



**SOUTHEAST SEVERE STORMS**

**SYMPOSIUM XVI**

MISSISSIPPI STATE UNIVERSITY | MARCH 24-25, 2018



**16<sup>TH</sup> ANNUAL SOUTHEAST SEVERE  
STORMS SYMPOSIUM**

**Mississippi State University**

March 24-25, 2018

Hosted by the East Mississippi Chapter of  
the NWA / AMS

**MISSISSIPPI STATE  
METEOROLOGY**

# ABOUT US



## East Mississippi Chapter of the NWA and AMS

The East Mississippi Chapter of the National Weather Association (NWA) and the American Meteorological Society (AMS) is an organization affiliated with Mississippi State University, whose purpose is to provide opportunities for growth and education outside a classroom setting for MSU students, faculty, staff, and local meteorologists. Membership in the organization is open to all Mississippi State students, as well as faculty, staff, and members of the public with an interest in meteorology.

The chapter members have also been proud planners of the Southeast Severe Storms Symposium, held at Mississippi State University for the past sixteen years. The conference annually attracts close to 100 meteorologists from around the southeast region, with the goal of providing meteorologists across the southeast an opportunity to learn, network, and to further understand the current state of the weather enterprise.

Education is also a high priority for the chapter. Chapter members have attended talks presented by employees of the National Weather Service in Jackson and Memphis. In addition, the chapter travels to NWA and AMS conferences yearly to both present and listen to presentations. This year, more than half a dozen students from Mississippi State attended regional and national conferences, including the AMS Annual Meeting, the Baron Weather Conference, and the Southeast Coastal and Atmospheric Processes Symposium (SeCAPS).

Be sure to like the chapter's Facebook page and follow us on Twitter at [@EastMissNWA\\_AMS](https://twitter.com/EastMissNWA_AMS). You can also follow the Southeast Severe Storms Symposium on Twitter at [@SESVR18](https://twitter.com/SESVR18).



## Mississippi State University Geosciences Department

The mission of the Department of Geosciences is to serve as the focal point and advocate for the earth and atmospheric sciences at MSU through national leadership in teaching, research, outreach and service. The Department supports other existing curricula at MSU by offering courses and expertise several areas of the earth sciences: Climatology, Geocognition, Geography, Geology, Geospatial Analysis, and Meteorology. By its interdisciplinary nature, the department is well-equipped to provide an integrated earth systems approach to understanding globalization, diversity, and sustainability. Whether in a cultural or scientific sense, the department is a catalyst for economic, cultural, social, educational, technological and scientific development in the state and the region. The program provides unique contributions in the areas of weather, environment, natural resources and distance learning. The department accounts for more than one third of all DL credit hour production for the university. The strong earth sciences component at MSU enhances the comprehensive nature of the university, promotes the mission of the institution and enhances the stature of the institution among the comprehensive universities in the nation. The department is the only place in the state where climatologists, geocognicians, geographers, geologists, geospatial experts and meteorologists are combined in a single location, not only in name but in actual workload execution.

The Department of Geosciences provides fundamental education in geosciences for all students at MSU and specialized education for those students who specifically major and/or minor in Geosciences (BSc and MSc degrees) and Earth and Atmospheric Sciences (PhD degrees). Additionally, the department assumes the role of conducting applied and basic research that leads to deeper understanding of the nature of the earth sciences in Mississippi, the southern U.S. in particular, and more generally leads to an understanding of the integrated nature of earth systems for the whole earth. Furthermore, the department takes seriously its responsibility for providing service to the citizenry of Mississippi by responding to requests for information within the areas of expertise of the faculty and leveraging informal educational opportunities.

# EXECUTIVE BOARD



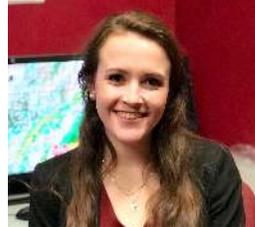
## ALEX HERBST PRESIDENT



**Graduate Student  
North Brunswick, NJ  
arh757@msstate.edu**

Alex Herbst is a graduate student at Mississippi State and intern for MemphisWeatherNet (@MemphisWeather1). He obtained his Bachelor's degree in Meteorology from Plymouth State University in 2015. Previously, Alex has worked for News 12 The Bronx as a meteorology intern. While there, he learned the ropes of graphics building, production, and on air performance. He plans to graduate with a Master's degree in Geosciences, with a focus in Broadcast Meteorology, in May 2018.

