Thomas J. Galarneau

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Last updated: January 2024

Chronology of Education:

Ph.D., 2010, University at Albany
- Major: Atmospheric Science
- Dissertation: “Tropical Cyclogenesis Associated with Extratropical Precursors in the North Atlantic Basin”
- Advisor: Prof. Lance F. Bosart

M.S., 2007, University at Albany
- Major: Atmospheric Science
- Thesis: “A Multiscale Examination of the Long-Lived Mesoscale Convective Vortex of 10–13 June 2003”
- Advisor: Prof. Lance F. Bosart

M.S., 2003, University at Albany
- Major: Basic Classroom Teaching–Earth Science

B.S., 2001, University at Albany
- Major: Atmospheric Science

Chronology of Employment:

2022–	Research Physical Scientist, NOAA/OAR National Severe Storms Laboratory (NSSL), Norman, OK
2019–2022	Research Scientist III and Team Lead, Cooperative Institute for Severe and High-Impact Weather Research and Operations (CIWRO), University of Oklahoma (OU), Norman, OK (at NOAA NSSL)
2015–2019	Assistant Professor, Department of Hydrology and Atmospheric Sciences (HAS), University of Arizona, Tucson, AZ
2011–2015	Project Scientist I/II, Mesoscale and Microscale Meteorology Laboratory, National Center for Atmospheric Research (NCAR), Boulder, CO
2010–2011	Visiting Fellow, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO (at NOAA Earth System Research Laboratory)
2003–2010	Graduate Research and Teaching Assistant and Instructor, Department of Atmospheric and Environmental Sciences, University at Albany, Albany, NY
2002–2003	Earth Science Teacher, Schuylerville Central Schools, Schuylerville, NY

Honors and Awards:

2018	Award for Excellence at the Student Interface, HAS, University of Arizona
2016	Award for Excellence at the Student Interface, HAS, University of Arizona
2016	American Meteorological Society (AMS) Editor’s Award for *Monthly Weather Review*
2013	NCAR Recognition Award for Outstanding Publication for the paper “Diagnosing Forecast Errors in Tropical Cyclone Motion”
2011	Distinguished Doctoral Dissertation Award, College of Arts and Sciences, University at Albany

2011 Narayan R. Gokhale Distinguished Research Scholarship Award, Department of Atmospheric and Environmental Sciences, University at Albany
2009 Advanced Study Program Graduate Student Visiting Fellowship, NCAR
2008 Bernard Vonnegut Award for Excellence in Teaching, Department of Atmospheric and Environmental Sciences, University at Albany
2006 Outstanding Student Poster Presentation Award, AMS *Symposium on Challenges of Severe Convective Storms*

Current Professional Activities:

- Federal Team Lead, Forecast Applications and Social Science Team (FASST), Forecast Research & Development Division (FRDD), NSSL (since 2022)
- Co-Chair, NOAA/OAR Severe Weather Weeks 2–4 Tiger Team (since 2023)
- NSSL Fire Weather Research Team Member (since 2022)
- VORTEX-SE/USA Working Group Member (since 2022)
- CIWRO Fellow, University of Oklahoma (since 2022)
- Designated Campus Colleague, University of Arizona (since 2019)
- Co-PI on collaborative National Science Foundation grant to study QBO/MJO influence on the midlatitude jet stream (since 2020)
- Editor, AMS *Monthly Weather Review* (since 2023)
- Hazardous Weather Testbed Spring Forecasting Experiment (SFE) facilitator (since 2021)

Previous Professional Activities (since 2019):

- Forecaster and field deployment participant, Propagation, Evolution, and Rotation in Linear Storms (PERiLS) Experiment (2022–2023)
- Associate Editor, AMS *Monthly Weather Review* (2012–2022)
- Science Lead, CIWRO UAS program (2021–2022)
- Team Lead, CIWRO Observations and Processes Team (2020–2022)
- School of Meteorology (OU) Instructor of Record (2020–2022)
- School of Meteorology (OU) faculty search committee special member (2021–2022)
- CIWRO Peter Lamb postdoc committee member (2019–2022)
- CIWRO Awards committee member (2019–2021)
- NASA ROSES Review Panel member (2021)
- Member and Chair, AMS Committee on Mesoscale Processes (Member 2014–2020; Chair 2016–2019; Emeritus Chair 2019–2020)
- NOAA Developmental Testbed Center Science Advisory Board member (2017–2020)
- Guest Editor, Special Issue "Advancements in Mesoscale Weather Analysis and Prediction" for the journal *Atmosphere* (2018–2019)

Conference Service Activities (since 2019):

