

## Thomas J. Galarneau

### Contact information:

Mailing address:

JW Harshbarger Bldg., 1133 E. James E. Rogers Way, P.O. Box 210011, Tucson, AZ 85721-0011

Office: Room 216; Phone: 520-626-7843; Fax: 520-621-1422

Email: [tgalarneau@email.arizona.edu](mailto:tgalarneau@email.arizona.edu); Web: <http://tgalarneau.faculty.arizona.edu/>

Twitter: @TomGalarneau

Last updated: December 2018

### 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:

2015– Assistant Professor, Department of Hydrology and Atmospheric Sciences (HAS), University of Arizona, Tucson, AZ

2015 Project Scientist II, Mesoscale and Microscale Meteorology Laboratory (MMML), National Center for Atmospheric Research (NCAR), Boulder, CO

2011–2015 Project Scientist I, MMML, NCAR, Boulder, CO

2011 Lecturer on Atmospheric Physics and Dynamics, Department of Atmospheric and Oceanic Sciences, University of Colorado, Boulder, CO

2010–2011 Visiting Fellow, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO

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 Editor’s Award for the American Meteorological Society journal *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, *Symposium on Challenges of Severe Convective Storms*, American Meteorological Society

**Service and Outreach (August 2015-present):**

*a. Local/State outreach*

- 2018 Volunteer basketball coach, Northwest YMCA, Tucson, AZ
- 2016– Volunteer teaching assistant, Painted Sky Elementary School, Oro Valley, AZ

*b. National/International outreach*

- 2018– Guest Editor, Special Issue “Advancements in Mesoscale Weather Analysis and Prediction” for the journal *Atmosphere* [[https://www.mdpi.com/journal/atmosphere/special\\_issues/mesoscale\\_weather\\_analysis\\_prediction](https://www.mdpi.com/journal/atmosphere/special_issues/mesoscale_weather_analysis_prediction)]
- 2018– Program chair, American Meteorological Society *Special Symposium on Mesoscale Meteorological Extremes: Understanding, Prediction, and Projection*, Phoenix, AZ, 7–8 January
- 2017 Session chair, American Meteorological Society 17th Conf. on Mesoscale Processes, 24–27 July
- 2017 Co-organizer, American Meteorological Society Town Hall meeting "Atmospheric Rivers: A Discussion of the Definition Under Development for the Glossary of Meteorology", 23 January
- 2016 Co-organizer, Early Career Professional Networking Event, American Meteorological Society 28th Conf. on Severe Local Storms, 8 November
- 2015 Session chair, 17th Cyclone Workshop, 25–30 October
- 2015– Formal reviewer of proposals submitted to the National Science Foundation
- 2012– Associate Editor, American Meteorological Society journal *Monthly Weather Review*
- 2006– Formal reviewer of over 30 journal articles (since August 2015) submitted to *Monthly Weather Review*, *Journal of the Atmospheric Sciences*, *Weather and Forecasting*, *Bulletin of the American Meteorological Society*, *Journal of Climate*, *Tellus*, *Quarterly Journal of the Royal Meteorological Society*, *Journal of Geophysical Research*, and *Geophysical Research Letters*

*c. University/Departmental committees and service*

- 2017– Member, HAS Space Committee
- 2016–2018 Coordinator, HAS Colloquium Series
- 2016– Co-organizer, HAS student recruitment at American Meteorological Society Annual Meeting Career Fair
- 2015–2016 Member, HAS faculty search committee for physical meteorology position

*d. External committees and advisory boards*

- 2017– Member, NOAA Developmental Testbed Center Science Advisory Board
- 2016– Chair, American Meteorological Society Committee on Mesoscale Processes

