

NWA NEWSLETTER

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Newsletter Submissions

We welcome articles from members. Send to: nwanewsletter@nwas.org by



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

FACETs: Breaking Down the Facts

Christine Wielgos, NWS Paducah, Kentucky
NWA Specialized Operations Committee - Severe Weather

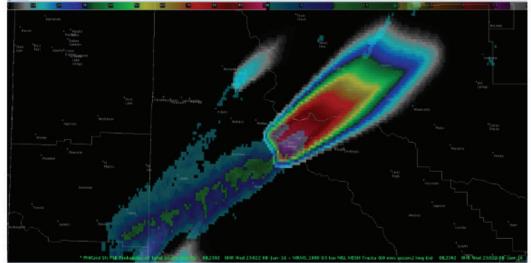
Forecasting a Continuum of Environmental Threats (FACETs) is a watch/warning framework designed to give forecasters the tools to communicate clear and simple hazardous weather information to the public. The goal is to produce information that is easily understood so users can take action more quickly. The initial research-to-operations focus for FACETs was in short-fuse type events, such as severe convection and flash flooding. However, it is designed to eventually include all hazards. One of the fundamental aspects of FACETs is to rapidly update probabilistic hazard grids using the Probabilistic Hazard Information (PHI) tool. Forecasters will interpret convective threats and then communicate this information along with any uncertainties to users. Entities that require longer lead times to gather people to safety can set their own thresholds based on their exact needs. This work ties in well with NOAA's Weather-Ready Nation initiative to increase resilience within communities due to ever increasing vulnerability to extreme weather events.

The FACETs framework will incorporate advances in satellite, radar and surface observation technology. It will also introduce new computer-based predictions of storm hazards from NOAA's Warn-on-Forecast project. Forecasters will have information at their fingertips that will allow

them to forecast storm attributes such as longevity, intensity and hazards. Forecasters can still issue legacy products, but the new products will include more impact-specific information such as urgency, confidence and variability. Tornado warning areas will become smaller and more focused tornado probability plumes (reducing areas unnecessarily warned) that will be updated frequently, providing greater lead times for approaching threats.

FACETs will also look at how the public interprets the information. Is there a better way to craft the message so people respond more quickly? Integrating social and behavioral sciences will be essential in fine-tuning the threat output. In addition, working with officials in emergency management, law enforcement, broadcast media, and other entities will be imperative in finding ways to prompt the most effective response.

NSSL created a PHI tool that forecasters will use to integrate probabilistic guidance along with their own interpretations to issue PHI for specific hazards (hail, wind, tornadoes). Testing of this tool started in 2014 and continues this year with the NOAA Hazardous Weather Testbed (HWT). Improvements will continually be made to this tool using data collected by meteorologists and other related experts.



AWIPS display of Multi-Radar/Multi-Sensor Maximum Estimated Size of Hail swath overlaid with PHI plume severe thunderstorm probability forecasts focused on a severe storm near Taft, Montana.

References: FACETs website (<u>www.nssl.noaa.gov/projects/facets/</u>)
Alan Gerard - Deputy Division Chief, Warning Research & Development Division

Ideal hazardous weather messaging: A constant work in progress

April President's Message Gail Hartfield

When I first started in the NWS many years ago, the ideas of communication and optimal messaging of weather information were not a significant focus of our operational forecasts and warnings. We stuck primarily to the science, although we did get a few bits of training on clear weather-related writing practices. Much of our information output relating to significant or severe weather consisted of all-caps, technically-written bulletins. (Back then, even our Area Forecast Discussions were internal-only products, not seen by the public.) This left the bulk of communication efforts to the TV and radio broadcasters, who excelled at this task.

