

Curriculum Vita
Tanya Michelle Brown-Giammanco

EDUCATION

Ph.D. in Wind Science and Engineering, NSF IGERT Fellow, Texas Tech University, Lubbock, August 2010

Dissertation: Development of a Statistical Relationship between Ground-Based and Remotely-Sensed Damage in Windstorms

M.S. in Water Resources Science, University of Kansas, Lawrence, August 2006

Research Topic: Evaluation of NEXRAD Estimated Precipitation Using ALERT Rainage Precipitation

B.S. in Atmospheric Science, University of Kansas, Lawrence, May 2004

Concentrations: Hydrometeorology, General Meteorology

POSITIONS

Lead Research Engineer & Director of Hail Research, South Carolina Wind & Hail Underwriting Association Junior Chair, Insurance Institute for Business & Home Safety, August 2010-present

Research on hailstone formation and hail impact testing; post-hailstorm insurance claims studies; multi-hazard research; wind flow characterization testing; instrumentation and field studies; damage assessment studies; instrumentation and testing of TTU replica building; staff liaison to IBHS Residential Committee.

Faculty Associate, Texas Tech University, Wind Science and Engineering Research Center, August 2010-present

Research in support of mobile field operations for the Texas Tech University Hurricane Research Team; managing database of historical deployments.

Graduate Research Assistant, Texas Tech University, Wind Science and Engineering Research Center, August 2009-August 2010

Research on damage assessments and remote-sensing imagery.

Engineering Consultant, Institute for Business and Home Safety, August 2007-December 2008, July 2009-July 2010

Research on Witch Creek Wildfire; developed procedure for post-disaster investigations; review of training videos for Gulf Coast Construction; analysis of closed-claim insurance data for hurricanes; development of Hail Research Agenda for new research center; literature review on hailstorms.

Engineering Consultant, LNSS & Associates, August 2008-February 2009

Remote-sensing damage investigations of homes impacted by Hurricanes Katrina and Ike, differentiating between storm surge and wind damage; data used in creating damage functions based on construction type and wind speeds.

Graduate Research Assistant, University of Kansas, Department of Civil and Architectural Engineering, February 2005 – June 2006

Research on NEXRAD radar and ALERT network rain gages; analyzing radar data using GIS.

Head Graduate Teaching Assistant, University of Kansas, Department of Geography, January 2002 - May 2006

Course: ATMO 105 lab: Introduction to Meteorology

Senior Peer Advisor, University of Kansas, Freshman-Sophomore Advising Center, May 2003 – July 2006

Supervise other peer advisors; work with students and advisors at summer, fall, and spring New Student Orientation sessions; assist in the advising process; assist in the enrollment process; assist students with a variety of issues on a walk-in basis.

PUBLICATIONS

Brown, Tanya M., Liang, Daan, Womble, J. Arn (2012). "Predicting Ground-Based Damage States from Windstorms Using Remote-Sensing Imagery." *Wind and Structures*, 15(5), 369-383.

Brown, Tanya M., Giammanco, Ian M. (2013). "IBHS Multi-Faceted Hail Research Initiative." *RCI Interface*, February 2013.

Brown, Tanya M., Pogorzelski, William H., Giammanco, Ian M. (2015). "Evaluating Hail Damage Using Property Insurance Claims Data." *Weather Climate and Society*, 7(3), 197-210.

Dixon, Craig R., Masters, Forrest J., Prevatt, David O., Gurley, Kurt R., Brown, Tanya M., Peterka, John A., Kubena, Mark E. (2014). "The Influence of Unsealing on the Wind Resistance of Asphalt Shingles." *Journal of Wind Engineering and Industrial Aerodynamics*, 130, 30-40.

Giammanco, Ian M., Brown, Tanya M., Grant, Rosemarie G., Dewey, Douglas L., Hodel, Jon D., Stumpf, Robert A. (2015). "Evaluating the Hardness Characteristics of Hail through Compressive Strength Measurements." *Journal of Atmospheric and Oceanic Technology*, 32(11), 2100-2113.

Giammanco, Ian M., Maiden, Benjamin R., Estes, Heather E., Brown-Giammanco, Tanya M. (2016). "Using 3D Laser Scanning Technology to Create Digital Models of Hailstones." *Bulletin of the American Meteorological Society*, in press.

Liang, Daan, Cong, Lin, Brown, Tanya M., Song, Lingguang (2012). "Comparison of Sampling Methods for Post-Hurricane Damage Survey." *Journal of Homeland Security and Emergency Management*, 9(2), Article 1.

