

Todd Austin Murphy

Atmospheric Science Program
University of Louisiana Monroe
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EDUCATION

2015 **University of Alabama in Huntsville**, Huntsville, AL
Ph.D., Atmospheric Science
2010 **M.S.**, Atmospheric Science

2008 **University of South Alabama**, Mobile, AL
B.S., Meteorology

PROFESSIONAL EXPERIENCE

2023- **University of Louisiana Monroe**, Monroe, LA
2020- *Interim* Associate Director for School of Sciences
2018- Associate Professor of Atmospheric Sciences (tenured)
2014-20 Atmospheric Science Program Coordinator
Assistant Professor of Atmospheric Sciences

2012-14 **University of Alabama in Huntsville**, Huntsville, AL
Instructor (Dept. of Atmospheric Science)
2008-14 Graduate Research Assistant (Dept. of Atmospheric Science)

2007-08 **University of South Alabama**, Mobile, AL
Teaching Assistant (Dept. of Earth Sciences)

GRANTS AND CONTRACTS

Total Dollar Submitted: \$3,758,580

Total Dollar Awarded: \$1,242,901 (including match)

2024-25 **Murphy, T.A.**, and A.T.C Hanks: *Establishing a Louisiana State Mesonet*. NOAA: National Mesonet Program. \$1,999,910 (extramural grant) *pending decision*

2023-24 **Murphy, T.A.**: *Acquisition of a LiDAR Ceilometer for Atmospheric Science Research and Education*. Louisiana Board of Regents: Targeted Enhancement Program. \$51,252 (+\$2,325 ULM match) (extramural grant)

2022-24 **Murphy, T.A.**: *Improved Nowcasting of QLCS Tornadoes in the United States*. NOAA: FY 22 VORTEX-USA program. \$121,726 (extramural grant)

2022-23 **Murphy, T.A.**, T. Fricker, and K.D. Leppert: *Deploying a JupyterHub Server to Support Education and Research at ULM*. UCAR: 2022 Unidata Equipment Awards. \$15,044 (extramural grant)

2021-24 Knupp, K.R., **T. A. Murphy**, and M. C. Coniglio: *Collaborative Proposal: Observational Investigations of the Antecedent BL Characteristics/Variability and Internal Structure of Severe QLCSs*. NOAA: VORTEX-SE program. Collaborating institutions: University of Alabama in Huntsville and National Severe Storms Lab. \$2,111,445 (\$276,986 ULM part) (extramural grant)

2021-22 Fricker, T., K.D. Leppert, and **T.A. Murphy**: *Developing an Improved Geosciences Curriculum Through a Data Science Perspective*. Louisiana Board of Regents: Targeted Enhancement Program. \$29,780 (extramural grant)

- 2021-22 **Murphy, T.A.**, and B. Bryant: *Verifying the Three-Ingredients Method for Nowcasting QLCS Tornadoes*. UCAR COMET NWS Partners Program. \$14,971 (extramural grant)
- 2020-22 **Murphy, T.A.**, and P.M. Karlowtiz: *RAPID: Preliminary Scientific Assessment of the Monroe, LA tornado on 12 April 2020*. NSF: AGS program. \$51,763 (extramural grant)
- 2018-20 **Murphy, T.A.**, J. Bhattacharjee, M.S. Chenoweth, and K.D. Leppert: *MRI: Acquisition of a Portable Doppler Wind Lidar for Atmospheric Science Research and Education*. NSF: MRI program. \$274,857 (extramural grant)
- 2018-19 **Murphy, T.A.**, Sounding Sites during MESO18-19. NOAA: VORTEX-SE program. \$33,489 (extramural contract)
- 2018 **Murphy, T.A.**, Radar and sounding support during targeted Spring 2018 VORTEX-SE deployments. NOAA: VORTEX-SE program. \$12,190 (extramural contract)
- 2016-19 Brown, M., **T.A. Murphy**, and R.A. Wade: *Understanding the Variability of Southeastern Severe Storm Environments using Mobile Soundings during VORTEX-SE*. NOAA: FY16 VORTEX-SE program. Collaborating institutions: Mississippi State University and University of Alabama in Huntsville. \$247,750 (\$83,800 ULM part) (extramural grant)
- 2016-17 **Murphy, T.A.**, and K.D. Leppert: *AWIPS-II Infrastructure Upgrade at the University of Louisiana at Monroe*. UCAR: 2016 Unidata Equipment Awards. \$17,904 (+ \$1,068 ULM match) (extramural grant)
- 2016-17 **Murphy, T.A.**, and K.D. Leppert: *Integrating Research and Education Through Continuous Atmospheric Temperature and Moisture Profiles*. Louisiana Board of Regents: Traditional Enhancement Program. \$139,500 (+ \$21,495 ULM match) (extramural grant)
- 2015-16 Brown, M., M.D. Parker, and **T.A. Murphy**: *Understanding the Variability and Predictability of Southeastern Severe Storm Environments using Mobile Soundings during VORTEX-SE*. NOAA: VORTEX-SE program. Collaborating institutions: Mississippi State University and North Carolina State University. \$227,038 (\$58,519 ULM part) (extramural grant)
- 2016 **Murphy, T.A.**, *The Weather Channel Guest Speaker*. ULM CAES: Salary Recovery Funds. \$950 (intramural grant)
- 2015 **Murphy, T.A.**, *Mobile Radar Truck Hands-On Exhibit & Seminar*. ULM CAES: Salary Recovery Funds. \$750 (intramural grant)
- 2015 **Murphy, T.A.**: *The University of Louisiana at Monroe's Polarimetric Doppler Weather Radar – Teaching, Research, and Operations*. ULM CAES: Dean's Faculty Support Fund for travel to present at 37th Conference on Radar Meteorology. \$832 (intramural grant)
- 2015 **Murphy, T.A.**: *ULM Synoptic Meteorology Teaching Laboratory Computer Update*. ULM CAES: Computer Refresh Funds (via proposal submitted to Salary Recovery Funds). \$3,700 (intramural grant)

