The NWA: Connecting operational meteorologists in pursuit of excellence in weather forecasting, communication, and service.

No. 14 – 7

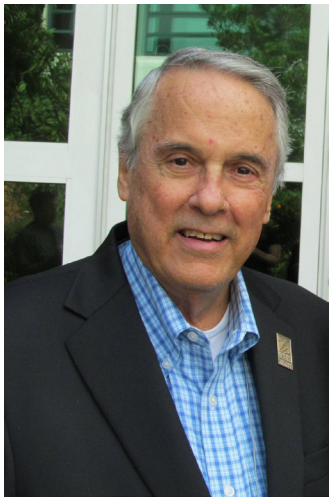
Newsletter JULY 2014

In Memoriam:

Kenneth (Ken) C. Crawford

1943-2014

The weather community lost another very important member when Dr. Kenneth (Ken) C. Crawford passed away on July 23 at the age of 71. Ken was a mentor and friend to many worldwide, and a special member of the NWA family. We would like to express our deepest sympathies to Ken's family, friends and colleagues.



Ken was very passionate about the NWA and the role it served in operational meteorology. He was a charter member who served in many capacities. He was the NWA President in 1988, a councilor in 1990-1991, and the NWA Member of the Year in 1991. At the 2013 Annual Meeting in Charleston, then Executive Director Steve Harned and 2013 President Bruce Thomas presented Ken with an honorary NWA Lifetime membership. Ken was very pleased to receive the membership and recognition. He was also a Fellow of the AMS and was awarded their Cleveland Abbe Award in 2002.

In the past few years Ken has always been willing to assist the NWA with recruiting and mentoring tasks. Even though he had just returned from Korea after ending his term as the Vice Administrator of the Korea Meteorological Administration (KMA), Ken participated in a speed mentoring event with University of Oklahoma meteorology students. At the end of that event he shared his ideas for even more mentoring events that could be held with students. This was not unusual for Ken. He always had words of wisdom to share, and it was best to listen

See KEN, p. 2

Committee Members Sought for NEW ASCE/SEI Standard for Estimating Wind Speeds in Tornadoes and Other Windstorms

ASCE is seeking members to serve on a committee for the development of a national consensus standard on estimating wind speeds in tornadoes and other windstorms. The intent of the standard is to develop standardized methods for estimating the intensity of tornadoes and other severe wind storms.

Users of the standard could include, but are not limited to, wind and structural and forensic engineers, meteorologists, climatologists, forest biologists, risk analysts, emergency managers, building and infrastructure designers, and the media.

The content of the standard would include improvements to the existing damage-based Enhanced Fujita (EF) scale to address known problems and limitations, and incorporation of additional methods to estimate intensity such as those based on radar measurements, treefall pattern analysis, and forensic engineering analysis, and archival of the data used for estimating wind speeds.

The American Society of Civil Engineers (ASCE) has approved the EF Scale Stakeholder Group's proposal to develop a new standard for estimation of wind speeds in tornadoes. This standard will allow, for the first time, a rigorous process to improve not only the EF-scale but to adopt new methods to estimate wind speed. The ASCE has made an announcement in search of members to serve on the standards committee.

Interested parties are encouraged to apply to join the committee. *Note: Membership in ASCE is not required to serve on an ASCE Standards Committee.*

Interested parties may submit an online standards committee application to apply for participation. For more information, please contact James Neckel, Codes and Standards Coordinator, at jneckel@asce.org. Click here to read more.

INSIDE THIS EDITION

In Memoriam:

Alan (Al) Moller

Alan (Al) Moller passed away on June 19, 2014. He was an influential figure in the evolution of the severe storm spotter program. While spotter networks had existed since the World War II era, little in the way of meteorological training was given to the spotters. In the 1970s, Al brought his knowledge of severe storm structure and behavior to the spotter training classes in the north Texas area. This resulted in a network of knowledgeable spotters who could provide high-quality observations, which in turn resulted in improvements in the severe weather warning system as a whole. Al was a leader in the development of spotter training materials, including the "Tornado – A Spotter's Guide" booklet, slide series, and movie; the Advanced Storm Spotter Training Slide Series; and the "StormWatch" advanced spotter training video.

Al's passion for storm spotter training was matched by his skills as an operational meteorologist. Al had a gift for importing concepts from the research community into the operational forecast office. He was an agent for "Research to Operations" (or "R2O") before the phrase became common. His mesoanalysis skills helped reveal sometimes-subtle weather features to the forecast team on duty, enabling the team to anticipate convective initiation or changes in storm behavior.

Al's influence reached many in the meteorological community, both inside and outside of the NWS. Those that knew and worked with Al are probably better meteorologists as a result.

Written by Gary Woodall, NWS Phoenix Meteorologist in Charge

From the left, Al Moller, Bill Proenza and Ken Crawford at Al's retirement dinner in 2009. Photo by Chuck Doswell.

Welcome to the NWA!

The following individuals became NWA members in June.

