July 2016
No 16 - 7

NWA Newsletter

Inside

Important Dates

Sept. 10: WeatherReady Fest

Sept. 10-15: 41st NWA Annual Meeting (see page 6)

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

New Wave Runup Forecasts for Coastal Hot Spots

Powerful East Coast storms, their associated storm tides and large, battering waves can lead to severe coastal change through erosion and re-deposition of beach sediment. The United States Geological Survey (USGS) has modeled such potential for geological response using a storm-impact scale that compares predicted elevations of hurricane-induced water levels and associated wave action to known elevations of coastal topography (Stockdon 2006). The resulting storm surge and wave run-up hindcasts calculate dynamic surf zone collisions with dune structures using discrete regime categories of collision (dune erosion), overwash and inundation.

Large, battering waves leading to erosion underneath homes in Saco, Maine.

The NWS recently began prototyping this modeling technique under the auspices of the North Atlantic Regional Team (NART). Real-time erosion and inundation forecasts were expanded to include both tropical and extra-tropical cyclones along vulnerable beaches (hot spots) on the New England coast. Preliminary results showed successful predictions of shoreline impact during several intense Nor'easters. The forecasts were verified using observational datasets, including critical ground-truth field reports from emergency managers. Dune erosion information was also collected from beach profile measurements obtained on a storm-based temporal scale as part of a Maine Sea Grant partnership. Many thanks go out to the volunteer citizens who survey year round, sometimes in below zero temperatures and other inclement storm conditions.

There will continue to be challenges utilizing the storm-impact scale within complex bathymetry and differing beach strata that the rugged coastal New England terrain has to offer. Currently, there are plans for future expansion of the model to hot-spot communities elsewhere along the U.S. coast, potentially allowing for real-time wave battering predictions on a national scale. Efforts continue towards expediting this goal through classroom instruction and hands-on "train the trainer" workshops, which provide meteorologists with beach surveying techniques necessary for topographical input into the model.

Reference: Stockdon, H. F., Holman, R. A., Howd, P. A., and Sallenger, A. H. 2006: Empirical parameterization of setup, swash, and runup. Coastal Engineering, 53, No. 7, 573-588, doi:10.1016/j.coastaleng.2005.12.005.

Dune monitoring surveyor John White shared this image from Gooch's Beach in Kennebunk, Maine, after the Blizzard of 2013. Large, battering waves unearthed tree stumps that were buried below the beach and estimated to be 3,000-4,000 years old.

Diversity University: July 2016

NWA Diversity Committee

The NWA Diversity Committee was established to assist weather professionals in learning how to be successful contributors in a diverse workplace.

The 2016 Summer Olympics are just around the corner, starting on August 5 in Rio de Janeiro, Brazil. As the Olympic and Paralympic hopefuls compete for coveted spots on the U.S. teams, it is important to note that the U.S. Olympic Committee strives to ensure the athletes are chosen based on their abilities without consideration of their ethnicity, race, economic background, sexual orientation, or gender. The resulting diversity of the Olympic and Paralympic Teams' makeup creates unique role models for future athletes—like those you looked up to when you were younger, seeing them on your box of Wheaties at breakfast.

If only forecasting the weather were an Olympic sport! Check out this the faces of our developing U.S. Olympic Team, and learn more about the importance of diversity and inclusion in reflecting the true face of the American people and culture for this time honored event.

