis, Massachusetts, paper 12.5*
48. Tong, M., and Xue, M., 2005: Ensemble Kalman filter assimilation of Doppler radar data with a compressible nonhydrostatic model: OSS experiments. *Monthly Weather Review*, 133, 1789-1807.
49. Caya, A., Sun, J., and Snyder, C., 2005: A comparison between the 4D-Var and the ensemble Kalman filter techniques for radar data assimilation. *Monthly Weather Review*, 133, 3081-3094.
50. Tong, M., and Xue, M., 2007: Simultaneous estimation of microphysical parameters and atmospheric state with radar data and ensemble square-root Kalman filter. Part I: Sensitivity analysis and parameter identifiability. Part II: Parameter estimation experiments. *Journal of the Atmospheric Sciences (submitted)*
51. Aksoy, A., Dowell, D. C., and Snyder, C., 2007: A multi-case study of ensemble-based assimilation of radar observations into cloud resolving WRF using DART. *18<sup>th</sup> Conference on Numerical Weather Prediction, American Meteorological Society*
52. Trapp, R. J., Stumpf, G. J., and Manross, K. L., 2005: A reassessment of the percentage of tornadic mesocyclones. *Weather and Forecasting*, 20, 23-34.

53. MacGorman, D. R., Rust, W. D., Krehbiel, P., Rison, W., Bruning, E., and Wiens, K., 2005: The Electrical Structure of Two Supercell Storms during STEPS. *Monthly Weather Review*, 133: 2583-2607.
54. Kuhlman, K. M., Ziegler, C. L., Mansell, E. R., MacGorman, D. R., and Straka, J. M., 2006: Numerically Simulated Electrification and Lightning of the 29 June 2000 STEPS Supercell Storm. *Monthly Weather Review*, 134: 2734-2757.
55. Sommer, A. P., and Levin, Z., 2001: Charge transfer in convective thunderclouds induced by molecular interface crossing and free energy reduction. *Atmospheric Research*, Vol. 58, Issue 2, July 2001, 129-139.
56. Chen, S. H., 2008: Thunderstorms. *ucdavis.edu*
57. Zhang, Y., Krehbiel, P., Hamlin, T., Harlin, J., Thomas, R., and Rison, W., 2001: Electrical Charge Structure and Cloud-to-Ground Lightning in Thunderstorms during STEPS. *American Geophysical Union*, Fall Meeting 2001, abstract #AE12A-0079.
58. Marshall, T. C., and Stolzenburg, M., 2001: Voltages inside and just above thunderstorms. *Journal of Geophysical Research*, 106(D5), 4757-4768.
59. Vonnegut, B., 1979: Tropospheric electrification. *NASA Goddard Space Flight Center Middle Atmosphere Electrodynamics*, N79-25608 16-46, 157-168.
60. Jensenius, J., 2007: Science of Lightning. *lightningsafety.noaa.gov*
61. Knupp, K. R., Paech, S., and Goodman, S., 2003: Variations in Cloud-to-Ground Lightning Characteristics among Three Adjacent Tornadic Supercell Storms over the Tennessee Valley Region. *Monthly Weather Review*, 131: 172-188.
62. Blyth, A. M., Cooper, W. A., and Jensen, J. B., 1988: A Study of the Source of Entrained Air in Montana Cumuli. *Journal of the Atmospheric Sciences*, 45: 3944-3964.
63. Stith, J. L., 1992: Observations of Cloud-Top Entrainment in Cumuli. *Journal of the Atmospheric Sciences*, 49: 1334-1347.
64. Snow, J. T., 1984: The tornado. *Scientific American*, 250, 4, 56-65.
65. Trapp, R. J., Mitchell, E. D., Tipton, G. A., Effertz, D. W., Watson, A., Andra, D. L., and Magsig, M. A., 1999: Descending and nondescending tornadic vortex signatures detected by WSR-88Ds. *Weather and Forecasting*, 14 (5), 625-639.
66. Binau, S., and Baumgardt, D. A., 2005: Storm mode evolution from a quasi-linear convective system to a discrete tornadic supercell during the historic Wisconsin tornado outbreak of 18 August 2005: a radar perspective. *23<sup>rd</sup> Conference on Severe Local Storms, American Meteorological Society*
67. Doswell, C. A., 1991: A review for forecasters on the application of hodographs to forecasting severe thunderstorms. *National Weather Digest*, 16 (1), 2-16.
68. Gerbeth, G., Dulikravich, G. S., and Pericleous, K., 2008: Computational electro-magneto-hydro-dynamics (EMHD). *8<sup>th</sup> World Congress on Computational Mechanics (WCCM8), Venice, Italy*
69. NSSL, 2009: Questions and Answers about Hail. *nssl.noaa.gov*
70. Zeng, Z., Yuter, S. E., Houze, R. A., and Kingsmill, D. E., 2001: Microphysics of the Rapid Development of Heavy Convective Precipitation. *Monthly Weather Review*, 129: 1882-1904.
71. Xu, H. B., and Duan, Y., 2001: The Mechanism of Hailstone's Formation and the Hail-Suppression Hypothesis: Beneficial Competition. *Chinese Journal of Atmospheric Sciences*

72. Xu, H. B., Duan, Y., and Liu, H. Y., 2004: The Physics of Hailstorm and the Principle and Design of Hail Suppression. *Beijing: Meteorology Press*
73. Browning, K. A., 1964: Airflow and Precipitation Trajectories Within Severe Local Storms Which Travel to the Right of the Winds. *Journal of the Atmospheric Sciences*, 21, 634-639.
74. Hare, R., 1838: In "An attempt to develop the law of storms by means of facts, arranged according to place and time," by Sir William Reid. *London: J. Weale*
75. Landsea, C., 2006: Which is the most intense tropical cyclone on record? *noaa.gov*
76. Maddox, R. A., 1976: An evaluation of tornado proximity wind and stability data. *Monthly Weather Review*, 104: 133-142.
77. Bunkers, M. J., Klimowski, B. A., Zeitler, J. W., Thompson, R. L., and Weisman, M. L., 2000: Predicting supercell motion using a new hodograph technique. *Weather and Forecasting*, 15: 61-79.
78. Edwards, R., Thompson, R. L., and Hart, J. A., 2002: Verification of Supercell Motion Forecasting Techniques. *spc.noaa.gov*
79. Krehbiel, P. et al, 2000: Tornadic Storm of June 29, 2000. *lightning.nmt.edu*
80. Edwards, R., 2006: Bat-eating Supercell. *spc.noaa.gov*
81. Gallagher, F. W., Beasley, W. H., and Bohren, C. F., 1996: Green Thunderstorms Observed. *Bulletin of the American Meteorological Society*, 77: 2889-2897.
82. Gallagher, F. W., 2000: Distant Green Thunderstorms — Fraser's Theory Revisited. *Journal of Applied Meteorology*, 39, 1754-1761.
83. NSSL, 2008: Frequently Asked Questions About Hail. *nssl.noaa.gov*
84. Freier, G. D., 1992: Weather Proverbs: How 600 Proverbs, Sayings and Poems Accurately Explain Our Weather. *Tucson: Fisher Books*
85. Fankhauser, J. C.; Barnes, G. M.; Miller, L. J.; Roskowski, P. M., 1983: Photographic documentation of some distinctive cloud forms observed beneath a large cumulonimbus. *Bulletin of the American Meteorological Society*, 64(5): 450-450.
86. Gallagher, F. W., and Beasley, W. H., 2003: Evaluation of a one-dimensional cloud model for yellow and green thunderstorms. *Applied Optics*, 42, 505-510.
87. Wåhlin, L., 1986: Atmospheric Electrostatics. *Research Studies Press LTD., Letchworth, Hertfordshire, England*, pg 28 in 120.
88. Köppen, J., 2007: Spectrum of Nitrogen Gas Discharge. *u-strasbg.fr*
89. Knight, M., 2007: Fact or Fiction?: If the Sky Is Green, Run for Cover — A Tornado Is Coming. *Scientific American*
90. Kilty, K., 2005: Steady-state tornado vortex models. *kilty.com*
91. Luchuk, W., 1999: The Tornado From An Aerodynamicist's Point of View. *cafes.net/wallytul*
92. Fouts, J. L., 2003: Flow visualization and fluid-structure interaction of tornado-like vortices. *Texas Tech University Library*
93. Bluestein, H. B., and Pazmany, A. L., 2000: Observations of tornadoes and other convective phenomena with a mobile 3-mm wavelength Doppler radar: The spring 1999 field experiment. *Bulletin of the American Meteorological Society*, 81: 2939-2951.
94. Makarieva, A. M., Gorshkov, V. G., and Nefiodov, A. V., 2011: Condensational theory of stationary tornadoes. *Physics Letters A*, 375(24): 2259-2261.