Regular/Military/ Retired Members

Rick DeLuca
William Bobb
Mark Hoekzema
Gary Lezak
Dave Noble
Michael Fagin
Melissa Di Spigna
Thomas Duncan
Clay Ostarly
Maclovio Perez
T.J. Turnage
Richard Reyes
Pamela Szatanek

Student Members

Benjamin Toms
James Stanley
Iisha Pomier
Brett Borchardt
Kyle Jordan-DeDeaux
Justin Pata
Andrew Schuler
Rebecca Huff
Shane Mill
Matthew Tarbert
Patrick Cajandig
Alannah Irwin
Michaella Farese
Krista Fogarty
Timothy Henderson

New Corporate Members

Hwind Scientific

KEN from p. 1

because there was always a good lesson to learn.

Ken advanced our science in so many ways. Click to see an article by National Weather Center in Norman about his career accomplishments. He was the co-creator of the Oklahoma Mesonet, an innovative leader in the NWS and at the University of Oklahoma, and a well-respected professor and mentor. He was also part of a small group of NWA members who saw that the NWA was struggling in the late 1980s. He felt passionate about the NWA and worked with those leaders to turn it around. He was very proud of the NWA's position within the weather community.

Last year Ken was awarded the Order of Civil Merit from the Republic of Korea. While preparing an article about his award for the NWA Newsletter, Ken was asked if he had any words of wisdom for NWA members. His was response was: "Based on experiences with the KMA, I would tell younger NWA members that they should focus their time and energy in preparing for opportunities that will eventually find them. The young Koreans seem most encouraged by the knowledge that they could control their own destiny."

Ken's family asks that donations be made in his name to the following institutions.

Cornerstone Baptist Church
Ken Crawford Fund
2242 W Lucas Rd
Lucas, TX 75002

Ken Crawford Scholarship endowment Fund
100 Timberdell Rd
Norman, OK 73019

One of the best ways we can honor him is to carry on in his footsteps. Be a mentor and help those around us achieve and exceed their goals. Never stop learning and always strive to improve our science.

Going Beyond Turn Around, Don't Drown

Jeff Craven, NWA President

For over two decades, I have mainly been on the science and operations side of the house during my career, so my recent articles talking more about education and outreach are probably surprising to many of you in the Weather Enterprise. As an inside joke for those of us familiar with NWS employee titles, perhaps I am trying to get in touch with my Warning Coordination Meteorologist side as I get older.

Figure 1. NOAA's Turn Around Don't Drown slogan.

We are progressing through summer and transitioning away from a focus on safety and education for severe convective weather to safety and education related to lightning, heat, hurricanes and flash flooding. The threats associated with summer are many, so with only a few words in this message, I will focus on the latter. I love catchy and powerful phrases like Turn Around, Don't Drown (Fig. 1) and I think we have found success with them. I don't want to minimize the importance of these campaigns that help us build a Weather-Ready Nation, but I think there is still room for improvement in how we communicate weather threats.

As the skill of our forecasting tools continues to improve, we are more able to tell decision makers about the potential for flood waters well before they need to put up barricades preventing people from driving through water-covered roads. Some of the important research that pioneering social scientists like Dr. Eve Gruntfest and her many collaborators are conducting includes how to communicate the very low probability, to a specific geographic area like a city, of a very high impact flash-flood event. There will always be timing and location uncertainties that impact local meteorologists' ability to communicate the threat. Many customers will view a forecast of heavy rain over Milwaukee that verifies over Chicago as a forecast bust. However, on a regional scale using high-resolution ensemble model output, we now have high confidence forecasting a high impact event for an area the size of a few states 4-7 days from now.

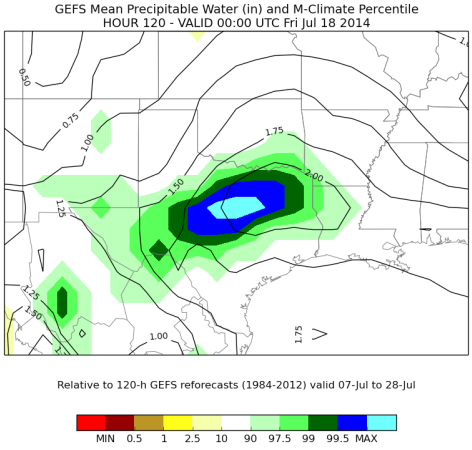


Figure 2. Black lines are the GEFS precipitable water forecast, and the color-fill areas are the climate percentiles (Courtesy NWS).

Figure 2 shows a forecast about five days before the heavy rain and flash flooding in and around Texas in mid-July. This event had high precipitable water forecasts in an ensemble mean that were unusual even for Texas in the middle of summer. Using climatology of previous Global Ensemble Forecast System (GEFS) reforecasts for a 3-week period centered over the date of interest, we see that values over central Texas were higher than any at this lead time in the GEFS during the 1984-2012 period. That should catch our attention (the light blue area labeled MAX in Fig. 2). The heaviest rains may not have occurred exactly where the most anomalous precipitable water values were forecast (Fig. 3), but it certainly sent us a message that something big was possible.