TEAM USA
ROAD TO RIO

Thunderstorm Project Turns 70 Years Old

By Grant Tosterud

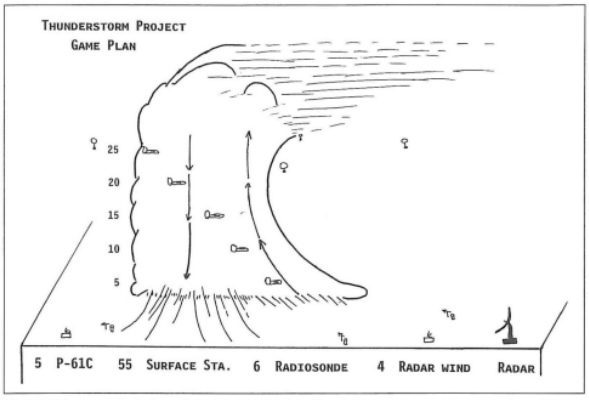
This summer marks the 70th anniversary of The Thunderstorm Project, the beginning of a new chapter in the understanding of thunderstorms. In a collaborative effort between the U.S. Weather Bureau, U.S. Army Air Force, U.S. Navy, National Advisory Committee for Aeronautics (NASA), and university scientists, an initiative was put forth to research the most common mesoscale disturbance—the thunderstorm—because of its effect on the safety of air travel and the lives of many people. This research effort became known as "The Thunderstorm Project."

P-61 squadron during the Ohio phase of The Thunderstorm Project. Source: National Weather Service, Southern Region Headquarters.

The first phase of the project took place during the summer of 1946 in Florida, chosen for its high frequency of thunderstorms. The research team created a vertical stack of airplanes spaced at 5,000-foot intervals from 5,000 to 25,000 feet and flew them through a thunderstorm as it passed over a surface network of weather stations.

Measurements were gathered from the surface, the airplanes, and radiosondes that were released into the storms. Meticulous records were kept of the airplanes' speed, movements and controls. A ground-based radar was also used in the project to monitor control of the airplanes and balloon releases, along with continuous photography to visually monitor a storm's development and location.

No storm was avoided in the project, regardless of how small or violent. One of the most functional results of the project was developing a relation between the updrafts and downdrafts in a thunderstorm and their location relative to the radar echo. This information is still used by airlines today to help steer around the most severe parts of a thunderstorm.

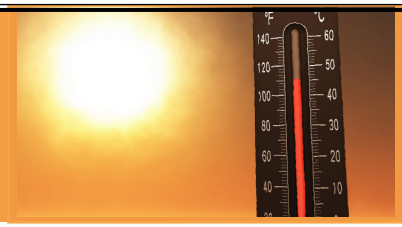


Sketch showing the deployment of various equipment used to probe thunderstorms during The Thunderstorm Project (Fig. 1 from Braham 1997)." Source: Braham, R. R. Jr., 1997: Thunderstorms and The Thunderstorm Project. NWA Digest, 21, 24-30.

Another pattern had become apparent over the course of the project—the three-stage life cycle of a thunderstorm. The storms began with a cumulus phase containing a main updraft, then moved into a mature stage with both an updraft and downdraft, and ended in a final stage that contained solely a downdraft.A subsequent phase of The Thunderstorm Project took place the following summer in 1947 across a portion of Ohio. This location was chosen based on thunderstorm frequency and the availability of military radar sites.

According to the plaque at the headquarters of The Thunderstorm Project in St. Cloud, Florida, the theories created from the results of the project "... remain the cornerstone of our understanding of thunderstorms and related weather such as hail, strong winds, heavy rain and tornadoes."

IWT Before IWT Was Cool



July President's Message
By Dave Freeman, 2016 President

If I had been making an official observation, I would have written "T+++." "T" for "Tension"—and there was plenty of it in the room. NWSChat had been implemented the previous year in Kansas and real-time communication during severe weather events had been, shall we say, a bit of a challenge. Looking for ways to improve the situation, a few of us came up with the idea for a Kansas Weather Summit. And here we were—Meteorologists in Charge (MICs) and Warning Coordination Meteorologists (WCMs) from the Wichita, Dodge City, Goodland, and Topeka NWS Weather Forecast Offices (WFOs); and broadcasters from the Wichita TV market. It was a Cold War scene worthy of Nikita Khrushchev—the only thing missing was the shoe banging. (Click here for you youngsters out there.)