95. Lee, J. J., Samaras, T., and Young, C., 2004: Pressure measurements at the ground in an F-4 tornado. *22<sup>nd</sup> Conference on Severe Local Storms, American Meteorological Society*
96. Trivedi, B. P., 2003: Storm Chaser Deploys Probe, Makes History. *nationalgeographic.com*
97. Vonnegut, B., and Moore, C. B., 1957: Electrical activity associated with the Blackwell-Udall tornado. *Journal of Meteorology*, 14: 284-285.
98. Vonnegut, B., 1960: The Electrical Theory of Tornadoes. *Journal of Geophysical Research*, Vol. 65, 203-212.
99. Ryan, R. T., and Vonnegut, B., 1970: Miniature Whirlwinds Produced in the Laboratory by High-Voltage Electrical Discharges. *Science*, Vol. 168, Issue 3937, 1349-1351.
100. Sozou, C., 1984: Electrical Discharges and Intense Vortices. *Proceedings of the Royal Society of London, Series A, Mathematical and Physical Sciences*, Vol. 392, Issue 1803, 415-426.
101. Jonsson, H. H., and Vonnegut, B., 1993: Miniature vortices produced by electrical corona. *Journal of Geophysical Research*, Vol. 98, Issue D3, 5245-7126.
102. Grenaker, E. F., Wilson, C. S., and Metcalf, J. I., 1976: The Atlanta Tornado of 1975. *Monthly Weather Review*, 104: 1052-1057.
103. Freier, G. D., 1959: The Earth's Electric Field during a Tornado. *Journal of the Atmospheric Sciences*, Vol. 16, Issue 3, 333-334.
104. Gunn, R., 1956: Electric field intensity at the ground under active thunderstorms and tornadoes. *Journal of the Atmospheric Sciences*, 13: 269-273.
105. Watkins, D. C., Cobine, J. D., and Vonnegut, B., 1978: Electric discharges inside tornados. *Science*, 199: 171-174.
106. Berson, F. A., and Power, H., 1972: On the geo-electromagnetic aspects of tornado initiation. *Pure and Applied Geophysics*, Vol. 101, Number 1, 221-230.
107. Buechler, D. E., Driscoll, K. T., Goodman, S. J., and Christian, H. J., 2000: Lightning activity within a tornadic thunderstorm observed by the optical transient detector (OTD). *Geophysical Research Letters*, Vol. 27, Issue 15, 2253-2256.
108. Murphy, M. J., and Demetriades, N. W. S., 2005: An analysis of lightning holes in a DFW supercell storm using total lightning and radar information. *Conference on Meteorological Applications of Lightning Data*, 2.3.
109. Steiger, S. M., Orville, R. E., and Carey, L. D., 2007: Total Lightning Signatures of Thunderstorm Intensity over North Texas. Part I: Supercells. *Monthly Weather Review*, 135: 3281-3302.
110. Trostel, J. M., and Matthews, J., 2010: Application of an Improved SCIT Algorithm to Investigate Lightning Characteristics of a Tornado Outbreak in Georgia. *26<sup>th</sup> Conference on Interactive Information and Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology*
111. Rathbun, E. R., 1960: An Electromagnetic Basis for the Initiation of a Tornado. *Journal of the Atmospheric Sciences*, 17: 371-373.
112. Krasilnikov, E. Y., 1997: Electromagnetohydrodynamic nature of tropical cyclones, hurricanes, and tornadoes. *Journal of Geophysical Research*, Vol. 102, Issue D12, 13571-13580.

113. Kikuchi, H., 2005: EHD Approach to Tornadoic Thunderstorms and Methods of Their Destruction. *American Geophysical Union*, Spring Meeting 2005, abstract #AE11B-01.
114. Thomson, P., 2005: Charge Sheath Vortex - Plasma Production Modes. *peter-thomson.co.uk*
115. Scherbin, M. D., 2005: On Possibility of Electromagnetic Nature of Atmospheric Intensive Vortices Generation. *arXiv:physics*, 0512239.
116. Dehel, T. F, Dickinson, M., Lorge, F., and Startzel, F. Jr., 2007: Electric field and Lorentz force contribution to atmospheric vortex phenomena. *Journal of Electrostatics*, Vol. 65, Issues 10-11, 631-638.
117. Kikuchi, H., 2007: Helicity or Vortex Generation in Hydrodynamic (HD), Magneto-hydrodynamic (MHD), and Electrohydrodynamic (EHD) Regimes. *Progress In Electromagnetics Research Symposium 2007, Beijing, China, March 26-30*
118. Patton, F. S, Bothun, G. D., and Sessions, S. L., 2008: An electric force facilitator in descending vortex tornadogenesis. *Journal of Geophysical Research*, 113, D07106, doi:10.1029/2007JD009027.
119. Schmitter, E. D., 2010: Modeling tornado dynamics and the generation of infrasound, electric and magnetic fields. *Natural Hazards and Earth System Sciences*, 10: 295-298.
120. Markowski, P. M., Straka, J. M., and Rasmussen, E. N., 2002: Direct Surface Thermodynamic Observations within the Rear-Flank Downdrafts of Nontornadoic and Tornadoic Supercells. *Monthly Weather Review*, 130: 1692-1721.
121. Rust, W. D., MacGorman, D. R., Bruning, E. C., Weiss, S. A., Krehbiel, P. R., Thomas, R. J., Rison, W., Hamlin, T., and Harlin, J., 2005: Inverted-polarity electrical structures in thunderstorms in the Severe Thunderstorm Electrification and Precipitation Study (STEPS). *Atmospheric Research*, 76: 247-271.
122. Tessendorf, S. A., Wiens, K. C., Lang, T., and Rutledge, S. A., 2006: STEPS 2000 Research Highlights From Colorado State University. *American Geophysical Union*, Fall Meeting 2006, abstract #AE43A-05.
123. Tessendorf, S. A., Rutledge, S. A., and Wiens, K. C., 2007: Radar and lightning observations of normal and inverted polarity multicellular storms from STEPS. *Monthly Weather Review*, 135: 3682-3706.
124. Trapp, R. J., 1999: Observations of Nontornadoic Low-Level Mesocyclones and Attendant Tornadogenesis Failure during VORTEX. *Monthly Weather Review*, 127, 1693-1705.
125. Wakimoto, R. M., Cai, H., and Murphey, H. V., 2004: The Superior, Nebraska, supercell during BAMEX. *Bulletin of the American Meteorological Society*, 85, 1095-1106.
126. Chia-Shun Yih, 2007: Tornado-like flows. *Physics of Fluids*, 19: 076601.
127. Markowski, P. M., 2002: Hook Echoes and Rear-Flank Downdrafts: A Review. *Monthly Weather Review*, 130, 852-876.
128. Brandes, E. A., 1978: Mesocyclone evolution and tornadogenesis: Some observations. *Monthly Weather Review*, 106, 995-1011.
129. Rasmussen E. N., Peterson, R. E., Minor, J. E., and Campbell, B. D., 1982: Evolutionary characteristics and photogrammetric determination of windspeeds within

