

## Dr. Timothy A. Coleman

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## CURRICULUM VITAE

### 1. Education

Ph. D., M. S., The University of Alabama in Huntsville  
Meteorology  
Dissertation: The Effects of Atmospheric Waves on Tornadoes

B. S., Samford University  
Physics and Mathematics, graduated *magna cum laude*

### 2. Relevant Work Experience

#### A. **Research Meteorologist, Adjunct Professor**, The University of Alabama in Huntsville (2005-Present)

- Research on the effects of friction, topography, and wind channeling on tornadoes, convective initiation, and rainfall amounts
- Research on the dynamics and effects of atmospheric wave phenomena, including internal waves, ducted waves, bores, and solitary waves
- Analysis of large tornado databases to assess tornado risk across the U.S. and the movement of it over time due to climate
- Research on non-traditional damaging winds (wake lows, waves, cold fronts)
- Research on snowstorms across the southern United States
- Research on streamflow hydrology and application to agriculture in the Southeast
- Serve as aviation weather forecaster during major air pollution study
- Participate in field campaigns using mobile instrumentation in hurricane and tornado environments
- Served as long-range forecaster and nowcaster for field campaigns involving severe weather
- Analyzed surface and boundary layer temperature output from numerical models in order to improve daily maximum and minimum temperature forecasts
- Interaction with numerous NWS offices and TV stations regarding the applications of UAH research to improve forecasts and warnings
- Development of BREAM software to correct reflectivity-based rainfall estimates for topographic beam blocking effects
- Development of software to produce airflow trajectories through two-dimensional, steady-state disturbances using Doppler radar data
- Use of various software platforms and programming languages
- Taught 6 graduate courses in Atmospheric Science
- Have served on the MS/PhD committees of 7 graduate students

- B. Consulting Meteorologist**, Coleman Knupp and Dice, LLC (2009–Present)
- Provide expert analysis and testimony to attorneys/insurance/corporations
  - Research and consulting on ~110 cases, expert testimony in ~14 cases
  - Experience in cases involving rainfall/flooding, hurricanes, winter weather, hail, aviation and motor vehicle accidents, lightning, tornadoes, wind damage, slip and fall, fog, heat exposure.
  - Provide weather forecasting and monitoring for sporting events
  - Development of method for determining rainfall rates and amounts using a combination of radar data calibrated using rain gauges
  - Development of method for determining surface visibility/fog in remote locations using multi-channel satellite data and nearby NWS observations
  - Research and numerical analysis on near-ground temperature profiles to find optimal heights for energy efficiency in outdoor HVAC units
  - Research on wind channeling on inland rivers and applications to the use of sails to improve energy efficiency on barges
  - Wrote 54-page manual on dual-polarization weather radar for the National Association of Broadcasters in 2015
  - More details at [www.ckdweather.com](http://www.ckdweather.com)
- C. Adjunct Professor**, Samford University, Physics Department (2012-2016)
- Taught Physics laboratory lectures
  - Assisted students with basic physics education, problems, and homework
- D. Severe Weather Expert**, WBRC-TV (2012-2018), WBMA-TV (2008-2012)
- Worked on-air as “Weather Expert” during severe/winter weather coverage
  - Writer and weather forecaster for weather blogs, including alabamawx.com (ABC) and myfoxtracker.com (FOX)
  - Worked as consulting weather forecaster to on-air staff
- E. On-Camera Meteorologist**, WIAT-TV 42 (CBS), Birmingham, Alabama (2001-2004)
- Weekend/part-time meteorologist, promoted to Chief Meteorologist in 2003
  - Prepared and delivered weather forecasts for 5:00, 6:00, and 10:00 pm newscasts
  - Severe weather coverage during tornado warnings
- F. Meteorologist**, NOAA/National Weather Service, (1991–2000)
- Wrote and broadcast forecasts and warnings on NOAA Weather Radio
  - Launched weather balloons and radiosondes
  - Prepared aviation weather forecasts, agricultural weather forecasts, and public weather forecasts
  - Involved in warning decision process for tornadoes, severe thunderstorms, flash floods, river floods, and winter storms
  - Worked during numerous severe weather outbreaks