Wichita WFO MIC Richard (Dick) Elder, WCM Chance Hayes and I were the organizers of the event, and we had decided Dick Elder would chair the meeting. Other than that, we really didn't have a road map—this was before the concept of the Integrated Warning Team (IWT) meetings was widely known. The NWS folks, of course, recognized the broadcasters around the room. The broadcasters knew a few NWS staff but for many it was a matter of matching names from NWSChat to faces for the first time.

You talk about T+++.

Dick decided to employ an ice-breaker technique to get the meeting started. He asked each person to introduce themselves and their role, and then to share one thing that no one in the room knew about them. As we went around the room, slowly but surely, the ice began to break. Not only were we putting names to faces, we were also putting people to faces. Some shared funny things, some shared about their families or hobbies. By the time we worked our way around the group, significant warm advection developed and the ice was melted.

We then began to delicately consult about this massive change in the weather warnings enterprise—real-time, two-way electronic communication during severe weather. It turned out that, of course, all of the downsides of electronic communication had led to misunderstandings and unnecessary hard feelings. Those characters on the screen do a very poor job of communicating emotion, nuance, and true intent. Some assumptions also melted away. No, broadcasters didn't want warnings cancelled because they wanted to go home early. And broadcasters don't have horns, tails and pitchforks, either. And no, NWS folks don't issue warnings just for fun during season finales. And they don't issue them one or two minutes after the newscast begins just to annoy broadcasters.

It turned out, of course, that every person in the room had a shared passion for weather, and a shared passion for serving the people who are counting on us. We were united by those factors, and by the end of the day we had laid a sure foundation for better collaboration in the future.

The meeting has become an annual tradition in Kansas, I am happy to say. In the ensuing years, it was expanded to include all NWS staff and broadcasters in Kansas, and the Hastings, Nebraska, WFO joined in. More recently, emergency managers were invited and we learned of many other issues that would benefit from consultation (anyone want to talk siren policy?). Last January, more than 90 people participated in the Summit!

Of course the IWT concept also became widely adopted and has generated many benefits over the years. We have demonstrated the value of establishing positive working relationships, greater understanding, and improved collaboration.

I would like to think that the National Weather Association is very much part of the IWT. The NWA and its Local Chapters are also spaces where team members develop professional skills and build collaborative, productive relationships. I hope that you will help spread that word and invite your friends and colleagues to join your NWA!

41st NWA Annual Meeting: Keynote Speakers

In the past two newsletters, we told you about two of our keynote speakers for the NWA 41st Annual Meeting—Admiral Tim Gallaudet and Dr. Kathryn Sullivan. This month, we spotlight Dr. Louis Uccellini, the third of the four keynote speakers.

Dr. Louis W. Uccellini is the National Oceanic and Atmospheric Administration's Assistant Administrator for Weather Services, and Director of the National Weather Service (NWS). In this role, he is responsible for the day-to-day civilian weather operations for the U.S., its territories, adjacent waters, and ocean areas.

Dr. Uccellini received his Bachelor of Science (1971), Master of Science (1972), and Ph.D. (1977) degrees in meteorology from the University of Wisconsin-Madison. He served as the section head for the Mesoscale Analysis and Modeling Section at the Goddard Space Flight Center's Laboratory for Atmospheres from 1978 to 1989, Chief of the NWS Meteorological Operations Division from 1989 to 1994, and Director of the NWS Office of Meteorology from 1994 to 1999.

For the next 14 years, Dr. Uccellini served as the Director of the National Centers for Environmental Prediction (NCEP). He was responsible for directing and planning the science, technology, and operations related to NCEP's nine centers across the U.S.: Central Operations, Environmental Modeling Center, Ocean Prediction Center, Hydrometeorological Prediction Center, Climate Prediction Center, National Hurricane Center, Storm Prediction Center, Space Weather Prediction Center, and the Aviation Weather Center.