PROPOSED (NOT FUNDED):

- 2023 **Murphy, T.A.**, subcontract to: *AGS-FIRP Track 3: An Investigation into Convective Response in Extreme Southwestern Terrain (CREST)*. James et. al (ERAU), NSF: AGS program. \$69,308 (extramural contract)
- 2021-22 **Murphy, T.A.**, K.D. Leppert, and T. Fricker: *Integrating Research and Education Through a Regional Meteorological Micronet*. Louisiana Board of Regents: Targeted Enhancement Program. \$95,280 (extramural grant)

- 2020-22 **Murphy, T.A.**, and R.A Wade: *Improved Understanding of Environments Supportive of Tornadoic Quasi-Linear Convective Systems in the Southeastern United States*. NOAA: FY20 VORTEX-SE program. Collaborating institution: University of Alabama in Huntsville. \$290,119 (\$132,308 ULM part) (extramural grant)
- 2019 **Murphy, T.A.**: *Southeastern Radar Site Surveys*, NOAA: VORTEX-SE program. \$31,230 (extramural contract)
- 2019-21 **Murphy, T.A.**, subcontract to: *Thermal, Evaporative, and Momentum Flux Influences of the Lower Mississippi River on Near-Shore Environmental Processes*, Rohli et. al, Louisiana State University – Coastal Marine Institute. Bureau of Ocean Energy Management. \$44,772 (extramural contract)
- 2017-19 **Murphy, T.A.**, R.A. Wade, and W. Terwey: *Understanding the Variability of Southeast Severe Environments in the Presence of Complex Terrain*. NOAA: FY17 VORTEX-SE program. Collaborating institutions: University of Alabama in Huntsville and University of South Alabama. \$295,004 (\$86,454 ULM part) (extramural grant)
- 2017-20 Buban, M.S., R. Dobosy, T.R. Lee, T. P. Meyers, and **T.A. Murphy**: *Collaborative Research for PREEVENTS Track 2: Using observations from the VORTEX-SE to improve predictions of tornado formation by identifying land surface forcings responsible for convection initiation and low-level vorticity enhancement*. NSF: PREEVENTS program. Collaborating institutions: NOAA/ARL/ATDD and Oak Ridge Associated Universities. \$719,895 (\$90,746 ULM part) (extramural grant)
- 2015 Murillo, E., and **T.A. Murphy**: *Severity of Tornado Outbreaks in the Southeastern United States versus the Great Plains*. NSF/Louisiana Board of Regents (LA EPSCoR SURE). \$4,500 (extramural grant). *Scored 89% in reviews; funding approval at 90%. Student led proposal.

PEER-REVIEWED PUBLICATIONS

- Kosiba, K., and co-authors (**T.A. Murphy** is 17th author of 36), 2023: The Propagation, Evolution, and Rotation in Linear Systems (PERiLS) Project. *Submitted to Bull. Amer. Meteor. Soc.*
- Fricker, T., and **T.A. Murphy**, 2023: Quantifying the effects of the KULM radar on local climatology, operational success, and societal impacts of tornadoes. *In revision at Journal of Applied Meteorology and Climatology.*
- Hosek, M., C.L. Ziegler, M.I. Biggerstaff, **T.A. Murphy**, and Z. Wang, 2023: Relation between baroclinity, horizontal vorticity, and mesocyclone evolution in the 6-7 April 2018 Monroe, LA tornadic supercell during VORTEX-SE. *Submitted to Mon. Wea. Rev.*
- Murphy, T.A.**, T.M. Stetzer, L. Walker, T. Fricker, B. Bryant, and C. Woodrum, 2022: Analysis of the April 12, 2020 North Louisiana Tornadoic QLCS. *J. Operational Meteor.*, **10** (4), 43-62, <https://doi.org/10.15191/nwajom.2022.1004>.
- Lyza, A.W., **T.A. Murphy**, B.T. Goudeau, P.T. Pangle, K.R. Knupp, and R.A. Wade, 2020: Observed near-storm environment variations across the Southern Cumberland plateau system in northeastern Alabama. *Mon. Wea. Rev.* **148**, 1465-1482, <https://doi.org/10.1175/MWR-D-19-0190.1>.
- Murphy, T.A.**, C. Palmer, C. Entremont, and J.D. Lamb, 2019: Early operational successes of the University of Louisiana Monroe's polarimetric S-band Doppler radar. *J. Operational Meteor.*, **7** (8), 105–116, doi: <https://doi.org/10.15191/nwajom.2019.0708>.
- Murphy, T.A.**, R.A. Wade, and B.C. Carcione, 2016: Observations and operational considerations of the 4 June 2013 chaff event in north Alabama. *J. Operational Meteor.*, **4** (3), 34–45, doi: <http://dx.doi.org/10.15191/nwajom.2016.0403>.

Knupp K.R., and co-authors (**T.A. Murphy** is 2nd author of 16), 2014: Meteorological overview of the devastating 27 April 2011 tornado outbreak. *Bull. Amer. Meteor. Soc.*, **95**, 1041–1062, <https://doi.org/10.1175/BAMS-D-11-00229.1>.

Coleman, T.A., **T.A. Murphy**, K.R. Knupp, L.D. Carey, and M.E. Anderson, 2014: Extensive observations of the transition region of a winter storm. *J. Operational Meteor.*, **2** (1), 1–12, doi: <http://dx.doi.org/10.15191/nwajom.2014.0201>.

Murphy, T.A., and K.R. Knupp, 2012: An analysis of cold season supercell storms using the synthetic dual-Doppler technique. *Mon. Wea. Rev.*, **141**, 602–624, <https://doi.org/10.1175/MWR-D-12-00035.1>.