Luo, Jianjun, Liang, Daan, Kafali, Cagdas, Li, Ruilong, Brown, Tanya M. (2014). "Enhanced

Remote-Sensing Scale for Wind Damage Assessment.” *Wind and Structures*, 19 (3), in press.

Quarles, Stephen L., Brown, Tanya M., Cope, Anne D. (2013). “Water Entry Through Attic Vents.” *RCI Interface*, March 2013.

REPORTS

Brown, Tanya M., Pogorzelski, Hank (2013). “Claims Analysis Study of May 24, 2011 Hailstorms in Dallas-Fort Worth.” *Insurance Institute for Business & Home Safety Research Report IBHS-RC02-2013*, Tampa, FL.

McMillan, Anneley, et al. (2008). “Advanced Technology for Rapid Tornado Damage Assessment Following the ‘Super Tuesday’ Tornado Outbreak of February 2008.” *MCEER Response Report Series*. MCEER, Buffalo.
<http://mceer.buffalo.edu/research/Reconnaissance/tornado02-08/08-SP01.pdf>.

Tanner, Larry J. and Brown, Tanya M. (2008). *Tornado Damage Documentation—Using EF-Scale in Central Florida: Sumter County, Lake County and Volusia County*. Wind Science and Engineering Research Center, Texas Tech University, Lubbock, TX.

Young, C. Bryan, Brown, Tanya M., and Brunsell, Nate A. (2008). Evaluation of NEXRAD operational precipitation estimates in Kansas. Technical report for the Kansas Department of Transportation.

Institute for Business and Home Safety (2008). “Mega Fires: The Case for Mitigation. The Witch Creek Wildfire, October 21-31, 2007.” Tampa, FL. www.disastersafety.org/megafire/

CONFERENCE PRESENTATIONS

Brown, Tanya M., et al. (2008). “Using High-Resolution Aerial Imagery to Document Damage in the Witch Creek Fire.” *33rd Annual Hazards Research and Applications Workshop*, Broomfield, CO.

Brown, Tanya M., Pogorzelski, Hank, Humphries, Hope (2008). “Mitigating Wildfire Risks through Applied Science.” *Building Solutions through Science, Institute for Business and Home Safety Annual Conference*, Tampa, FL.

Brown, Tanya M., Liang, Daan, and Womble, J. Arn (2009). “Development of a Statistical Relationship between Ground-Based and Remotely-Sensed Damage in Windstorms.” *11th Americas Conference on Wind Engineering*, San Juan, Puerto Rico.

Brown, Tanya M., Liang, Daan, and Womble, J. Arn (2009). “Development of a Statistical Relationship between Ground-Based and Remotely-Sensed Damage in Windstorms.” *Proceedings, Seventh International Workshop on Remote Sensing and Disaster Response*, Austin, TX.

- Brown, Tanya M., Liang, Daan, and Womble, J. Arn (2010). "Development of a Statistical Relationship between Ground-Based and Remotely-Sensed Damage in Windstorms." *Proceedings, Lubbock Severe Weather Symposium*, Lubbock, TX.
- Brown, Tanya M., Liang, Daan, and Womble, J. Arn (2010). "Development of a Statistical Relationship between Ground-Based and Remotely-Sensed Damage in Windstorms." *EF Scale Stakeholders Forum*, Norman, OK.
- Brown, Tanya M., Liu, Zhuzhao, Morrison, Murray J., Cope, Anne D., Smith, Douglas A. (2011). "Comparison of Field and Full-Scale Laboratory Pressure Data at the IBHS Research Center." *13th International Conference on Wind Engineering*, Amsterdam, Netherlands.
- Brown, Tanya M., Giammanco, Ian M., Cope, Anne D. (2012). "Insurance Institute for Business & Home Safety Research Center: The Science of Building Better." *Palmetto AMS Mini-Technical Conference*, Columbia, SC. (invited keynote)
- Brown, Tanya M., Giammanco, Ian M., Robinett, D. Scott (2012). "Observations of Hailstone Characteristics Utilizing a New Instrumentation Platform." *Proceedings, 26th Conference on Severe Local Storms*, Nashville, TN.
- Brown, Tanya M. (2013). "Wind/Hail: Roof Damage. A Scientific Testing Focus." *Reinsurance Association of America Cat Modeling 2013*, Orlando, FL.
- Brown, Tanya M. (2013). "IBHS Roofing Research." *Asphalt Roofing Manufacturers Association (ARMA) Steep Slope Committee Meeting*, Toronto, Ontario, Canada.
- Brown, Tanya M. (2013). "Hail: A Billion Dollar Problem." *KAPCIC Annual Conference*, Excelsior Spring, MO.
- Brown, Tanya M., Pogorzelski, W. Hank (2014). "Claims Analysis Study of May 24, 2011." *Proceedings, 94th American Meteorological Society Annual Meeting*, Atlanta, GA.
- Brown, Tanya M. (2014). "The Science of Disaster Resiliency." *National Tornado Summit*, Oklahoma City, OK.
- Brown, Tanya M. (2014). "Narrowing the Swath: Reducing Hail Losses." *NAMIC Annual Convention*, National Harbor, MD.
- Brown, Tanya M., Giammanco, Ian M., Kumjian, Matthew R. (2014). "IBHS Hail Field Research Program 2012-2014." *27th Conference on Severe Local Storms*, Madison, WI.
- Brown, Tanya M. (2015). "Relative Impact Resistance of New and Aged Roofing Materials." *International Roofing Expo*, New Orleans, LA.
- Brown, Tanya M., Quarles, Stephen L., Giammanco, Ian M., Brown, Remington (2015).