He has published more than 60 peer-reviewed articles and several chapters in books on subjects including analyses of severe weather outbreaks, snowstorms, gravity waves, jet streaks, cyclones, and the use of satellite data in analysis and modeling applications. He is the co-author Northeast Snowstorms, a widely acclaimed two-volume American Meteorological Society (AMS) monograph published in 2004. Dr. Uccellini has also authored chapters in the 1990 AMS publication Extratropical Cyclones, the 1999 AMS publication The Life Cycles of Extratropical Cyclones, and the 2008 AMS publication Synoptic Dynamic Meteorology and Weather Analysis and Forecasting.

Dr. Uccellini has also served on many national and international research and field experiment programs. He has received many awards in recognition of his research and operational achievements including the Maryland Academy of Sciences Distinguished Young Scientist Award (1981), the NASA Medal for Exceptional Scientific Achievement (1985), the AMS's prestigious Clarence Leroy Meisinger Award (1985), and the National Weather Association's Research Achievement Awards for Significant Contributions to Operational Meteorology (1996). He was elected as a Fellow to the AMS in 1987 and served as Co-Chief Editor of Weather and Forecasting from 1988 to 1992. In 2001, he received the U.S. Presidential Meritorious Executive Rank Award, and later received the U.S. Presidential Distinguished Rank Award in 2006. In January 2012, Dr. Uccellini was elected the President of the AMS and served from 2012 to 2013.

Dr. Uccellini's keynote speech is titled "Better Results: Then and Now," scheduled for Tuesday, September 13.

Journal of Operational Meteorology

New JOM Articles Published

Four articles have been published in the NWA's JOM since our last announcement in March.

JOM 2016-7: Automated Storm Tracking and the Lightning Jump Algorithm Using GOES-R Geostationary Lightning Mapper (GLM) Proxy Data, by Elise V. Schultz, Christopher J. Schultz, Lawrence C. Carey, Daniel J. Cecil, and Monte Bateman.

JOM 2016-8: An Exploratory Study of the Influence of Severe Weather Radar Broadcasts, by Kathleen Sherman-Morris and Amanda M. Lea.

JOM 2016-9: Polarimetric Radar Observations of Dust Storms at C- and S-Band, by Matthew S. Van Den Broeke and Hussain Alsarraf.

JOM 2016-10: Evaluation of Near Real-Time Preliminary Tornado Damage Paths, by Christopher D. Karstens, Kacie Shourd, Doug Speheger, Aaron Anderson, Richard Smith, David Andra, Travis Smith, Valliappa Lakshmanan, and Somer Erickson.

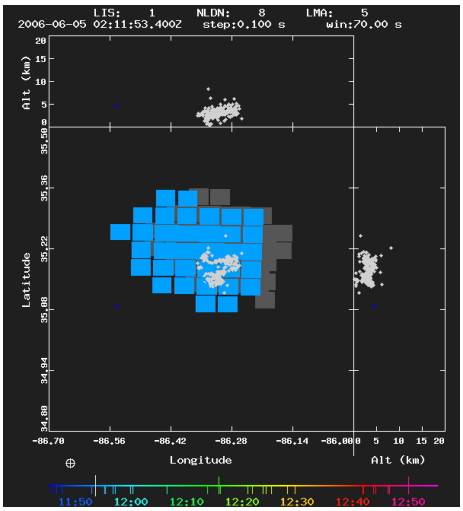


Figure 3 from JOM 2016-7. A comparison of the spatial differences of a lightning flash between an optical observation from the TRMM satellite lightning imaging sensor (LIS; blue/gray pixels) and the VHF radiation from the North Alabama Lightning Mapping Array (LMA; gray source points) on June 5, 2006. Each LIS flash location is determined by the amplitude-weighted centroid of the groups/ events. The LMA flash consists of clustered radiation sources recorded at 80 µs intervals along the path of the flash.

The JOM publishes submissions in four categories: Article, Short Contribution, Images of Note and Commentary. The JOM is a peer-reviewed, all-electronic journal with an international scope, providing authors with the benefits of economical publication costs and rapid publication following acceptance. *If you are interested in submitting a paper to the JOM, please go to the website for author information. Thank you to the JOM authors, reviewers and editors for continuing to make JOM a success!*

Weather News FLASH is a monthly collection of interesting stories and events from around the world!