OTHER FORMAL PUBLICATIONS

Murphy, T.A., 2015: Interactions of wave-like reflectivity segments with deep convection and subsequent mesocyclogenesis and tornadogenesis. University of Alabama in Huntsville, 194 pp. (Ph.D. dissertation)

Murphy, T.A., 2010: Super Tuesday storm variability. University of Alabama in Huntsville, 173 pp. (M.S. thesis)

CONFERENCE PROCEEDINGS

*Annotations: *Student Author; +Presentation Award*

Montgomery, I.J., H.P. Holloway, and **T.A. Murphy**, 2023: Evolution of Shear Profiles Preceding Tornadic QLCSs. *22nd Annual American Meteorological Society Student Conference*, Denver, CO, Amer. Meteor. Soc., S187.

Murphy, T.A., J.M. Zeringue, B. Bryant, M. Hemingway, and J. Gibbs, 2022: Evaluating the Three-Ingredients Method for Nowcasting QLCS Tornadoes. *30th Conference on Severe Local Storms*, Santa Fe, NM, Amer. Meteor. Soc., 9.3.

Murphy, T.A., K.R. Knupp, and M.C. Coniglio, 2022: An Overview of PERiLS Year 1 Mobile Profiling Observations. *30th Conference on Severe Local Storms*, Santa Fe, NM, Amer. Meteor. Soc., P156.

Fricker, T, and **T.A. Murphy**, 2022: Quantifying the Effects of the KULM Radar on Local Climatology, Operational Success, and Societal Impact of Tornadoes. *30th Conference on Severe Local Storms*, Santa Fe, NM, Amer. Meteor. Soc., P126.

Murphy, T.A., T. Stetzer*, L. Walker*, T. Fricker, B. Bryant, and C. Woodrum, 2022: Analysis of the 12 April 2020 North Louisiana Tornadic QLCS. *102nd American Meteorological Society Annual Meeting*, Houston, TX, Amer. Meteor. Soc., 455.

*Zeringue, J., **T.A. Murphy**, B. Bryant, and M. Hemingway, 2022: Evaluating the Three-Ingredients Method for Nowcasting QLCS Tornadoes. *102nd American Meteorological Society Annual Meeting*, Houston, TX, Amer. Meteor. Soc., 13C.2.

*Zeringue, J., R. Wade, and **T. Murphy**, 2021: Verifying the Three Ingredients Method for Nowcasting Quasi-Linear Convective System (QLCS) Tornadoes. *20th Annual American Meteorological Society Student Conference*, Virtual Meeting, Amer. Meteor. Soc., S112.

Lyza, A.W., **T.A. Murphy**, B.T. Goudeau, P. Pangle, K.R. Knupp, and R.A. Wade, 2020: Observational Summary of the Effects of the Northeastern Alabama Plateaus on the Near-Storm Environment of Tornadic Storms during VORTEX-SE. *30th Conf. on Weather Analysis and Forecasting*, Boston, MA, Amer. Meteor. Soc., 3B.4.

- *Zeringue, J., B. Bryant, M. Duplantis, and **T.A. Murphy**, 2020: Case Study of the Ruston, Louisiana EF3 Tornado of 25 April 2019. *19th Annual American Meteorological Society Student Conference*, Boston, MA, Amer. Meteor. Soc., S168.
- *Frazier, L., R.A. Wade, and **T.A. Murphy**, 2020: A Comparison of Tornadoic Events in Complex Terrain during VORTEX-SE. *19th Annual American Meteorological Society Student Conference*, Boston, MA, Amer. Meteor. Soc., S175.
- *Walker, L., **T.A. Murphy**, and N.R. White, 2019: College student perceptions of National Weather Service flood products. *Mid-South Sociological Association 45th Annual Meeting*, Jackson, MS, MSSA.
- Murphy, T.A.**, M.I. Biggerstaff, E.N. Rasmussen, and C.L. Ziegler, 2019: An overview of Spring 2018 VORTEX-SE observations in northern Louisiana. *National Weather Association 44th Annual Meeting*, Huntsville, AL, Nat. Wea. Assoc.
- Murphy, T.A.**, C. Palmer, C. Entremont, and D. Lamb, 2019: Early Operational Successes of the University of Louisiana at Monroe's S-band Polarimetric Doppler Radar. *National Weather Association 44th Annual Meeting*, Huntsville, AL, Nat. Wea. Assoc.
- Ziegler, C.L., **T.A. Murphy**, K.L. Elmore, M.I. Biggerstaff, Z. Wang, E.N. Rasmussen, D.P. Jorgensen, and A.A. Alford*, 2018: Kinematics, Thermodynamics, and Microphysics of the Tornadoic 13-14 April 2018 Calhoun, LA Supercell during VORTEX-SE. *29th Conference on Severe Local Storms*, Stowe, VT, Amer. Meteor. Soc., 8.4.
- Murphy, T.A.**, C. Entremont, D. Lamb, and C. Palmer, 2018: Early Operational Successes of the University of Louisiana at Monroe's S-band Polarimetric Doppler Radar. *16th Southeast Severe Storms Symposium*, Starkville, MS, Mississippi State University.
- Wade, R.A., **T.A. Murphy**, P. Pangle*, A.W. Lyza*, and K.R. Knupp, 2018: Topographic Enhancement of Convective and Tornadoic Environments within Complex Terrain during the VORTEX-SE Field Campaign. *16th Southeast Severe Storms Symposium*, Starkville, MS, Mississippi State University.
- Murphy, T.A.**, C. Entremont, D. Lamb, and C. Palmer, 2018: Early Operational Successes of the University of Louisiana at Monroe's S-band Polarimetric Doppler Radar. *15th Southeastern Coastal and Atmospheric Processes Symposium*, Mobile, AL, University of South Alabama.
- Murphy, T.A.**, R.A. Wade, A.W. Lyza*, and K.R. Knupp, 2018: An Examination of Convective Enhancement within Complex Terrain on 5 April 2017 during VORTEX-SE. *15th Southeastern Coastal and Atmospheric Processes Symposium*, Mobile, AL, University of South Alabama.
- Wade, R.A., **T.A. Murphy**, D.D. Turner, T.R. Lee, M. Buban, P. Pangle*, A.W. Lyza*, and K.R. Knupp, 2017: Understanding the Variability of Southeastern Severe Storm Environments using Mobile Soundings during VORTEX-SE. *3rd VORTEX-SE Science Workshop*, Huntsville, AL.
- Brown, M., M.D. Parker, **T.A. Murphy**, and A. Wade, 2017: Understanding the Variability and Predictability of Southeastern Severe Storm Environments using Mobile Soundings during VORTEX-SE. *3rd VORTEX-SE Science Workshop*, Huntsville, AL.
- Wade, R.A., **T.A. Murphy**, D.D. Turner, T.R. Lee, M. Buban, P. Pangle*, A.W. Lyza*, and K.R. Knupp, 2017: A Comparison of Atmospheric Profilers and Environmental Soundings in Complex Terrain during the 2017 VORTEX-SE Field Campaign. *38th Conference on Radar Meteorology*, Chicago, IL, Amer. Meteor. Soc., P288.
- Murphy, T.A.**, C. Entremont, B. Hughes, D. Lamb, and M. Mayeaux, 2017: Early Operational Successes of the University of Louisiana at Monroe's S-band Polarimetric Doppler Radar. *38th Conference on Radar Meteorology*, Chicago, IL, Amer. Meteor. Soc., P223

