

Ian M. Giammanco, Ph.D.

PROFESSIONAL EXPERIENCE

- 04/2014 - present** **Lead Research Meteorologist**
Insurance Institute for Business & Home Safety
IBHS Research Center
Richburg, SC
- 07/2011 - present** **Adjunct Faculty Research Associate**
National Wind Institute
Texas Tech University
Lubbock, TX
- 01/2012 - 4/2014** **Research Scientist**
Insurance Institute for Business & Home Safety
IBHS Research Center
Richburg, SC
- 08/2010 - 7/2011** **Post-Doctoral Research Associate**
Wind Science and Engineering
Texas Tech University
Lubbock, TX
- 08/2009 - 8/2010** **Instructor**
Department of Geosciences
Texas Tech University
Lubbock, TX

EDUCATION

- 08/2010** **Ph.D. Wind Science and Engineering**
Texas Tech University
Dissertation topic: Observational study of tropical cyclone low-level wind maxima using GPS Dropwindsondes and WSR-88D VAD wind profiles
Advisor: John Schroeder, PhD
- National Science Foundation – Integrative Graduate Education and Research Training (IGERT) Fellow***
Program Internship (2007) – NOAA Hurricane Research Division
Supervisor – Mark Powell, PhD

08/2005

M.S. Atmospheric Science

Texas Tech University, August 2005

Thesis topic: Tall tower and radar profiler observations of nocturnal boundary layer low-level jets and their turbulent structure with implications for wind energy systems.

Advisor: Richard Peterson, PhD

05/2002

B.S. Atmospheric Science

University of Louisiana at Monroe

SCHOLARLY ACTIVITIES

Refereed Publications

Giammanco, I.M., B.R. Maiden, H.E. Estes, T.M. Brown-Giammanco, 2016: Using 3-D laser scanning technology to create digital models of hailstones, *Bull. Amer. Meteor. Soc.*,

<http://journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-15-00314.1>

Giammanco, I.M., J.L. Schroeder, F.J. Masters, P.J. Vickery, R. Krupar III, and J.A. Balderrama, 2016: Influences on observed near-surface gust factors in landfalling Gulf Coast hurricanes: 2004-2008. *J. Applied Meteor. Climo.* <http://journals.ametsoc.org/doi/abs/10.1175/JAMC-D-16-0053.1>

Giammanco, I.M., T.M. Brown, R.G. Grant, D.A. Dewey, J. Hodel, R.A. Stumpf, 2015: Evaluating the hardness property of hail through compressive strength measurements. *J. Atmos. Oceanic Tech.*, **32**, 2100-2113. DOI: JTECH-D-15-0081.1.

Brown, T.M., W.H. Pogorzelski, and **I.M. Giammanco**, 2015: Evaluating hail damage using property insurance claims data. *J. Wea. Climo. Soc.*, **7**, 197-210. DOI: WCAS-D-15-0011.1.

Heymsfield, A.J., **I.M. Giammanco**, R.L. Wright, 2014: Terminal velocities and kinetic energies of natural hailstones, *Geo. Phys. Res. Lett.*, **41**, 8666-8672. DOI: 10.1002/2014GL062324.

Giammanco, I.M., J.L. Schroeder, and M.D. Powell, 2013: GPS Dropwindsonde and WSR-88D observations of tropical cyclone vertical wind profiles and their characteristics. *Wea. Forecast.*, **28**, 77-99.

Giammanco, I.M., J.L. Schroeder, and M.D. Powell, 2012: Observed characteristics of tropical cyclone vertical wind profiles. *J. Wind and Structures*, **15**, 65-86.

Schroeder, J.L., B. Paulsen-Edwards, and **I.M. Giammanco**, 2009: Observed tropical cyclone wind flow characteristics. *J. Wind and Structures*, **12**, 349-382.

Storm, B., J. Duhia, S. Basu, A. Swift, and **I.M. Giammanco**, 2009: Evaluation of the Weather Research and Forecasting model on forecasting low-level jets: Implications for short-term wind energy forecasts. *J. Wind Energy*, **12**, 81-90.

Conference Proceedings

Giammanco, I.M., H.B. Bluestein, Z.B. Wienhoff, D.W. Reif, and A.J. Heymsfield, 2016: Analysis of RaXPol and In-Situ Hail Impact Disdrometer Data in a Hail-Producing Left-Moving Supercell in Colorado, *AMS 28th Conference on Severe Local Storms*, Portland, OR.