Ham Radio Operators Join In National Amateur Radio Field Day

Since 1933, ham radio operators across North America have established temporary ham radio stations in public locations during Field Day to showcase the science and skill of Amateur Radio.

Pilot Captures Incredible Nighttime Thunderstorm Photo Over the Pacific Ocean

This is one of the most striking thunderstorm photos we've seen.

Raytheon Introduces Online Classes to Prepare US Residents for Extreme Weather

Raytheon has launched a suite of weather preparedness training modules to help teach the general public and school-aged children how to keep themselves safe before, during, and after significant weather events.

The Tide vs. Tornadoes: What Happens When the Stadium is in a Storm's Path?

Severe weather is possible year-round in Alabama. But what if it has the misfortune to strike in the middle of the Big Game?

What California Can Learn From How the South Manages Wildfires

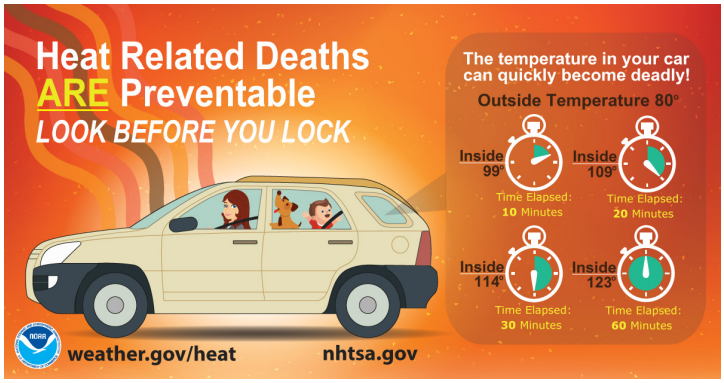
Each year, according to the U.S. Forest Service, roughly eight million acres of land are treated with prescribed fire in the Southeast—more than in all other U.S. regions combined.

What the National Weather Service Social Media Warning Stream Has Shown Us

The National Weather Service has a long and dedicated history of warning people in the path of severe weather. The first tornado forecast was issued in the late 1940s, when forecasters predicted that a tornado would strike Tinker Air Force Base.

NWS Launches Website Dedicated to the Dangers of Heat (Reproduced from weather.gov/heat)

North American summers are hot; most summers see heat waves in one or more parts of the United States. Heat is one of the leading weather-related killers in the United States, resulting in hundreds of fatalities each year and even more heat-related illnesses. In addition to the resources below, OSHA offer free OSHA Heat Safety App for both Android and iPhone.



The NWS heat safety website is designed to inform you about the health dangers of heat, prepare you for excessive heat events, and tell you what to do during an excessive heat wave. The site includes vital information about the dangers of leaving children, pets or anyone with limited mobility alone in a car even for a few minutes in what might seem like mild weather. It provides information about protecting yourself from the heat, educational materials and resources on how the National Weather Service keeps you aware of potentially dangerous situations. You will also find games and activities to help educate your children about the dangers of heat and links for more information.

Read about real life heat victims and watch heat safety videos. If you, or someone you know, have been a victim of excessive heat, the NWS has a link to share personal stories to help prevent others from becoming a heat victim.

41st NWA Annual Meeting, September 10-15, 2016

REGISTRATION NOW OPEN
click to register

Location: Norfolk, Virginia

41st NWA Annual Meeting Venue and Hotel:
Norfolk Waterside Marriott
235 East Main Street
Norfolk, VA

See page 7 for hotel and lodging information

Photo courtesy of Visit Norfolk

Theme: Better Science, Better Communication, Better Results

Operational meteorologists constantly strive to improve the science behind the forecast. We also want to make sure the people we serve receive, understand and then act on the information that we provide. If we utilize the best possible science and are effective communicators, lives will be saved and impacts to the economy minimized. Join the National Weather Association in Norfolk and help the weather enterprise advance on this path of service.