- Session chair, AMS 32nd Conference on Weather Analysis and Forecasting, 17 July 2023
- Session chair, AMS 20th Conference on Mesoscale Processes, 17 July 2023
- Session chair, AMS Third Symposium on Mesoscale Processes, 9 January 2023
- Program chair, AMS Special Symposium on Mesoscale Meteorological Extremes: Understanding, Prediction, and Projection, 7–8 January 2019

Refereed Journal Articles:

47. Burke, P., J. Barnwell, M. Reagan, M. A. Rose, T. J. Galarneau, A. Orrison, and R. Otto, 2024: The

21 August 2021 catastrophic flash flood at Waverly, Tennessee: Harnessing the Warn-on-Forecast System for confident pre-warning messaging of extreme rainfall. *Bull. Amer. Meteor. Soc.,* submitted.

46. Hoopes, C. A., L. L. Hood, and T. J. Galarneau, Jr., 2024: Lagged response of tropical convection and precipitation to solar ultraviolet variations on intraseasonal time scales. *Geophys. Res. Lett.,* submitted.

45. Cui, W., T. J. Galarneau, Jr., and K. A. Hoogewind, 2024: Changes in mesoscale convective system precipitation structures in response to a warming climate. *J. Geophys. Res.,* in review.

44. Zeng, X., H. Su, S. Hristova-Veleva, D. J. Posselt, R. Atlas, S. T. Brown, R. D. Dixon, E. Fetzer, T. J. Galarneau, Jr., M. Hardesty, J. H. Jiang, P. P. Kangaslahti, A. Ouyed, T. S. Pagano, O. Reitebuch, R. Roca, A. Stoffelen, S. Tucker, A. Wilson, L. Wu, and I. Yanovsky, 2024: Vientos - A new satellite mission concept for 3D wind measurements by combining passive water vapor sounders with Doppler wind lidar. *Bull. Amer. Meteor. Soc.,* **105,** E357–E369, doi:10.1175/BAMS-D-22-0283.1.

43. Wang, Y., X. Zeng, X. Xu, T. J. Galarneau, Jr., F. Li, and Y. Zhao, 2024: Power spectra and diurnal variation of low-level horizontal winds observed by a wind profiler radar network over China. *Geophys. Res. Lett.,* **51,** e2023GL105652, doi:10.1029/2023GL105652.

42. Galarneau, T. J., Jr., X. Zeng, R. D. Dixon, A. Ouyed, H. Su, and W. Cui, 2023: Tropical mesoscale convective system formation environments. *Atmos. Sci. Lett.,* **24,** e1152, doi:10.1002/asl.1152.

41. Ouyed, A., N. Smith, X. Zeng, T. Galarneau, Jr., H. Su, and R. Dixon, 2023: Global three-dimensional water vapor feature-tracking for horizontal winds using hyper-spectral infrared sounder data from overlapped tracks of two satellites. *Geophys. Res. Lett.,* **50,** e2022GL101830, doi:10.1029/2022GL101830.

40. Hood, L. L., N. E. Trencham, and T. J. Galarneau, Jr., 2023: QBO/Solar influences on the tropical Madden-Julian Oscillation: A mechanism based on extratropical wave forcing in late fall and early winter. *J. Geophys. Res.,***128,** e2022JD037824, doi:10.1029/2022JD037824.

39. Galarneau, T. J., Jr., L. J. Wicker, K. H. Knopfmeier, W. J. S. Miller, P. S. Skinner, and K. A. Wilson, 2022: Short-Term prediction of a nocturnal significant tornado outbreak using a convection-allowing ensemble. *Wea. Forecasting*, **37,** 1027–1047, doi:10.1175/WAF-D-21-0160.1.

38. Clark, A., I. Jirak, B. Gallo, K. Knopfmeier, B. Roberts, M. Krocak, J. Vancil, K. Hoogewind, N. Dahl, E. Loken, D. Jahn, D. Harrison, D. Imy, P. Burke, L. Wicker, P. Skinner, P. Heinselman, P. Marsh, K. Wilson, A. Dean, G. Creager, T. Jones, J. Gao, Y. Wang, M. Flora, C. Potvin, C. Kerr, N. Yussouf, J. Martin, J. Guerra, B. Matilla, and T. Galarneau, 2022: The 2nd Real-Time, Virtual Spring Forecasting Experiment to Advance Severe Weather Prediction. *Bull. Amer. Meteor. Soc.,* **103,** E1114–E1116, doi:10.1175/BAMS-D-21-0239.1.

37. Galarneau, T. J., Jr., and M. L. Weisman, 2020: A comparison of the vorticity dynamics governing the oceanic bomb cyclone of 4–5 January 1989 and the super derecho of 8 May 2009. *J. Atmos. Sci.,* **77,** 3081–3103, doi:10.1175/JAS-D-20-0179.1.