**Refereed Journal Articles (h-index=17):**

38. Galarneau, T. J., Jr., and X. Zeng, 2018: Sensitivity of Hurricane Harvey's (2017) Texas Rainstorm to the Underlying Soil Moisture Condition. In preparation for *Mon. Wea. Rev.*
37. Galarneau, T. J., Jr., and M. L. Weisman, 2018: Evolution of system-scale vorticity in warm seclusion cyclones. In preparation for *J. Atmos. Sci.*
36. Hood, L. L., M. A. Redman, W. Johnson, and T. J. Galarneau, Jr., 2018: Stratospheric influences on the MJO-induced Rossby wave train: An analysis of ERA-Interim sea level pressure and surface air temperature data. *J. Climate*, submitted.
35. Kranz, T. J., T. J. Galarneau, Jr., K. L. Cummins, and R. L. Holle, 2018: Thunderstorm and terrain interactions over the Grand Canyon region. *J. Appl. Meteor. Climatol.*, in revision.
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, 2018: The extratropical transition of tropical cyclones. Part II: Interaction with the midlatitude flow, downstream impacts and implications in predictability. *Mon. Wea. Rev.*, in press, 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.

\*=publications derived from Galarneau's M.S. and Ph.D. theses

^=Galarneau not lead author, but led data curation, development of methods, formal analysis and validation, visualization, and writing (initial draft and revisions)

#### Non-Refereed Articles:

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 (August 2015–present):**

\*\*=presentation not yet given as of last update.

##### *a. Colloquia*

- Galarneau, T. J., Jr., *Hemispheric-Scale View of Mesoscale Tropical Cyclogenesis Environments*. National Center for Atmospheric Research MMML colloquium, 17 April 2017 (invited).
- Galarneau, T. J., Jr., *Evolution of System-Scale Vorticity in Warm Seclusion Cyclones*. University at Albany DAES seminar series, 20 June 2016.
- Galarneau, T. J., Jr., *Mesoscale Circulation Features in Warm Seclusion Cyclones*. University of Arizona HAS colloquium, 12 November 2015.

##### *b. Colloquia (community outreach)*

- Galarneau, T. J., Jr., and X. Zeng, *Analysis of the 2017 Atlantic Hurricane Season*, Arizona Hydrological Society meeting, 13 February 2018 (invited).
- Galarneau, T. J., Jr., *What causes extreme hurricanes?* Climate Change Forum IV - Credibility, Urgency, and Caution, 13 January 2018 (invited).
- Galarneau, T. J., Jr., *The 2017 North Atlantic Hurricane Season*. HAS Advisory Board meeting, 20 October 2017 (invited).
- Galarneau, T. J., Jr., *Why the Wind Blows*. University of Arizona Downtown Science Café, 21 March 2017 (invited).
- Galarneau, T. J., Jr., *Trying to Stop a Leak in an Operational Global Model*. Southeast Arizona Chapter of the American Meteorological Society meeting, 5 November 2015 (invited).

##### *c. Conferences (lead/presenting author)*

- \*\*Galarneau, T. J., Jr., M. Powell, and E. A. Betterton, *Synoptic Analysis of the Epic Rainstorm in Kauai on 14-16 April 2018*. American Meteorological Society 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*. American Meteorological Society 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*. 18<sup>th</sup> Annual AMS Student Conference, 6 January 2019.
- Galarneau, T. J., Jr., and X. Zeng, *How Does the Land Surface Condition Affect Precipitation and Intensity of Hurricane Harvey (2017) after Landfall?* American Meteorological Society Major Weather Events and Impacts of 2017, 8–9 January 2018 (poster).
- Galarneau, T. J., Jr., and F. M. Ralph, *The Chiricahua Gap and The Role of Easterly Water Vapor Transport in Southeastern Arizona Monsoon Precipitation*. American Meteorological Society 17th Conf. on Mesoscale Processes, 24–27 July 2017 (poster).
- Galarneau, T. J., Jr., N. D. Metz, J. M. Cordeira, H. M. Archambault, and A. F. Srock, *Revisiting the Texas Coastal Rainstorm of 17–21 September 1979*. American Meteorological Society Lance Bosart Symposium, 25–26 January 2017 (poster).
- Galarneau, T. J., Jr., *Role of Convective-Scale Circulations in the Explosive Development of Extratropical Cyclones*. American Meteorological Society Lance Bosart Symposium, 25–26 January 2017 (poster).
- Galarneau, T. J., Jr., and M. L. Weisman, *The Role of Convective-Scale Circulations in the Development of Intense Warm Seclusion Cyclones*. American Meteorological Society 28th Conf. on Severe Local Storms, 7–11 November 2016.
- Galarneau, T. J., Jr., and M. L. Weisman, *Mesoscale Circulation Features in Warm Seclusion Cyclones*. 17th Cyclone Workshop, 25–30 October 2015.