- Murphy, T.A.**, R.A. Wade, A.W. Lyza*, and K.R. Knupp, 2017: An Examination of Convective Enhancement within Complex Terrain on 5 April 2017 during VORTEX-SE. *38th Conference on Radar Meteorology*, Chicago, IL, Amer. Meteor. Soc., P150.
- Murphy, T.A.**, T. Aydell*, I. Bordelon*, S. Kreller*, A. Melancon*, H.M. Mallinson*, and E.M. Murillo*, 2016: An Overview of ULM Participation in the VORTEX-SE Field Program. *28th Conference on Severe Local Storms*, Portland, OR, Amer. Meteor. Soc., P78.
- *Lyza, A.W., **T.A. Murphy**, D.M. Conrad*, and K.R. Knupp, 2016: Environmental Evolution and Storm-Scale Observations of the 31 March 2016 Northern Alabama Tornado Event during VORTEX-SE. *28th Conference on Severe Local Storms*, Portland, OR, Amer. Meteor. Soc.
- *Mallinson, H.M., and **T.A. Murphy**, 2016: Comparing Environmental Conditions of Convective Storms Producing Damaging Winds and Hail. *LSU-S Student Scholars Forum*, Shreveport, LA, LSU-Shreveport.
- +*Murillo, E.M., and **T.A. Murphy**, 2016: Classification and Analysis of Tornado Outbreaks in Dixie Alley and Tornado Alley. *LSU-S Student Scholars Forum*, Shreveport, LA, LSU-Shreveport. **Awarded “Best Undergraduate Oral Presentation”**
- *Mallinson, H.M., and **T.A. Murphy**, 2016: Comparing Environmental Conditions of Convective Storms Producing Damaging Winds and Hail. *15th Annual American Meteorological Society Student Conference*, New Orleans, LA, Amer. Meteor. Soc., S99.
- *Murillo, E.M., and **T.A. Murphy**, 2016: Classification and Analysis of Tornado Outbreaks in Dixie Alley and Tornado Alley. *15th Annual American Meteorological Society Student Conference*, New Orleans, LA, Amer. Meteor. Soc., S87.
- *Lisauckis, C.A., K.R. Knupp, **T.A. Murphy**, T.A. Coleman, and A.W. Lyza*, 2016: Investigating Tornadogenesis Events within the ARMOR Domain. *15th Annual American Meteorological Society Student Conference*, New Orleans, LA, Amer. Meteor. Soc., S78.
- Murphy, T.A.**, A.T.C. Hanks, and E.A. Pani, 2015: The University of Louisiana at Monroe’s Polarimetric Doppler Radar – Teaching, Research, and Operations. *37th Conference on Radar Meteorology*, Norman, OK, Amer. Meteor. Soc., P264.
- *Lisauckis, C.A., K.R. Knupp, **T.A. Murphy**, and A.W. Lyza*, 2015: Storm Mode Variability over northern Alabama within the Domain of the ARMOR Radar. *37th Conference on Radar Meteorology*, Norman, OK, Amer. Meteor. Soc.,
- Wade, R., K. Knupp, D. Phillips, **T.A. Murphy**, A. Sherrer, A. Mayhew, A. Lyza*, and B. Freitag*, 2015: MIPS observations of the kinematic, thermodynamic, and microphysical characteristics of lake-effect snow bands during The Ontario Winter Lake-effect Systems (OWLLeS) Field Project. *37th Conference on Radar Meteorology*, Norman, OK, Amer. Meteor. Soc.,
- *Lyza, A.W., **T.A. Murphy**, and K. Knupp, 2014: Overview of the 28-29 April 2014 Tennessee Valley Tornado Outbreak. *27th Conference on Severe Local Storms*, Madison, WI, Amer. Meteor. Soc., P120.
- Murphy, T.A.**, and K.R. Knupp, 2014: Prevalence and characteristics of atmospheric waves in severe weather environments. *94th American Meteorological Society Annual Meeting*, Atlanta, GA, Amer. Meteor. Soc., P837.
- 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. *38th National Weather Association Annual Meeting*, Charleston, SC, Nat. Wea. Assoc.