36. Galarneau, T. J., Jr., and X. Zeng, 2020: The Hurricane Harvey (2017) Texas rainstorm: Synoptic analysis and sensitivity to soil moisture. *Mon. Wea. Rev.,* **148,** 2479–2502, doi:10.1175/MWR-D-19-0308.1.

35. Hood, L. L., M. A. Redman, W. L. Johnson, and T. J. Galarneau, Jr., 2020: Stratospheric influences on the MJO-induced Rossby wave train: Effects on intraseasonal climate. *J. Climate,* **33,** 365–389, doi:10.1175/JCLI-D-18-0811.1.

34. Keller, J. H., C. M. Grams, M. Riemer, H. M. Archambault, L. Bosart, J. D. Doyle, J. L. Evans, T. J. Galarneau, Jr., K. Griffin, P. A. Harr, N. Kitabatake, R. McTaggart-Cowan, F. Pantillon, J. Quinting, C. A. Reynolds, E. A. Ritchie, R. D. Torn, and F. Zhang, 2019: The extratropical transition of tropical cyclones. Part II: Interaction with the midlatitude flow, downstream impacts and implications in predictability. *Mon. Wea. Rev.,* **147,** 1077–1106, doi:10.1175/MWR-D-17-0329.1.

33. Ralph, F. M., M. D. Dettinger, M. M. Cairns, T. J. Galarneau, Jr., and J. Eylander, 2018: Defining

"Atmospheric River:" How the Glossary of Meteorology helped resolve a debate. *Bull. Amer. Meteor. Soc.,* **99,** 837–839, doi:10.1175/BAMS-D-17-0157.1.

32. Fowler, J. P., and T. J. Galarneau, Jr., 2017: Influence of storm-storm and storm-environment interactions on tropical cyclone formation and evolution. *Mon. Wea. Rev.,* **145,** 4855–4875, doi:10.1175/MWR-D-17-0131.1.

31. Evans, C., K. M. Wood, S. D. Aberson, H. M. Archambault, S. M. Milrad, L. F. Bosart, K. L. Corbosiero, C. A. Davis, J. R. Dias Pinto, J. Doyle, C. Fogarty, T. J. Galarneau, Jr., C. M. Grams, K. S. Griffin, J. Gyakum, R. E. Hart, N. Kitabatake, H. S. Lentink, R. McTaggart-Cowan, W. Perrie, J. F. D. Quinting, C. A. Reynolds, M. Riemer, E. Ritchie, Y. Sun, and F. Zhang, 2017: The extratropical transition of tropical cyclones. Part I: Cyclone evolution and direct impacts. *Mon. Wea. Rev.,* **145,** 4317–4344, doi:10.1175/MWR-D-17-0027.1.

30. Ralph, F. M., and T. J. Galarneau, Jr., 2017: The Chiricahua Gap and the role of easterly water vapor transport in southeastern Arizona monsoon precipitation. *J. Hydrometeor.,* **18,** 2511–2520, doi:10.1175/JHM-D-17-0031.1.

29. Torn, R. D., G. S. Romine, and T. J. Galarneau, Jr., 2017: Sensitivity of dryline convection forecasts to upstream forecast errors for two weakly forced MPEX cases. *Mon. Wea. Rev.,* **145,** 1831–1852, doi:10.1175/MWR-D-16-0457.1.

28. Cordeira, J. M., N. D. Metz, M. E. Howarth, and T. J. Galarneau, Jr., 2017: Multiscale upstream and in-situ and precursors to the elevated mixed layer and high-impact weather over the Midwest U.S. *Wea. Forecasting,* **32,** 905–923, doi:10.1175/WAF-D-16-0122.1.

27. Weisman, M. L., R. J. Trapp, G. Romine, C. Davis, R. Torn, M. Baldwin, L. Bosart, J. Brown, M. Coniglio, D. Dowell, C. Evans, T. J. Galarneau, Jr., J. Haggerty, T. Hock, K. Manning, P. J. Roebber, P. Romashkin, R. Schumacher, C. S. Schwartz, R. Sobash, D. Stensrud, and S. B. Trier, 2015: The Mesoscale Predictability Experiment (MPEX). *Bull. Amer. Meteor. Soc.,* **96,** 2127–2149, doi:10.1175/BAMS-D-13-00281.1.

26. McTaggart-Cowan, R., E. L. Davies, J. G. Fairman, Jr., T. J. Galarneau, Jr., and D. M. Schultz, 2015: Revisiting the 26.5°C sea surface temperature threshold for tropical cyclone development. *Bull. Amer. Meteor. Soc.,* **96,** 1929–1943, doi:10.1175/BAMS-D-13-00254.1.