d. *Conferences (co-author)*

- \*\*Redman, M. A., L. L. Hood, and T. J. Galarneau, Jr., *Influence of the Quasi-Biennial Oscillation and the Madden-Julian Oscillation on Midlatitude Circulation and Surface Temperature and Precipitation Anomalies*. American Meteorological Society 20<sup>th</sup> Conf. on the Middle Atmosphere, 10 January 2019.
- \*\*Hood, L. L., M. A. Redman, and T. J. Galarneau, Jr., *MJO Modulation of Surface Air Temperature over Eastern North America during Northern Winter: Dependence on the Phase of the Stratospheric QBO*. American Meteorological Society 20<sup>th</sup> Conf. on the Middle Atmosphere, 10 January 2019.
- \*\*Ralph, F. M., V. Tallapragada, J. D. Doyle, C. Davis, A. Subramanian, F. Pappenberger, F. Cannon, J. M. Cordeira, R. Demirdjian, T. J. Galarneau Jr., C. W. Hecht, J. F. Kalansky, B. K. Kawzenuk, D. A. Lavers, A. Lundry, J. Parrish, C. Reynolds, J. J. Rutz, and A. M. Wilson, *Atmospheric River Reconnaissance*. American Meteorological Society Ninth Conf. on Transition of Research to Operations, 8 January 2019.
- Redman, M., L. Hood, and T. Galarneau, *QBO/Solar Modulation of the Madden-Julian Oscillation: A Composite Analysis*. American Meteorological Society 33rd Conf. on Hurricanes and Tropical Meteorology, 16–20 April 2018 (poster).
- Redman, M., L. Hood, and T. Galarneau, *QBO/Solar Modulation of the Madden-Julian Oscillation: A Composite Analysis*. El Dia del Agua y La Atmosfera, 9 April 2018.
- Bashir, F., X. Zeng, H. V. Gupta, P. Hazenberg, and T. Galarneau, *Spatiotemporal Variability of Drought in Pakistan through High Resolution Daily Gridded Observations*. American Geophysical Union Fall Meeting, 11–15 December 2017 (poster).
- Kranz, T., K. Cummins, T. Galarneau, and R. Holle, *Thunderstorm and Terrain Interactions over the Grand Canyon Region*. El Dia del Agua y La Atmosfera, 27 March 2017.
- Ralph, F. M., and T. J. Galarneau, Jr., *The Chiricahua Gap and The Role of Easterly Water Moisture in Southeastern Arizona Monsoon Precipitation*. American Meteorological Society 29th Conf. on Climate Variability and Change, 23–26 January 2017 (poster).
- Metz, N. D., J. M. Cordeira, M. E. Howarth, and T. J. Galarneau, Jr., *A Multiscale Analysis of*

*Upstream Precursors associated with High-Impact Weather across the Upper Midwest.*  
American Meteorological Society Lance Bosart Symposium, 25–26 January 2017 (poster).

Schumacher, R. S., E. Aligo, A. J. Clark, D. T. Dawson II, C. Evans, T. J. Galarneau Jr., K. Kosiba, N. D. Metz, J. J. Ruiz, R. Tanamachi, and B. Tang, *The Legacy of the 2006 NCAR ASP Colloquium, "the Challenge of Convective Forecasting," (a little more than) 10 Years Later.*  
American Meteorological Society Lance Bosart Symposium, 25–26 January 2017 (poster).