### 3. Peer-Reviewed Publications

- **Coleman, T. A.**, and K. R. Knupp, 2023: A climatological study of changes in storm-relative helicity during the afternoon-to-evening transition (AET). *Wea. Forecasting*, in preparation.
- **Coleman, T. A.** and R. M. Thompson, 2022: An extensive analysis of the geographical shift in U.S. tornadoes since 1950. *J. Appl. Met. and Climatology*, in preparation.
- **Coleman, T. A.**, K. R. Knupp, and P. T. Pangle, 2021: The effects of heterogeneous surface roughness on boundary-layer kinematics and wind shear. *Electronic J. Severe Storms Meteor.*, **16**, 1–29.
- **Coleman, T. A.**, K. R. Knupp, J. P. Dice, K. Laws, and C. Darden, 2019: The Birmingham, Alabama snow “disaster” of 28 January 2014. *Elec. J. Severe Storms Meteor.*, **14** (4), 1–24.
- Weigel, A., R. Griffin, K. Knupp, A. Molthan, and **T. Coleman**, 2019: A spatial pattern analysis of land surface roughness heterogeneity and its relationship to the initiation of weak tornadoes. *Earth Interactions*, **23** (5), 1-28.
- **Coleman, T. A.**, A. W. Lyza, K. R. Knupp, W. Wyatt, and K. Laws, 2018: A significant tornado along a frontogenetical thermal boundary during VORTEX-SE. *Elec. J. Severe Storms Meteor.*, **13**, 1-25.
- **Coleman, T. A.**, and K. R. Knupp, 2016: Review and case studies of non-traditional severe local windstorms. *J. Oper. Meteor.*, **4**, 192-206.
- **Coleman, T. A.**, and P. G. Dixon, 2014: An objective analysis of tornado risk in the United States. *Wea. Forecasting*, **29**, 366-376.
- **Coleman, T. A.**, T. A. Murphy, R. A. Wade, K. R. Knupp, and L. D. Carey, 2014: Analysis of the transition region of a winter storm. *J. Oper. Meteor.*, **2**, 1-13.
- Knupp, K. R., T. A. Murphy, **T. A. Coleman**, R. A. Wade, S.A. Mullins, C.J. Schultz, E.V. Schultz, L. Carey, E. W. McCaul, B. Carcione, S. Latimer, A. Kula, K. Laws, P.T. Marsh, and K. Klockow, 2014: Meteorological overview of the devastating 27 April 2011 tornado outbreak. *Bull. American Meteorological Soc.*, **95**, 1041–1062.
- Mecikalski, J. R., X. Li, L. D. Carey, E. W. McCaul, Jr., and **T. A. Coleman**, 2013: Regional comparison of GOES cloud-top properties and radar characteristics in advance of first-flash lightning initiation. *Mon. Wea. Rev.*, **141**, 55-74.
- **Coleman, T. A.**, 2012: A long-lived nocturnal bore on radar: Diagnosis and relevance. *Electronic J. Operational Meteor.*, **13**, 103 - 107.
- **Coleman, T. A.**, and K. R. Knupp, 2011: A Review of Three Significant Wake Lows over Alabama and Georgia. *Wea. Forecasting*, **26**, 766-773.
- **Coleman, T. A.**, and K. R. Knupp, 2011: Radiometer and profiler analysis of the effects of a bore and a solitary wave on the stability of the NBL. *Mon. Wea. Rev.*, **139**, 211-223.