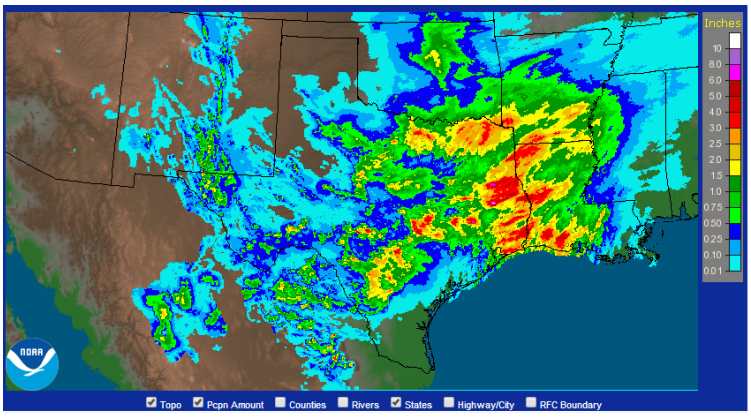


Figure 3. The 24-hour radar-estimated rainfall ending 1200 UTC July 18, 2014 (Courtesy NWS).

We have many challenges on how to communicate infrequent, high impact events like this. Across the Weather Enterprise, we are trying to serve the needs of the local customers who want to know how this will impact their specific location. Telling them that there will be heavy rain and flash flooding somewhere in Texas 5 days out makes it difficult for them to make decisions and preparations. However, I also have many personal struggles with our decisions not to tell them about the potential because we sometimes try to hide behind uncertainty for point forecasts as an excuse. We don't want to increase our false alarms by crying wolf, but if we can design a better system of regional versus local expectations, I think there will be a lot of improvement in our messaging capability.

I don't have the answers, but I think we all need to collectively come up with solutions. We must strive to find ways to get the message out when the probability of a high impact event over a region is very high, but point probabilities are very low and most people will not be impacted. The issue here is that there are many customers that will be impacted no matter where the event eventually unfolds. My most vivid memories of this are unrelated to flash flooding, but I will never forget the army of utility company trucks converging from all directions on Mississippi, Alabama and Louisiana in the wake of Hurricane Katrina. The utility company employees were just the tip of the iceberg in relation to the number of people impacted that were nowhere near the swath of destruction left by Katrina. The same is true for other weather events for which we know their potential impact, yet sometimes withhold information or poorly communicate the potential. Let's keep thinking of ways to change how we do business to better serve the needs of decision makers.

Three Rivers NWA Chapter Quarterly News April-June 2014
California University of Pennsylvania (Cal U)

John Troutman, Secretary

The Three Rivers Chapter of the NWA had a busy end of the semester with Colloquia Series speakers, educational outreach events, social and philanthropic events, and workshops.

Chapter member John Troutman in front of a large supercell near Kimball, Nebraska, on May 19, 2014, while on the annual Storm Chase summer field course.

COLLOQUIA SERIES

On April 10, Cal U alumnus Patrick Taylor, a climate research scientist for NASA Langley, spoke to students and faculty about his journey through school and obtaining a job with NASA.

EDUCATIONAL OUTREACH

Chapter member Jason Dohoda made three visits to local schools to promote our chapter's educational outreach. Jason travelled to Montour Area High School where he presented the Cal U Meteorology Club's "Careers in Meteorology" presentation to the students of the school's Meteorology 1 class. Topics included educational opportunities and careers in broadcast, operational, and private sector meteorology. The class also participated in a weather briefing led by Jason, which included looking at different modeling techniques provided by the NWS, NOAA, and Penn State's E-WALL program.

Jason returned to Montour at a later date to visit the school's Meteorology 2 class. While there, he presented a discussion on climatology to the students. Topics included the different disciplines within climatology and the importance of understanding both short-term and long-term forecasting. Jason also lead another weather briefing with the students using many of the same forecasting models as mentioned before, to develop a short-term forecast for the area.

Jason also travelled to Shaler Elementary School where he presented a discussion on Earth Science to the 5th grade classes. Topics covered included the layers of the earth, volcanoes, earthquakes, and fossils. The students also took part in activities to demonstrate how tsunamis form and travel across the ocean. The presentation also used a video to showcase the moving tectonic plates over Earth's history.

PHILANTHROPY

Chapter members participated in Relay for Life, a benefit for the American Cancer Society, on the campus of Cal U on April 5. This fundraiser was a 12-hour event from noon to midnight where members participated in various activities hosted throughout the day and evening while raising money to find the cure for cancer. On April 26, members attended the Multiple Sclerosis Walk in Uniontown, Pennsylvania. Both events were a great way to get chapter members involved outside of the classroom and support great foundations.

http://sai.calu.edu/weather/

SOCIAL EVENTS

The annual chapter Spring Social was held on May 3 at the Penn Brewery in Pittsburgh. Chapter members, alumni, professors, and guests all attended the event and enjoyed socializing with one another. This event was a fun, relaxing way to wind down after and reflect on another academic year. Senior send-offs were given to graduates Elizabeth Smith, Thomas Hafer, Ronald Bucsok, and Matthew Hladio, wishing them the best of luck in their future endeavors.