Fowler, J., and T. Galarneau, *Influence of Storm-Environment Interactions on Tropical Cyclone Development from a Train of African Easterly Waves.* American Meteorological Society 28th Conf. on Weather Analysis and Forecasting / 24th Conf. on Numerical Weather Prediction, 23–26 January 2017.

Kranz, T., T. Galarneau, K. Cummins, and R. Holle, *Thunderstorm and Terrain Interactions over the Grand Canyon Region.* American Meteorological Society 8th Conf. on the Meteorological Application of Lightning Data, 23–26 January 2017.

Fowler, J., and T. Galarneau, *Ensemble-based analysis of factors contributing to the development of tropical cyclones from African easterly waves.* El Dia del Agua y La Atmosfera, 1 April 2016.

Kranz, T., T. Galarneau, K. Cummins, and R. Holle, *Thunderstorm and Terrain Interactions in the Grand Canyon Region.* El Dia del Agua y La Atmosfera, 1 April 2016.

#### **Grants and Contracts:**

##### *a. Awarded*

Title: Using the Potential Vorticity Framework to Understand the Dynamic Precondition for the Occurrence of Organized Convection in the Tropics

Agency: NASA Jet Propulsion Laboratory

Role: PI

Dollar value: \$29,896

Duration: 10/01/2018-09/30/2019

Title: Advanced Diagnosis of 0-7 day West-WRF Forecasts

Agency: U.S. Army Corps of Engineers (UCSD subaward)

Role: PI

Dollar value: \$343,534

Duration: 01/02/2019-01/01/2021

Title: How does the land surface condition affect precipitation of Hurricane Harvey (2017) after landfall?

Agency: NASA (Award # 80NSSC18K1021)

Role: PI

Dollar value: \$74,958

Duration: 06/05/2018-06/04/2019

Title: Examination and Diagnosis of Medium-Range GFS Forecast Errors for Winter 2016-17

Agency: U.S. Army Corps of Engineers (UCSD subaward)

Role: PI

Dollar value: \$40,952

Duration: 07/01/2017-06/30/2018

Title: Diagnosing Model Errors from tendencies in the CW3E West-WRF Model

Agency: University of California-San Diego

Role: PI

Dollar Value: \$31,516

Duration: 06/01/2016-05/31/2018



Title: Diagnosing Tropical Cyclone Motion Forecast Errors in the 2014 HWRF Retrospective Test  
 Agency: Developmental Testbed Center Visitor Program  
 Role: PI  
 Duration: 08/01/2014-07/31/2015

Title: Diagnosing Forecast Errors in Tropical Cyclone Motion in HWRF  
 Agency: Developmental Testbed Center Visitor Program  
 Role: PI  
 Duration: 05/31/2013-04/30/2014

Title: Using Global Forecast System Reforecasts to Generate Tropical Cyclone Forecast Products  
 Agency: NOAA (Award # NA12NWS4680005)  
 Role: PI  
 Dollar value: \$133,020  
 Duration: 01/01/2012-12/31/2014

*b. Pending*

Title: Stratospheric Influences on the MJO and its Extratropical Consequences: Observational Analyses and Tests of Proposed Mechanisms  
 Agency: National Science Foundation  
 Role: co-PI  
 Dollar value: \$396,415  
 Duration: 06/01/2019-05/31/2022

Title: Collaborative Research – PREEVENTS Track 2: Bridging the Gap Between Weather and Climate Forecasts During the Warm Season  
 Agency: National Science Foundation  
 Role: co-PI  
 Dollar value: \$755,384  
 Duration: 05/01/2019-04/30/2023

Title: Household Decision Making under Uncertainty, Climate Information Service, and Rural Livelihoods  
 Agency: National Science Foundation  
 Role: co-PI  
 Dollar value: \$493,084  
 Duration: 01/01/2019-12/31/2021