- **Coleman, T. A.**, K. R. Knupp, J. Spann, J. B. Elliott, and B. E. Peters, 2011: The history and future of tornado warning dissemination in the United States. *Bull. Amer. Met. Soc.*, **92**, 567-582.
- **Coleman, T. A.**, K. R. Knupp, and D. E. Herzmann, 2010: An undular bore and gravity waves illustrated by dramatic time-lapse photography. *J. Atmos. Oceanic Tech.*, **27**, 1355-1361.
- **Coleman, T. A.**, and K. R. Knupp, 2010: A nonlinear impedance relation for the surface winds in pressure disturbances: Theory and numerical simulations. *J. Atmos. Sci.*, **67**, 3409-3422.
- **Coleman, T. A.**, and K. R. Knupp, 2009: Factors affecting surface wind speeds in gravity waves and wake lows. *Wea. Forecasting.*, **24**, 1664-1679.
- **Coleman, T. A.**, K. R. Knupp, and J. T. Tarvin, 2009: Review and case study of sounds associated with the lightning electromagnetic pulse. *Mon. Wea. Rev.*, **137**, 3129-3136.
- **Coleman, T. A.**, and K. J. Pence, 2009: The proposed 1883 Holden tornado warning system: Its genius and its applications today. *Bull. Amer. Meteor. Soc.*, **90**, 1905-1912.
- **Coleman, T. A.**, and K. R. Knupp, 2008: The interactions of gravity waves with mesocyclones: Preliminary observations and theory. *Mon. Wea. Rev.*, **136**, 4206-4219.
- **Coleman, T. A.**, and K. R. Knupp, 2008: The spectacular undular bore in Iowa on 2 October 2007. *Mon. Wea. Rev.*, **137**, 495-503.
- Knupp, K. R., R. Ware, D. Cimini, F. Vandenberghe, J. Vivekanandan, E. Westwater, **T. A. Coleman**, and D. Phillips, 2008: Ground-based passive microwave profiling during dynamic weather conditions. *J. Atmos. Oceanic Tech.*, **26**, 1057-1073.

#### 4. Selected Invited Presentations

- **Coleman, T. A.**, 2022: The Advantages of Hiring a Professional Meteorologist in Litigation Involving Weather. *9<sup>th</sup> Annual Construction Law Summit, Mobile, AL.*
- **Coleman, T. A.**, 2018: Using Radar Data to Generate High-Resolution Rainfall Estimates. *27th Annual Southeastern Environmental Law & Regulation Conference, Destin, FL.*
- **Coleman, T. A.**, 2017: Using High-Resolution Radar Rainfall Estimates in Project Planning and Claims Management. *Birmingham Environmental Professionals Association Annual Meeting, Birmingham, AL.*
- **Coleman, T. A.**, 2016: The Effects of Weather on Construction Claims and Contracts. *3<sup>rd</sup> Annual Construction Law Summit, Birmingham, AL.*
- **Coleman, T. A.**, 2014: Potential novel methods of tornado sheltering in the home. *City of Birmingham, Department of Community Development.*
- **Coleman, T. A.**, 2012: A review of the 27 Apr 2011 tornado outbreak. *NASA Marshall Space Flight Center, Huntsville, AL.*
- **Coleman, T. A.**, 2010: Current research on severe weather at UAH. *The University of Alabama, Tuscaloosa, AL.*
- **Coleman, T. A.**, 2006-2009: Atmospheric waves and their effects on the sensible weather. *Presented at NOAA/National Weather Service Forecast Offices in Mobile, AL; Atlanta, GA; Jackson, MS; Huntsville, AL; Birmingham, AL; Knoxville, TN; Nashville, TN; Chicago, IL; Indianapolis, IN.*
- **Coleman, T. A.**, and R. T. McNider, 2009: White paper on streamflows and potential water withdrawals for agriculture in Alabama. Prepared for Alabama Department of Environmental Management.
- **Coleman, T. A.**, 2009: External mesoscale factors influencing mesocyclones and tornadoes. *National Severe Storms Laboratory Colloquium, Norman, OK.*
- **Coleman, T. A.**, 2008: Atmospheric waves and their effects on the sensible weather. *The Weather Channel, Atlanta, GA.*
- **Coleman, T. A.**, 2008: Gravity waves and their effects on the sensible weather. *The University of South Alabama, Mobile, AL.*
- **Coleman, T. A.**, 2007: Gravity waves and their effects on the sensible weather. *NSSTC Brownbag Seminar Series, Huntsville, AL.*
- **Coleman, T. A.**, 2005: Gravity waves and their interactions with tornadoes and thunderstorms. *Physics Seminar Series, Samford University, Birmingham, AL.*