Estes, H.E., T.M. Brown-Giammanco, and **I.M. Giammanco**, 2016: Durability of Polymer-Modified Asphalt Shingles, *ISAP Symposium concurrent with 53rd Petersen Asphalt Research Conference*. Jackson Hole, WY. July 18-21, 2016.

Giammanco, I.M., W.E. Cranford, and C.J.P. Estes, 2016: Development of a low-cost network of hail impact disdrometers. *96th Annual Meeting of the AMS*, New Orleans, LA.

Brown, T.M., **I.M. Giammanco**, and M. R. Kumjian, 2014: IBHS hail field research program 2012-2014. *AMS 27th Conference on Severe Local Storms*, Madison, WI.

Kumjian, M.R., T.M. Brown, and **I.M. Giammanco**, 2014: IBHS hail field project 2014 case studies: Comparisons of polarimetric radar observations and surface hail characteristics. *AMS 27th Conference on Severe Local Storms*, Madison, WI.

Giammanco, I.M., T.M. Brown, M.R. Kumjian, and A.J. Heymsfield, 2014: Observations of hailstone shapes during the IBHS Hail Field Program: 2012-2014. *AMS 27th Conference on Severe Local Storms*, Madison, WI.

Giammanco, I.M. and T.M. Brown, 2014: Observation of hailstone characteristics in supercell and multicell thunderstorms. *94th Annual Meeting of the AMS, Special Symposium on Severe Local Storms*, Atlanta, GA.

Giammanco, I.M. and J.L. Schroeder, 2013: Observations of tropical cyclone winds in marine exposure conditions. *12th Americas Conference on Wind Engineering*. Seattle, WA.

Brown, T.M., **I.M. Giammanco**, and D.S. Robinett, 2012: Observations of hail stone characteristics using a new instrumentation platform. *AMS 26th Conference on Severe Local Storms*, Nashville, TN.

Giammanco, I.M., J.A. Balderrama, J.L. Schroeder, F.J. Masters, and P.J. Vickery, 2012: Observed near-surface wind flow characteristics of Gulf Coast hurricanes: 2004-2008. *AMS 30th Conference on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, FL.

Giammanco, I.M., J.L. Schroeder, M.D. Powell, and D.A. Smith, 2010: WSR-88D Observations of hurricane boundary layer vertical wind profiles. *2nd AAWE Workshop*, Marco Island, FL.

Giammanco, I.M., J.L. Schroeder, M.D. Powell, and D.A. Smith, 2009: Observations of tropical cyclone low-level wind maxima. *11th Americas Conference on Wind Engineering*, San Juan, PR.

Giammanco, I.M., T.M. Brown and J.L. Schroeder, 2009: Texas Tech University's hurricanes at landfall project – 2008. *11th Americas Conference on Wind Engineering*, San Juan, PR.

Giammanco, I.M., J.L. Schroeder, M.D. Powell, and D.A. Smith, 2008: GPS dropwindsonde observations of tropical cyclone low-level wind maxima. *AMS 28th Conference on Hurricanes and Tropical Meteorology*. Orlando, FL.

Giammanco, I.M., J.L. Schroeder, and B.D. Hirth, 2007: Texas Tech University's rapid deployment surface observing station. Proceedings, *61st Interdepartmental Hurricane Conference*, New Orleans, LA.

Giammanco, I.M., J.L. Schroeder, and B.D. Hirth, 2006: Summary of Texas Tech University's hurricanes at landfall project 2005. *AMS 27th Conf. on Hurricanes and Tropical Meteorology*, Monterrey, CA.

Giammanco, I.M., J.L. Schroeder, M.D. Powell, and D.A. Smith, 2008: GPS dropwindsonde observations of tropical cyclone low-level wind maxima. *AMS 28th Conf. on Hurricanes and Tropical Meteorology*. Orlando, FL.

Giammanco, I.M., and R.E. Peterson, 2006: Observational study of the south plains nocturnal low-level Jet". *44th AIAA Aerospace Sciences Meeting, ASME Wind Energy Symposium*, Reno, NV.

Giammanco, I.M., and R.E. Peterson, 2005: Three representative case studies of the South Plains nocturnal jet. *10th Americas Conference on Wind Engineering*, Baton Rouge, LA.

Technical Reports

Giammanco, I.M., T.M. Brown, H. Sommers, 2015: "IBHS Roof Aging Farm Measurement Program and 2014 Summary", *Insurance Institute for Business & Home Safety*, IBHS-RC01-2015, 13 pp.