- 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. *36th Conference on Radar Meteorology*, Breckenridge, CO, Amer. Meteor. Soc., P258.
- 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. *11th Annual Southeast Severe Storms Symposium*, Starkville, MS, Mississippi State University.
- 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. *26th Conference on Severe Local Storms*, Nashville, TN, Amer. Meteor. Soc., P107.
- Murphy, T.A.,** R.A. Wade, T.A. Coleman, and K.R. Knupp, 2012: Analysis and recent observations of wave interactions in North Alabama. *9th Southeastern Coastal and Atmospheric Processes Symposium*, Mobile, AL, University of South Alabama.
- Murphy, T.A.,** R.A. Wade, T.A. Coleman, and K.R. Knupp, 2012: Analysis and recent observations of wave interactions in North Alabama. *10th Annual Southeast Severe Storms Symposium*, Starkville, MS, Mississippi State University.
- Murphy, T.A.,** T.A. Coleman, R.A. Wade, and K.R. Knupp, 2012: Radar overview and visual documentation of the 27 April 2011 tornadic outbreak. *92nd American Meteorological Society Annual Meeting*, New Orleans, LA, Amer. Meteor. Soc., J1.1.
- +Murphy, T.A.,** R.A. Wade, T.A. Coleman, and K.R. Knupp, 2011: Observations and operational importance of wave like features interacting with quasi-linear convective systems. *36th National Weather Association Annual Meeting*, Birmingham, AL, Nat. Wea. Assoc. **Awarded “Best Graduate Student Oral Presentation”**
- Murphy, T.A.,** T.A. Coleman, and K.R. Knupp, 2011: Preliminary observations of convective initiation and mesocyclone interactions with atmospheric waves on 27 April 2011. *36th National Weather Association Annual Meeting*, Birmingham, AL, Nat. Wea. Assoc.
- Murphy, T.A.,** R.A. Wade, T.A. Coleman, and K.R. Knupp, 2011: Observations of wave-like features interacting with a tornadic line-echo wave pattern. *35th Conference on Radar Meteorology*, Pittsburgh, PA, Amer. Meteor. Soc., 4B.6.
- Murphy, T. A.,** R.A. Wade, T.A. Coleman, and K.R. Knupp, 2011: Recent radar observations of wave-like features interacting with quasi-linear convective systems. *35th Conference on Radar Meteorology*, Pittsburgh, PA, Amer. Meteor. Soc., 191713.
- Murphy, T.A.,** and K.R. Knupp, 2010: Super Tuesday storm variability. *25th Conference on Severe Local Storms*, Denver, CO, Amer. Meteor. Soc., P8.20.
- Murphy, T.A.,** and K.R. Knupp, 2010: Super Tuesday storm variability. *7th Southeastern Coastal and Atmospheric Processes Symposium*, Mobile, AL, University of South Alabama.
- Murphy, T.A.,** and K.R. Knupp, 2009: Variability in the kinematic structure of Super Tuesday storms. *34th Conference on Radar Meteorology*, Williamsburg, VA, Amer. Meteor. Soc., 5B.2.
- Murphy, T.A.,** and M. Anderson, 2009: A North Alabama winter weather event: From a dual-pol perspective. *6th Southeastern Coastal and Atmospheric Processes Symposium*, Mobile, AL, University of South Alabama.

ADDITIONAL PRESENTATIONS

Invited presentations

Feb. 2022	“Efforts to Improve Understanding of Tornadic Quasi-Linear Convective Systems”, Jackson State University
Sept. 2020	“Understanding the Southeast Severe Environment: A VORTEX-SE Summary”, College of the Coast & Environment Seminar Series, LSU
Mar. 2017	“ULM Radar Update,” NWS Shreveport Monroe SKYWARN Class
Oct. 2016	“ULM Radar Update,” NWS Shreveport Monroe SKYWARN Class
Jun. 2016	“VORTEX-SE: Year 1 Review & Year 2 Preview,” Central Mississippi AMS/NWA Chapter
Apr. 2016	“Tornado Climatology & the ULM Polarimetric Doppler Radar,” Louisiana Bankers Association Emergency Preparedness Meeting
Jul. 2015	“ULM’s Polarimetric Doppler Weather Radar,” Southeast Texas/Southwest Louisiana AMS/NWA Chapter
May 2015	“ULM’s Polarimetric Doppler Weather Radar,” Central Mississippi AMS/NWA Chapter
Feb. 2015	“Atmospheric Gravity Waves,” Science Speaker Series, Louisiana School for Math, Science, and the Arts
Apr. 2014	“Atmospheric Gravity Waves,” University of Louisiana at Monroe
Mar. 2014	“Gravity Wave Interactions with Convection,” Nashville Severe Weather Awareness Day
Mar. 2013	“April 27, 2011 Tornado Outbreak,” Nashville Severe Weather Awareness Day
Jan. 2013	“April 27, 2011 Tornado Outbreak,” Middle Tennessee Chapter of the NWA
Feb. 2012	“Doppler Radar and Polarimetric Analysis,” 3 rd Annual Rocket City WeatherFest
Sept. 2011	“April 27, 2011 Tornado Outbreak,” 2 nd Annual Rocket City WeatherFest

TEACHING EXPERIENCE

*Annotations: *New course development by T. Murphy*

University of Louisiana at Monroe (# of times taught + last taught)