## CAROLINE MACDONALD VICE-PRESIDENT



**Senior  
Murfreesboro, TN  
cnm306@msstate.edu**

Caroline MacDonald is a senior majoring in Geosciences with an emphasis in Professional Meteorology and a minor in Psychology. She has lived in seven different states throughout her life, but currently resides in Central Tennessee. She is an intern for Nashville Severe Weather (@NashSevereWx) and has been a student volunteer at NWS Nashville for the past two years. Upon completion of her Bachelor's degree in May, Caroline will stay at Mississippi State to pursue her Master's degree beginning this fall.

## LAUREN POUNDS SECRETARY



**Junior  
Mandeville, LA  
lep244@msstate.edu**

Lauren Pounds is a junior pursuing a Geosciences degree with an emphasis in Professional Meteorology. She is from the New Orleans area and was directly impacted by Hurricane Katrina, furthering her interest in weather. Lauren is currently an intern for MemphisWeatherNet (@MemphisWeather1). She will graduate from Mississippi State with a Bachelor's degree in 2019 and plans to attend graduate school after.

## AMANDA RABORN TREASURER



**Graduate Student  
Diamondhead, MS  
amr479@msstate.edu**

Amanda Raborn is a graduate student and will graduate with her Master's degree in May 2018. She received her Bachelor's degree from Mississippi State in 2016. She completed her thesis on patterns of warm-season convective initiation over the Mississippi Delta region. She also spends her time teaching labs and tutoring student-athletes. Amanda is currently pursuing jobs in the professional meteorology sector to begin after graduation.

## ALEX FORBES CO-SYMPOSIUM CHAIR



**Freshman  
Alpharetta, GA  
af1146@msstate.edu**

Alex Forbes is currently a freshman and an intern for Nashville Severe Weather (@NashSevereWx). He is working on obtaining his Bachelor's degree in Geosciences with a concentration in Professional and Broadcast Meteorology. Alex is originally from the metro Atlanta area. Prior to starting at Mississippi State, Alex had experiences at The Weather Channel, FOX 5 Atlanta, CBS46 Atlanta, the Storm Prediction Center, and NWS Peachtree City. He is a frequent attendee of the annual NWA conferences and plans to graduate in 2021.

## CRAIG SHELLS CO-SYMPOSIUM CHAIR



**Junior  
North Tonawanda, NY  
cs2399@msstate.edu**

Craig Shells is a junior at Mississippi State pursuing a Geosciences degree with an emphasis in Professional Meteorology. His favorite kind of weather to study is winter weather and lake-effect snow. While he is originally from New York, he currently resides in Alabama. Craig is also an intermediate Spanish speaker. He plans on graduating in December 2018 with his Bachelor's degree.

# AGENDA



**SATURDAY, MARCH 24, 2018**

- 8:00 AM Registration Opens
- 9:00 AM **Opening Remarks**
- 9:05 AM **Conference Weather Briefing**  
Reginald Roakes, Mississippi State University

## ▶ **SESSION 1: A VIEW FROM ABOVE THE MID-SOUTH** | CHAIR: CAROLINE MACDONALD

- 9:10 AM **A Preliminary Look at the Geostationary Lightning Mapper in Warning Operations**  
Dana Griffin, NWS Huntsville
- 9:30 AM **GOES-16 Becomes Operational: Experiences Using the Advanced Baseline Imager at WFO Memphis**  
William Churchill, NWS Memphis
- 9:50 AM **Lake Effect Snow in the Mid-South**  
Thomas L. Salem Jr., NWS Memphis
- 10:10 AM BREAK
- 10:20 AM **KEYNOTE PRESENTATION: 2017 Field Operations: Cindy, Harvey, Irma and Nate Mark Sudduth, HurricaneTrack.com**
- 11:20 AM LUNCH - Stromboli's

## ▶ **SESSION 2: SEVERE WEATHER AND COMMUNICATING HAZARDS** | CHAIR: LAUREN POUNDS

- 12:50 PM **5 Years Later - Lessons Learned**  
Isaac Williams, WHNS-TV FOX Carolina
- 1:10 PM **NWS Jackson Mississippi Week Two Hazardous Weather Impact Assessments**  
Chad Entremont, NWS Jackson
- 1:30 PM BREAK
- 1:40 PM **Examination of Forecast and Warning Services for the Lower Mississippi River Valley Severe Weather and Flash Flood Event of 2-3 April 2017**  
Eric Carpenter, NWS Jackson
- 2:00 PM **Spatial Statistics for the Top 100 Tornado Outbreaks in the United States**  
Zoe Schroder, Florida State University
- 2:30 PM **Research and Operational Challenges Posed by the 18 November 2017 High-Shear/Low-CAPE QLCS Tornado Outbreak in North Alabama**  
Anthony W. Lyza & Kevin Knupp, University of Alabama-Huntsville
- 2:40 PM BREAK