- the Tulia outbreak tornadoes 28 May 1980. *12<sup>th</sup> Conference on Severe Local Storms, American Meteorological Society*, 301-304.
130. Jensen B., Marshall, T. P., Mabey, M. A., and Rasmussen, E. N., 1983: Storm scale structure of the Pampa storm. *13<sup>th</sup> Conference on Severe Local Storms, American Meteorological Society*, 85-88.
131. Lee, B. D., Finley, C. A., and Samaras, T. M., 2008: Thermodynamic and kinematic analysis near and within the Tipton, KS tornado on May 29 during TWISTEX 2008. *24<sup>th</sup> Conference on Severe Local Storms, American Meteorological Society*
132. Hocking, W., 2010: What caused the Leamington tornado? Western professor has a theory. *Western University Press*
133. Stolzenburg, M., Marshall, T. C., and Krehbiel, P. R., 2010: Duration and extent of large electric fields in a thunderstorm anvil cloud after the last lightning. *Journal of Geophysical Research*, 115: D19202.
134. Snow, J. T., 1984: On the formation of particle sheaths in columnar vortices. *Journal of the Atmospheric Sciences*, Vol. 41, Issue 16, 2477-2491.
135. NSSL, 2009: Tornado Basics. *nssl.noaa.gov*
136. Anonymous, 2009: List of weather records. *wikipedia.org*
137. Karstens, C. D., Gallus, W. A. Jr., Samaras, T. M., Lee, B. D., and Finley, C. A., 2010: Near-ground Pressure and Wind Measurements in Tornadoes. *Monthly Weather Review*
138. Wurman, J., 2002: The multiple vortex structure of a tornado. *Weather and Forecasting*, 17: 473-505.
139. Sarkar, P., Haan, F., Gallus, W. Jr., Le, K., and Wurman, J., 2005: Velocity Measurements in a Laboratory Tornado Simulator and their comparison with Numerical and Full-Scale Data. *Technical Memorandum of Public Works Research Institute*, 3983: 197-211.
140. Alexander, C. R., Wurman, J., 2005: The 30 May 1998 Spencer, South Dakota, Storm. Part I: The Structural Evolution and Environment of the Tornadoes. *Monthly Weather Review*, 133: 72-96.
141. Wurman, J., Alexander, C. R., 2005: The 30 May 1998 Spencer, South Dakota, Storm. Part II: Comparison of Observed Damage and Radar-Derived Winds in the Tornadoes. *Monthly Weather Review*, 133: 97-118.
142. Edwards, R., 1998: Tornado with Subvortex Filaments. *stormeyes.org*
143. Vonnegut, B., and Weyer, J. R., 1966: Luminous Phenomena in Nocturnal Tornadoes. *Science*, Vol. 153, Issue 3741, 1213-1220.
144. Vaughan, O. H. Jr., and Vonnegut, B., 1976: Luminous Electrical Phenomena Associated with Nocturnal Tornadoes in Huntsville, Alabama. *Bulletin of the American Meteorological Society*, Vol. 57, Issue 10, 1220-1220.
145. Reynolds, D. J., 1995: Nocturnal Tornado Illuminated by an Electrical Discharge at Farnham, Surrey, 10 January 1994. *Journal of Meteorology, UK*, 20: 381.
146. Beaty, W. J., 2007: What causes the strange glow known as St. Elmo's Fire? Is this phenomenon related to ball lightning? *Scientific American*
147. Justice, A. A., 1930: Seeing the Inside of a Tornado. *Monthly Weather Review*, 58: 205-206.
148. Hall, R. S., 1987: Inside A Texas Tornado. *Weatherwise*, 40: 73.
149. McGown, D., 1996: Looking Up Into A Tornado Funnel. *Time*, 147: 8.



