NEWSLETTER

National Weather Association

No. 11 – 12 December 2011

The Tennessee Floods of May 2010: A Satellite Perspective Part I

Sheldon Kusselson, NOAA/NESDIS

On May 1-2, 2010, unprecedented multi-day heavy rainfall and flash flooding occurred over portions of Tennessee and surrounding states (Fig. 1). Events like this could happen at any time across the U.S. This three part series, starting with this month's issue, will discuss some of the different satellite tools that can be used for an event of this magnitude to reinforce the need to incorporate satellite data and applications into the analysis and forecast process.

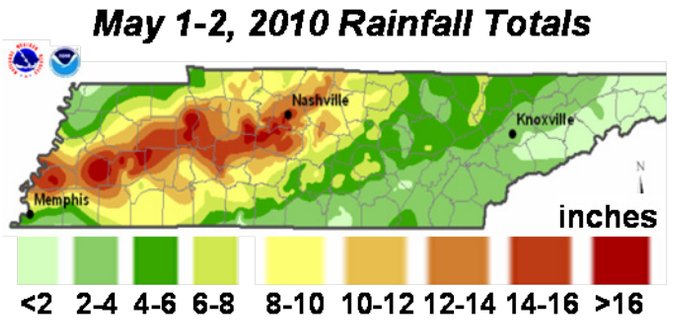

Fig. 1. Multi-day rainfall amounts centered on Tennessee for May 1-2, 2010. When the extreme rain event ended in Nashville, Tenn., May 2 had the largest calendar day rainfall at 7.21 inches and May 1 ranked third at 6.32 inches. The total of 13.53 inches was double the previous record storm total of 6.68 inches with Hurricane Frederic in 1979.

Using the National Oceanic and Atmospheric Administration (NOAA) blended total precipitable water (BTPW) product, this article shows the large scale evolution of various deep low level moisture sources that came together during the week leading up to the event. The BTPW product is a composite of available polar orbiting microwave TPW imagery over the ocean areas and land areas outside the continental U.S. (OCONUS) and mostly GPS data over the continetnal U.S. (CONUS). The product is updated each hour and can be viewed at http://www.osdpd.noaa.gov/bTPW as well as on NWS AWIPS and

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Inside This Edition

President's Message – The Importance of Research in Operational Meteorology

"Synoptic meteorology, as a discipline, is dead." These were words spoken to me years ago by a colleague when I was a new assistant professor – of synoptic meteorology. To be sure, I was aware that my chosen area of study and research was not nearly as active as it had been in the heyday of Bjerknes, Rossby, Palmén, Petterssen, Bergeron and their colleagues. Moreover, grant funding, half a dozen journals and their attendant news headlines had become dedicated largely to climate and climate change. This situation was true at the start of my academic career and remains so today. Yet, then as now, synoptic and mesoscale meteorology do not seem to be dead disciplines. This issue is the theme of this month's message, only because I have run into this sentiment time and again over the last 13 years.

I think the truth about research in synoptic and mesoscale meteorology was stated more concisely by another colleague of mine, when she opined that those disciplines so closely linked to operational meteorology had no low-hanging fruit. With the fundamentals of these sub-disciplines well in hand, only those willing to climb ever higher into the research tree would be rewarded with new discoveries. So to finish the analogy, the fruit is up

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there for us to find, but arguably requires more effort to secure.

However, modern computing now facilitates rapid analyses in operational settings that once were within the purview only of the research community. For example, in his 1955 textbook Principles of Meteorological Analysis, Saucier stated that "... vertical cross sections [were of] little value in routine work..." How times change! In 2011, increasing computing power allows the same research group to climb a little higher in the tree, and with greater ease, to find the fruit in vertical cross sections and other displays.

A simple survey of the papers published in the last decade in the Digest or online with the Electronic Journal of Operational Meteorology (EJOM) bear this out. Powerful and useful papers on snow-to-liquid ratios, climatic anomalies and supercell propagation have not only advanced our discipline, but undoubtedly helped to save lives. In each case, enormous datasets were processed and reduced in a rapid fashion to facilitate analyses and interpretations that help to shape our forecasts, watches and warnings.

So, what research problems still exist in our area? A simple answer would be to look to the papers the NWA has published previously. I could suggest that null events are now more easily accessible using an analog approach. For example, any researcher who wants to look at, say, commonalities in heavy snow events in Indiana, now has the capacity to look at those snow events, and also to look for null events that were dynamically similar, but did not produce heavy snow in Indiana. The analog software developed at Saint Louis University is only beginning to scratch the surface of this topic. I could also suggest that perhaps the time has come for a new model for extratropical cyclones. The conceptual model we now employ will turn 100 in a few short years. Although a landmark in the history of science, and near and dear to the hearts of many, this model has been exceeded by our more complete understanding of these phenomena through baroclinic instability concepts, quasi-geostrophic theory, and isentropic potential vorticity studies to name a few. We have so much talent in the operational meteorology community. There is no reason that this conversation should not begin amongst us, in earnest. Talk about an effort that could take our discipline far into the 21st Century...