Giammanco, I.M. and T.M. Brown, 2013: "2013 Characteristics of Severe Hail Field Project Summary". *Insurance Institute for Business & Home Safety*, IBHS-RC04-2014, 40 pp.

Giammanco, I.M. and T.M. Brown, 2013: "Characteristics of Severe Hail 2012 Pilot Field Study: Data Analysis Summary". *Insurance Institute for Business & Home Safety*, IBHS-RC03-2013, 46 pp.

Giammanco, I.M., P.J. Vickery, and J.L. Schroeder, 2012: "Analysis of the Structure of Hurricane Winds Near and Off Shore". DeepStar, 157 pp. (Post-doctoral research)

Powell, M.D., S. Cocke, B. Annane, and **I.M. Giammanco**, 2007: Quarterly report on meteorology component of the Florida Hurricane Loss Model (FHLM). Florida Commission on Hurricane Loss Projection. 63 pp.

Giammanco, I.M. and J.L. Schroeder, 2006: Texas Tech's Hurricanes at landfall project: 2005. National Institute of Standards and Technology. 26 pp.

Other Non-Refereed Publications and Reports

Brown, T.M. and **I.M. Giammanco**, 2013: "IBHS' Multi-faceted hail research program". RCI, Inc. **31**, 5-8. <http://www.rci-online.org/interface/2013-02-brown-giammanco.pdf>

Giammanco, I.M., 2012: "Impact of Hurricane Sandy: October 22-31, 2012". *Insurance Institute for Business & Home Safety*, 22 pp.

Giammanco, I.M., 2012: "Impact of Hurricane Isaac: August 21-30, 2012". *Insurance Institute for Business & Home Safety*, 19 pp.

Giammanco, I. M., J. L. Schroeder, and B. D. Hirth, 2007: "Hurricane Ivan Deployment Summary, Texas Tech University Hurricane Research Team," <http://www.atmo.ttu.edu/TTUHRT/IvanSummary.pdf>, 15 pp.

Giammanco, I. M., J. L. Schroeder, and B. D. Hirth, 2006: "Hurricane Rita Deployment Summary, Texas Tech University Hurricane Research Team," <http://www.atmo.ttu.edu/TTUHRT/RitaSummary.pdf>, 17 pp.

Giammanco, I. M., J. L. Schroeder, and B. D. Hirth, 2006: "Hurricane Katrina Deployment Summary, Texas Tech University Hurricane Research Team," <http://www.atmo.ttu.edu/TTUHRT/KatrinaSummary.pdf>, 19 pp.

SELECTED INVITED PRESENTATIONS

"New Insights into Hail Characteristics and Kinetic Energies" Roofing Committee on Weather Issues (RICOWI) Annual Meeting, Boulder, CO, October 10, 2016. (Co-presenter with Andrew J. Heymsfield and Tanya M. Brown-Giammanco)

"The IBHS Research Center: Turning the Knobs on Wind, Hail, and Wildfire" South Carolina Wind and Hail Underwriters Association, Myrtle Beach, SC, June 18, 2015.

"Using Real-World Science to Replicate the Effect of Extreme Weather on Full-Scale Building Systems", 43rd AMS Conference on Broadcast Meteorology, Raleigh, NC, June 11, 2015.

"Field measurements and polarimetric radar observations of hail", Risk Management Solutions, Newark, CA, December 17, 2014.

Panelist, *"Understanding the Science Behind Sandy"* Northeast Risk and Resiliency Leadership Forum hosted by RenaissanceRe, Stamford, CT, October 8, 2014.

"Understanding Trends in Severe Weather: The Current State of the Science", Inland Marine Underwriters Association Southeast Regional Conference, Atlanta, GA, October 6, 2014.

"Evaluating the Characteristics of Hail through Field Observations and Unique Measurement Systems", National Center for Atmospheric Research – Earth Observing Laboratory, Boulder, CO, June 16, 2014.

"Hail and Tornadoes: Emerging Elephants in the Room" Casualty Actuarial Society Annual Conference, Chicago, IL, September 30, 2013.

"The Insurance Institute for Business and Home Safety's Applied Science and Engineering Laboratory" Upstate Local Chapter of the American Meteorological Society, March 22, 2013.

"Experimental and In-Situ Investigation of Hydrometeors and their Influence on Building Envelope Performance" Department of Physics and Astronomy 2012-2013 Colloquia, College of Charleston, Charleston, SC. October 4, 2012.