WORKSHOPS

On April 4, as part of the Weather-Ready Nation initiative, our chapter members attended the Integrated Warning Team Workshop at the Convocation Center located on the campus of Cal U. Speakers included representatives from the University of Pittsburgh Medical Center, WPXI Pittsburgh News, WTOV Steubenville-Wheeling News, Ohio Department of Transportation, Pennsylvania Department of Transportation, and the Pittsburgh Post Gazette. This event brings different entities of the community together to talk about communication and response during and after significant weather events.

On April 11, the Cal U Meteorology Club participated in the Spring Science and Technology Open House. The club hosted a series of weather briefings to interested visitors throughout the day. The club also prepared a discussion of Severe Weather Safety as part of PrepareAthon, an action-based nationwide campaign to increase emergency preparedness and resilience.

On April 22, Skywarn training was held on campus, conducted by the Pittsburgh NWS. This training session was open to the public as part of our Weather-Ready Nation participation.

STORM CHASE FIELD EXPERIENCE

Eight students, five alumni, and one professor participated in the two-week Storm Chase field course during May 12-23 on

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CHAPTER NEWS

The High Plains NWA Chapter News

William Taylor, President
Tim Burke, Secretary

The NWA High Plains Chapter held a meeting in Norton, Kansas, on June 26 at 11:30 a.m. at the Town and Country Kitchen in Norton. Ten members were present. Mike Kochasic, a meteorologist intern from NWS Goodland, Kansas (GLD), gave a presentation titled "Neighborhood Approach to Generating PoPs," a method of creating gridded probabilities of precipitation (PoPs) using model forecast data from surrounding grid points This approach was earlier published in the literature and shows potential for operational use. Mike Kochasic and Jeremy Martin, the Science and Operations Officer (SOO) at GLD, are working toward getting this method into operations soon. They would like more High Plains offices to test this method, and perhaps one day provide it to Central Region Headquarters to run.

www.highplains-amsnwa.org

The business meeting started with Vice President Jeremy Wesely welcoming everyone, including a new member Jason Neilson, Lead Forecaster at GLD, transferring recently from the NWS in Burlington, Vermont. Jeremy gave the Treasurer's report, showing plenty of money in both the account and the Jim Johnson Scholarship fund. Most of the rest of the meeting was dedicated to updates on the upcoming 16th High Plains Conference to be held in Hastings, Nebraska, August 6 and 7. There are three keynote speakers lined up: Dr. Matthew Bunkers, SOO from NWS Rapid City, South Dakota; Rick Smith, the Warning Coordination Meteorologist from NWS Norman, Oklahoma; and Karen Kosiba, from the Center for Severe Weather Research in Boulder, Colorado. Conference updates will be made via this website. Abstracts were due by July 7 to Jeff Halblaub at NWS Hastings. There was a presentation for all conference attendees by Karen Kosiba. We expressed our thanks to long time webmaster Jared Guyer who turned over the duties to our new webmaster Scott Bryant of NWS Hastings. The next meeting will be at the High Plains Conference on August 6 or 7.

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the Great Plains where students studied severe weather phenomena and demonstrated their real-time forecasting and observation skills. This course is geared toward meteorology majors, but anyone can take part in it. This year, the group covered roughly 6,000 miles through 10 states over the 12-day trip. The participants actively chased three days in parts of Colorado, Wyoming, and Nebraska and saw many different cloud formations such as shelf and wall clouds. The group also took some time to sightsee on their down days at Rocky Mountain National Park, White Sands National Monument, and the National Weather Center.

LOOKING AHEAD

Honors/Awards

On April 1, chapter members John Troutman and Damon Matson were accepted to the Ernest F. Hollings Scholarship Program. As required by the program, John and Damon participated in a week-long orientation during May 25-31 in Silver Spring, Maryland, where they learned about the different line offices that make up NOAA. They also received important information regarding their scholarship and summer internship. Throughout the next year, they will receive stipends as part of the scholarship and decide on where they would like to intern for 10 weeks next summer.

Summer Internships

Some chapter members will be busy over the summer with internships. Ryan Adams was accepted as a Significant Opportunities in Atmospheric Research and Science (SOARS) protégé. As part of SOARS, he will be working as a UCAR employee at the NCAR Mesa Laboratory in Boulder, Colorado. Jason Dohoda will be interning at the Carnegie Science Center in Pittsburgh with their Demonstration Theatres program. Joshua Gebauer was accepted to intern at the National Weather Center and Ryan Lingo will be interning with the paleoclimatology group of the National Geophysical Data Center in Boulder, Colorado. We wish our summer interns the best of luck and look forward to their presentations to the chapter in the fall.

Newsletter Submissions

We welcome Newsletter article submissions from members. Send articles to nwanewsletter@nwas.org by the 25th of the month for publication in the following month's edition at the earliest. Information about the Newsletter and a link to author guidelines can be found at http://www.nwas.org/newsletters/.

Congratulations to our newest scholarship winners!