## 5. Conference Presentations

- **Coleman, T. A.**, 2022: Spatiotemporal variability in wind shear and helicity due to various processes. *AMS 30th Conference on Severe Local Storms, Santa Fe, NM.*
- **Coleman, T. A.**, 2022: Updating the Long-Term West-to-East Translation of Tornado Frequency in the United States. *American Meteorological Society (AMS) 35<sup>th</sup> Conf. on Climate Variability and Change, Virtual, Houston, TX.*
- **Coleman, T. A.**, and K. R. Knupp, 2022: Spatiotemporal variability in wind shear and helicity due to various processes. *AMS 19th Conference on Mesoscale Processes, Virtual, Houston, TX.*
- **Coleman, T. A.**, and M. Anderson, 2022: Lake-Effect Snowfall Events on a Small Lake in Northwest Alabama. *AMS 19th Conference on Mesoscale Processes, Virtual, Houston, TX.*
- Anderson, M., and **T. A. Coleman**, 2021: Analysis of Two Lake Enhanced Snow Events Along the Tennessee River. *National Weather Association (NWA) 46<sup>th</sup> Annual Meeting, Tulsa, OK.*
- **Coleman, T. A.**, and K. R. Knupp, 2021: Dramatic Near-Surface Lapse Rates at a Grassy Berm: Implications for HVAC and Energy Industries. *AMS 21st Symposium on Meteorological Observation and Instrumentation, Virtual, Boston, MA.*
- **Coleman, T. A.**, and J. P. Dice, 2021: Extreme Low-Level Wind Shear in Propagating Pressure Disturbances: Hazards to Aviation. *AMS 21st Conference on Aviation, Range, and Aerospace Meteorology, Virtual, Boston, MA.*
- **Coleman, T. A.**, and A. M. Weigel, 2019: The Effects of Differential Friction on BL Kinematics and Influences on Tornadoes. *AMS 18th Conf. on Mesoscale Processes, Savannah, GA.*
- **Coleman, T. A.**, and K. R. Knupp, 2019: Increases in Low-Level Wind Shear and Storm-Relative Helicity during the Afternoon-to-Evening Transition (AET) Period. *American Meteorological Society (AMS) 18th Conf. on Mesoscale Processes, Savannah, GA.*
- **Coleman, T. A.**, and J. P. Dice, 2019: Extreme Low-Level Wind Shear in Propagating Pressure Disturbances. *American Meteorological Society (AMS) 18th Conf. on Mesoscale Processes, Savannah, GA.*
- Knupp, K. R., B. Goudeau, **T. A. Coleman**, and A. W. Lyza, 2019: Observational Analyses of Boundary Layer Variability Preceding QLCSs. *American Meteorological Society (AMS) 18th Conf. on Mesoscale Processes, Savannah, GA.*

- **Coleman, T. A.**, and J. P. Dice, 2019: Extreme Low-Level Wind Shear in Propagating Pressure Disturbances. *National Weather Association 44<sup>th</sup> Annual Meeting, Huntsville, AL.*
- **Coleman, T. A.**, and J. P. Dice, 2018: The 28 January 2014 “Snowmageddon” in the Southeastern U.S. *American Meteorological Society (AMS) 29<sup>th</sup> Conference on Weather Analysis and Forecasting, Denver, CO.*
- **Coleman, T. A.**, and K. R. Knupp, 2018: Shear Available Potential Energy (SHAPE): A Quantitative Measure of the Effect of Wind Shear on Convective Updraft Potential. *AMS 29<sup>th</sup> Conference on Weather Analysis and Forecasting, Denver, CO.*
- **Coleman, T. A.**, A. W. Lyza, K. Knupp, K. B. Laws, and W. Wyatt, 2018: A Significant Tornado in a Heterogeneous Environment During VORTEX-SE. *AMS 29<sup>th</sup> Conference on Weather Analysis and Forecasting, Denver, CO.*
- **Coleman, T. A.**, K. R. Knupp, and P. N. Gatlin, 2017: High-Resolution Doppler Radar and Radiometer Analysis of a Cold Front Topped with Atmospheric Waves. *38<sup>th</sup> Conference on Radar Meteorology, Chicago, IL.*
- **Coleman, T. A.**, 2017: Using Single- and Dual-Doppler Analysis to Examine the Vorticity and Convergence Along Gradients in Roughness Length. *38<sup>th</sup> Conference on Radar Meteorology, Chicago, IL.*
- **Coleman, T. A.**, and A. M. Weigel, 2016: The Effects of Differential Friction on PBL Kinematics and Possible Influences on Mesocyclones and Tornadoes. *AMS 28<sup>th</sup> Conference on Severe Local Storms, Portland, OR.*
- **Coleman, T. A.**, A. W. Lyza, R. Wade, K. Knupp, and W. Wyatt, 2016: A Significant Tornado Near a Frontogenetical Boundary During VORTEX-SE. *AMS 28<sup>th</sup> Conference on Severe Local Storms, Portland, OR.*
- **Coleman, T. A.**, 2016: Increases in Wind Shear and Helicity During the AET Period. *AMS 28<sup>th</sup> Conference on Severe Local Storms, Portland, OR.*
- Knupp, K. R., and **T. A. Coleman**, 2016: External Controls on Tornadogenesis and Evolution: Potential Significance and Current State of Knowledge. *AMS 28<sup>th</sup> Conference on Severe Local Storms, Portland, OR.*
- Lisauckis, C. A., K. R. Knupp, T. A. Murphy, **T. A. Coleman**, and A. W. Lyza, 2016: Investigating Tornadogenesis Events Within the ARMOR Domain. *15<sup>th</sup> Annual American Meteorological Society Student Conference, New Orleans, LA.*
- **Coleman, T. A.**, and K. R. Knupp, 2015: Mapping the Impact of Surface Roughness on the Kinematics of the 3D Wind Field. *37<sup>th</sup> Conference on Radar Meteorology, Norman, OK.*