150. Lewis, E., 1996: Tornadoes and Ball Lightning. *padrak.com*
151. Davies-Jones, R. P., and Golden, J. H., 1975: On the Relation of Electrical Activity to Tornadoes. *Journal of Geophysical Research*, 80(12), 1614-1616.
152. Church, C. R., Snow, J. T., and Agee, E. M., 1977: Tornado Vortex Simulation at Purdue University. *Bulletin of the American Meteorological Society*, 58, 900-908.
153. Rotunno, R., 1977: Numerical simulation of a laboratory vortex. *Journal of the Atmospheric Sciences*, 34: 1942-1956.
154. Rotunno, R., 1979: A Study in Tornado-Like Vortex Dynamics. *Journal of the Atmospheric Sciences*, 36, 140-155.
155. Snow, J. T., 1982: A review of recent advances in tornado vortex dynamics. *Reviews of Geophysics*, 20(4), 953-964.
156. Church, C. R., and Snow, J. T., 1993: Laboratory models of tornadoes. In "The Tornado: its structure, dynamics, prediction, and hazards". *American Geophysical Union, Monograph 79: 277-295.*
157. Ladue, J., 1993: Vortex formation from a helical inflow tornado vortex simulator. In "The Tornado: its structure, dynamics, prediction, and hazards". *American Geophysical Union, Monograph 79: 307-316.*
158. Le Kuai, Fred L. Haan, Jr., William A. Gallus, Jr. and Partha P. Sarkar, 2008: CFD simulations of the flow field of a laboratory-simulated tornado for parameter sensitivity studies and comparison with field measurements. *Wind and Structures*
159. Gallus, W. A. Jr., Sarkar, P., Haan, F., Le, K., Kardell, R., and Wurman, J., 2004: A translating tornado simulator for engineering tests: comparison of radar, numerical model, and simulator winds. *22<sup>nd</sup> Conference on Severe Local Storms, American Meteorological Society*
160. Haan, F. L. Jr., Sarkara, P. P., and Gallus, W. A., 2008: Design, construction and performance of a large tornado simulator for wind engineering applications. *Engineering Structures*, Vol. 30, Issue 4, 1146-1159.
161. Lewellen, D. C., Gong, B., and Lewellen, W. S., 2007: Effects of Fine-Scale Debris on Near-Surface Tornado Dynamics. *Journal of the Atmospheric Sciences*
162. Falconer, R. E., and Schaefer, V. J., 1954: *Bulletin of the American Meteorological Society*, 35, 437.
163. Grazulis, T., 2007: Things that have been "carried" by a tornado. *tornadoproject.com*
164. Beard, D., 2007: Survivors recount night of tornado. *journalenterprise.com*
165. Schmidlin, T. W., Hammer, B. O., King, P. S., and Miller, L. S., 2003: Wind speeds required to upset vehicles. *Symposium on the F-Scale and Severe-Weather Damage Assessment, American Meteorological Society*
166. The Associated Press, 2006: Missouri teen survives tornado. *usatoday.com*
167. Heckert, P. A., 2007: Bernoulli's Principle and Storms. *suite101.com*
168. Minor, J. E., McDonald, J. R., and Mehta, K. C., 1993: The tornado: an engineering-oriented perspective. *NOAA Technical Memorandum, NWS SR-147.*
169. Byers, H. R., and Braham, R. R. Jr., 1949: The Thunderstorm: Final Report of the Thunderstorm Project. *Washington, DC: U.S. Government Printing Office, 282 pgs.*
170. Battan, L. J., 1964: The Thunderstorm. *Signet*
171. Edwards, R., 2009: The online tornado FAQ. *spc.noaa.gov*

172. Kosiba, K., and Wurman, J., 2010: The three-dimensional axisymmetric wind field structure of the Spencer, South Dakota (1998) tornado. *Journal of the Atmospheric Sciences*
173. Marshall, T., 1999: Damage survey of the Moore, Oklahoma tornado. *stormtrack.org*
174. Wurman, J., and Kosiba, K. A., 2008: DOW observations of multiple vortex structure in several tornadoes. *24<sup>th</sup> Conference on Severe Local Storms, American Meteorological Society*
175. Lee, W., and Wurman, J., 2001: Diagnosed Structure of the Mulhall Tornado Using VTD Algorithm. *30<sup>th</sup> International Conference on Radar Meteorology*
176. Orville, R. E., 1994: Cloud-to-ground lightning flash characteristics in the contiguous United States: 1989-1991. *Journal of Geophysical Research*, 99(D5), 10,833-10,841.
177. Biggar, D. G., 2000: A case study of a positive strike dominated supercell thunderstorm that produced an F2 tornado after undergoing a significant cloud-to-ground lightning polarity shift. *srh.noaa.gov*
178. Perez, A. H., Wicker, L. J., and Orville, R. E., 1997: Characteristics of Cloud-to-Ground Lightning Associated with Violent Tornadoes. *Weather and Forecasting*, 12: 428-437.
179. Kennedy, R. E., and Fredrich, E. R., 1989: Tornado warning system. *freepatentsonline.com*, 4812825.
180. Jones, H. L., 1955: Research on Tornado Identification. *3<sup>rd</sup> Quarter Progress Report, Contract No. DA 36-039 SC 64436, Stillwater, Okla. A. and M. College*, 8-35.
181. Jenkins, H. H., and Wilson, C. S., 1977: Research instrumentation for tornado electromagnetic emissions detection. *Final Technical Summary Report, Feb. 1975 - Jan. 1977 Georgia Institute of Technology, Atlanta*
182. Taylor, W. L., Brandes, E. A., Rust, W. D., and MacGorman, D. R., 1984: Lightning Activity and Severe Storm Structure. *Geophysical Research Letters*, 11(5), 545-548.
183. Leeman, J. R., and Schmitter, E. D., 2008: Electric signals generated by tornados. *Atmospheric Research*, Vol. 92, Issue 2, 277-279.
184. Alcorn, M., 1998: What Is Lightning And How Does Lightning Form. *met.tamu.edu*
185. Boccippio, D. J., Williams, E. R., Heckman, S. J., Lyons, W. A., Baker, I. T., and Boldi, R., 1995: Sprites, ELF Transients, and Positive Ground Strokes. *Science*, 269 (5227): 1088-1091.
186. Schechter, D. A., Nicholls, M. E., Persing, J., Bedard, A. J., and Pielke, R. A., 2008: Infrasound Emitted by Tornado-Like Vortices: Basic Theory and a Numerical Comparison to the Acoustic Radiation of a Single-Cell Thunderstorm. *Journal of the Atmospheric Sciences*, 65: 685-713.
187. Brandes, Dr. E. A., 1998: A Review of Research and Development Activity Related to WSR-88D Algorithms, National Center for Atmospheric Research
188. Flora, S. D., 1954: Tornadoes of the United States. *Norman, OK: University of Oklahoma Press*, 221 pgs.
189. Abdullah, A. J., 1966: The "musical" sound emitted by a tornado. *Monthly Weather Review*, 94, 213-220.
190. Vaughan, O. H., Jr., and Vonnegut, B., 1976: Luminous electrical phenomena in Huntsville, Alabama, tornadoes on April 3, 1974. *NASA Technical Reports*, TMX-73301.