25. Galarneau, T. J., Jr., and T. M. Hamill, 2015: Diagnosis of track forecast errors for tropical cyclone Rita (2005) using GEFS reforecasts. *Wea. Forecasting,* **30,** 1334–1354, doi:10.1175/WAF-D-15-0036.1.

24. Galarneau, T. J., Jr., 2015: Influence of a predecessor rain event on the track of tropical cyclone Isaac (2012). *Mon. Wea. Rev.,* **143,** 3354–3376, doi:10.1175/MWR-D-15-0053.1.

23. Drews, C., and T. J. Galarneau, Jr., 2015: Directional analysis of the storm surge from Hurricane Sandy 2012, with Applications to Charleston, New Orleans, and the Philippines. *PLoS ONE,* **10,** e0122113, doi:10.1371/journal.pone.0122113.

22. Galarneau, T. J., Jr., R. McTaggart-Cowan, L. F. Bosart, and C. A. Davis, 2015: Development of North Atlantic tropical disturbances near upper-level potential vorticity streamers. *J. Atmos. Sci.,* **72,** 572–597, doi:10.1175/JAS-D-14-0106.1.

21. Galarneau, T. J, Jr., C. A. Davis, and M. A. Shapiro, 2013: Intensification of Hurricane Sandy (2012) through extratropical warm core seclusion. *Mon. Wea. Rev.*, **141,** 4296–4321, doi:10.1175/MWR-D-13-00181.1.

20. Johnsen, P., M. Straka, M. Shapiro, A. Norton, and T. Galarneau, 2013: Petascale WRF simulation of Hurricane Sandy – Deployment of NCSA's Cray XE6 Blue Waters. Proceedings of SC13, *The International Conference for High Performance Computing, Networking, Storage, and Analysis,* Denver, CO, Association for Computing Machinery, Article No. 63, doi:10.1145/2503210.2503231.

19. Hamill, T. M., G. T. Bates, J. S. Whitaker, D. R. Murray, M. Fiorino, T. J. Galarneau, Jr., Y. Zhu, and W. Lapenta, 2013: NOAA's second-generation global medium-range ensemble reforecast data set. *Bull. Amer. Meteor. Soc.,* **94,** 1553–1565, doi:10.1175/BAMS-D-12-00014.1.

18. Metz, N. M., H. M. Archambault, A. F. Srock, T. J. Galarneau, Jr., and L. F. Bosart, 2013: A

comparison of South American and African preferential pathways for extreme cold events. *Mon. Wea. Rev.,* **141,** 2066–2086, doi:10.1175/MWR-D-12-00202.1.

17. McTaggart-Cowan, R., T. J. Galarneau, Jr., L. F. Bosart, R. W. Moore, and O. Martius, 2013: A global climatology of baroclinically influenced tropical cyclogenesis. *Mon. Wea. Rev.,* **141,** 1963–1989, doi:10.1175/MWR-D-12-00186.1.

16. Galarneau, T. J., Jr., and C. A. Davis, 2013: Diagnosing forecast errors in tropical cyclone motion. *Mon. Wea. Rev.*, **141,** 405–430, doi:10.1175/MWR-D-12-00071.1.

15. Schumacher, R. S., and T. J. Galarneau, Jr., 2012: Moisture transport into midlatitudes ahead of recurving tropical cyclones and its relevance in two predecessor rain events. *Mon. Wea. Rev.*, **140,** 1810–1827, doi:10.1175/MWR-D-11-00307.1.

14. Galarneau, T. J., Jr., T. M. Hamill, R. M. Dole, and J. Perlwitz, 2012: A multi-scale analysis of the extreme weather events over western Russia and northern Pakistan during July 2010. *Mon. Wea. Rev.,* **140,** 1639–1664, doi:10.1175/MWR-D-11-00191.1.

13. Bosart, L. F., J. M. Cordeira, T. J. Galarneau, Jr., B. J. Moore, and H. M. Archambault, 2012: Analysis of multiple predecessor rain events ahead of tropical cyclones Ike and Lowell: 10–15 September 2008. *Mon. Wea. Rev.,* **140,** 1081–1107, doi:10.1175/MWR-D-11-00163.1.

12. Evans, C., H. M. Archambault, J. M. Cordeira, C. Fritz, T. J. Galarneau, Jr., S. Gjorgjievska, K. S. Griffin, A. Johnson, W. A. Komaromi, S. Monette, P. Muradyan, B. Murphy, M. Riemer, J. Sears, D. Stern, B. Tang, and S. Thompson, 2012: The PRE-Depression Investigation of Cloud Systems in the Tropics (PREDICT) field campaign: Perspectives of early career scientists. *Bull. Amer. Meteor. Soc.,* **93,** 173–187, doi:10.1175/BAMS-D-11-00024.1.