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SATURDAY, MARCH 24, 2018

- |         |  |
|---------|--|
| 2:40 PM | BREAK  |
| 2:50 PM | <b>A Case of Prolific QLCS Tornado Production: The Lower Mississippi River Valley Tornado Outbreak of 30 April, 2017</b><br>Chad Entermont and Daniel Lamb, NWS Jackson  |
| 3:10 PM | <b>Analysis of a Tornado Along the 18 December 2016 Arctic Front In Northwestern Alabama</b><br>Adam Clayton, University of Alabama-Huntsville                           |
| 3:30 PM | <b>Breaking the Grip of the Rip: The Science of Forecasting and Communicating the Risk of Deadly Rip Currents</b><br>Morgan Barry and Cody Lindsey, NWS Mobile/Pensacola |
| 3:50 PM | BREAK  |
| 4:00 PM | <b>KEYNOTE PRESENTATION: The Hurricanes Return: Lessons from 2017</b><br>Bryan Norcross, The Weather Channel and WPLG-TV Miami   |
| 5:00 PM | <b>End of Day</b>  |



# AGENDA

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SUNDAY, MARCH 25, 2018

- 8:00 AM Registration Opens
- 9:00 AM **Opening Remarks**
- 9:05 AM **Conference Weather Briefing**  
Christana Landress, Mississippi State University

## ▶ **SESSION 3: INSIDE THE METEOROLOGIST'S MIND** | CHAIR: ALEX FORBES

- 9:10 AM **Chaser to Scientist: A Scholastic Review of Personal Failure and Redemption**  
Brant Beckman, Mississippi State University
- 9:30 AM **The Pitfalls of a Social Media-ologist: How to Communicate Science in a Digital Age**  
Alex Herbst, Mississippi State University
- 9:50 AM **Convective Hazards Assessment Program (CHAP)**  
Robert Ricks Jr., NWS New Orleans
- 10:10 AM BREAK
- 10:20 AM **KEYNOTE PRESENTATION: The Storm Inside: The Impact of Stress and Emotion on Meteorologists**  
Rick Smith, NWS Norman
- 11:20 AM LUNCH - The Little Doey

## ▶ **SESSION 4: PAST WEATHER AND FUTURE TECHNOLOGY** | CHAIR: AMANDA RABORN

- 12:50 PM **Early Operational Successes of the University of Louisiana at Monroe's S-band Polarimetric Doppler Radar**  
Todd Murphy, University of Louisiana at Monroe
- 1:10 PM **Topographic Enhancement of Convective and Tornadoic Environments within Complex Terrain during the VORTEX-SE Field Campaign**  
Ryan Wade, University of Alabama-Huntsville
- 1:30 PM **Superstorms of the Past: Controversy in Paradise**  
John E. Mylroie, Mississippi State University
- 1:50 PM **BREAK**
- 2:00 PM **KEYNOTE PRESENTATION: Extreme Weather Events and the Warming of the Climate System**  
Carl Parker, The Weather Channel
- 3:00 PM **Closing Remarks**
- 3:05 PM **End of Symposium**

# KEYNOTE SPEAKERS

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## BRYAN NORCROSS



Bryan Norcross is the senior hurricane specialist at The Weather Channel, based in Atlanta, and hurricane specialist at WPLG-TV in Miami.

From 2008 until 2010, Norcross was president and CEO of America's Emergency Network, Inc. (AEN), an emergency-communications networking company based in Miami. The AEN system allows local governments and other agencies to stream live news briefings to the public and the media without news crews or other conventional video-transmission systems. AEN was used at the National Hurricane Center (NHC) in 2009 and 2010 to disseminate live NHC briefings.

Norcross became nationally known after he "talked South Florida through" Hurricane Andrew in 1992. From 1996 through 2008 he was the in-house hurricane analyst for CBS News in New York and anchored the coverage of numerous hurricanes for WFOR-TV/CBS in Miami. Prior to that time, he worked for NBC in Miami and New York. Norcross appeared frequently on CBS News programs including the CBS Evening News with Dan Rather and Katie Couric. Bryan also appeared frequently as the primary fill-in weatherman on the CBS Early Show with Bryant Gumbel.