SCHOLARHIPS

Broadcast Meteorology Scholarship

Stephen Decatur of Lyndonville, Vermont, is the 2014 NWA Broadcast Meteorology Scholarship winner. He is a senior at Lyndon State College.

Stephen is focusing his efforts on a future broadcast meteorology career because he finds it challenging and rewarding, and wants to use his skills educating and informing the public.

Those who provided recommendations for Stephen stated that he is a motivated and driven individual. He is excelling at his studies at the college, and has dedicated much time to learning the ropes at a local television station while working at the campus television station. He has gone above and beyond to learn broadcast television, and even spent school vacations shadowing a local chief meteorologist to prepare for his future career.

Dr. Roderick Scofield Scholarship

Connor Dacey of Rockledge, Florida, is the winner of the 2014 NWA Dr. Roderick Scofield Scholarship in Meteorology. He is a senior at Florida State University.

He is a 2013 NOAA Ernest F. Hollings Undergraduate Scholar and a finalist for the 2014 Truman Scholarship. His goal is to pursue a master's degree to better understand and research new forecasting and nowcasting techniques through the use of satellites.

Connor is recognized by his professors and mentors for his enthusiasm and dedication, and for maintaining a high grade average while being active in honors and meteorology societies. One mentor stated, "Connor possesses all the requisite characteristics sought of Dr. Roderick A. Scofield scholarship candidates, and his potential to contribute to and enhance operational meteorology through applied research, focusing upon satellite techniques, has no bounds."

Ken Reeves Memorial AccuWeather Undergraduate Scholarship

Kevin Shive of Wright City, Missouri, is the 2014 recipient of the Ken Reeves Memorial AccuWeather Undergraduate Scholarship. He is a senior at the University of Missouri-Columbia (MU).

Like many meteorologists, Kevin has had a desire to pursue a meteorology career since his youth. He briefly thought of becoming a print journalist, but decided to follow his dream after visiting the MU Atmospheric Science Department.

Professors noted that Kevin is an excellent student and at the top of his class. They also shared that Kevin maintains his high grade point average while participating in several extracurricular activities association with the atmospheric science program. He is involved with the local NWA and AMS chapter, participated in the MU storm chase team and department forecasting projects, and hosts an off campus sports show.

David Sankey Minority Scholarship

Valeria Benson-Lira of Tempe, Arizona, is the recipient of the 2014 NWA David Sankey Minority Scholarship. She is a graduate student in Geography with a focus in climatology and meteorology in the school of Geographical Sciences and Urban Planning at Arizona State University.

Her career goal is to propose effective mitigation solutions that may control the occurrence of extreme heat wave events tied to urbanization and industrialization.

Her recommendation from Professor Robert Balling stated "In my years of experience as a professor and a researcher, I have had many opportunities to engage with a variety of students and I can say without any reservations that Valeria is a gifted researcher, student and teaching assistant. She is a highly gifted and motivated individual. As a minority student she brings a diverse perspective that is highly valued and much needed in higher education."

39th NWA ANNUAL MEETING

Salt Lake City, Utah: 18–23 October 2014

Where:

The host hotel is the Sheraton Salt Lake City Hotel (150 West 500 South, Salt Lake City, Utah, 84101) where all meetings will be held. (http://www.sheratonsaltlakecityhotel.com/)

Sheraton hotel reservation options ** Rooms in the Sheraton at the NWA rate are extremely limited for Oct. 18 -20 and are available only at the regular hotel rate (not the NWA discounted price) on the other nights. Call for availability. **

Click to book online Call: 1-888-627-8152

Crystal Inn Hotel & Suites reservation options

Nightly rates: One or two occupants is $103 + tax; three occupants is $113 + tax; four occupants is $123 + tax.
NWA rates apply until Sept. 17 or until sold-out, whichever comes first.

Click to book online
Central Reservations: 1-800-366-4466

Direct Front Desk Reservations: (801) 328-4466
Group Code: NW1015 or National Weather Association Group Rates

Theme:

"Building a 21st Century Weather Enterprise: Facilitating Research to Operations – Optimizing Communication and Response"

Among the greatest challenges for the Weather Enterprise in the 21st century is to produce the highest level of science-based hazard information, while at the same time communicating the associated uncertainty, impacts, and risks in a manner that results in the maximum benefit to society. Events such as the Moore and El Reno tornadoes in Oklahoma and the Yarnell Hill and Rim wildfires in the Western U.S. highlight the need for both excellent forecasts and effective communication. The results from innovative research must be efficiently transferred to governmental and commercial providers of environmental information services. Additionally, forecasts must be effectively communicated in a manner that elicits an informed response by private citizens, organizations, businesses, and emergency managers and other first responders. Given these challenges, the focus of the 2014 NWA Annual Meeting will be to share research results that can improve operations and on communication platforms and methods that promote appropriate societal response.