11. Evans, C., R. S. Schumacher, and T. J. Galarneau, Jr., 2011: Sensitivity in the overland reintensification of Tropical Cyclone Erin (2007) to near-surface soil moisture characteristics. *Mon. Wea. Rev.,* **139,** 3848–3870, doi:10.1175/2011MWR3593.1.

10. Schumacher, R. S., T. J. Galarneau, Jr., and L. F. Bosart, 2011: Distant effects of a recurving tropical cyclone on rainfall in a midlatitude convective system: A high-impact predecessor rain event. *Mon. Wea. Rev.,* **139,** 650–667, doi:10.1175/2010MWR3453.1.

9. Abarca, S. F., K. L. Corbosiero, and T. J. Galarneau, Jr., 2010: An evaluation of the World Wide Lightning Location Network (WWLLN) using the National Lightning Detection Network (NLDN) as ground truth. *J. Geophys. Res.,* **115,** D18206, doi:10.1029/2009JD013411.

8. Galarneau, T. J., Jr., L. F. Bosart, and R. S. Schumacher, 2010: Predecessor rain events ahead of tropical cyclones. *Mon. Wea. Rev.,* **138,** 3272–3297, doi:10.1175/2010MWR3243.1.

7. McTaggart-Cowan, R., T. J. Galarneau, Jr., L. F. Bosart, and J. A. Milbrandt, 2010: Development and tropical transition of an Alpine lee cyclone. Part II: Orographic influences on the development pathway. *Mon. Wea. Rev.,* **138,** 2308–2326, doi:10.1175/2009MWR3148.1.

6. McTaggart-Cowan, R., T. J. Galarneau, Jr., L. F. Bosart, and J. A. Milbrandt, 2010: Development and tropical transition of an Alpine lee cyclone. Part I: Case analysis and evaluation of numerical guidance. *Mon. Wea. Rev.,* **138,** 2281–2307, doi:10.1175/2009MWR3147.1.

5. Davis, C. A., and T. J. Galarneau, Jr., 2009: The vertical structure of mesoscale convective vortices. *J. Atmos. Sci.,* **66,** 686–704, doi:10.1175/2008JAS2819.1.

4. Galarneau, T. J., Jr., L. F. Bosart, C. A. Davis, and R. McTaggart-Cowan, 2009: Baroclinic transition of a long-lived mesoscale convective vortex. *Mon. Wea. Rev.,* **137,** 562–584, doi:10.1175/2008MWR2651.1.

3. Galarneau, T. J., Jr., L. F. Bosart, and A. R. Aiyyer, 2008: Closed anticyclones of the subtropics and midlatitudes: A 54-yr climatology (1950–2003) and three case studies. *Synoptic–Dynamic Meteorology and Weather Analysis and Forecasting: A Tribute to Fred Sanders, Meteor. Monogr.,* No. 55, Amer. Meteor. Soc., 349–392, doi:10.1175/0065-9401-33.55.349.

2. McTaggart-Cowan, R., G. D. Deane, L. F. Bosart, C. A. Davis, and T. J. Galarneau, Jr., 2008: Climatology of tropical cyclogenesis in the North Atlantic (1948–2004). *Mon. Wea. Rev.,* **136,** 1284–1304, doi:10.1175/2007MWR2245.1.

1. LaPenta, K. D., L. F. Bosart, T. J. Galarneau, Jr., and M. J. Dickinson, 2005: A multiscale

examination of the 31 May 1998 Mechanicville, New York, tornado. *Wea. Forecasting,* **20,** 494–516, doi:10.1175/WAF875.1.

Non-Refereed Articles:

16. Galarneau, T. J., Jr., and X. Zeng, 2021: Influence of Midlatitude Soil Moisture Conditions on Upstream Subtropical Circulation. *GEWEX Quarterly*, **31(1),** 6–7, https://www.gewex.org/gewex-content/uploads/2021/03/Q12021.pdf.

15. Powers, J. G., C. L. Bruyere, J. M. Done, J. Dudhia, T. J. Galarneau, Jr., M. E. Kavulich, Jr., S. E. Peckham, and W. Wang, 2014: The Weather Research and Forecasting model and its applications. *Meteor. Technology Int.,* April 2014, 30–33.

14. Bosart, L. F., T. J. Galarneau, Jr., J. M. Cordeira, and B. J. Moore, 2010: Extreme rainstorms in advance of tropical cyclones. *Bull. Amer. Meteor. Soc.,* **91,** 854–856.