- Wade, R. A., **T. A. Coleman** and K. R. Knupp, 2015: Preliminary Profiling and Polarimetric Radar Analysis of Convective Snowbands and Atmospheric Waves during the 25 February 2015 Southeastern U.S. Heavy Snow Event. *37<sup>th</sup> Conference on Radar Meteorology, Norman, OK.*
- **Coleman, T. A.**, and K. R. Knupp, 2013: Analysis of the effects of wind channeling and gradients in roughness length on environmental vorticity and helicity. *36<sup>th</sup> Conference on Radar Meteorology, Breckenridge, CO.*
- Murphy, T. A., **T. A. Coleman**, and K. R. Knupp, 2013: Observations and Analysis of Atmospheric Waves during the Historic April 27, 2011 Tornado Outbreak. *36<sup>th</sup> Conference on Radar Meteorology, Breckenridge, CO.*
- Lyza, A. W., T. A. Murphy, R. A. Wade, **T. A. Coleman**, and K. R. Knupp, 2013: Multiple Doppler Radar Analysis of External Environmental and Topographical Influences on a QLCS Tornado Event. *36<sup>th</sup> Conference on Radar Meteorology, Breckenridge, CO.*
- Murphy, T., **T.A. Coleman**, and K.R. Knupp, 2013: Observations and analysis of atmospheric waves during the historic April 27, 2011 tornado outbreak. *11th Annual Southeast Severe Storms Symposium, Starkville, MS.*
- Murphy, T., T.A. Coleman, and K.R. Knupp, 2013: Observations and analysis of atmospheric waves during the historic April 27, 2011 tornado outbreak. *38th Annual Meeting of the National Weather Association, Charleston, SC.*
- **Coleman, T. A.**, K. R. Knupp, and T. A. Murphy, 2012: The Dynamics and Morphology of Two Long-Track Tornadic Supercells on 27 April 2011. *Special Symposium on the Tornado Disasters of 2011, New Orleans, LA.*
- Murphy, T. A., R. A. Wade, **T. A. Coleman**, and K. R. Knupp, 2012: Radar Overview and Visual Documentation of the 27 April 2011 Tornadic Outbreak. *AMS Special Symposium on the Tornado Disasters of 2011, New Orleans, LA.*
- Mullins, S., K. R. Knupp, **T. A. Coleman**, T. A. Murphy, A. Sherrer, and R. A. Wade, 2012: Recent Afternoon-Evening Transition (AET) and Nocturnal Convective Initiation Events Studied as Part of the UAHuntsville ABIDE Field Project. *AMS 26<sup>th</sup> Conference on Severe Local Storms, Nashville, TN.*
- Knupp, K. R., T. A. Murphy, S. Mullins, R. A Wade, and **T. A. Coleman**, 2012: The Devastating 27 April 2011 Tornado Outbreak: Initial Scientific Assessment. *AMS 26<sup>th</sup> Conference on Severe Local Storms, Nashville, TN.*
- Sherrer, A., R. A. Wade, T. A. Murphy, S. Mullins, **T. A. Coleman**, D. Phillips, and K. R. Knupp, 2012: Observations of a Thermal Boundary and its Interaction with the 27 April 2011 EF-5 Hackleburg Tornado. *AMS 26<sup>th</sup> Conference on Severe Local Storms, Nashville, TN.*
- Murphy, T. A., **T. A. Coleman** and K. R. Knupp, 2012: Observations and Analysis of Atmospheric Waves During the Historic April 27, 2011 Tornado Outbreak. *AMS 26<sup>th</sup> Conference on Severe Local Storms, Nashville, TN.*