After Hurricane Andrew, Norcross was named expert adviser to the Academic Task Force on Hurricane Catastrophe Insurance by Florida State Treasurer and Insurance Commissioner Bill Nelson, and was a member of the Governor's Committee to evaluate state response and recommend changes to the state emergency management system by Governor Lawton Chiles. In appreciation for his work before, during and after Hurricane Andrew, Bryan received the 1993 David Brinkley Award for Excellence in Communication. He was also publicly recognized with designations of Bryan Norcross Days in Miami, Miami Beach, and Ft. Lauderdale, among other cities. In addition, he's the recipient of an Emmy Award from the southeast chapter of the National Association of Arts and Sciences, and the DuPont and Peabody awards, the highest awards given in broadcasting. Norcross' comprehensive hurricane guide called "Hurricane Almanac" was released by St. Martin's Press in July 2006. The book covers hurricane science, history, preparedness and more. A follow-up edition was released in the spring of 2007. Norcross also recently self-published a book titled "My Hurricane Andrew Story."

Norcross has a bachelor's degree in math and a master's degree in communications and meteorology from Florida State University. In addition Bryan received an honorary doctor of public service degree from Florida International University. Bryan is a resident of Miami and Atlanta.

## RICK SMITH



Rick Smith is the Warning Coordination Meteorologist at the National Weather Service's Norman Forecast Office. He manages NWS Norman's hazardous weather preparedness, outreach and education activities for the office's 56 county area of responsibility. Rick and the NWS Norman staff work closely with the media, emergency managers and other state, county, tribal and local government officials to ensure that communities in central and western Oklahoma and western north Texas are ready when hazardous weather threatens.

Rick began his National Weather Service career as a student volunteer/student trainee at the Memphis NWS office. Upon graduation from the University of Memphis in 1993, Rick became a meteorologist intern, and in 1997 was selected as a forecaster at the NWS office in Tulsa. In 1999, Rick was selected to fill the newly developed Performance and Evaluation Meteorologist position at Southern Region Headquarters in Fort Worth. In 2002, Rick moved to Norman to become the Warning Coordination Meteorologist, where he currently is today.

Rick's professional research interests include severe thunderstorms/tornadoes, human factors in warning perception and response, and effective warning communication. He has attended and presented at many conferences and symposia, and attended the AMS Annual Meeting in 2018 in Austin, Texas where he first met officers from the East Mississippi NWA / AMS Chapter. Outside of work, his hobbies include spending time with his family and storm chasing.



NORMAN  
WFO

# KEYNOTE SPEAKERS

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## CARL PARKER



Carl Parker has been a fan of the skies for as long as he can remember. "Even as a kid, and I mean a young kid---five, six years old---I was fascinated by storms. I would look out the window for long periods of time, watching the show. And I still do that today." In a supporting role with the Met Expert Team, Parker shares that passion with The Weather Channel's severe, tropical and winter weather experts, both on and off the air.

During Hurricane Irene, Parker was at the expert desk with Dr. Rick Knabb and Bryan Norcross for the better part of two days, analyzing the storm and assessing the threats from North Carolina to New England. And he's often found with Dr. Greg Forbes during severe outbreaks.

Parker joined The Weather Channel as an On-Camera Meteorologist in 1999. Parker was an OCM for his first 12 years with The Weather Channel, and then joined the Expert Team just prior to the severe season in 2011.

From 1995 to 1999, Parker was with KPRC-TV in Houston, TX, garnering both personal and professional experience with tropical storms and hurricanes. He covered hurricane Georges and Opal from the field for KPRC, and would later chase powerful hurricane Bret on his own. "Bret was still a tropical storm on a Friday afternoon, and by Sunday morning it had become a category four hurricane. On Sunday night I drove down to South Texas and got into the northern eyewall. Being in the presence of that kind of power, at the mercy of it really, hour after hour, is a remarkable and incredibly humbling experience. I'm really glad I did it, because I think it enables me to better understand what our viewers are going through."

Prior to Houston, Parker worked for WHTM-TV and WHP-TV in Harrisburg, PA, where he covered the Superstorm of 1993, a freak of nature that clobbered the Eastern seaboard. He began his career in 1991 at WTVA-TV in Columbus/Tupelo, MS, while still in the Meteorology Program at Mississippi State University. Parker also studied science and communications at the University of Maryland, and holds the American Meteorological Society's Seal of Approval.

Parker was born in Boston and raised in the Washington, D.C. metro area. He currently lives in northwest metro Atlanta with his wife of 10 years and their two young children. Parker is also a drummer/percussionist/keyboard composer, and a huge fan of live music.