13. Evans, C., R. S. Schumacher, and T. J. Galarneau, Jr., 2010: The overland reintensification of North Atlantic Tropical Cyclone Erin (2007): Physical and dynamical characteristics. Preprints, *29th Conf. on Hurricanes and Tropical Meteorology,* Tucson, AZ, Amer. Meteor. Soc., 15C.1.

12. Evans, C., T. J. Galarneau, Jr., and R. S. Schumacher, 2009: Factors contributing to sensitivity in the observed overland reintensification of TC Erin (2007) over Oklahoma. Preprints, *23d Conf. on Weather Analysis and Forecasting,* Omaha, NE, Amer. Meteor. Soc., JP2.3.

11. Galarneau, T. J., Jr., L. F. Bosart, and R. S. Schumacher, 2009: Reintensification of Tropical Storm Erin (2007) over Oklahoma. *Bull. Amer. Meteor. Soc.,* **90,** 306–308.

10. Galarneau, T. J., Jr., and L. F. Bosart, 2006: Ridge rollers: Mesoscale disturbances on the periphery of cutoff anticyclones. Preprints, *Symp. on Challenges of Severe Convective Storms,* Atlanta, GA, Amer. Meteor. Soc., CD-ROM, P1.11.

9. Galarneau, T. J., Jr., and L. F. Bosart, 2006: An examination of the long-lived MCV of 10–13 June 2003. Preprints, *Symp. on Challenges of Severe Convective Storms,* Atlanta, GA, Amer. Meteor. Soc., CD-ROM, P1.32.

8. LaPenta, K. D., L. F. Bosart, T. J. Galarneau, Jr., and M. J. Dickinson, 2004: A multiscale examination of the 31 May 1998 Mechanicville, New York, tornado. Preprints, *22d Conf. on Severe Local Storms,* Hyannis, MA, Amer. Meteor. Soc., CD-ROM, P1.6.

7. Galarneau, T. J., Jr., and L. F. Bosart, 2004: The long-lived MCV of 11–13 June 2003 during BAMEX. Preprints, *22d Conf. on Severe Local Storms,* Hyannis, MA, Amer. Meteor. Soc., CD-ROM, 5.4.

6. Bosart, L. F., and T. J. Galarneau, Jr., 2004: Convection in BAMEX during an active subtropical jet period. Preprints, *20th Conf. on Weather Analysis and Forecasting,* Seattle, WA, Amer. Meteor. Soc., CD-ROM, 4.1.

5. Galarneau, T. J., Jr., L. F. Bosart, A. R. Aiyyer, and E. H. Atallah, 2004: Global climatology of closed 1000–500 hPa thickness highs and lows. Preprints, *20th Conf. on Weather Analysis and Forecasting,* Seattle, WA, Amer. Meteor. Soc., CD-ROM, 16.3.

4. LaPenta, K. D., G. J. Maglaras, J. S. Quinlan, H. W. Johnson, L. F. Bosart, and T. J. Galarneau, Jr., 2000: Radar observations of northeastern United States tornadoes. Preprints, *20th Conf. on Severe Local Storms,* Orlando, FL, Amer. Meteor. Soc., 356–359.

3. Cacciola, A. C., L. F. Bosart, S. F. Honikman, T. J. Galarneau, Jr., K. D. LaPenta, and J. S. Quinlan, 2000: Northeast severe weather distribution as a function of flow regime. Preprints, *20th Conf. on Severe Local Storms,* Orlando, FL, Amer. Meteor. Soc., 453–456.

2. Honikman, S. F., A. C. Cacciola, T. J. Galarneau, Jr., L. F. Bosart, and K. D. LaPenta, 2000: Forecasting synoptic and mesoscale environments for tornadoes and derechos in the northeast United States. Preprints, *20th Conf. on Severe Local Storms,* Orlando, FL, Amer. Meteor. Soc., 509–512.

1. Galarneau, T. J., Jr., S. F. Honikman, A. C. Cacciola, L. F. Bosart, K. D. LaPenta, J. S. Quinlan, and G. Wiley, 2000: Lightning in tornadic thunderstorms over the northeast United States. Preprints, *20th Conf. on Severe Local Storms,* Orlando, FL, Amer. Meteor. Soc., 108–109.

Conferences/Scholarly Presentations (since 2019):
**=presentation not yet given as of last update.

a. Colloquia

Factors Inhibiting Warm Sector Supercells in Central Oklahoma. National Weather Center Seminar Series on Convective Meteorology (Mesoscale Dynamics), 23 October 2020.