Important Dates:

1 Sept.	Deadline for abstract corrections
15 Sept.	Attendee preregistration ends (prices increase after this date) Deadline to purchase an exhibit booth or sponsorship to take advantage of all benefits
17 Sept.	Crystal Inn room block reservations end (if not sold out)
18 Oct.	Annual Meeting begins NWA Scholarship Golf Outing at Stonebridge Golf Club Exhibits start setting-up
19 Oct.	Broadcast Meteorology Workshop Exhibits Open Seventh Annual Student Session
20-23 Oct.	General Sessions
21 Oct.	Women in Meteorology Luncheon
22 Oct.	NWA Awards Luncheon

Watch www.nwas.org as the program agenda will be posted this month!

Contacts:

Annual Meeting Program Committee Chair
Randy Graham
Science and Operations Officer
NWS Forecast Office
Salt Lake City, UT
annualmeeting@nwas.org

Broadcaster Workshop Program Chair
Mike Goldberg
WTVR-TV
Richmond, VA 23230
mgoldberg@wtvr.com

For more information on exhibits, special accommodations, registration and the overall meeting program, keep checking the 2014 Annual Meeting Page (http://www.nwas.org/meetings/nwa2014/) or contact the NWA office at 405-701-5167.

NWA will provide updates on-line, on the NWA 2014 Annual Meeting Facebook Page, Facebook Page, Twitter, and other social media. Please use the hashtag #NWAS14 for 2014 Annual Meeting posts.

Extreme Weather in the Midwest

Brett Borchardt, NWA Executive Staff Intern

On June 30, 2014, a rare double-derecho event affected portions of the Midwest within the span of 12 hours. Impacting locations across eight states, the system generated a plethora of high-end severe weather including grapefruit-sized hail, destructive winds peaking in excess of 100 mph, and at least 26 confirmed tornadoes. Furthermore, the system generated wide swaths of flash flooding after dropping 2-5 inches of rain over already saturated grounds. The hardest-hit areas were across portions of central Iowa, northern Illinois, and northern Indiana, where each location was affected by at least one of the two derechoes. Unfortunately, while the system was well predicted, at least three storm-related fatalities can be attributed to the event.

Other On-line Resources:

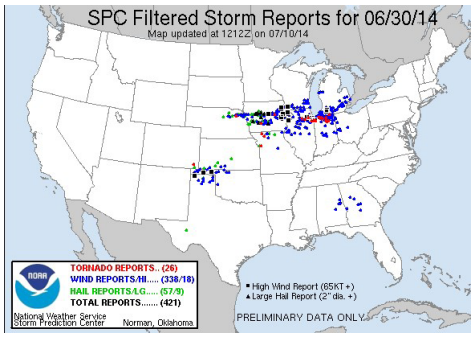
NWS Chicago

NWS Des Moines

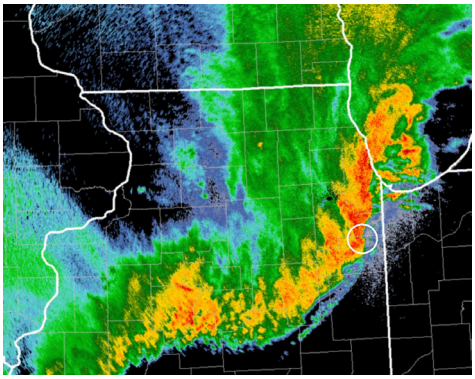
NWS Northern Indiana

Event Overview from SPC in Norman, Oklahoma

The Storm Prediction Center (SPC) in Norman, Oklahoma, highlighted central Iowa to western Michigan as in a risk for severe weather several days before the 30th, later upgrading the region to a Moderate Risk specifically for damaging winds. As described by the NWS, the environment proved more than suitable for a high-impact severe weather event. As an upper-level trough dove south across the northern Plains, a 100-kt jet streak formed over southern Minnesota. Under the right-rear quadrant of the jet streak, central Iowa entertained an extremely unstable environment conducive for supercells. By mid-morning, strong storms in eastern Nebraska tracked into central Iowa producing baseball to grapefruit-sized hail. Two EF1 tornadoes and an EF2 tornado touched down in central Iowa, and several other tornadoes were reported in Missouri as the storms expanded southward. Taking advantage of exceptional CAPE and effective bulk wind shear, the storms later merged and transitioned into a well-defined bow echo unleashing widespread damaging winds estimated between 60-90 mph across central and eastern Iowa. Once the storms entered northern Illinois and southern Wisconsin, they started to weaken, but nonetheless continued to produce wind gusts as high as 60-70 mph.



Unofficial SPC Storm Reports as of July 2014 from the June 30 event. Two areas of concentrated damage can be noted across eastern Iowa and northeastern Illinois into northern Indiana.



The 0.5° base reflectivity from the NWS Chicago radar shortly before 10 p.m. CDT (0300 UTC) on June 30 showing a classic bow shape with several notches associated with rotation located at the leading edge of the squall. At least one tornado was on the ground at this time (circled).