However, for now, I would suggest that you already have a research problem. Whether you have been working in your local area for decades or only just a few months, there is sure to be an operational meteorology issue for that locale that vexes you. If I am right, then I believe that the questions that follow are easy:

What is the forecasting issue?

Has it been researched before?

If so, is the work outdated? Does it need updating?

If so, then when can you start investigating?

See, there is a lot of research for us still to do. But I did forget one critical question: When you finish your research, would you tell us about it? The NWA Newsletter, National Weather Digest and the Electronic Journal of Operational Meteorology are widely read and would be enhanced greatly by your submissions.

Not only is there work to do in operational meteorology, but the NWA is the primary audience, and the best place to publish your findings.

Patrick Market, NWA President

A Grand Welcome to Our Newest NWA Members Who Joined in October and November

Regular/Military/Retired

(October)

Drew Albert
Matt Andrews
Robert Berg
Robert Boyd
Barry Britnell
Sandra Brogan
Jim Buitt
William Burkey
Jonathan Case
Timothy Coleman
Michael Coniglio
Daniel Croakman
Kevin Cronin
Erik Dean
Richard Deininger
Matthew East
Douglas Forsyth
Robert Fovell
Christopher Furtado
Joseph Gann
Michael Geary
Justin Gehrts
Todd Grebel
Billy Green
Steven Harmon
Holly Hassenzahl
Madelyn Hill
Rob Jones
Christine Krause
Kwo-Sen Kuo
Gregory McQuoid
Lena Pack
David Peters
Kevin Polston
Gary Reinecke
Anibal Rendon
Mike Richards
Maurice Shamell
Kevin Shanley
Matthew Smith
Mike Stavish
Tiffany Sunday
Scott Unger
Aaron Williams
Stephen Wyatt

(November)

Marc Allen
Angelica Campos
James Caron
Christopher Dannhausen
William Deger
Nicolai Denning
David Drobny
Michael Egner
Jason Furtado
Chance Hayes
Ross Hull
Louis Lussier
Rebecca Schodt
Bryan Smith
Megan Taylor
Robert Wonderling

Students (October)

Trey Alvey
Ryan Beesley
Michael Brown
Jeffrey Burrowes
Carrianne Carstater
Michael David
Nick Davis
Patrick Ellis
Matthew Gallagher
Justin Gray
Jennifer Henderson
Stephanie Hensley
Amanda Jellig
Margaret Klug
Leigh Orf
Megan Parry
Erin Pratt
Matthew Reagan
Jordan Root
Christopher Soelle
Robert Spinetti
Jaclyn Whittal
Matthew Young

(November)

Brian Barr
Jaron Breen
Jerrod Chambers
Matthew Chonka
Jordan Clontz
Michelle Cohen
Melissa Constaneer
Elizabeth Cosgrove
David Cotten
Rob England
Kyle Gibson
Nicholas Gliozzi
Michael Heitz
Christopher Hill
Ryan Kramer
Jacqueline Layer
Nicholas Marguccio
Lou McNally
Lacey Morrow
Meredith Nichols
Matthew Ray
Brittanny Recker
Sam Roback
Anastasia Sebastronelli
Mary Sharkey
Brittanny Snyder
Mark Sperduti
Michael Stahlman
Erin Thomas
Courtney Thompson
Burkely Twiest
Heather Waldman
Sara Ziegler

Diamilet Perez-Betancourt Awarded the David Sankey Minority Scholarship in Meteorology.

Diamilet Perez-Betancourt of Carolina, Puerto Rico, is the winner of the 2011 NWA David Sankey Minority Scholarship in Meteorology. Diamilet is a senior at the University of Puerto Rico at Mayaguez. This marks the second year in a row that a student from UPR at Mayaguez has been awarded this scholarship.

Perez-Betancourt's dedication and drive towards her goal of becoming a tropical meteorology researcher are evident and recognized by her professors. A top student, who has maintained a 4.0 GPA during her undergraduate studies in college, shows her outstanding qualities as a student. She is focused on entering graduate school with the ultimate goal of receiving a Ph.D specializing in tropical meteorology. She has been the recipient of grants and scholarships and received a first place award for her poster presented at the NOAA Educational Partnership Program Education and Science Forum in 2010.