Analysis of the Hurricane Harvey (2017) Texas Rainstorm. National Weather Center Colloquium, 10 March 2020. (invited)

b. Workshop presentations

The Warn-on-Forecast System for Tornado and Flash Flood Prediction. NWS SOO ConEast Sub-Regional Severe Workshop, 15 February 2023. (invited)

WoFS Prediction of Nashville Tornado on 2-3 March 2020. NWS Weather Resilience Tennessee Mesoscale Exercise, 26 September 2022. (invited)

Synoptic-Dynamic Meteorology and Error Growth. NCAR Advanced Study Program Summer Colloquium - Quantifying and communicating uncertainty in high-impact weather prediction, 17 July 2019. (invited)

c. Conferences (lead/presenting author only)

Galarneau, T. J., Jr., K. A. Hoogewind, A. C. Winters, L. L. Hood, and C. A. Hoopes, *North Pacific Jet Regimes Preceding Cool Season Tornado Events in the Lower Mississippi Valley.* AMS 12th Symposium on the Madden-Julian Oscillation and Subseasonal Monsoon Variability, 23 January 2024 (virtual poster).

Galarneau, T. J., Jr., *Using the Nondivergent Wind to Diagnose Mesoscale Circulation Systems in Convection-Allowing Models.* AMS Daniel Keyser Symposium, 23 January 2024 (virtual poster).

Galarneau, T. J., Jr., P. S. Skinner, M. L. Flora, and K. C. Britt, *Potential Vorticity Diagnosis of Mesoscale Convective Systems in the Warn-on-Forecast System.* AMS 28th Conf. on Numerical Weather Prediction, 17–21 July 2023.

Galarneau, T. J., Jr., and M. R. Spencer, *Analysis of a Mesoscale Windstorm and Wildfire Outbreak in the Central Great Plains on 15 December 2021*. AMS 20th Conf. on Mesoscale Processes, 17–21 July 2023.

Galarneau, T. J., Jr., and M. Spencer, *A Derecho, Wildfire Outbreak, and Sting Jet: Analysis of the High-Impact Weather Events in the Central Great Plains on 15 December 2021.* AMS Third Symposium on Mesoscale Processes, 9–10 January 2023.

Galarneau, T. J., Jr., M. Wagner, M. Coniglio, and P. Skinner, *Mechanisms Driving Extreme Winds in the Iowa Derecho on 10 August 2020.* AMS Third Symposium on Mesoscale Processes, 9–10 January 2023 (poster).

Galarneau, T. J., Jr., M. Wagner, M. Coniglio, and P. Skinner, *Mechanisms Driving Extreme Winds in the Iowa Derecho on 10 August 2020.* AMS 30th Conf. on Severe Local Storms, 24–28 October 2022.

Galarneau, T. J., Jr., *Using the Nondivergent Wind to Diagnose Mesoscale Circulation Systems in Convection-Allowing Models.* AMS 30th Conf. on Severe Local Storms, 24–28 October 2022 (poster).

Galarneau, T. J., Jr., and L. L. Hood, *Diagnosis of the QBO Modulation of the MJO-Induced Rossby Wave Train in the Northern Hemisphere.* AMS 21st Conf. on the Middle Atmosphere, 23–27 January 2022 (poster).

Galarneau, T. J., Jr., and K. A. Kosiba, *Mesovortices in the Eyewall of Landfalling Tropical Cyclones.* AMS 34th Conf. on Hurricanes and Tropical Meteorology, 10–14 May 2021.

Galarneau, T. J., Jr., and L. Wicker, *Analysis and Short-Term Prediction of the 3 March 2020 Nashville, Tennessee, EF3 Tornado.* AMS Major Weather Events and Impacts of 2020, 15 January 2021.

Galarneau, T. J., Jr., M. B. Chasteen, and M. J. Krocak, *Short-Term Prediction of QLCS Mesovortices in the Southeast U.S. on 30 April 2017*. AMS 30th Conf. on Weather Analysis and Forecasting/26th Conf. on Numerical Weather Prediction, 13–16 January 2020 (poster).

Galarneau, T. J., Jr., A. J. Clark, and E. J. Szoke, *On the Prediction of a Violent Tornado Outbreak in Central Oklahoma on 20–21 May 2019*. AMS Severe Local Storms Symposium, 14 January 2020 (poster).

Galarneau, T. J., Jr., M. Powell, and E. A. Betterton, *Synoptic Analysis of the Epic Rainstorm in Kauai on 14-16 April 2018*. AMS Major Weather Events and Impacts of 2018, 8 January 2019.