Earth Science (GEOS 1001)*: 11 sections, SU23
Natural Disasters and Hazards (GEOS 1002)*: 7 sections, SP23
Introduction to the Atmosphere (ATMS 1001): 14 sections, SU23
Introduction to Severe Weather (ATMS 1002): 23 sections, FA23
Basic Meteorology Lab I (ATMS 1003): 5 sections, FA23
Introduction to Forecasting Laboratory (ATMS 1025)*: 5 sections, SP23
Weather Analysis and Forecasting (ATMS 2000): 10 sections, FA23
Dynamic Meteorology I (ATMS 3005): 1 section, SP15
Dynamic Meteorology II (ATMS 3006): 1 section, FA14
Intermediate Weather Forecasting (ATMS 3025)*: 8 sections, SP23
Synoptic Meteorology Laboratory (ATMS 4003): 10 sections, FA23
Mesoscale Meteorology (ATMS 4004): 9 sections, SP23
Radar Meteorology (ATMS 4006)*: 4 sections, SP22

University of Alabama in Huntsville

Severe & Hazardous Weather (ATS/ESS 112): 2012–2014 *substitute instructor*
Synoptic Meteorology (ATS/ESS 452): SP12, SP13
Forecasting Mesoscale Processes (ATS 454/554): SP14
Atmospheric Thermodynamics and Cloud Physics (ATS 541): 2012–2014 *substitute instructor*
Ground Based Remote Sensing (ATS 671): 2012–2014 *substitute instructor*

University of South Alabama

Dynamic Meteorology I (MET 354): Fall 2007 *teaching assistant*
Dynamic Meteorology II (MET 355): Spring 2008 *teaching assistant*
Computer Applications in Meteorology (MET 420): Summer 2008 *teaching assistant*

LEADERSHIP, SERVICE, AND OUTREACH

University of Louisiana at Monroe

Service to School, College, or University

- 2023- co-Chair, School of Science Promotion & Tenure Committee
- 2023- Member, Ad-hoc Faculty Grievance Committee
- 2023- Member, Ad-hoc Research Misconduct Committee
- 2020- Member, School of Science Promotion & Tenure Committee
- 2015- Faculty Advisor, ULM HAWCS (High Altitude Weather Collection with Soundings) balloon team
- 2014- Faculty Advisor, ULM Student Chapter of the American Meteorological Society
- 2022-23 Chair, Geosciences (Hydrology) Faculty Search Committee
- 2022-23 Member, ULM Academic Affairs Research, Indirect Cost, and Intellectual Property Committee
- 2022-23 Member, ULM Academic Affairs Student & Faculty Engagement Committee
- 2021-23 Member, Physics Instructor Search Committee
- 2021 Chair, Foundation Awards for Excellence Selection Committee
- 2020-21 Member, ULM Office of Sponsored Programs and Research Director Search Committee
- 2020-21 Member, AIC Council
- 2019-20 Chair, Geography Faculty Search Committee
- 2018-20 Chair & Director, Academic Innovation Center (AIC) Council
- 2018 Member, ULM Emergency Preparedness Committee
- Apr. 2018 AIC “Innovators Among Us” Weather Balloon Demonstration
- Apr. 2018 ULS “Day at the Capitol” Representative and Weather Balloon Launch
- 2016-17 Member, Mathematics Faculty Search Committee
- Feb. 2017 Collaboration Visit, Louisiana Universities Marine Consortium
- 2016 Member, College of Arts, Education, & Sciences Fundraising Committee
- 2014-15 Member, School of Sciences Scholarship and Awards Committee
- 2014-15 Member, Atmospheric Science Faculty Search Committee
- Oct. 2015 ULM ATMS representative, STEM Recruiting at St. Fredericks Catholic High School

Service to Discipline

- 2022- Member, UCAR Unidata Users Committee
- 2021- Member, Data and Modeling Technical Advisory Group, Louisiana Watershed Initiative
- 2017- UCAR Member Representative for ULM
- 2018-23 Earth Science Section Chair, Louisiana Academy of Sciences
- 2022 Reviewer, AMS Weather and Forecasting (1 paper); AMS Monthly Weather Review (1 paper)
- 2021 Reviewer, NSF CAREER proposal (reviewed 1 proposal)
- 2021 Reviewer, AMS Weather and Forecasting (2 papers); AMS Monthly Weather Review (1 paper)
- 2020 Reviewer, NSF-NIST Disaster Resilience tornado proposal panel (reviewed 4 proposals)
- 2020 Reviewer, AMS Monthly Weather Review
- 2020 Reviewer, NSF MRI Proposals (reviewed 1 proposal)
- 2019-21 PERiLS (Propagation, Environment, and Rotation in Linear Storms) Planning Committee
- 2018-19 MESO18-19 Field Campaign Planning Committee (NOAA VORTEX-SE Program)
- 2018-19 NOAA, VORTEX-SE Research Program, Proposal Reviewer
- 2019 NSF, Lower Atmospheric Observing Facilities, Mobile Doppler Radar Facility, Proposal Reviewer
- Mar. 2018 Organizer, VORTEX-SE Media Day at the Monroe Regional Airport
- 2017 NSF, Major Research Instrumentation (MRI) Proposal Review Panel
- 2017 Reviewer, AMS Journal of Applied Meteorology and Climatology
- Nov. 2017 Research participant and presentation, VORTEX-SE Science Workshop
- June 2017 Co-Organizer and Presentation, ULM Radar Partners Meeting with NWS and GOHSEP
- Nov. 2015 Research participant, VORTEX-SE Steering Workshop and Planning Meeting
- Oct. 2015 Early Career Faculty Guest, UCAR Members Meeting
- May 2015 ULM representative, WiFi Committee, National Weather Service – Jackson, MS