Samantha Santeiu Awarded the Dr. Roderick A. Scofield Scholarship in Meteorology

Samantha (Sam) Santeiu of Dearborn Heights, Mich., is the winner of the 2011 NWA Dr. Roderick A. Scofield Meteorology Scholarship. She is a senior at Iowa State University and is focused on entering graduate school after graduation.

Santeiu is truly an exceptional student, both inside and outside of the classroom. A top student with a GPA approaching 4.0 (3.80 all subjects, 3.97 in major), she has also strived to extend her undergraduate experience beyond the basic requirements. During the summer of 2010, she was selected as one of four undergraduates from over 100 applicants to participate in a National Science Foundation grant to investigate aspects of lake-effect snow. This research was conducted at Hobart & William Smith Colleges in Geneva, N.Y. She received strong reviews from the professors not only for her strong research abilities but also her abilities to communicate and to positively interact with peers and professors.

Santeiu has shown strong leadership abilities by participating in several professional groups including the Central Iowa NWA Chapter and the ISU American Meteorological Society (AMS) student chapter plus two honor societies. She is currently serving as the vice-president for the student chapter. Samantha has also served as a student mentor for two ISU programs.

Eric Hout Awarded the AccuWeather, Inc. Undergraduate Scholarship in Meteorlogy

Eric Hout of Aberdeen, S.D., is the recipient of the 2011 NWA AccuWeather Undergraduate Meteorology Scholarship and currently is a senior at the South Dakota School of Mines and Technology. This marks the first time a student from SDSMT has won a NWA scholarship.

Hout is an outstanding scholar who has earned an overall GPA of over 3.8. He has been recognized by faculty members as one of the overall strongest performing undergraduate students they have seen in years. Eric has been awarded several prestigious awards and was a 2010 NOAA Ernest Hollings undergraduate scholar. Additionally, he participated in the National Weather Center Research Experiences for Undergraduates Program in Norman, Okla., over the summer of 2010. As a result of this project, he presented his research results at the AMS 25th Conference on Severe Local Storms in Denver in the fall of 2010.

Hout's professional goal is to become a National Weather Service (NWS) Warning and Coordination Meteorologist. In addition to doing good science and providing excellent warning services, he wishes to explore and develop improved ways to communicate the message in the most effective way to both the public and decision makers. Hout is preparing himself well for this goal by being recognized as a top performer in his technical communications skills classes and won a prestigious university writing award.

Kyle Borchert Awarded the NWA Broadcast Meteorology Scholarship

Kyle Borchert of Akron, N.Y., has been awarded the 2011 NWA Broadcast Meteorology Scholarship. Kyle is currently a senior at Penn State University. This marks the second year in a row that the Broadcast Scholarship has been won by a student from Penn State.

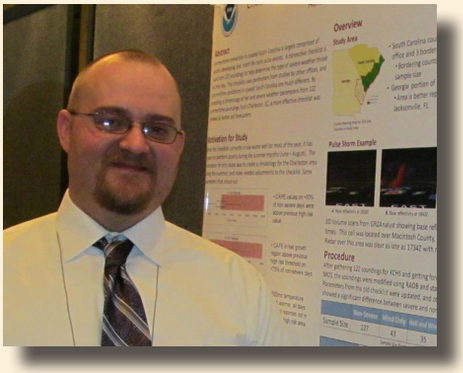
Borchert has demonstrated an impressive talent and desire to pursue a professional course which will lead to a position in the broadcast meteorology part of our profession. In addition to excelling in academic work in the classroom, he performed a very successful intership at WKBW-TV in Buffalo, N.Y., last summer. The station's chief broadcaster praised Kyle's abilities and enthusiasm and noted that he "stood head-and –shoulders above the others". The others being the 10 previous interns serving at the station.

Borchert is a strong leader who served in leadership positions in the Penn State AMS/NWA student chapter. This included serving as chapter president during his junior year.

36th NWA Annual Meeting - Birmingham: Undergraduate Student Posters Winners

1) Critical Sounding Parameters for Severe Pulse Thunderstorms in Coastal South Carolina.

Aaron Mayhew, Central Michigan University, Mount Pleasant, Mich., and Frank Alsheimer, NOAA/National Weather Service, Charleston, S.C.