As the first batch of storms started to cross Lake Michigan, a second line of thunderstorms formed along a cold front near the Illinois and Iowa state border. Even after seemingly simultaneous convective overturning, the environment over northern Illinois was still very unstable. Furthermore, a residual outflow boundary from the first round of storms rendered substantial storm relative helicity values in excess of 500 $m^2 s^{-2}$ immediately ahead of the forming convection. It wasn't long before the storms became violent. As they moved across northern Illinois, several mesovortices formed along the intersection of the boundary and the squall line, producing widespread winds in excess of 100 mph and nine embedded tornadoes. The line continued its rampage into northern Indiana and southern Michigan spawning 11 additional tornadoes and significant straight-line winds estimated as high as 90 mph. The storms finally started to weaken once they entered Ohio, though they still produced damaging wind gusts in excess of 60 mph.

Within 12 hours, two intense lines of storms ravaged parts of the Midwest. As reported by the NWS, there were at least one EF2, 23 EF1, and two EF0 tornadoes, regions of extremely large hail, and multiple areas of widespread significant straight-line winds causing power outages and considerable tree damage, and flash flooding. It is clear the storms warrant further examination and study. For more information, please visit the links above to read event write-ups from various NWS offices that were affected by the storms.

Quarterly COMET News

Wendy Schreiber-Abshire
COMET Sr. Project Manager/ Meteorologist

Read on for highlights of our most recent MetEd publications during the quarter, which span topics that include dynamics, tropical meteorology, geodetic datums, and water temperature of inland streams. Please follow the links of most interest to you for more information about each release.

General (*click titles to link*):

- Primary Influences of Water Temperature for Inland Streams, ≤ 45 minutes
- An Introduction to Geodetic Datums, ≤ 30 minutes

Tropical Meteorology:

- Tropical Cyclone Intensity Analysis, 1.5-2 hours
- Tropical-Extratropical Air Mass Interactions in South America, ≤ 1 hour

Synoptic Meteorology/Dynamics:

- Ensemble Applications in Winter, ≤ 1.5 hours
- Quasi Geostrophic Omega Equation, ≤ 0.25 hours

Four New Publications in Spanish, One in French:

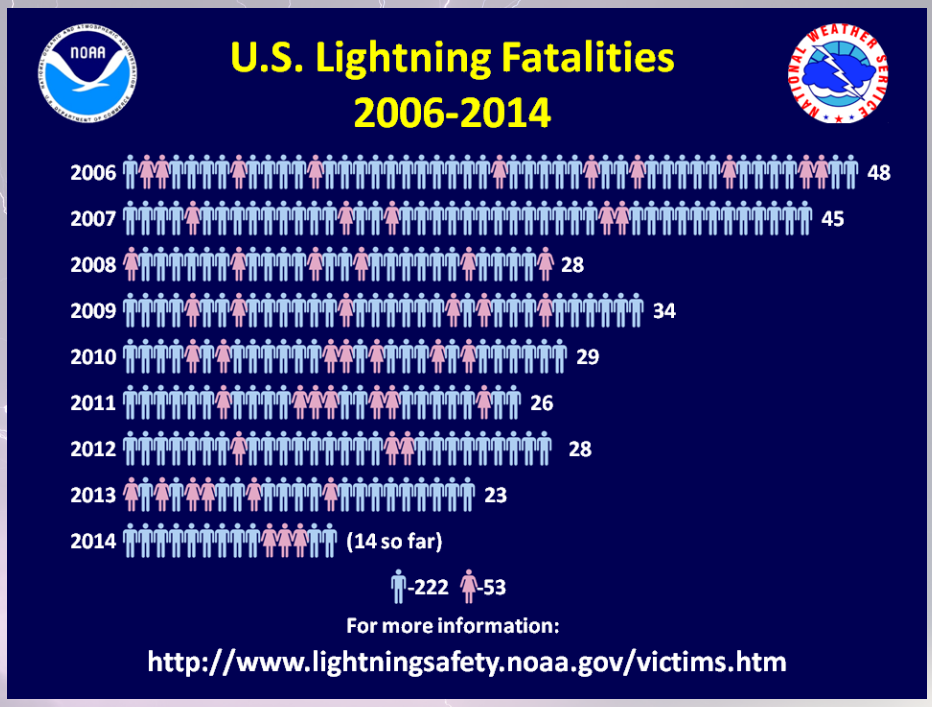
- Las corrientes en chorro, 1-1.25 hours
- El polvo atmosférico, 3-4 hours
- S-290 Unidad 6: Estabilidad atmosférica, 3-4 hours
- Teledetección por satélite, 2a edición, 1.5-2 hours
- Identification des éléments satellites: Les ceintures de transport, ≤ 1 hour

Currently, these materials are freely available to everyone, courtesy of our primary sponsors. They are NOAA's NWS, NESDIS and National Ocean Service programs, EUMETSAT, the Naval Meteorology and Oceanography Command, the Meteorological Service of Canada, Bureau of Meteorology, the U.S. Army Corps of Engineers, and the Department of the Interior Bureau of Reclamation.