But now? All operational meteorologists must be highly effective communicators, pure and simple. But what exactly does that mean? With the internet, social media, and countless other media outlets (both TV and streaming), the amount of weather information available is monumental, and growing at a remarkable rate. Much of this information, such as the simulated reflectivity from convection-allowing models that I wrote about last month, can be interpreted—and misinterpreted—in any number of ways. How people process and apply weather information vary greatly among those with differing understandings of dangerous weather events and the factors influencing them, including the general public, highly savvy and trained officials, and entire companies and communities. Given this varied knowledge, people look to meteorologists in all sectors including broadcasting, government agencies, commercial forecast services, and other entities to help them better understand the weather situation at hand and assist with their decision-making. This necessitates that we all are able to convey, in a clear way, critical information about important weather events to a wide variety of users.

Unfortunately, there is no uniform way to communicate significant weather information that will work for everyone given the unique ways that each person and user group synthesizes that information. What might be a good graphic for your grandma may be useless for the local emergency manager, and vice versa. There will always be people that "get it", those who do not, and those in between, and we need to serve this entire span of individuals and their needs with appropriate messaging techniques. Thanks to social science research, newer graphical tools, GIS capabilities, and a little creativity meteorologists are becoming better able to tailor critical storm information to facilitate decision-making and help motivate and guide appropriate protective actions.

The most visible signs of these efforts are in social media where forecasters across the weather industry use tools such as graphical radar and warning plots, specific threat levels, timelines of arrival/onset, alternate scenarios, and confidence factors to aid decision-making for sophisticated users and the general public. Many targeted and helpful communication tools, strategies, and methodologies are already being used regularly throughout the weather enterprise,



including on TV and the web (e.g., the precipitation- and visibility-based "road weather index", "bus-stop forecasts", town-specific threat timelines). Many more are in development or being explored via testbeds or experimental projects (e.g., the NWS's Hazard Simplification Project, Probabilistic Snow Forecast Experiment, and FACETs project).

The need for clear messaging refers not only to clearly conveying the weather that is expected, but also to the actions we want people to take. This is especially important for vulnerable populations. Who are these populations? They're more numerous than one might think. If you live near a creek that sometimes floods, if you drive to work in rain, if you frequently go camping or participate in outdoor sports, if you live in the mountains or at the coast, if you're elderly, if you're a non-native speaker, you're part of a vulnerable population that is particularly susceptible to weather hazards. Clear messaging about anticipated conditions, specific threats, and the actions needed to protect life and property that is tailored to the needs of as many people and groups as possible is vital. But first, all of us across the weather enterprise must determine what actions we want or need people to take in the face of a particular threat, knowing that the decisions people make are usually not entirely weatherdriven and typically also involve countless other factors within the risk assessment process. Vulnerable populations—understanding their needs and exploring our service to them-will be a focus of discussion and presentations at this year's NWA Annual Meeting in September. We hope you'll be there.



The Foundation's purpose is to collect and disperse funds that will support college and university students in meteorology and related fields; assist K-12 educators in developing and offering weather-related educational programs; and support other organizations engaged in offering education on weather related topics.

GOES-16 Enhancements to IDSS for San Francisco International Airport (SFO) on 03/03/17

Mike Eckert

NWA Specialized Operations Committee - Decision Support Services

San Francisco International Airport (SFO) is located on the northern end of a peninsula, surrounded by the cooler waters of the Pacific Ocean and San Francisco Bay. The cooler waters frequently support the development of marine stratus and fog that can significantly impact air traffic operations at SFO.

On a Visual Flight Rules (VFR) day the airport handles around 1200-1300 arrivals and departures, while on an Instrument Flight Rules (IFR) day, the numbers can be significantly lower. The days with lower operation numbers translates into travel delays, with monetary losses that can exceed \$1 million per day.

On March 3, 2017, the morning started out with clear skies and light winds around SFO. Around 1400 UTC (0600 PST) patches of stratus started to form south of SFO, with the area growing to cover the approach to the airport by 1600 UTC. IFR conditions prompted the start of a 3-hour Ground Delay Program (GDP) for the morning arrivals. Clearing was forecast to occur between 1900 and 2000 UTC.