- Mullins, S. A., K. R. Knupp, **T. A. Coleman**, T. A. Murphy, D. Phillips, A. Sheerer, and R. Wade, 2012: Recent Afternoon-Evening Transition (AET) and nocturnal convective initiation events as part of the UAHuntsville ABIDE field project. *AMS 26<sup>th</sup> Conference on Severe Local Storms, Nashville, TN.*
- **Coleman, T. A.**, 2012: Sudden re-intensification of storms due to synoptic effects. *9<sup>th</sup> Southeastern Coastal and Atmospheric Processes Symposium, Mobile, AL.*
- Murphy, T.A., R.A. Wade, **T.A. Coleman**, and K.R. Knupp, 2012: Analysis and recent observations of wave interactions in North Alabama. *9<sup>th</sup> Southeastern Coastal and Atmospheric Processes Symposium, Mobile, AL.*
- **Coleman, T. A.**, and K. R. Knupp, 2011: The rare synoptic and mesoscale setup leading to the 27 Apr 2011 tornado outbreak. *36<sup>th</sup> Annual Meeting of the National Weather Association, Birmingham, AL.*
- Kula, A, S. Latimer, K. R. Knupp, and **T. A. Coleman**: Evolution and Impacts of the 27 April 2011 Early Morning Quasi-Linear Convective System. *36<sup>th</sup> Annual Meeting of the National Weather Association, Birmingham, AL.*
- Murphy, T., **T. A. Coleman**, and K.R. Knupp, 2011: Preliminary observations of convective initiation and mesocyclone interactions with atmospheric waves on 27 April 2011. *36<sup>th</sup> Annual Meeting of the National Weather Association, Birmingham, AL.*
- **Coleman, T. A.**, and K. R. Knupp, 2011: Topographic and land cover effects on mesocyclones and tornadoes. *35<sup>th</sup> Conference on Radar Meteorology, Pittsburgh, PA.*
- Knupp, K. R., D. W. Phillips, E. V. Schultz, R. A. Wade, T. A. Murphy, C. J. Schultz, W. A. Petersen, L. D. Carey, and **T. A. Coleman**, 2011: Preliminary assessment of the 27 April 2011 tornado outbreak using dual polarimetric and vertically pointing radar. *35<sup>th</sup> Conference on Radar Meteorology, Pittsburgh, PA.*
- Murphy, T. , R. A. Wade, **T. A. Coleman**, and K. R. Knupp, 2011: Recent radar observations of wave-like features interacting with quasi-linear convective systems. *35<sup>th</sup> Conference on Radar Meteorology, Pittsburgh, PA.*
- **Coleman, T. A.**, 2010: The Effects of Topography and Friction on Mesocyclones and Tornadoes. *AMS 25<sup>th</sup> Conference on Severe Local Storms, Denver, CO.*
- **Coleman, T. A.**, and K. R. Knupp, 2010: Examination of an intense wake low event as a severe local storm. *AMS 25<sup>th</sup> Conference on Severe Local Storms, Denver, CO.*
- Knupp, K. R., and **T. A. Coleman**, 2010: Detailed observations of severe heat bursts: microbursts, intense microscale vortices, and high amplitude gravity waves. *AMS 25<sup>th</sup> Conference on Severe Local Storms, Denver, CO.*
- Knupp, K. R., **T. A. Coleman**, and E. W. McCaul, 2010: The 21 January Huntsville tornado: Storm and mesoscale characteristics inferred from combined high-resolution dual-polarization radar data and video images. *AMS 25<sup>th</sup> Conference on Severe Local Storms, Denver, CO.*
- **Coleman, T. A.**, and J. A. Westland, 2010: Underestimation of QPE in a flash flood situation due to partial radar beam blocking: Correction using the BREAM model. *AMS 24<sup>th</sup> Conference on Hydrology, Atlanta, GA.*