Galarneau, T. J., Jr., and X. Zeng, *Sensitivity of Hurricane Harvey's Texas Rainstorm to the Underlying Soil Moisture Condition*. AMS Symposium on Tropical Cyclones and Extreme Monsoon Precipitation: Prediction, Impacts, and Communication, 8 January 2019.

Galarneau, T. J., Jr., *Preparing to Succeed in Graduate School*. 18th Annual AMS Student Conference, 6 January 2019.

External proposals awarded:

2020: National Science Foundation, Collaborative Research: The QBO-MJO Connection: Positive Feedbacks from Extratropical Wave Forcing. 12/01/2020–11/30/2024, $122,204 (co-PI) ($480,851 total)

2019: NOAA VORTEX-SE, Investigating the longevity of QLCS mesovortices in the southeast United States. 1 August 2019–31 July 2021(PI)

2018: NASA Jet Propulsion Laboratory, Using the Potential Vorticity Framework to Understand the Dynamic Precondition for the Occurrence of Organized Convection in the Tropics. 10/01/2018-09/30/2019, $29,896 (PI)

2018: NASA, How does the land surface condition affect precipitation of Hurricane Harvey (2017) after landfall? (80NSSC18K1021) 06/05/2018-06/04/2019, $74,958 (PI)

2017: U.S. Army Corps of Engineers, Examination and Diagnosis of Medium-Range GFS Forecast Errors for Winter 2016-17. 07/01/2017-06/30/2018. $40,952 (PI)

2016: Scripps Institution of Oceanography, Diagnosing Model Errors from tendencies in the CW3E West-WRF Model. 06/01/2016-05/31/2018, $31,516 (PI)

2014: Developmental Testbed Center Visitor Program, Diagnosing Tropical Cyclone Motion Forecast Errors in the 2014 HWRF Retrospective Test. 08/01/2014-07/31/2015 (PI)

2013: Developmental Testbed Center Visitor Program, Diagnosing Forecast Errors in Tropical Cyclone Motion in HWRF. 05/31/2013-04/30/2014 (PI)

2012: NOAA HFIP, Using Global Forecast System Reforecasts to Generate Tropical Cyclone Forecast Products. (NA12NWS4680005) 01/01/2012-12/31/2014, $133,020 (PI)

Extent of Classroom Teaching:

- Application of Meteorological Theory to Severe Thunderstorm Forecasting (METR 4403/5403), University of Oklahoma, spring 2021, spring 2022
- Mesoscale Meteorology (METR 4433), University of Oklahoma, spring 2020
- Dynamic Meteorology II (ATMO 441b/541b), University of Arizona, spring 2016–2019
- Dynamic Meteorology II (ATMO 441b) (online section), University of Arizona, spring 2019
- Tropical Meteorology (ATMO 580), University of Arizona, fall 2017
- Progress in Atmospheric Sciences (ATMO 596a) and Hydrology & Water Resources (HWRS 495a/695a) seminar courses, University of Arizona, fall 2016–spring 2018
- Introduction to Weather and Climate (ATMO 170a1), University of Arizona, fall 2016 and 2018
- Introduction to Atmospheric Physics and Dynamics (ATOC 4720), University of Colorado at Boulder, spring 2011

- Synoptic Meteorology I (ATM 400), University at Albany, fall 2006, fall 2007

Individual student contact:

a. Students advised

- J. Fowler, M.S. 2017, University of Arizona, *Influence of Storm-Storm and Storm-Environment Interactions on Tropical Cyclone Formation and Evolution*
- T. Kranz, M.S. 2017 (co-advisor with Kenneth Cummins), University of Arizona, *Thunderstorm Morphology over the Grand Canyon*
- M. Redman, M.S. 2018 (co-advisor with Lon Hood), University of Arizona, *QBO Modulation of MJO and Midlatitude Impacts*
- M. Powell, M.S. 2019, University of Arizona, *Synoptic analysis of the 2018 Kauai flood*

b. Service on thesis committees

- F. Bashir, Ph.D. 2017, University of Arizona (member)
- J. Moker, Ph.D. 2019, University of Arizona (member)
- D. Zhang, Ph.D. 2019, University of Arizona (co-chair with Kenneth Cummins)
- B. Fellman, M.S. 2023, University of Oklahoma (member)
- T. Berg, Ph.D. in progress, University of Oklahoma (member)

Postdoctoral Associates advised:

- G. Marion, 2021–2023 (co-advisor with Michael Coniglio)
- W. Cui, 2021–2023 (co-advisor with Kimberly Hoogewind)
- T. Janoski, 2023–present (co-advisor with Jimmy Booth)

Contribution to instructional innovations:

- Real-time QG diagnostics website, https://inside.nssl.noaa.gov/tgalarneau/real-time-qg-diagnostics/