191. Schultz, D. M., Kanak, K. M., Straka, J. M., Trapp, R. J., Gordon, B. A., Zrnić, D. S., Bryan, G. H., Durant, A. J., Garrett, T. J., Klein, P. M., and Lilly, D. K., 2006: The Mysteries of Mammatus Clouds: Observations and Formation Mechanisms. *Journal of the Atmospheric Sciences*, 63, 2409-2435.
192. Caruso, J. M., and Davies, J. M., 2005: Tornadoes in Non-mesocyclone Environments with Pre-existing Vertical Vorticity along Convergence Boundaries. *Electronic Journal of Operational Meteorology*
193. Sanders, R., 2002: Stalking Arizona dust devils helps scientists understand electrical, atmospheric effects of dust storms on Mars. *berkeley.edu*
194. Renno, N. O., Abreu, V. J., Koch, J., Smith, P. H., Hartogensis, O. K., De Bruin, H. A. R., Burose, D., Delory, G. T., Farrell, W. M., Watts, C. J., Garatuza, J., Parker, M., and Carswell, A., 2004: MATADOR 2002: A pilot field experiment on convective plumes and dust devils. *Journal of Geophysical Research*, 109, E07001.
195. Cerveny, R., and Schaefer, J. T., 2002: Tornado oddities: wild and inexplicable stories reveal the freakish nature and amazing power of tornadoes. *Weatherwise*, Jul/Aug: 20-28.
196. Snow, R., Snow, M., and Kufa, N., 2007: Lightning Signature Assessment to Forecast Tornado Formation. *International Journal of Energy and Environment*, Vol. 1, Iss. 1, 7-11.
197. Chakraborty, P., Gioia, G., and Kieffer, S. W., 2009: Volcanic mesocyclones. *Nature*, 458, 497-500.
198. Stephen Self, Jing-Xia Zhao, Rick E. Holasek, Ronnie C. Torres, and Alan J. King, 1999: The Atmospheric Impact of the 1991 Mount Pinatubo Eruption. *usgs.gov*
199. Oswalt, J. S., Nichols, W., and O'Hara, J. F., 1999: Meteorological Observations of the 1991 Mount Pinatubo Eruption. *usgs.gov*
200. Thomas, R. J., Krehbiel, P. R., Rison, W., Edens, H. E., Aulich, G. D., Winn, W. P., McNutt, S. R., Tytgat, G., and Clark, E., 2007: Electrical Activity During the 2006 Mount St. Augustine Volcanic Eruptions. *Science*, 315 (5815): 1097.
201. Doswell, C. A., Weiss, S. J., and Johns, R. H., 1993: Tornado Forecasting: A Review. *American Geophysical Union*, 79: 557-571.
202. Moller, A. R., Doswell, C. A., Foster, M. P., and Woodall, G. R., 1994: The Operational Recognition of Supercell Thunderstorm Environments and Storm Structures. *Weather and Forecasting*, Vol. 9, Issue 3, 327-347.
203. Bradford, M., 1999: Historical Roots of Modern Tornado Forecasts and Warnings. *Weather and Forecasting*, 14: 484-491.
204. Holden, J., and Wright, A., 2004: UK tornado climatology and the development of simple prediction tools. *Quarterly Journal of the Royal Meteorological Society*, 130: 1009-1021.
205. Uman, Martin, 1969: Lightning
206. Uman, M. A., and Rakov, V. A., 2008: University of Florida Lightning Research Group. *lightning.ece.ufl.edu*
207. Victor P. Pasko, Umran S. Inan, Timothy F. Bell, and Steven C. Reising, Mechanism of ELF radiation from sprites, *GEOPHYSICAL RESEARCH LETTERS*, VOL. 25, NO. 18, PAGES 3493-3496, SEPTEMBER 15, 1998
208. Kridler, C., 2002: July 25, 2002, triggered lightning video. *skydiary.com*
209. Ball, L. M., 1977: Laser lightning rod system. *freepatentsonline.com*, 4017767.

210. Thompson, J. J., Thompson, G. P., 1933: Conduction of Electricity Through Gases. *Cambridge University Press*
211. Kikuchi, H., 2007: Laboratory Experiments of Helicity or Vortex Generation in an Electric Quadrupole: Simulation of Tonadoes with and without Lightning. *American Geophysical Union Spring Meeting Abstracts*, #SA54A-02.
212. Heene, R., Stevens, R., and Slusser, B., 2008: Electromagnetic Fields Recorded in Mesocyclones. *National Weather Digest*, 32:1, 35-44.
213. Scott, D. E., 2007: Real Properties of Electromagnetic Fields and Plasma in the Cosmos. *IEEE Transactions on Plasma Science*, Vol. 35, No. 4.
214. Scott, D. E., 2006: The Electric Sky. *Portland: Mikamar Publishing*
215. Dmitriev, A. N., Dyatlov, V. L., and Tetenov, A. V., 2009: Planetophysical Function of Vacuum Domains. *bibliotecapleyades.net*
216. Büker, M. L., and Tripoli, G. J., 2010: Tornadoes, Thomson, and turbulence: an analogous perspective on tornadogenesis and coherent structure in the atmosphere. *8<sup>th</sup> Users Forum on Weather and Climate Impacts, American Meteorological Society*
217. Bedard, A., 1996: Tiny Lab Twisters May Hold Clues To Early Detection Of Tornadoes. *scienceblog.com*
218. Everett, M., 1913: Tragic Story of America's Greatest Disaster. *Chicago: J. S. Ziegler Company*
219. Mori, S., 2008: Subterranean petroleum deposits in correlation to induce tornado formation. *cprm.gov.br*
220. Vitoria, F., 2009: Tornadoes - Electromagnetic theory. *costarricense.cr*
221. Coleman, T. A., and Knupp, K. R., 2008: The Interactions of Gravity Waves with Mesocyclones: Preliminary Observations and Theory. *Monthly Weather Review*, 136: 4206-4219.
222. Koch and Dorian, 1988: Gravity Waves Propagating Across a stationary thunderstorm outflow associated with a jet streak in a boundary Produce Thunderstorms. *Monthly Weather Review*, Vol. 116, p2570.
223. McUllough, 1997: Succession of Gravity Waves Produced Severe Weather in Oct. 1996 Convection band. *NWDO San Angelo, Texas, SR/SSD 97-20, May 1.*
224. Holle, R., 2009: Vital Weather Information. *aerology.com*
225. Carstoiu, John, 1967: Electrohydrodynamic Waves and Related Phenomena
226. R.J. Thomas, P.R. Krehbiel, W. Rison, T. Hamlin, J. Harlin, and D. Shown, Observations of VHF Source Powers Radiated by Lightning, *GEOPHYSICAL RESEARCH LETTERS*, VOL. 28, NO. 1, PAGES 143-146, JANUARY 1, 2001
227. Paul Manneville Rayleigh-Benard convection, thirty years of experimental, theoretical, and modeling work, Laboratoire d'Hydrodynamique, Ecole polytechnique
228. R. G. Harrison, Twentieth-century atmospheric electrical measurements at the observatories of Kew, Eskdalemuir and Lerwick Department of Meteorology, University of Reading, *Weather* Vol. 58 January 2003
229. J. Y. Lu, R. Rankin, and R. Marchand, Department of Physics, University of Alberta, Edmonton, Alberta, Canada, V. T. Tikhonchuk Centre Laser Intenses et Applications, Universite´ Bordeaux, France, J. Wanliss, Embry-Riddle Aeronautical University, Bunnell, Florida, USA Finite element modeling of nonlinear dispersive field line resonances: Trapped shear Alfvén waves inside field-aligned density structures,

- JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 108, NO. A11, 1394,  
doi:10.1029/2003JA010035, 2003
230. Lothar H. Runke, Distance to Lightning Strokes as Determined from Electrostatic Field Strength Measurements, *Journal of Applied Meteorology* Vol 1, 1962
231. CONSTANTINOS EVANGELOU NOMIKOS, B.S. A THESIS IN ELECTRICAL ENGINEERING RADIO NOISE EMISSIONS FROM SEVERE LOCAL STORMS 1975
232. WALKER S. ASHLEY, ANDREW J. KRMENEC, AND RICK SCHWANTES, Vulnerability due to Nocturnal Tornadoes, Meteorology Program, Department of Geography, Northern Illinois University, DeKalb, Illinois 2008
233. KEVIN M. SIMMONS, *Austin College, Sherman, Texas*, DANIEL SUTTER *University of Texas—Pan American, Edinburg, Texas*, Tornado Warnings, Lead Times, and Tornado Casualties: An Empirical Investigation WEATHER AND FORECASTING VOLUME 23
234. Stephanie Hoekstra, Rachel Butterworth, Kim Klockow, Dr. Jerry Brotzge, and Somer Erickson, University of California, Los Angeles and Research Experience for Undergraduates, University of Oklahoma, Norman, Oklahoma University of Oklahoma, School of Meteorology, Department of Communication Oklahoma Climatological Survey, University of Oklahoma, Center for Analysis and Prediction of Storms, A SOCIAL PERSPECTIVE OF WARN ON FORECAST: IDEAL TORNADO WARNING LEAD TIME AND THE GENERAL PUBLIC'S PERCEPTIONS OF WEATHER RISKS
235. Chandrasekhar, S., 1960: Plasma Physics, The University of Chicago Committee on Publications in the Physical Sciences
236. Chandrasekhar, S., 1961: Hydrodynamic and Hydromagnetic Stability, Oxford University Press
237. Williams, E. R. and Geotis, S. G. and Bhattacharya, A. B., 1989: A Radar Study of the Plasma and Geometry of Lightning, *Journal of the Atmospheric Sciences*, Vol. 46, No. 9
238. HU Sheng, GU Songshan, ZHUANG and LUO Hui, 2007: Automatic Identification of Storm Cells Using Doppler Radars
239. Weller, Newton, 1969: Now You Can "See: Tornadoes on Your TV", *Popular Mechanics*, March
240. Biggs, G. W, and Waite, P. J., 1970: Can TV Really Detect Tornadoes
241. James E. Sieveking and Ron W. Przybylinski, NOAA/National Weather Service St. Charles, Missouri, The Interaction of a HP Supercell Thunderstorm and Bow Echo to Produce a Prolonged Severe Wind Event in East Central Missouri
242. GREGORY J. STUMPF, ARTHUR WITT, E. DEWAYNE MITCHELL, PHILLIP L. SPENCER, J. T. JOHNSON, MICHAEL D. EILTS, KEVIN W. THOMAS, AND DONALD W. BURGESS, The National Severe Storms Laboratory Mesocyclone Detection Algorithm for the WSR-88D, WEATHER AND FORECASTING VOLUME 13 1998 American Meteorological Society
243. EARLE R. WILLIAMS, Department of Earth and Planetary Sciences Massachusetts Institute of Technology, ROGER M. LHERMITTE Rosenstie School of Marine and Atmospheric Science University of Miami, Radar Tests of the Precipitation Hypothesis

for Thunderstorm Electrification JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 88, NO. C15, PAGES 10,984-10,992, DECEMBER 20, 1983

244. E. DEWAYNE MITCHELL, *NOAA/Environmental Research Laboratories, National Severe Storms Laboratory, and Cooperative Institute for Mesoscale Meteorological Studies, University of Oklahoma, Norman, Oklahoma*, STEVEN V. VASILOFF, *NOAA/Environmental Research Laboratories, National Severe Storms Laboratory, Norman, Oklahoma*, GREGORY J. STUMPF, *NOAA/Environmental Research Laboratories, National Severe Storms Laboratory, and Cooperative Institute for Mesoscale Meteorological Studies, University of Oklahoma, Norman, Oklahoma*,

ARTHUR WITT, MICHAEL D. EILTS, AND J. T. JOHNSON, *NOAA/Environmental Research Laboratories, National Severe Storms Laboratory, Norman, Oklahoma*, KEVIN W. THOMAS, *NOAA/Environmental Research Laboratories, National Severe Storms Laboratory, and Cooperative Institute for Mesoscale Meteorological Studies, University of Oklahoma, Norman, Oklahoma*, The National Severe Storms Laboratory Tornado Detection Algorithm, WEATHER AND FORECASTING VOLUME 13

245. EUGENE W. MCCAUL JR., *Universities Space Research Association, Huntsville, Alabama*, DENNIS E. BUECHLER, *University of Alabama in Huntsville, Huntsville, Alabama*, STEVEN J. GOODMAN, *NASA Marshall Space Flight Center, Huntsville, Alabama*, MICHAEL CAMMARATA, *National Weather Service, Columbia, South Carolina*, Doppler Radar and Lightning Network Observations of a Severe Outbreak of Tropical Cyclone Tornadoes, 2003

246. RODGER A. BROWN, RANDY M. STEADHAM, BRADLEY A. FLICKINGER, ROBERT R. LEE, DALE SIRMANS, AND VINCENT T. WOOD, NOTES AND CORRESPONDENCE, New WSR-88D Volume Coverage Pattern 12: Results of Field Tests

247. KEVIN M. SIMMONS, *Department of Economics and Business, Austin College, Sherman, Texas*, DANIEL SUTTER, *Department of Economics, and Cooperative Institute for Mesoscale Meteorological Studies, University of Oklahoma, Norman, Oklahoma*, WSR-88D Radar, Tornado Warnings, and Tornado Casualties, 2004

248. WALTER A. LYONS, CCM, THOMAS E. NELSON, RUSSELL A. ARMSTRONG, VICTOR P. PASKO, AND MARK A. STANLEY, 2002: UPWARD ELECTRICAL DISCHARGES FROM THUNDERSTORM TOPS

249. Ryan, P. A., and N. Spitzer, Stormscope, Pat. USA 4.023.408, U.S. Pat. Off., Washington, D.C., 1977.

250. Sao, K., and H. Jindoh, Real time location of atmospheric by single station techniques and preliminary results, J. Atmos. Terr. Phys., 36, 261-266, 1974.

251. Wait, J. R., *Electromagnetic Waves in Stratified Media*, Macmillan, New York, 1962.

252. Watson-Watt, R. A., and J. F. Herd, An instantaneous direct-reading radio goniometer, J. Inst. Electr. Eng., 64, 611-622, 1926.

253. Yamashita, M., and K. Sao, Some consideration of the polarization error in direction finding of atmospheric--I, II, J. Atmos. Terr. Phys., 36, 1623-1641, 1974.