- **Coleman, T. A.**, 2010: The history (and future) of tornado warning dissemination in the United States. *8th Presidential History Symposium, American Meteorological Society, Atlanta, GA.*
- **Coleman, T. A.**, D. Phillips, and K. R. Knupp, 2009: Radar, profiler, and radiometer analysis of the effects of multiple bores/solitary waves on the stability of the NBL and associated CI. *34<sup>th</sup> Conference on Radar Meteorology, Williamsburg, VA.*
- **Coleman, T. A.**, and K. R. Knupp, 2009: Radar analysis of the airflow over geographic features that may affect mesocyclone intensity and tornadogenesis. *34<sup>th</sup> Conference on Radar Meteorology, Williamsburg, VA.*
- Knupp, K. R., and **T. A. Coleman**, 2009: Multiple Doppler radar and profiler analysis of an intense wake low event. *34<sup>th</sup> Conference on Radar Meteorology, Williamsburg, VA.*
- Gatlin, P. N., K. R. Knupp, and **T. A. Coleman**, 2009: Observations of atmospheric waves that moved across northern Alabama on 4 December 2008 using the ARMOR Doppler radar and the Mobile Integrated Profiling System. *34<sup>th</sup> Conference on Radar Meteorology, Williamsburg, VA.*
- Knupp, K. R., **T. A. Coleman** and D. Phillips, 2009: Fine-scale kinematic structure of a gravity wave within a midlatitude cyclone. *34<sup>th</sup> Conference on Radar Meteorology, Williamsburg, VA.*
- Phillips, D. W., K. R. Knupp, and **T. A. Coleman**, 2009: Observations of Tropical Storm Fay. *34<sup>th</sup> Conference on Radar Meteorology, Williamsburg, VA.*
- **Coleman, T. A.**, 2009: Mesoscale Processes that may Impact Mesocyclone Intensity and Tornadogenesis. *6<sup>th</sup> Southeastern Coastal and Atmospheric Processes Symposium, Mobile, AL.*
- **Coleman, T. A.**, and K. R. Knupp, 2008: BREEM: A simple but effective model to allow better radar QPE in flash flood situations for radars with partial beam blocking. *AMS 22<sup>nd</sup> Conference on Hydrology, Atlanta, GA.*
- **Coleman, T. A.**, 2008: The 1883 Holden tornado warning system and its applications today. *6<sup>th</sup> Presidential History Symposium, American Meteorological Society, Atlanta, GA.*
- **Coleman, T. A.**, K. R. Knupp, and C. Crowe, 2008: Mesoscale phenomena affecting the Alabama EF-4 tornadoes during the Super Tuesday Tornado Outbreak of 5-6 February 2008. *AMS 24<sup>th</sup> Conference on Severe Local Storms, Savannah, GA.*
- Knupp, K. R., **T. A. Coleman**, W. Petersen, and L. Carey, 2008: The 2008 Super Tuesday Tornado Outbreak: Overview of the tornadoes and their parent storms. *AMS 24<sup>th</sup> Conference on Severe Local Storms, Savannah, GA.*
- Knupp, K. R., **T. A. Coleman**, L. W. Carey, W. Petersen, and C. Elkins, 2008: The 2008 Super Tuesday Tornado Outbreak: Synthetic dual Doppler analysis of contrasting tornadic storm types. *AMS 24<sup>th</sup> Conference on Severe Local Storms, Savannah, GA.*
- **Coleman, T. A.**, and K. R. Knupp, 2007: Doppler Radar Observations of the Interactions of Gravity Waves with Mesocyclones. *33<sup>rd</sup> Conference on Radar Meteorology, Cairns, Queensland, Australia.*