Aaron Mayhew

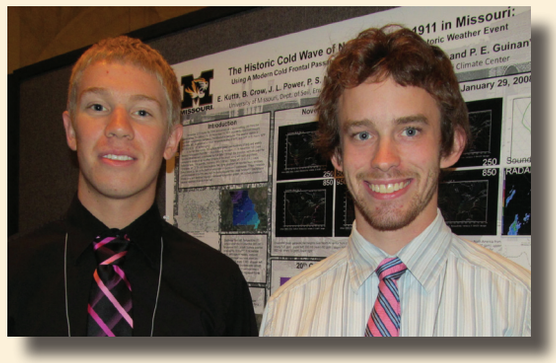
Scott Ozog

2) Patterns that Produce Large and Small Snowfall Events for Homer, Alaska

Scott Ozog, Central Michigan University, Mount Pleasant, Mich., and James Nelson, NOAA/National Weather Service, Anchorage, Ala.

3) The Historic Cold Wave of Nov. 11, 1911, in Missouri: Using A Modern Cold Frontal Passage to Draw Parallels to a Historic Weather Event

Evan Kutta, Brian Crow, Jennifer L. Power, Patrick S. Market, Katie Crandall and Neil I. Fox, University of Missouri at Columbia, Columbia, Mo., and Patrick E. Guinan, Missouri Climate Center, Columbia, Mo.



Brian Crow and Evan Kutta

Graduate Student Poster Winners

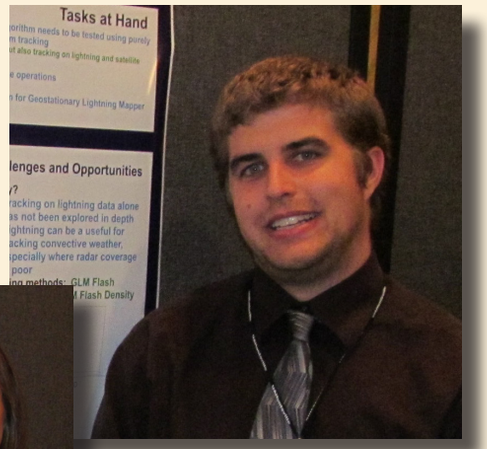
1) Evaluation of Dual-Polarimetric Radar in a Physically-Based Lightning Cessation Nowcasting Application.

Elise V. Schultz and Lawrence D. Carey, University of Alabama in Huntsville, and Walter A. Petersen, NASA Marshall Space Flight Center, Huntsville, Ala.

Elise Schultz

2) An Overview of the Total Lightning Jump Algorithm: Past, Present and Future Work.

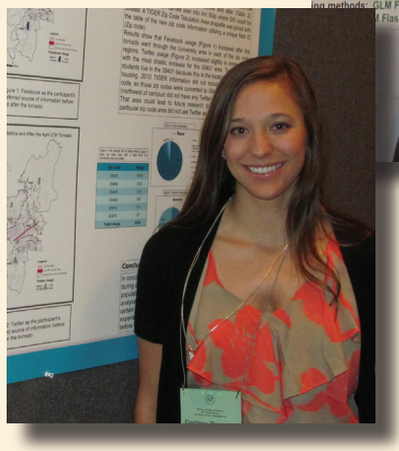
Christopher J. Schultz, University of Alabama in Huntsville, Huntsville, Ala.; Walter A. Petersen, NASA Marshall Space Flight Center, Huntsville, AL; Lawrence D. Carey, University of Alabama in Huntsville, Huntsville, Ala., and Wiebke Deierling and Cathy Kessinger, Research Applications Laboratory, NCAR, Boulder, Colo.



Christopher Schultz

3) The Impact of Social Network Communication during the April 27, 2011 Tuscaloosa, Alabama Tornado

Courtney N. Thompson and David M. Brommer, Department of Geography, University of Alabama, Tuscaloosa, Ala.



Courtney Thompson

See page 8 for more student awards

Talk Story

The NWA Membership and Marketing Committee (M & M) strives to recognize retired members who were visionaries in the fields of weather, water and climate. We hope to focus on two or three retirees each year through articles telling of memorable weather events they experienced and highlight their career accomplishments. The series will be titled "Talk Story," referring to a Hawaiian term for people sharing stories of past events to preserve history.

Gary Grice, the 1990 NWA president, is our first featured member. He told Kristin Smedley about the tornado that led to his career in meteorology.

John Gordon, NWA M & M Committee Chair

Gary Grice Remembers Historic Waco, Texas Tornado

By Kristin Smedley, Valparaiso University

If you were standing outside or at a window around 4 p.m. on May 11, 1953, near Waco, Texas, you would have witnessed one of Mother Nature's most bewildering phenomena: a large tornado barreling down on the city. This tornado caused close to $41 million in damage in the 1953 economy. One hundred fourteen people lost their lives that day and nearly 600 were injured. The devastation was a learning experience for many. It gave some forecasters at the local weather station a better idea of radar signatures associated with an imminent tornado threat. For Gary Grice, it was an eye opener that catapulted him into his dream of being a meteorologist.