## MARK SUDDUTH



Mark Sudduth is the founder and editor of HurricaneTrack.com. HurricaneTrack.com began in 1999 as a way to post info concerning tropical storms and hurricanes for any interested visitors. Little did he know how big it would become in the years since.

Now, his site has millions of visitors from all over the world who have come to rely on the site as a straightforward, tell it like it is resource for all things hurricane related. The website is supported by a combination of corporate sponsors and loyal Client Services members who subscribe to premium content on their sister site, premium.hurricanetrack.com.

When hurricanes threaten landfall along the U.S. coast, Mark works to set out unmanned cameras that stream live video, with audio, to his followers. He also sets out state-of-the-art weather data sensors to collect and stream live wind and pressure data. During the off-season, he will do a lot of testing of equipment during Nor'easters and other high-impact winter storm events.

Mark has a new project called HURRB or Hurricane Research Balloon which is designed to send a small payload of weather data collection equipment, along with two GoPro cameras, in to the eye of a hurricane at landfall. This has never been attempted before, let alone accomplished. He has tested HURRB many times in non-hurricane environments since 2012 with nearly perfect results.

Mark is married with six energetic and intelligent children and live in southeast North Carolina. He graduated UNC-Wilmington in 1995 with a BA in Geography and have studied the effects of hurricanes on our society ever since. Mark has been a frequent attendee to the Southeast Severe Storms Symposium, and has presented many times on his research into hurricanes.



HURRICANE  
TRACK.COM

# DEPARTMENT



## UNDERGRADUATE

### **Professional Meteorology Concentration**

This program focuses on the study of atmospheric processes and climatic variability. Upon completion of the program (operational emphasis), students will have met the coursework requirements for the National Weather Service, the private meteorology sector, or they may continue their education in graduate school. Students choosing the program with the broadcast emphasis can also work for the National Weather Service and also earn the American Meteorological Society's Certified Broadcast Meteorologist Seal of Approval.

The Professional Meteorology Program (PMP) track prepares students for graduate school and/or a career as an operational forecaster. Outside of the core meteorology curriculum, PMP students are encouraged/expected to take courses in advanced mathematics (calculus), statistics, computer programming, Remote Sensing, GIS, and other courses depending upon individual students' interests.

Recent graduates from the PMP have attended meteorology and climatology graduate programs at the University of Georgia, University of South Carolina, Florida State University, the University of Alabama in Huntsville, and others. The USDA, the EPA, the Weather Channel, and the National Weather Service also employ our PMP graduates as forecasters.

### **Broadcast Meteorology Concentration**

This program focuses on preparing students for a career as a Broadcast Meteorologist. The coursework does not meet the requirements for the American Meteorological Society's Certified Broadcast Meteorologist Seal of Approval because it lacks some of the math and physics requirements. Individuals can, however, be qualified to earn the National Weather Association's Seal of Approval after working in the industry for two years.

The Mississippi State University Climate Lab Studio serves as the hub of the Broadcast Meteorology Program. It is comprised of a large studio featuring two green-screen chroma-key walls, two cameras, four monitors, and IFB capability. The studio is powered by a control room that features studio controls, a TriCaster 410 production system, and Baron Omni and VIPIR weather graphics.

The products produced in the studio include Practicum in Broadcast Meteorology I-IV lab exercises and our CampusConnect Forecast.

In addition, students are required to take a series of communications courses (Public Speaking, Theater, Mass Media, Voice and Articulation, TV Production, Advanced TV Production, Broadcast Performance, and News Writing) earning a minor in communication.

## GRADUATE

### **Broadcast Meteorology Concentration (Non-Thesis)**

Concentration designed for students intending to pursue meteorology careers in media. This non-thesis master's degree combines meteorology coursework with the Practicum in Broadcast Meteorology sequence. A research project presentation and a written and oral comprehensive examination are required.

### **Professional Meteorology/Climatology Concentration (Thesis)**

Thesis-based concentration intended to prepare students for forecasting careers or further graduate study. Thesis defense/comprehensive exam is required.

## DISTANCE

### **Applied Meteorology Concentration (Non-Thesis)**

The Applied Meteorology Program (AMP) is designed for individuals with meteorological, environmental or hazards-related careers. This non-thesis concentration is offered through distance education. The AMP requires 36 hours of coursework as well as a written comprehensive exam. In order to be admitted into the AMP, students must complete, or have completed a Synoptic Meteorology class. This class can be taken through MSU distance education in the Summer or Fall semesters.



# NOTES

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# NOTES



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