Schedule of Events

- **Weather*Ready* Fest at Nauticus:** Saturday, September 10
- **Broadcast Meteorology Workshop:** Sunday, September 11
- **Ninth Annual Student Session including Speed Mentoring:** Sunday, September 11
- **General Sessions:** Monday-Thursday, September 12-15
- **Workshops for K-12 Teachers:** Tuesday, September 13
- **NWA Annual Awards Luncheon:** Wednesday, September 14

The Abstract Submission Period is CLOSED.

A preliminary agenda is online for presenters to review.

The Annual Meeting Program Committee Co-Chairs are:

Ken Carey
ERT, Inc
Laurel, MD 20707
annualmeeting2016@nwas.org

Mike Vescio
NOAA National Weather Service
Pendleton, OR 97801
annualmeeting2016@nwas.org

The Broadcaster Workshop Program Chair:

Mike Goldberg
WTVR-TV
Richmond, VA 23230
broadcasterworkshop2016@nwas.org

Additional Information

For more information on exhibits, special accommodations, registration and the overall meeting program, keep checking the 2016 Annual Meeting Page and its links, or contact the NWA office: 405-701-5167 or nwahelp@nwas.org.

NWA will provide updates on this Web page, on the NWA Facebook Page, Twitter and other social media. Please use the hashtag #NWAS16 for any tweets associated with the 2016 Annual Meeting.

VISIT Norfolk

41st NWA Annual Meeting: Hotel & Overflow Hotel

Meeting Venue and Hotel: Norfolk Waterside Marriott, 235 East Main Street, Norfolk, VA 23510

(www.marriott.com/hotels/travel/orfws-norfolk-waterside-marriott/)

Reservations may be made online or by calling 1-800-874-0264 and telling them you're attending the National Weather Association meeting.

The room block is open until August 17, 2016, or until the NWA block is full.

Click to make your reservation http://goo.gl/G8OzpV

Hotel rates are as follows:

Number of Guests 1-4

Nightly Rate Before Tax: $87.00

- Prices listed are per night and do not include tax or fees. The current tax rate is 14% and/or $2.00 per room night occupied. Rates are subject to change.
- When requesting the room, they will ask how many will occupy the room. This will enable them to provide the correct type of room for the number of guests. (i.e., one bed vs. two beds). Rooms with two double beds cannot be guaranteed in advance unless this request appears as confirmed on your reservation.
- All reservation requests will require a credit card or a one room night deposit, to guarantee the room. Any deposits will be refunded for rooms canceled more than 72 hours prior to scheduled arrival. If you do not check into the hotel on your scheduled arrival date and do not cancel more than 72 hours in advance, one (1) room night cost will be charged to the credit card used to guarantee the room.
- Name changes to room reservations may be made up to one day prior to arrival.
- Check-in is available after 4 p.m. on arrival day; check-out is at 11 a.m.
- Complimentary Internet in all NWA attendee guest rooms.
- The hotel has a smoke-free policy.

Additional Information

- Reduced overnight Self-Parking of $14 (Main Street garage only). A 6% tax will apply.
- Valet parking is available for $26/day for hotel guests.
- Taxi rides between the airport and hotel average around $30. The hotel does not provide shuttle service.

The meeting sessions will be held at the hotel. Visit Norfolk has more info on restaurants, transportation and activities in the Norfolk area.

NEW: Overflow Hotel Information — Sheraton Norfolk Waterside

Sheraton Norfolk Waterside
777 Waterside Dr
Norfolk, VA 23510

Reservations may be made online through this site, or by calling 1-800-325-3535 and telling them you are attending the National Weather Association meeting.

The room block is open until August 25, 2016, at 5 p.m. EDT, or until the NWA block is full.

Hotel rate is $87 per night for one to four guests and does not include tax or fees. The current tax rate is 14% + a $2.00 flat bed tax per room nigh. Rates are subject to change.

Individuals must guarantee their reservation with a credit card or deposit at the time of check-in.