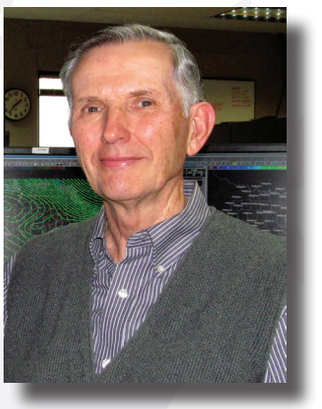
In 1953, Grice was a 9-year-old boy in third grade in his hometown of Dawson, Texas. Dawson is located approximately 30 miles northeast of Waco. The tornado struck during a weekday just after Grice arrived home from school. He was outside hoeing corn with his stepfather and brother when they looked southwest and saw what he remembers as pitch black clouds. The lightning from the storm was intensifying around them and growing more dangerous by the second. Grice says he remembers his stepfather yelling at them to "drop down your hoes and run to the house!"

A few weeks after the tornado, Grice and his uncle drove to Waco to see the damage. They heard on the radio that a building collapsed and many had died. Grice remembers looking out at the remains of the town, the debris piled around every corner and down every street. But a moment of triumph came when Grice saw the tallest building in Waco that reached about 20 stories high. It had survived the storm and stood above the debris, as Grice recalls, "like a champion." There were no tornado sirens in Waco when the tornado tragedy occurred. Four years later on the anniversary of the tornado, Waco installed its first tornado siren. This was just in time for the Dallas tornado of 1957, which was the first to ever be filmed.

When asked when his dream to become a meteorologist began, Grice said, "My uncle taught science at school. I would look through the books and was first interested in astronomy. Then, when I was in first grade, I started to get interested in both astronomy and weather. Then in second grade, I said to myself 'Hey! Astronomy doesn't change very much. Weather changes all the time! This is exciting!'"

The Waco tornado only fed Grice's desire to understand more about the weather and how it affects our everyday lives. As a boy, his family did not travel much so Central Texas became everything he knew. When he decided to be a meteorologist, he would lay outside during the day and watch the cumulus clouds, remembering "They were beautiful, and I learned a lot just by watching."

After graduating from Dawson High School, Grice attended Texas A&M University where he earned a Bachelor of Science Degree in meteorology in 1966. He worked for the Defense Intelligence Agency (DIA) in Arlington, Va., then returned to Texas A&M for his master's degree, which he received in 1968. He worked with the DIA for another year after graduate school, and then joined the Navy where he was stationed in Guam for two years. Grice had always wanted to work for the NWS, and after leaving both the Navy and the DIA, he embarked on his NWS career in Anchorage, Alaska, in 1972. Grice worked at several NWS offices, including Fairbanks, Albuquerque, San Antonio and Fort Worth. In 1994, Grice moved to the Norman, Okla., to set the foundation of the Storm Prediction Center (SPC). He was a driving force in preparing the foundation for the move. He remained with the SPC until 1999 when he was promoted to the deputy director of the NWS Southern Region in Fort Worth, Texas, where he remained until his retirement in 2004.



Among a wide range of significant accomplishments during Grice's illustrious career, he initiated the leadership program BLAST (Building Leaders for A Solid Tomorrow) in the Southern Region. Later, he advised the NWS Central Region as they began their formal LEAD (Leadership Excellence And Development) program. Grice also prepared climatic studies and short-term analyses for the Joint Chiefs of Staff when he worked for the DIA in the 1960s. He published an article in Monthly Weather Review in the 1970s during his time at NWS Fairbanks. In the 1980s, Grice brought together a team of NOAA meteorologists to prepare A Guide for Operational Meteorological Research, which was distributed to every NWS office. Grice was also Vice President of the NWA in 1988, President in 1990 and a member of the Council in 1991. Finally, one of Grice's most proud accomplishments in his career, he co-authored the 1991 publication titled Women in the Weather Bureau During World War II, which documented the many outstanding contributions women made to the Weather Bureau and the nation during the war.

There is no doubt in Grice's mind that his experience with the famous Waco, Texas, tornado of 1953 propelled him into his dream of forecasting and understanding the weather. For many meteorologists, there often is an event that fuels a distinct passion and desire to devote their career to understanding meteorological phenomena. It just so happens that the pitch black clouds and devastation caused by the historical Waco tornado is the moment that Gary Grice will remember forever.