- Knupp, K. R., and **T. A. Coleman**, 2007: The dependence of modes of propagation of quasi-linear convective systems on the boundary layer: A multi-sensor analysis. *33<sup>rd</sup> Conference on Radar Meteorology, Cairns, Queensland, Australia.*
- **Coleman, T. A.**, and K. R. Knupp, 2007: A closer look at damaging surface winds associated with gravity waves. *AMS 12th Conference on Mesoscale Processes, Waterville Valley, NH.*
- **Coleman, T. A.**, and K. R. Knupp, 2007: Convective initiation via outflow boundary interaction with quasi-stationary thermal circulations. *AMS 12th Conference on Mesoscale Processes, Waterville Valley, NH.*
- **Coleman, T. A.**, 2007: Gravity waves as severe local storms. *6<sup>th</sup> Annual Southeast Severe Storms Symposium, Starkville, MS.*
- **Coleman, T. A.**, 2007: Propagation modes in QLCS's: Density Currents, Bores, and Gravity Waves. *Midwest Bow Echo Workshop, Louisville, KY.*
- **Coleman, T. A.**, and K. R. Knupp, 2006: The interactions of gravity waves with mesocyclones and tornadoes: Theories and Observations. *AMS 23<sup>rd</sup> Conference on Severe Local Storms, St. Louis, MO.*
- Barbre Jr., R. E., C. R. Hain, T. A. Martin, **T. A. Coleman**, C. Elkins, and K. R. Knupp, 2006: Single Doppler radar observations of an intense bowing phase of a cold season bow echo in a high shear, low CAPE environment. *AMS 23<sup>rd</sup> Conference on Severe Local Storms, St. Louis, MO.*
- Hain, C. R. Hain, K. R. Knupp, R. E. Barbre, C. Elkins, **T. A. Coleman**, and T. A. Martin, 2006: A cold season bow echo in a high shear, low CAPE environment: Synoptic-scale environment and mesoscale evolution. *AMS 23<sup>rd</sup> Conference on Severe Local Storms, St. Louis, MO.*
- **Coleman, T. A.**, 2006: Topographic Beam Blocking and its effects on radar rainfall estimates: The BREAM model. *1st Annual UAH College of Science Conference, Huntsville, AL.*

## 6. Teaching experience

### A. Graduate (UAH)

- ATS 551, Atmospheric Fluid Dynamics I
- ATS 651, Atmospheric Fluid Dynamics II
- ATS 690, Atmospheric Waves

### B. Undergraduate

- PHYS 101L, 102L, Physics Laboratory (Samford University)
- GEOG 150, Physical Geography (Samford University)
- Non-credit courses in Severe Storms (Jefferson State Community College)

## 7. Other academic service

- Service on the committees of 7 M.S./Ph.D. students
- Serve as reviewer for the following journals:
  - The Quarterly Journal of the Royal Meteorological Society*
  - Bulletin of the American Meteorological Society*
  - Journal of the Atmospheric Sciences*
  - Monthly Weather Review*
  - The Journal of Applied Meteorology and Climatology*
  - The Journal of Atmospheric and Oceanic Technology*
  - The Journal of Hydrometeorology*
  - The Journal of Climatology*
  - The Electronic Journal of Operational Meteorology*
  - Climate Research*
  - Weather Climate and Society*

## **8. Media Coverage of Research**

The Weather Channel Live Interviews, April 2010, October 2013

*The Birmingham News* (front page), *The Tuscaloosa News*, *The Cleburne Times*

Science@NASA national newsletter

Interviewed by American Institute of Physics about dissertation work for nationally-syndicated

TV news story, to be distributed to 62 local TV stations in the U. S. and Canada

Physorg.com, terradaily.com, talkweather.com, nwas.org, al.com, newsrx.com, newswise.com, wvua.com, myfoxny.com, myfoxla.com

## **9. Honors and Professional Memberships**

Member, American Meteorological Society

Member, National Weather Association

Member, Marquis Who's Who in America

Howard College of Arts and Sciences Advisory Board, Samford University

*Phi Kappa Phi*, academic honor fraternity

*Pi Mu Epsilon*, mathematics honor society

Physics Achievement Award, Samford University

NOAA/U. S. Dept. of Commerce Bronze Medal

Winner, NWS BMX forecast contest (1995)

Winner, National Science Olympiad Meteorology Event (8<sup>th</sup> grade)