Check-in is available after 3 p.m. on arrival day; check-out is at 12 p.m. Complimentary internet in all NWA attendee guest rooms. The hotel is a non-smoking hotel.

***Parking*: Convenient, covered and secured automobile self-parking is located at the Dominion Tower Parking Garage, adjacent to the hotel and other nearby facilities. Parking is subject to availability. Prices for parking are subject to change.**

***Self-parking* for overnight guests at Dominion Tower Parking is $12 per car/day. *Overnight valet parking* is available upon request for $22/day for hotel guests. *Valet parking during an event* is $12/day. Taxes may apply on all three options.**

NWA UP CLOSE: Q&A with Dan Gallagher, NWA Weather and Forecasting Committee Chair

Grant Tosterud
NWA Student Intern

What does your committee do, and what are the different aspects and roles of your committee?

The WAF Committee promotes the development and implementation of improved analysis and forecasting techniques to benefit operational meteorology. During the Annual Meeting, the WAF Committee is involved in putting together the Master Class for the Student Workshop, coordinating judges for student presentation and poster submissions, and assisting students in giving the daily weather briefings.

What are the committee's goals?

We seek to educate to make sure that the latest research makes the transition to the forecasting desk. We hope to provide opportunities and knowledge to all sectors of the membership and all levels of experience—from students to forecasting veterans.

What are the biggest projects your committee is working on?

The biggest project is the Master Class that our committee puts together at the Annual Meeting's Student Workshop. The Norfolk meeting will be our third offering of this class, and the topic will be winter weather. Information on how to register for this class will be coming soon.

What is the biggest challenge your committee faces?

Throughout my years serving on the WAF Committee, the biggest challenge to me has been defining a clear role for our committee. While the other committees have special focus on one aspect of meteorology or the Association, our committee spans a fairly broad spectrum covering all aspects of operational meteorology. We are constantly seeking ways to have a positive impact for the NWA and all of its members.

What is the greatest strength of your committee?

Our greatest strength is probably that we have a lot of hard workers, driven by the passion to serve. Our projects require a substantial amount of time and effort, especially leading up to and during the Annual Meeting. Our committee members always answer the call.

What is the most important thing you have learned serving as a committee chair?

One thing I have learned is how much enthusiasm exists to serve on a committee of the NWA. One of my fears heading into serving as chairperson was finding enough interested volunteers to serve on the committee. That fear quickly vanished when I was given a long list of members who have expressed an interest in serving on WAF while renewing their dues for the upcoming year.

NEW NWA MEMBERS

Please welcome these members who joined the NWA in June 2016!

Corporate Members:

Global Science & Technology, Inc.

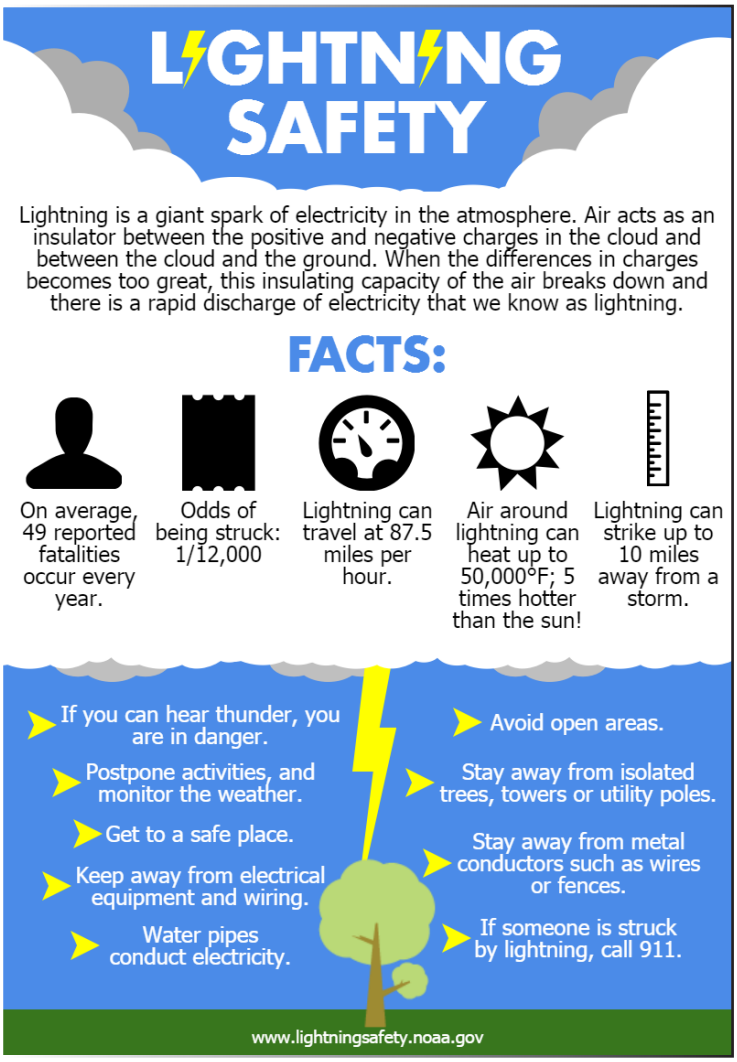
Global Science & Technology, Inc.