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NAWIPS workstations. Part II will discuss and compare the use of NOAA GOES 6.7 micron channel water vapor and BTPW for analyzing various aspects of the event. Finally, Part III will show GOES water vapor and BTPW products with complementary initial model anomaly information to gain a better understanding of the potential magnitude and historic aspects of the event.

As shown in Fig. 2, the synoptic scale moisture features that lead to the significant event can be tracked in the BTPW images as much as one week before the actual event. Features on the National Environmental Satellite, Data, and Information Service (NESDIS) website allow the forecaster to pick various time and space scales to monitor the BTPW. These features will help the forecaster analyze the various elements like synoptic fronts, return flow of moisture, and incoming moist boundaries that played a role in the heavy rain/flooding event. Knowing and following these features a week in advance will help forecasters recognize a synoptic pattern that may result in a significant flooding event, thus allowing them to alert emergency managers of an impending event and issue watches and warnings in a more timely manner for the general public. The BTPW product could also be presented on television weather broadcasts to inform the public of potential heavy rain events, especially if other meteorological data supports it. This monitoring of the synoptic moisture features has made this product invaluable to NCEP forecasters in understanding the current analysis and, as a result, making improved forecasts of potential heavy rain events. Key phenomena over the week leading to the May 2010 event were the:

- Front and associated moisture that produced 3 inches of rain the weekend before May 1-2, and then settled into the Gulf of Mexico;
- High subtropical moisture that was persistent near and just south of Central America, and
- Combined subtropical and frontal moisture lifting north and colliding with incoming frontal plume developing in the Plains ahead of a deepening anomalous trough slowly moving through the western U.S. and Rocky Mountains (discussed further in Part III).

The BTPW Percent of Normal product is created hourly and distributed to forecasters through the same media as the BTPW product. It is derived by dividing the BTPW by climatology developed from the NASA Water Vapor Project (NVAP) (http://eosweb.larc.nasa.gov/PRODOCS/nvap/table_nvap.html) and expressing the result as a percentage of normal. This product can be manipulated and viewed the same way as BTPW on the website in order to follow the moisture climatology's movement and trend. Fig. 3 shows the BTPW Percent of Normal product. In general, it highlights the same features as in Fig. 2, but with climatological information. Note that it is more difficult to get a 200 percent or greater value in lower latitudes of the northern hemisphere, especially in the warm season, since climatological values of TPW there are already high.

Parts II and III will deal with other satellite application aspects of the event to help reinforce satellite analysis techniques so forecasters can more easily recognize and analyze future potential anomalous rainfall events.

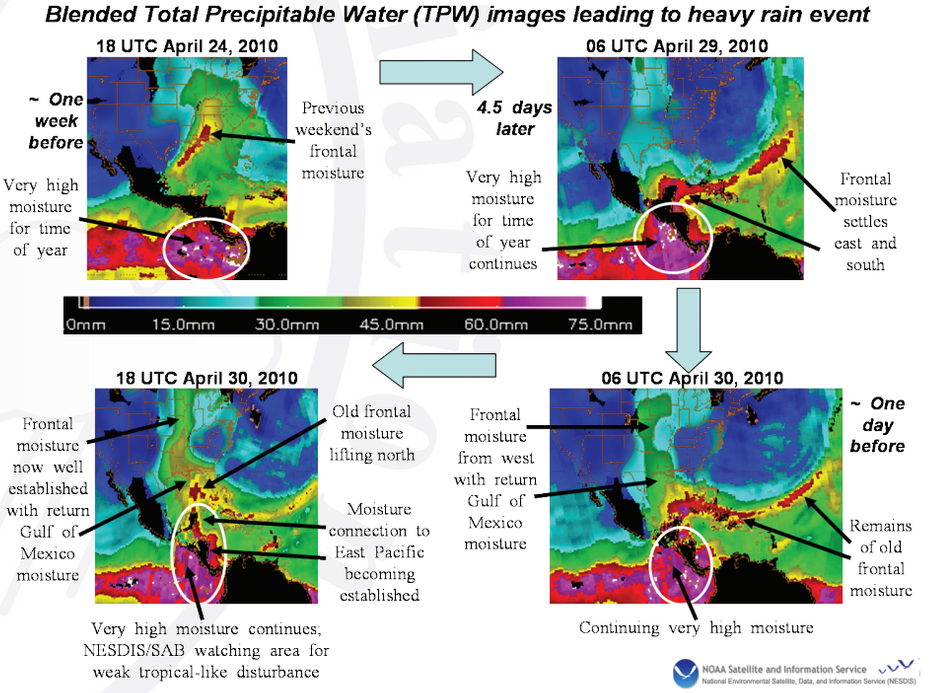


Fig. 2. Sequence of BTPW images during the week preceding the heavy rain/flooding event centered on Tennessee with main moisture features highlighted.