254. M. Hayakawa, *University of Electro-Communications, Chofu, Tokyo* 182, Japan.

255. A. P. Nickolaenko, V. A. Rafalsky, and A. V. Shvets, Institute of Radio Astronomy, Ukrainian Academy of Sciences, Kraznoznamenayaya Street, Kharkov 310002, Ukraine.
256. Adcock, F., and E. Clarke, The location of thunderstorms by radio direction finding, *J. Inst. Electr. Eng.*, 94B, 118-125, 1947.
257. Budden, K. G., *Radio Waves in the Ionosphere*, Cambridge Univ. Press, New York, 1961.
258. Burke, C. P., and D. L. Jones, An experimental investigation of ELF attenuation rates in the Earth-ionosphere duct, *J. Atmos. Ten'. Phys.*, 54, 243-250, 1992.
259. Harth, W., Theory of low frequency wave propagation in *Handbook of Atmospheric*, vol. 11, edited by H. Volland, pp. 133-202, CRC Press, Boca Raton, Fla., 1982.
260. Hayakawa, M., Ionospheric and magnetospheric VLF/ELF radio noises at lower latitudes, Review, *J. Atmos. Electr.*, 13, 65-93, 1993.
261. Hayakawa, M., and S. Shimakura, High accuracy method of locating Distant lightning by means of tweek-atmospherics presented at the 11th International Wroclav Symposium on Electromagnetic Compatibility, Wroclav, Poland, 1992.
262. Heydt, G., Instrumentation, in *Handbook of Atmospheric*, vol. II, edited by H. Volland, pp. 203-256, CRC Press, Boca Raton, Fla., 1982.
263. Hojo, J., M. Ishih, M. Kawamura, F. Suzuki, H. Komuro, and M. Shioyama, Seasonal variation of cloud-to-ground lightning flash Characteristics in the coastal area of the Sea of Japan, *J. Geophys. Res.*, 94, 13,207-13,212, 1989.
264. Horner, F., The design and use of instruments for counting local Lightning flashes, *Proc. Inst. Electr. Eng.*, B107, 321-330, 1960.
265. Inkov, B. K., *Phase Methods for the Determination of the Distance to Thunderstorm*(in Russian), 127 pp., Hidrometeoizdat, St. Petersburg, 1973.
266. Iwai, A., M. Kashiwagi, M. Nishino, and M. Satoh, Triangulation direction finding network for fixing the sources of atmospheric, *Proc. Res. Inst. Atmos. Nagoya Univ.*, 26, 1-16, 1979.
267. Kononov, I. I., I. A. Petrenko, and V. S. Snegurov, *Radiotechnical Techniques for Locating Thunderstorms*(in Russian), 222 pp., Hidrometeoizdat, St. Petersburg, 1986.
268. Korol, M. A., and A. P. Nickolaenko, A technique to derive the Distance from near discharges, *J. Atmos. Electr.*, 13, 1-7, 1993.
269. Krider, E. P., R. C. Noggle, and M. Uman, A gated, wideband magnetic Direction finder for lightning return strokes, *J. Appl. Meteorol.*, 15, 301-306, 1976.
270. Krider, E. P., R. C. Noggle, A. E. Pifer, and D. L. Vance, Lightning Direction finding systems for forest fire detection, *Bull. Am. Meteorol. Soc.*, 61,980-986, 1980.
271. Lazebny, B. V., A. P. Nickolaenko, and A. V. Shvets, The seaborne

- Measurements of atmospherics in 1991, Proc. 9th Int. Conf. Atmos. Electr., 3, 816-819, 1992.
272. Leary, T. P., Range and bearing indication of geographically remote sources of electromagnetic radiation. Patent N 3369240, Off. Gaz. U.S. Pat. Off., 847, 50, 1968.
273. Leavitt, M. K., A frequency-tracking direction finder for whistlers and Other very low frequency signals, Tech.Rep. 3456-2, 167 pp., Stanford Univ., Stanford, Calif., 1975.
274. Lewis, E. A., R. B. Harvey, and J. E. Rasmussen, Hyperbolic direction Finding with sferics of transatlantic origin, J. Geophys Res., 65, 1879-1905, 1960.
275. MacGorman, D. R., and W. D. Rust, An evaluation of the LLP and LPATS lightning ground strike mapping systems, Proceedings of the 8th International Conference on Atmospheric Electricity, Inst. of High Voltage Res., Uppsala, Sweden, 1988.
276. Nickolaenko, A. P., and V. A. Rafalsky, Energy spectra of transverse Resonances of the Earth-ionosphere cavity (in Russian), I zv. Vuzov Radiofiz., 24, 1059-1063, 1983.
277. Ogawa, T., Y. Tanaka, T. Miura, and M. Yasuhara, Observations of natural ELF and VLF electromagnetic noises by using the ball antennas, J. Geomagn. Geoelectr., 18, 443-454, 1966.
278. Okada, T., A. Iwai, and M. Hayakawa, The measurement of incident and azimuthal angles and the polarization of whistlers at low latitudes, Planet. Space Sci., 25, 233-241, 1977.
279. Orville, R. E., R. W. Henderson, and L. F. Bosart, An east coast lightning detection network, Bull. Am. Meteorol. Soc., 64, 1029-1037, 1983.
280. Runhke, L. H., Determining distance to lightning strokes from a single station, NOAA Tech. Rep. ERL 195-APCL 16, 1971.
281. V. A. Rafalsky, A. P. Nickolaenko, and A. V. Shvets, Institute of Radio Astronomy, Ukrainian Academy of Sciences, Kharkov, Ukraine, M. Hayakawa Sugadaiza Space Radio Observatory University of Electro-Communications Chofu, Tokyo, Japan, Location of lightning discharges from a single station, JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 100, NO. D10, PAGES 20,829-20,838, OCTOBER 20, 1995
282. R. L. Johnson, D. E. Janota, J. E. Hay, 1982, An Operational Comparison of Lightning Warning Systems, Journal of the American Meteorological Society
283. D. A. Kohl, 1964, Detection Range of 500 kHz sferics
284. Dual-Polarization Radar Training for NWS Partners

- [Training for meteorologists not employed by the National Weather Service \(NWS\)](#) and
- [Training for non-meteorologists who use WSR-88D radar data.](#)



# Magneto-Hydrodynamic Theory of Tornadoes

- Gerbeth, G., Dulikravich, G. S., and Pericleous, K., 2008: Computational electro-magneto-hydro-dynamics (EMHD). *8<sup>th</sup> World Congress on Computational Mechanics (WCCM8), Venice, Italy*
- Krasilnikov, E. Y., 1997: Electromagnetohydrodynamic nature of tropical cyclones, hurricanes, and tornadoes. *Journal of Geophysical Research*, Vol. 102, Issue D12, 13571-13580.
- Bojarevics, Freibergs, Shilova, Shcherbinin, Electrically Induced Vortical Flows, Kluwer Academic Publishers, Mechanics of Fluids and Transport Processes 1989
- Fiala, P., Sadek, V., and Kriz, T., 2008: Numerical Modeling of Electromagnetic Field a Tornado. *Progress In Electromagnetics Research Symposium, Hangzhou, China*, 1193-1197.
- Berson, F. A., and Power, H., 1972: On the geo-electromagnetic aspects of tornado initiation. *Pure and Applied Geophysics*, Vol. 101, Number 1, 221-230.
- Rathbun, E. R., 1960: An Electromagnetic Basis for the Initiation of a Tornado. *Journal of the Atmospheric Sciences*, 17: 371-373.
- Scherbin, M. D., 2005: On Possibility of Electromagnetic Nature of Atmospheric Intensive Vortices Generation. *arXiv:physics*, 0512239.
- Dehel, T. F., Dickinson, M., Lorge, F., and Startzel, F. Jr., 2007: Electric field and Lorentz force contribution to atmospheric vortex phenomena. *Journal of Electrostatics*, Vol. 65, Issues 10-11, 631-638.
- Kikuchi, H., 2007: Helicity or Vortex Generation in Hydrodynamic (HD), Magneto-hydrodynamic (MHD), and Electrohydrodynamic (EHD) Regimes. *Progress In Electromagnetics Research Symposium 2007, Beijing, China, March 26-30*
- Patton, F. S., Bothun, G. D., and Sessions, S. L., 2008: An electric force facilitator in descending vortex tornadogenesis. *Journal of Geophysical Research*, 113, D07106, doi:10.1029/2007JD009027.
- Schmitter, E. D., 2010: Modeling tornado dynamics and the generation of infrasound, electric and magnetic fields. *Natural Hazards and Earth System Sciences*, 10: 295-298.
- Jenkins, H. H., and Wilson, C. S., 1977: Research instrumentation for tornado electromagnetic emissions detection. *Final Technical Summary Report, Feb. 1975 - Jan. 1977 Georgia Institute of Technology, Atlanta*