Regular/Retired/ Active Military Members:

Alexandra Biston
Ronald Hardwig
Lindsey Moistner
Chris Nelson
Joseph Phillips
Edmund Pipitone
Jaret Rogers
Valerie Stajewski

Student Members:

Christina Andress
Heather Calera
Kaelan Cameron
Tara Franca-Hersey
Megan Hannigan
Austin Harris
Emily Klaus
Caroline MacDonald
Josh Thompson



NWA 41ST ANNUAL MEETING
SPECIAL EVENTS

Research Operations Nexus (RON) Meetup - Honoring the Legacy of Ronald W. Przybylinski

Sunday
September 11
7:00 PM

The 41st NWA Annual Meeting will provide the opportunity for an interactive meetup between research and operational meteorologists.
For more information about the RON event, read about it in the article found in the newsletter.

Swap

Sunday
September 11
7:00 PM

The Swap is an opportunity for broadcasters of all experience levels to show off their stuff to an audience of their peers. To participate, simply provide the moderator with an Internet link to your weathercast video file. Thumb drives may also be submitted. This will be the final year that DVDs may be presented. No other media types are acceptable.

Student DVD Critique

Sunday
September 11
8:30 PM

This interactive session offers students an opportunity to receive feedback and advice from established professionals. Students will also have the chance to ask questions. Students wanting to participate should either bring a DVD or thumb drive with sample weathercasts, OR provide an Internet link to their work. You do not have to bring a sample of your work to participate in the discussions.

Local Chapter's Breakfast

Tuesday
September 13
7:00 AM

An opportunity to support Local Chapters and their officers, recognize the value and impact of Local Chapter activities, and sharing of ideas, issues and best practices

www.nwas.org/meetings/nwas16

PROFESSIONAL DEVELOPMENT & EVENTS

NWA Sponsored Meetings, Conferences & Special Events in 2016

(Click titles for more information)

August 10-11: 2016 High Plains Conference

September 10–15: 41st NWA Annual Meeting
"Better Science, Better Communication, Better Results" is the theme of the 2016 Annual Meeting being held in Norfolk, Virginia. (See pages 6 and 7).

Other Meetings, Conferences & Special Events

October 14-19: 64th Annual IAEM Conference and EMEX
The International Association of Emergency Managers will hold this year's annual conference in Savannah, Georgia.

Newsletter Submissions

We welcome articles from members. Send to nwanewsletter@nwas.org by the 15th of the month for publication in the following month's edition at the earliest. Newsletter info and a link to author guidelines can be found at www.nwas.org/newsletters/.

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www.nwas.org/newsletters/newsletter_instructions.php.

Members receive the Apex award-winning Newsletter online and access to an online 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.