**Extent of Teaching (August 2015-present):**

Semester	Course	Credits	Enrollment
Spring 2016	ATMO 441b/541b: Dynamic Meteorology II	3	4
Fall 2016	ATMO 170a1: Introduction to Weather and Climate	3	81
Fall 2016	ATMO 596a: Progress in Atmospheric Sciences	1	15

Spring 2017	ATMO 441b/541b: Dynamic Meteorology II	3	12
Spring 2017	ATMO 596a: Progress in Atmospheric Sciences	1	10
Fall 2017	ATMO 580: Tropical Meteorology	3	7
Fall 2017	ATMO 596a: Progress in Atmospheric Sciences	1	3
Fall 2017	HWRS 495a/695a: Hydrology & Water Resources (Colloquium)	1	13
Spring 2018	ATMO 441b/541b: Dynamic Meteorology II	3	7
Spring 2018	ATMO 596a: Progress in Atmospheric Sciences	1	1
Spring 2018	HWRS 495a/695a: Hydrology & Water Resources (Colloquium)	1	19
Fall 2018	ATMO 170a1: Introduction to Weather and Climate	3	141

**Individual student contact (August 2015-present):**

a. *Advising and theses directed and in progress*

<b>Student</b>	<b>Degree</b>	<b>Co- advisor</b>	<b>Thesis</b>	<b>Awards</b>	<b>Current Employment</b>
James Fowler (HAS)	M.S. (May 2017)	---	Influence of Storm-Storm and Storm- Environment Interactions on Tropical Cyclone Formation and Evolution	UA Galileo Circle Scholar	National Weather Service, Grand Junction, Colorado (hired September 2017)
Tyler Kranz (HAS)	M.S. (May 2017)	Kenneth Cummins (HAS research faculty)	Thunderstorm Morphology over the Grand Canyon	Best student oral presentation, <i>American Meteorological Society 8th Conf. on the Meteorological</i>	National Weather Service, Bismarck, North Dakota (hired

				<i>Applications of Lightning Data, January 2017</i>	September 2017)
Malori Redman (HAS)	M.S. (Aug 2018)	Lon Hood (LPL research faculty)	QBO Modulation of MJO and Midlatitude Impacts	UA Galileo Circle Scholar	San Francisco State University, San Francisco, California (hired August 2018)
Madelyn Powell (HAS)	M.S. (in progress)	---	Synoptic analysis of the 2018 Kauai flood	---	National Weather Service, Tucson, Arizona (Pathways Intern)

*b. Service on other dissertation and graduate committees*

<b>Student</b>	<b>Graduate committee</b>	<b>Status</b>	<b>My role</b>
Daile Zhang (HAS)	Ph.D. dissertation	In progress	Co-chair
James Moker (HAS)	Ph.D. dissertation	In progress	Member
Furrukh Bashir (HAS)	Ph.D. dissertation	Completed/Passed, Nov. 2017	Member
Yiyi Huang (HAS)	Ph.D. dissertation	In progress	Member
Peng Wu (HAS)	Ph.D. dissertation	In progress	Member
Josh Welty (HAS)	Ph.D. dissertation	In progress	Member
Wenjun Cui (HAS)	Ph.D. dissertation	In progress	Member
Jack Eyre (HAS)	Ph.D. dissertation	In progress	Member

**Contributions to instructional innovations (August 2015-present):**

<b>Course materials</b>	<b>Purpose</b>	<b>Web access</b>
Real-Time QG diagnostics website	To help students make a stronger linkage between the fundamental quasi-geostrophic (QG) theory equations and real weather maps, I developed a web page that displays the QG equations on weather maps in real-time.	<a href="https://tgalarneau.faculty.arizona.edu/content/real-time-qg-diagnostics">https://tgalarneau.faculty.arizona.edu/content/real-time-qg-diagnostics</a>