Community Service / STEM Outreach / Media Interviews

June 2023 Guest Speaker & Weather Balloon Launch, J.S. Clark School Summer Camp (Monroe, LA)
May 2023 Guest Speaker & Weather Balloon Launch, Sallie Humble Elementary School (Monroe, LA)
Mar. 2023 Guest Speaker & Weather Balloon Launch, Northeast Louisiana Cub Scouts Spring Campout
Feb. 2023 ULM Atmospheric Science Recruiting Booth, Calhoun Middle School Career Fair (Calhoun, LA)
Aug. 2022 Interview, KEDM
June 2022 Guest Speaker & Weather Balloon Launch, Neville High School Summer Camp
Nov. 2021 Weather Balloon Launch, J.S. Clark School STEM Day (Monroe, LA)
Oct. 2020 Weather Balloon Launch, Family Community Christian School (Winnsboro, LA)
Sept. 2020 Weather Balloon Launch & Guest Speaker, Cub Scout Pack 234 (Monroe, LA)
Oct. 2019 Talk on Weather Safety, Trail Life K-5 and 5th Grade Group
May 2018 Guest Speaker, Rotary Club of the Twin Cities
Apr. 2018 Weather Balloon Launch, Louisiana Purchase Gardens & Zoo Easter Eggstravaganza
Oct. 2017 Radar Ribbon Cutting Tour Leader & Media Interviews (KNOE, KTVE, KEDM, LA Radio Network)
Sept. 2017 Weather Balloon Launch and Speaker, Grace Episcopal School 4th Grade Class
Apr. 2017 Guest Seminar on Tornadoes & Weather Balloon Launch, Lee Junior High School
Apr. 2017 Weather Balloon Launch, Louisiana Purchase Gardens & Zoo Easter Eggstravaganza
Feb. 2017 Weather Balloon Launch, LearningTECH/Quest School
Nov. 2016 Research participant and presentation, VORTEX-SE Workshop and Planning Meeting
Sept. 2016 Interview (local TV), KNOE, Recent ATMS Grants
June 2016 Weather Balloon Launch, Girls Power Up STEM Summer Camp
Feb. 2016 Judge, LSU-S Student Scholars Forum
Feb. 2016 Weather Balloon Launch, Jesus Good Shepherd School
Feb. 2016 Interview (local TV), KNOE, Benefits of ULM Radar
Feb. 2016 Interview (newspaper), The News Star, ULM participation in Vortex-SE
Nov. 2015 Interview (local TV), KTVE, ULM participation in Vortex-SE
Nov. 2015 Interview (local TV), KNOE, ULM participation in Vortex-SE
Sep. 2015 Interview (local radio), KEDM, Vortex-SE and ULM Radar
Jul. 2015 Instructor, Bayou Discovery Camp
Feb. 2015 Research seminar & recruiting visit, Louisiana School for Math, Science, and the Arts
Feb. 2015 Judge, Louisiana High School Technology Online Challenge

Undergraduate Researchers Supervised at the University of Louisiana at Monroe

2022- Emily Allen, Kylie Kieff, Alec Soileau, Isabelle Zeringue, NOAA 3IM Grant Work
Fall 2022 Emily Allen, ULM Emerging Scholars Program
2021- Haniston Holloway & Isaiah Montgomery, NOAA PERiLS grant work
2021-22 Jacob Zeringue, UCAR COMET Partners Project Grant Work
2021 Taylor Norred, NSF Rapid Grant
2020-21 Jacob Zeringue, UAH REU co-mentor
2020-21 Tessa Stetzer and Lauren Walker, NSF Rapid Tornado Grant Work
Fall 2020 Ashley Russell, ULM Emerging Scholars Program
Fall 2020 Abby Herdliska, ULM Emerging Scholars Program
2019-20 Lillian Frazier, UAH REU co-mentor
2019-20 Jacob Zeringue, ULM Emerging Scholars Program
2018-19 MESO18-19 field observation team (21 students)
2018-19 Lauren Walker, ULM Emerging Scholars Program
2018-19 Joseph Parton, ULM Emerging Scholars Program
Spring 2018 VORTEX-SE field observation team (18 students)
Spring 2018 Sachin Thapa, ULM Emerging Scholars Program
Fall 2017 Brandon Cohen, ULM Emerging Scholars Program
Spring 2017 Taylor Aydell, Isaiah Bordelon, Brandon Cohen, Collin Landry, Alex Melancon, Sisam Shrestha, Nicholas Slaughter, and Sachin Thapa (VORTEX-SE field balloon team)
Fall 2016 Taylor Aydell, ULM Emerging Scholars Program
Fall 2016 Devorea McMillian, ULM Emerging Scholars Program
Spring 2016 Taylor Aydell, Isaiah Bordelon, Stephen Kreller, Holly Mallinson, Alex Melancon, and Elisa Murillo (VORTEX-SE field balloon team)

Spring 2016 John Dopieralla, ULM Emerging Scholars Program
 Spring 2016 Sisam Shrestha, ULM Emerging Scholars Program
 2015-16 Elisa Murillo, “Severity of Tornado Outbreaks in the Southeastern United States versus the Great Plains,” *unfunded research project*
 2015-16 Holly Mallinson, “Characteristics of Damaging Wind Events,” *unfunded research project*
 Fall 2015 Collin Landry, ULM Emerging Scholars Program
 Fall 2015 Cameron Dauterive, ULM Emerging Scholars Program

Graduate Committees

Bibek Kandel, “Characterizing Water Fluxes in Bottomland Hardwood Forest and an Analysis of Drivers”, M.S. thesis, anticipated graduation Fall 2023 (ULM)
 Melissa Bloch, “Characterization of CO2 Fluxes over a Bottomland Hardwood Forest in Northeast Louisiana”, M.S. thesis, Graduated Spring 2021 (ULM)
 Tony Lyza, “An Initial Investigation of the Role of the Northeastern Alabama Plateaus in Modifying the Near-Storm Environment of Potentially Tornadoic Storms”, Ph.D. dissertation, Graduated Spring 2019 (UAH)