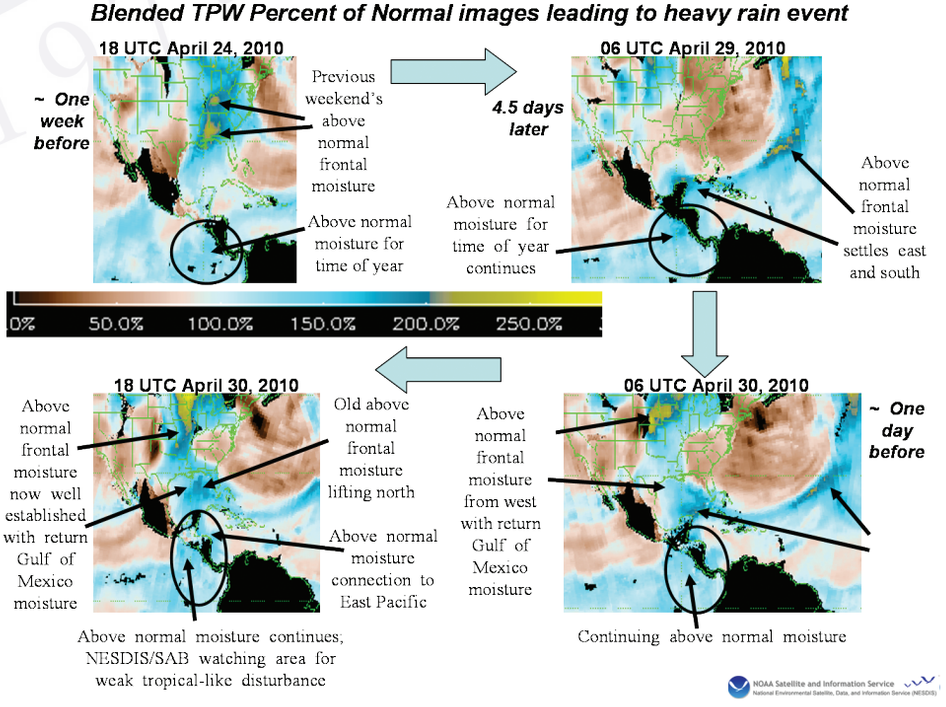


Fig. 3. Sequence of BTPW Percent of Normal images during the week preceding the heavy rain/flooding event centered on Tennessee with main anomalously high moisture features highlighted.

NWA-Sponsored Speakers at Penn State Chapter

Elyse M. Colbert, Secretary, PSUBAMS-NWA

In November, the Penn State Branch of the American Meteorological Society (PSUBAMS) and NWA hosted two esteemed speakers in one week. First, Dr. Louis Uccellini, the Director of National Centers for Environmental Prediction (NCEP) and charter member of the NWA addressed extending forecast skill for winter storms. He discussed how the forecasting process has advanced and how forecasts are now directly communicated to decision makers. The following evening, NWA member Mike Eckert, a senior branch forecaster at the Hydrometeorological Prediction Center (HPC), gave PSUBAMS-NWA a broad overview of HPC .

The PSUBAMS-NWA Executive Board with AMS President-Elect Dr. Louis Uccellini. From left to right: Elyse Colbert, Matthew Mahalik, Dr. Uccellini, Melissa Constanzer, Michael Page, and Ryan Kramer.

Bill Read, the Director of the National Hurricane Center and 2003 NWA President, visited the Penn State Meteorology Department last April. Read met with faculty and staff, including department head Dr. William Brune, and spoke about his career and advancements in hurricane forecasting. The large audience included members of the local NWS office, AccuWeather, Penn State faculty and local media. The next morning Read spoke to 10 students interested in tropical meteorology. He also conducted interviews for the statewide weather television program, Weather World.

These events were a collaborative initiative between the local PSUBAMS-NWA student chapter and the NWA Membership and Marketing (M & M) Committee. The M & M Committee objective was to support the establishment of PSU's new local joint NWA/AMS chapter and provide resources and connections to recognized individuals in operational meteorology. Feedback from both the guests and students showed this initiative was a success and the Penn State Meteorology Department was thrilled to have the opportunity to host these individuals. After this excellent experience, the NWA M & M Committee plans to broaden their support for other student chapters to have similar opportunities in the future.

NWA Sponsored Meetings for 2012

Jan. 14: Minnesota Storm Chasing Convention
Cosponsored by the NWA and other organizations. Plymouth, Minn. www.mnstormchasingconvention.com

Feb. 27 – March 1: 2nd National Flood Workshop
Organized by Weather Research Center (private, non-profit education and research center) in Houston, Texas. www.nationalfloodworkshop.net, 713-539-3076 or wrc@wxresearch.org for more.