Vitoria, F., 2009: Tornadoes - Electromagnetic theory. *costarricense.cr*

S. N. Artekha and A. V. Belyan, On the role of electromagnetic phenomena in some atmospheric processes, Space Research Institute, Moscow, Russia, Published: 8 May 2013

V. L. Natyaganov , S. A. Maslov , Electromagnetic mechanisms of forming a tornado-like whirlwind, March 2014, Volume 69, Issue 2, pp 29-34, First online: 03 May 2014

S. A. Arseniev , N. K. Shelkovnikov, Electromagnetic fields in tornados and spouts May 2012, Volume 67, Issue 3, pp 290-295 First online: 13 July 2012

Tom Chang, G. B. Crew, J. M. Retterer, Electromagnetic Tornadoes in Earth's Ionosphere and Magnetosphere, 1988

JOHN CARSTOIU ,FUNDAMENTAL EQUATIONS OF ELECTROMAGNETODYNAMICS OF FLUIDS: VARIOUS CONSEQUENCES\* BY INTERNATIONAL CONSULTANT SCIENTISTS CORPORATION, BROOKLINE, MASSACHUSETTS Communicated by Leon Brillouin, December 12, 1967

Role for Lightning in Tornadogenesis and Possible Modification #

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.R. L. Stenzel,\* J. M. Urrutia, and M. C. Griskey, Vortices and Flux Ropes in Electron MHD Plasmas I Department of Physics and Astronomy, University of California, Los Angeles, CA 90095-1547

# Lightning Mapping Array Proving Ground and Test Bed for GLM

Accuracy of the Lightning Mapping Array, Ronald J. Thomas, Paul R. Krehbiel, William Rison, Steven J. Hunyady, William P. Winn, Timothy Hamlin, and Jeremiah Harlin, Received 16 January 2004; revised 26 April 2004; accepted 18 May 2004; published 29 July 2004. JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 109, D14207, doi:10.1029/2004JD004549, 2004

Electrical and Polarimetric Radar Observations of a Multicell Storm in TELEX  
ERIC C. BRUNING, W. DAVID RUST, TERRY J. SCHUUR,  
DONALD R. MACGORMAN, PAUL R. KREHBIEL, AND WILLIAM RISON  
Cooperative Institute for Mesoscale Meteorological Studies, Norman, Oklahoma  
NOAA/OAR National Severe Storms Laboratory, Norman, Oklahoma  
New Mexico Institute of Mining and Technology, Socorro, New Mexico  
Submitted to Monthly Weather Review May 11, 2006, Revised: October 17, 2006

LIGHTNING JUMP ALGORITHM FOR GOES-R GEOSTATIONARY LIGHTNING  
MAPPER (GLM) PROXY DATA, Elise V. Schultz, C. J. Schultz, L. D. Carey, D. J.  
Cecil, G. T. Stano, M. Bateman, and S. J. Goodman, University of Alabama in  
Huntsville, Huntsville, AL, NASA/MSFC, Huntsville, AL, NASA SPoRT/ENSCO Inc.,  
Huntsville, AL, USRA, Huntsville, AL, 5NOAA/NESDIS/GOES-R Program Office,  
Greenbelt, MD

Discriminating between Severe and Non-Severe Storms using Multiple Data Sources  
Scott D. Rudlosky, Henry E. Fuelberg, Florida State University, GOES-R GLM  
AWG/R3 Science Meeting, 29–30 September 2009, Huntsville, AL

CHARACTERISTICS OF DECAYING STORMS DURING LIGHTNING  
CESSATION AT KENNEY SPACE CENTER AND CAPE CANAVERAL AIR  
FORCE STATION Holly Anderson Melvin\*, Henry E. Fuelberg The Florida State  
University, Tallahassee, FL, USA

The use of Lightning Mapping Array data in WDSS-II, V Lakshmanan, Kurt Hondl, Don  
MacGorman, Gregory J. Stumpf

Lightning Jump Evaluation RITT Presentation Tom Filiaggi (NWS – MDL) 12/18/13  
Reduction of FAR

Lightning Mapping Observations: An Update, Paul Krehbiel, William Rison, Harald  
Edens, Steven Hunyady, Graydon Aulich, Ronald Thomas New Mexico Tech, Socorro,  
New Mexico 87801 Southern Thunder 2011

Three-dimensional fractal modeling of intracloud lightning discharge in a New Mexico thunderstorm and comparison with lightning mapping observations

Jeremy A. Rioussset, Victor P. Pasko, Paul R. Krehbiel, Ronald J. Thomas, and William Rison JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 112, D15203, doi:10.1029/2006JD007621, 2007 11-14 July, Norman OK

The North Alabama Lightning Mapping Array: Recent severe storm observations and future prospects, S.J. Goodmana, T. R. Blakesleea, H. Christiana, W. Koshaka, J. Baileyb, J. Hallb, E. McCaulb, D. Buechlerb, C. Dardenc, J. Burks, T. Bradshawc, P. Gatlinb Atmospheric Research 76 (2005) 423–437

Three-Dimensional Total Lightning Observations with the Lightning Mapping Array Paul Krehbiel, Timothy Hamlin, Yijun Zhang\*, Jeremiah Harlin, Ronald Thomas, and William Rison New Mexico Institute of Mining and Technology, Socorro, New Mexico, USA 87801

Total Lightning as an Indicator of Mesocyclone Behavior, Sarah M. Stough, Lawrence D. Carey, Christopher J. Schultz, Department of Atmospheric Science, University of Alabama in Huntsville, Huntsville, AL, USA Earth Science Office, NASA Marshall Space Flight Center, Huntsville, AL, USA XV International Conference on Atmospheric Electricity, 15-20 June 2014, Norman, Oklahoma, U.S.A.

TOTAL LIGHTNING INFORMATION: AN OPERATIONAL PERSPECTIVE Christopher B. Darden, David J. Nadler, Jason Burks, Geoffrey T. Stano, Dennis E. Buechler, NOAA/NWS, Huntsville, Alabama NASA/ENSCO, Inc., Huntsville, Alabama University of Alabama in Huntsville, Huntsville, Alabama