University of Alabama in Huntsville

2008-14 Public tour lead for UAH severe weather research vehicles
 Exhibit at 94th Annual AMS Meeting, Atlanta, GA (2014)
 STEM outreach event at Hampton Cover Middle School, Huntsville, AL (2013)
 AMS outreach event at Buckhorn High School, Huntsville, AL (2013)
 41st Conference on Broadcast Meteorology, Nashville, TN (2013)
 11th Annual Southeast Severe Storms Symposium, Starkville, MS (2013)
 9th Southeastern Coastal and Atmospheric Processes Symposium, Mobile, AL (2012)
 3rd Rocket City Weather Fest, Huntsville, AL (2012)
 2nd Rocket City Weather Fest, Huntsville, AL (2011)
 Various elementary, middle, and high school groups (2008-14)
 2011-12 Graduate Student Representative, Department of Atmospheric Science
 2011-12 Lead graduate student for new student recruiting, Department of Atmospheric Science
 2011, 12 Planning committee and volunteer, Rocket City Weather Fest
 2011 National Weather Service Emergency Response Meteorologist (ER-MET) (assisted in tornado track surveys after 27 April 2011 outbreak)

Undergraduate Researchers Supervised at the University of Alabama in Huntsville

2014 Chris Lisauckis, “A Climatology of Wave-like Reflectivity Segments,” senior capstone project
 2013 Elizabeth Lawson, “Synoptic Analysis of the 27 April 2011 Tornado Outbreak,” senior capstone project

ADDITIONAL RESEARCH OR PROFESSIONAL ACTIVITIES _____

2018- Member, Louisiana Academy of Sciences
 2011- Member, National Weather Association
 2008- Member, American Meteorological Society

Published Datasets with a DOI

Murphy, T. 2016. VORTEX-SE 2016: ULM Mobile Radiosonde Data. Version 1.0. UCAR/NCAR - Earth Observing Laboratory. <https://doi.org/10.5065/D68P5XW1>.

Murphy, T. 2017. VORTEX-SE 2017: University of Louisiana at Monroe (ULM) Microwave Profiler Radiometer (MPR) Data. Version 1.0. UCAR/NCAR - Earth Observing Laboratory. <https://doi.org/10.5065/D6BR8QW0>.

Murphy, T. 2018. VORTEX-SE 2017: ULM Mobile Radiosonde Data. Version 1.2. UCAR/NCAR - Earth Observing Laboratory. <https://doi.org/10.5065/D6ZK5FD4>.

Murphy, T. 2018. VORTEX-SE 2018: ULM Mobile Radiosonde Data. Version 1.1. UCAR/NCAR - Earth Observing Laboratory. <https://doi.org/10.5065/D6Z31XGG>.

Murphy, T. 2018. VORTEX-SE 2018: KULM Radar Data. Version 1.0. UCAR/NCAR – Earth Observing Laboratory. <https://doi.org/10.5065/D6PV6J6B>

Murphy, T. 2019. VORTEX-SE MESO18-19: University of Louisiana Monroe Radiosonde Data. Version 1.1. UCAR/NCAR - Earth Observing Laboratory. <https://doi.org/10.26023/TNQ9-VT30-WA0J>.

Murphy, T. 2022. PERiLS_2022: ULM Mobile Radiosonde Data. Version 1.0. UCAR/NCAR - Earth Observing Laboratory. <https://doi.org/10.26023/TJ7Y-E1RH-7X0X>.

Murphy, T. 2023. PERiLS_2022: ULM Mobile Doppler Wind Lidar Data. Version 1.0. UCAR/NCAR – Earth Observing Laboratory. <https://doi.org/10.26023/JKS8-7RA4-W312>.

Research Field Deployments

2022-23	Propagation, Environment, and Rotation in Linear Storms (PERiLS)
2020-21	Bayou Desiard Afternoon-to-Evening Transition Experiment
2018-19	MESO18-19 (sub-field campaign under VORTEX-SE program)
2016-18	Verification of the Origins of Rotation in Tornadoes Experiment – Southeast (VORTEX-SE)
2013-14	Ontario Winter Lake-effect Systems (OWLeS)
2011-13	Atmospheric Boundary Identification and Delineation Experiment III (ABIDE-III)
2008-12	UAH Tornadoes & Hurricanes, Observations, & Research (THOR)

- Radar analysis experience (single and multi-Doppler) using the following software: SOLOII, SOLO3, NCAR RadX/LROSE, REORDER, CEDRIC, GRLevel2 Analyst, Py-ART
- Data analysis and visualization using the following software: IDL, NCL, Python, PV-Wave, Fortran
- Experience operating and troubleshooting the following research instruments: S-, C-, and X-band polarimetric Doppler radars, Doppler wind profilers, microwave profiling radiometers, lidar ceilometers, Doppler wind lidars, parsivel disdrometers, electric field mills, hotplate precipitation sensors, high-resolution time-lapse weather cameras, iMet radiosonde systems
- Actively manage the following research instruments at ULM: S-band polarimetric Doppler radar, Radiometrics 35-channel microwave radiometer, two iMet radiosonde systems, OTT PARSIVEL disdrometer, Doppler wind lidar, mobile profiling laboratory

AWARDS AND HONORS

2020	<i>Excellence in Faculty Research</i> , ULM Foundation Awards for Excellence
2020	Spring 2020 Researcher of the Semester (Awarded by ULM’s OSPR and Research Council)
2019	Nominated, <i>Outstanding Faculty Award for Research</i> , College of Arts, Education, and Sciences, ULM
2018	<i>Outstanding Faculty Award for Teaching</i> , College of Arts, Education, and Sciences, ULM
2017-20	Endowed Professor in Geosciences, ULM
2011	Graduate Research Assistant of the Year, University of Alabama in Huntsville
2011	Best Graduate Student Oral Presentation, 36 th Annual National Weather Association Meeting
2007	Dr. Bill Williams Endowment Scholarship, University of South Alabama