“Building Vulnerability to Wind-Driven Rain Entry and Effectiveness of Mitigation Techniques.” *Proceedings, 14th International Conference on Wind Engineering*, Porto Alegre, Brazil.

Brown, Tanya M. (2015). “Severe Thunderstorms Impacts and Mitigation—Hail Mitigation.” *Natural Hazards Mitigation Association Symposium*, Broomfield, CO.

Cope, Anne D., Brown, Tanya M., Liu, Zhuzhao, Smith, Douglas A., Morrison, Murray J. (2012). “Full-Scale Simulation of Wind Pressures and Wind Effects.” *ASCE Structures Congress*, Chicago, IL.

Estes, Heather E., Brown-Giammanco, Tanya M., Giammanco, Ian M. (2016). “Durability of Polymer-Modified Asphalt Shingles.” *ISAP Symposium concurrent with 53rd Petersen Asphalt Research Conference*. Jackson Hole, WY. July 18-21, 2016.

Giammanco, Ian M., Brown, Tanya M., Schroeder, John L. (2009). “Texas Tech University’s Hurricanes at Landfall Project-2008.” *11th Americas Conference on Wind Engineering*, San Juan, Puerto Rico.

Giammanco, Ian M., Brown, Tanya M. (2014). “Observations of Hailstone Characteristics in Multi-cell and Supercell Thunderstorms.” *Proceedings, 94th American Meteorological Society Annual Meeting*, Atlanta, GA.

Giammanco, Ian M., Brown, Tanya M., Kumjian, Matthew R., Heymsfield, Andrew J. (2014). “Observations of Hailstone Sizes and Shapes from the IBHS Hail Measurement Program: 2012-2014.” *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.

Gilvary, Ken, Brown, Tanya M., Prevatt, David O. (2012). “Understanding Building Damage from Hail and Wind.” *WIND Regional Symposium*, Charlotte, NC.

Goode, Jonathan S., Prevatt, David O., Brown, Tanya M. (2013). “Wind Damage Assessment, Identification, and Research/Testing of Asphalt Composition Shingles.” *WIND 2013*, Orlando, FL.

Herzog, Richard, Roodvoets, David, Brown, Tanya M., Lawry, Lynne (2012). “RICOWI 2011 DFW Hail Investigation.” *RICOWI Spring Seminar*, Dallas, TX.

Kumjian, Matthew R., Brown, Tanya M., Giammanco, Ian M. (2014). “IBHS Field Research Project 2014 Case Studies: Comparison of Polarimetric Radar Observations and Surface Hail Characteristics.” *27th Conference on Severe Local Storms*, Madison, WI.

Krupar, Richard, Reynolds, Amber E., Brown, Tanya M., Liang, Daan, Womble, J. Arn (2008). “February 2008 ‘Super Tuesday’ Tornado Outbreak Damage Assessment.” *33rd Annual Natural Hazards Research and Applications Workshop*, Broomfield, CO.