March 1 – 3: 12th National Severe Weather Workshop
Focus on hazardous weather information-sharing and discussions on the effective transmission of messages about meteorological risk. www.norman.noaa.gov/nsww/

March 2 – 3: 10th Annual Southeast Storms Symposium
Sponsored by the East Mississippi Chapter of the NWA/AMS. At Mississippi State University Campus in Starkville, Miss. http://www.nwa.org.msstate.edu/symposium.shtml

March 2 – 4: 37th Annual Northeastern Storm Conference
Sponsored by Lyndon State College AMS/NWA Local Chapter In Rutland, Vt. https://sites.google.com/site/lyndonstateamsnwa/north-eastern-storm-conference

March 29 – 31: 16th Annual Severe Storms & Doppler Radar Conference
Sponsored by the NWA Central Iowa Chapter. In Ankeny, Iowa. www.iowa-nwa.com/conference/

March 31: 10th Annual Great Lakes Meteorology Conference
Sponsored by the Northwest Indiana AMS/NWA local Chapter. In Valparaiso, Ind. www.valpo.edu/student/nwa/conference.

October 6 – 11: 37th National Weather Association Annual Meeting
At the Monona Terrace Convention Center in Madison, Wisc. Details will be available in early 2012.

Other Meetings & Conferences

Jan 22 – 26: 92nd Annual AMS Meeting
New Orleans, La. http://www.ametsoc.org/MEET/annual/

Jan. 22: AMS Short Course On Art & Science of Forensic Meteorology
New Orleans, La. Co-organizer is Steve Harned, NWA Executive Director. http://annual.ametsoc.org/2012/index.cfm/programs-and-events/short-courses/ams-short-course-on-the-art-science-of-forensic-meteorology

March 14 – 16: 20th Annual U.S.-Canadian Great Lakes Operational Meteorology Workshop
In Chicago, Ill. www.crh.noaa.gov/lot/?n=glomw

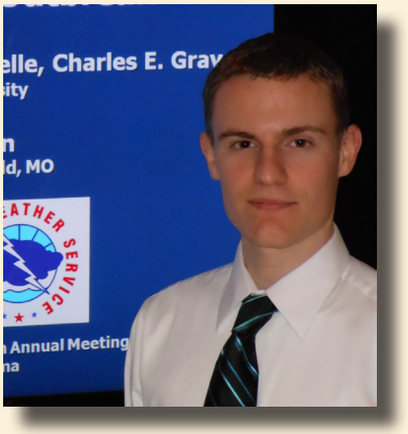
July 15 – 20: Short-course: Studies in Air Quality for Science Educators (Register by Feb. 17)
The Science Center for Teaching, Outreach, and Research on Meteorology (the STORM Project) at the University of Northern Iowa (Cedar Falls) sponsoring. One-week course designed specifically for middle school and high school science teachers. Stipend info and other details at: www.uni.edu/storm/saqse/

36th NWA Annual Meeting - Birmingham: Student Oral Presentation Winners

Undergraduate Talk

Quantifying the Significance of the 26-27 April 2011 Severe Weather Outbreak

Matthew S. Stalley, Chad M. Gravelle and Charles E. Graves, Saint Louis University, St. Louis, Mo., and John P. Gagan, NOAA/ National Weather Service, Springfield, Mo.



Matthew Stalley

Graduate Talk

Observations and Operational Importance of Wave Like Features Interacting with QLCS

Todd A. Murphy, Ryan A. Wade, Timothy A. Coleman and Kevin R. Knupp, University of Alabama at Huntsville, Huntsville, Ala.

Todd A. Murphy

See page 4 for more student awards

Dates 2 Remember

Jan. 14: 2012 Minnesota Storm Chasing Convention, Plymouth, Minn.

Jan. 22 – 26: 92nd Annual AMS Meeting, New Orleans, La.

Feb. 27 – March 1: 2nd National Flood Workshop, Houston, Texas.

March 1 – 3: 12th National Severe Weather Workshop, Central Oklahoma (TBA)

March 2 – 3: 10th Southeast Storms Symposium, Mississippi State, Miss.

March 2 – 4: 37th Northeastern Storm Conference, Rutland, Vt.

March 14 – 16: 20th U.S.-Canadian Great Lakes Workshop, Chicago, Ill.

March 29 – 31: 16th Severe Storms & Doppler Radar Conference, Ankeny, Iowa.

March 31: 10th Great Lakes Meteorology Conference

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