"Observed Characteristics of Tropical Cyclone Vertical Wind Profiles" NOAA/AOML Hurricane Research Division, Miami, FL. July 9, 2010

TEACHING RESPONSIBILITIES

Summer 2010	Atmospheric Science 1300 - Introduction to Atmospheric Science
Spring 2010	Atmospheric Science 1300 - Introduction to Atmospheric Science
Fall 2009	Atmospheric Science 1300 - Introduction to Atmospheric Science Guest Lecturer – Atmospheric Science 5354: Tropical Cyclones (graduate-level)

SERVICE ACTIVITIES

2016 – present	National Weather Association, Publications Committee (3-year term) Journal of Operational Meteorology
2013 – 2016	American Meteorological Society Committee on Weather and Climate Financial Risk Management. (3 year term, extended through 2016) <ul style="list-style-type: none">• Social media team leader• Instructor: Short-course. <i>"Weather to Risk it or Not: Fundamentals of Weather/Climate Risk Management"</i> <i>94th Annual Meeting of the AMS, Atlanta GA.</i>• Session moderator and organizer: 4th Symposium on the Weather, Water and Climate Enterprise: <i>Utilizing Financial Tools for Weather Risk Transfer in Business Continuity, Supply Chain, and Capital Markets. 96th Annual Meeting of the AMS, New Orleans, LA.</i>
01/2012 – 05/2014	Mentor and program developer – Chester High School and IBHS Research Center Research Experience for High School Seniors
09/2013	Bulletin of the American Meteorological Society Review of <i>"Lessons from Hurricane Ike"</i> by P.D. Bedient, <i>Bull. Amer. Meteor. Soc.</i> , 94 , 1413-1414.
07/2009 – 01/2010	Organizing Committee and Session Chair – Lubbock Severe Weather Conference, Hosted by National Weather Service Forecast Office – Lubbock, NWS Southern Region Headquarters, COMET, and Texas Tech University.

2008 - 2010	Organizing Committee – Lubbock Severe Weather Awareness Day (Student Chapter of the American Meteorological Society at Texas Tech University)
07/2008	Participant – Digital Hurricane Symposium held at Louisiana State University
Fall 2004 – Spring 2006	Secretary – Student Chapter of the American Meteorological Society at Texas Tech University
Fall 2005	Student Mentor – Texas Tech Upward Bound Program for minority high school and undergraduate students interested in the natural sciences

JOURNAL REVIEWS

Journal of Boundary Layer Meteorology (3)
 Journal of Natural Hazard Mitigation (1)
 Journal of Wind and Structures (3)
 Journal of Operational Meteorology (1)
 Journal of Theoretical and Applied Climatology (1)

PROFESSIONAL AFFILIATIONS

American Meteorological Society (AMS)
 Palmetto Chapter of the AMS (AMS-Local Chapter)
 National Weather Association (NWA)
 American Association of Wind Engineers (AAWE)

FIELD RESEARCH EXPERIENCE

Spring 2012-present	Program developer/manager, field coordinator, and principal investigator – IBHS Characteristics of Severe Hail Field Program. Measurement program designed to collect information on the physical properties of hailstones, in-situ size distribution measurements, and material property testing of hailstones. Developed collaborative relationship with Penn State University to foster student participation in a field research program and to examine polarimetric radar detection of hail and storm-scale modeling.
Spring 2011	Severe Convective OUTflow (SCOUT) Experiment – Texas Tech University, Radar and surface observations of the near-surface wind flow characteristics in thunderstorm outflows <ul style="list-style-type: none"> • Driver – TTUKA 1 Mobile Radar
Spring 2010 & 2009	Verification of the Origins of Rotation in Tornadoes 2 (VORTEX 2)

- Texas Tech University, Team Leader StickNet Team 4, deployed StickNet probes. Responsible for StickNet instrumentation maintenance and repair.

2003 – 2010

Texas Tech University Hurricanes at Landfall Project – In-situ measurement program to deploy ruggedized observing system in the path of landfalling tropical cyclones

- 2005 – 2010: Program manager, webmaster, and field coordinator
- 2003- 2005: Participated in instrument deployments

Spring 2006 – 2008

Project MOBILE (Multiple Observations of Boundaries In the Local storm Environment) Texas Tech University field study to measure boundaries within supercell thunderstorms.

- Responsible for mobile mesonet deployment, StickNet deployment, maintenance, and repair of all instrument systems.

Spring 2004, Spring 2005

Project WIRL (Wheeled Investigation of Rear-flank downdraft Lifecycles). Texas Tech University field study to examine the characteristics of supercell thunderstorm rear-flank downdrafts.

- Responsible for mobile mesonet deployment, maintenance, and repair.