- Liu, Zhuzhao, Brown, Tanya M., Cope, Anne D., Reinhold, Timothy A. (2011). "Simulation Wind Conditions/Events in the IBHS Research Center Full-Scale Test Facility." *13th International Conference on Wind Engineering*, Amsterdam, Netherlands.
- Lombardo, Franklin T., Brown, Tanya M., Womble, J. Arn, LaDue, James G. (2010). "The Future of the EF Scale." *Second AAWW Workshop*, Marco Island, FL.
- Luo, Binjie, Liang, Daan, Mehta, Kishor C., Brown, Tanya M. (2011). "Evaluation of Synthetic Strategies for Windstorm Damage Assessment." *13th International Conference on Wind Engineering*, Amsterdam, Netherlands.
- McCarthy, Patrick, Brown, Tanya M., Lafleur-Forcier, Maxime (2013). "Prarie Storms: Thunderstorms, Tornadoes, and Blizzards. What the Hail is Going On?" *National Insurance Conference of Canada*, Gatineau, Quebec, Canada.
- Morrison, Murray J., Brown, Tanya M., Liu, Zhuzhao (2012). "Comparison of Field and Full-Scale Laboratory Peak Pressures at the IBHS Research Center." *ATC-SEI Advances in Hurricane Engineering Conference*, Miami, FL.
- Quarles, Stephen L., Brown, Tanya M., Cope, Anne, D., Lopez, Carlos, Masters, Forrest J. (2012). "Water Entry through Sealed and Un-Sealed Roof Sheathing: A Preliminary Study." *ATC-SEI Advances in Hurricane Engineering Conference*, Miami, FL.
- Reynolds, Amber E., Krupar, Richard, Brown, Tanya M., Liang, Daan, Womble, J. Arn (2008). "February 2008 Super Tuesday Tornado Outbreak Damage Assessment." *Inaugural AAWW Workshop*, Vail, CO.
- Reynolds, Amber E., Krupar, Richard, Brown, Tanya M., Liang, Daan, Womble, J. Arn (2008). "February 2008 Super Tuesday Tornado Outbreak Damage Assessment." *Proceedings, Sixth International Workshop on Remote Sensing for Disaster Response*, Pavia, Italy.
- Womble, J. Arn, Smith, Douglas A., Schroeder, John L., Liang, Daan, Brown, Tanya M., Mehta, Kishor C. (2009). "Image-Based Wind Damage Functions." *Proceedings, Seventh International Workshop on Remote Sensing for Disaster Response*, Austin, TX.
- Womble, J. Arn, Smith, Douglas A., Liang, Daan, Schroeder, John L., Brown, Tanya M., Mehta, Kishor C. (2010). "Imagery-Based Wind Damage Functions." *Proceedings, ASCE/SEI Structures Congress*, Orlando, FL.
- Womble, J. Arn, LaDue, James G., Levitan, Marc L., Brown-Giammanco, Tanya M., Coulbourne, Bill, Lombardo, Franklin T., Kopp, Gregory A. (2016). "Development of the ASCE/SEI Standard for the Estimation of Tornado Wind Speeds." *Proceedings of CSCE Annual Conference*, London, ON.

INVITED TALKS

Central Piedmont Community College Women in Construction—February 2012
Texas Department of Insurance War on Hail Symposium—November 2012
WIND Regional Symposium—May 2012
WIND 2013—January 2013
RAA Cat Modeling—February 2013
National Insurance Conference of Canada—September 2013
KAPCIC Annual Conference—October 2013
National Tornado Summit—February 2014
NAMIC Annual Convention—September 2014
Natural Hazard Mitigation Association—July 2015

GRANTS

January 2010, University of Colorado, Natural Hazards Center Quick Response Grant
“Validating the Enhanced Fujita Scale”, accepted for funding of \$1840-\$3150 to cover travel costs for data collection following a qualifying tornado event

FIELD WORK

Texas Tech University Hurricane Research Team, 2008-present
Texas Tech University StickNet Team 4 leader for VORTEX 2 (Verification of the Origins of Rotation in Tornadoes Experiment 2), 2009-2010
Central Florida Tornado Damage Assessment, February 2007
Super Tuesday Tornado Damage Assessment, February 2008
Witch Creek Wildfire Damage Assessment, May 2008
RICOWI Dallas/Ft. Worth Hailstorm Damage Assessment, June 2011
IBHS Hailstone Characteristics Field Project, 2012-present

PROFESSIONAL ORGANIZATIONS

American Meteorological Society (2000-present)
American Association for Wind Engineering (2007-present)
Palmetto Chapter of the AMS (2012-present)
Roofing Industry Committee on Weather Issues (RICOWI), Board of Directors (2012-present)
Reviewer for Journal of Wind Engineering and Industrial Aerodynamics (2013-present), and
Wind and Structures (2014-present)
American Society of Civil Engineers, Associate Member (2015-present)
ASCE Committee on Wind Speed Estimation in Tornadoes, Steering Committee, EF Scale
Subcommittee Chair (2015-present)