Helping Others be Prepared

The National Weather Association is a proud Weather-Ready Nation Ambassador™, and as such, urges its members to plan, prepare, and be aware of the weather and the havoc it may wreak. June brought us Lightning Safety Awareness Week and July is UV Safety Month. By promoting and increasing awareness of these deadly and health affecting forces of nature, we can help keep people healthy and happy, and bring the numbers of fatalities down in the nation.

[Click for more U.S. Lightning statistics]



PROFESSIONAL DEVELOPMENT

2014 NWA sponsored Annual Meetings, Conferences and Special Events *(click titles to view websites)*

Aug. 6-7: 16th Annual High Plains Conference

The High Plains Chapter of the AMS and NWA sponsor this event.

Oct. 18–23: 39th NWA Annual Meeting

It will be held in Salt Lake City, Utah (#nwas14), at the downtown Sheraton Hotel. See page 7 for details.

Mark your calendars for next year! Oct. 17-22, 2015: 40th NWA Annual Meeting (no website yet)

The Renaissance Oklahoma City Convention Center Hotel is the host site for the meeting. Meetings will be held next door in the Cox Convention Center. It is our 40th anniversary, so plan to attend this informative meeting and celebration.

Other Meetings, Conferences and Special Events

Sept. 3-7: Society of Environmental Journalists 24th Annual Conference

"Risk and Resilience" is SEJ's theme for this conference. Many of the topics are weather-related such as the all-Day workshop "Disasters and Extreme Weather: Gathering the News and Keeping Safe."

Nov. 3–7: 27th Conference on Severe Local Storms

It will be at the Madison Concourse Hotel in Madison, Wisconsin.

Nov. 19-21: 2014 FLASH Annual Conference – Resilience Revolution

The Federal Alliance for Safe Homes will hold this year's event in Orlando, Florida, discussing resilience through building codes and construction practices, policy, research, and communications.

NEW JOM PAPERS

Three papers have been published the NWA's Journal of Operational Meteorology (JOM) since our update in May: one Images of Note and two Articles. There are four categories of papers that can be published in JOM.

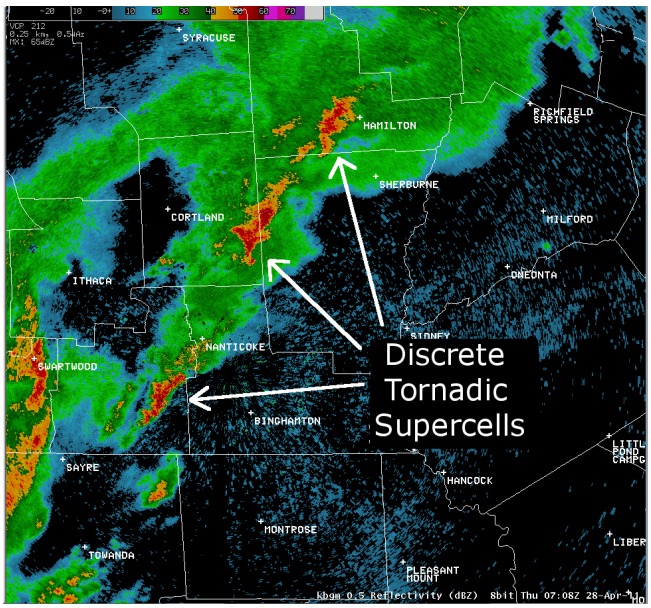
To see their names and descriptions, go to: www.nwas.org/jom/call_for_papers.php.

JOM 17 (Images of Note):
The Curious Case of Ice Pellets over Middle Tennessee on 1 March 2014, by M. Kumjian and A. Schenkman.

JOM 18 (Article):
A Historical Analog-Based Severe Weather Checklist for Central New York and Northeastern Pennsylvania, by M. Evans and R. Murphy.

JOM 19 (Article):
Analysis of the 15 June 2013 Isolated Extreme Rainfall Event in Springfield, Missouri, by W. Lincoln.

Thank you to the JOM authors, reviewers and editors for continuing to make the JOM a success. You can read the papers by logging on to the NWA Member Portal and clicking on the JOM link under Additional Member Resources on the right. If you are interested in submitting a paper to JOM, author information is abailable at: www.nwas.org/jom/index.php.



At right:
Figure 20 in JOM 18 showing the 0.5° reflectivity imagery from the Binghamton, New York, WSR-88D at 0708 UTC 28 April 2011. Each of the three annotated supercells produced a tornado at some point during the event.

IMPORTANT DATES

August 6-7:
16th Annual High Plains Conference

September 1:
Last day to edit Annual Meeting abstracts

September 15:
Purchase an exhibit booth or sponsorship by this day to take full advantage of all benefits

September 17:
Deadline for Crystal Inn room block reservations at NWA price (if not sold out)

NWA Newsletter (ISSN 0271-1044)
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Submit newsletter items to nwanewsletter@nwas.org using the Instruction for Authors at http://www.nwas.org/newsletters/newsletter_instructions.php.

Members receive the Newsletter on-line and access to an on-line portal which includes the Journal of Operational Meteorology as part of their regular, student or corporate membership privileges.

Address, phone number, email and affiliation changes can now be made online: member.nwas.org.