The GDP captured 48 flights with an average delay of 38 minutes, yielding 1,824 delay minutes. Industry cost per minute of delay is \$81.00/min (per Airlines for America), which resulted in potential losses totaling about \$150.000.

As with every stratus event, NWS Aviation Weather Center National Aviation Meteorologists (NAM) at the Air Traffic Control System Control Center (ATCSCC) and NWS Center Weather Service Unit (CWSU) meteorologists at the Air Route Traffic Control Center (ARTCC) constantly monitor satellite images, observations, upper-air data, and hourly model output to refine the timing for clearing at SFO. Every earlier minute of clearing is crucial to the operations, especially during times of peak air traffic.

GOES-W and GOES-16 imagery were both available to the NAM on this day. GOES-16 updates occurred every 5 minutes versus GOES-W every 15 minutes.

The higher frequency of GOES-16 data helped the NAM to determine that the edges of the patch of stratus were eroding much faster than was evident via GOES-W. This

IDSS @ SFO using GOES-16 (03/03/17)

- 1600Z Patch of Stratus formed over SFO & SMB necessitating a Ground Delay Program 1700z-1959z
- 2. 1700Z GOES-16 loop shows edges starting to erode
- 3. 1715Z GOES-W loop shows edges starting to erode
- 4. 1719Z NAM Coordinates with CWSU ZOA & ATCSCC Specialists that Stratus is clearing rapidly
- 5. 1730Z GOES-16 loops shows stratus almost clear
- 6. 1747Z CWSU ZOA reports Pilots are getting Visuals into SFO
- 7. 1756Z ATCSCC cancels GDP

Original GDP impacted 48 flights @ 38 min average delay per flight 48 x 38 = 1824 minutes of delay x \$81.00/min cost = ~\$150,000.00 (Total Delay Costs)

GOES-16 Estimated Savings:

32 flights freed up

32 x 38 = 1216 min of delay recovered x 81.00/min =

~\$100,000.00 (Costs recovered)

GOES-W Estimated Savings:

16 flights freed up 16 x 38 = 608 min of delay recovered x \$81.00/min =

~\$50,000.00 (Costs recovered)

Estimated cost savings related to GOES-16 = -\$50,000

minus

<u>Main Takeaway</u>

GOES-16... 5 min updates & higher resolution –vs- GOES-W... 15 min updates & lower resolution provided AWC/NAM with earlier & higher confidence that clearing would hold. Imparting this information to the FAA resulted in the earlier Ground Delay Program cancellation.

IDSS @ SFO using GOES-16 (03/03/17) 1631Z SFO SMB 1741Z This GOES-16 image loop uses preliminary, pap-aperational data that is undergoing testing.

This GOES-16 image loop uses preliminary, non-operational data that is undergoing testing. $AWC/NAM-Michael\ Eckert$

allowed the NAM to impart a high confidence forecast of earlier clearing to the FAA partners within ATCSCC, in collaboration with the CWSU meteorologist in Oakland. This in turn allowed the GDP to be cancelled early, which saved the airlines and their customers time and money.

The more frequent and higher resolution data from GOES-16 enabled meteorologists in the ATCSCC to correctly support cancellation of the GDP about one hour earlier than what had been done in the past with GOES-W. For this case, the cost savings to the airlines and customers totaled around \$50,000.

NWA Wednesday Webinar

The May NWA Webinar will held on Wednesday, May 3, 2017, at 1 p.m. CDT/2 p.m. EDT.

Please register with Go-To-Webinar beforehand to reserve your spot.

Title: Wildfire Detection Notifications for Impact-Based Decision Support Services in Oklahoma Using Geostationary Super Rapid Scan Satellite Imagery

Presenters: Todd Lindley (primary) and Aaron Anderson (secondary), WFO Norman

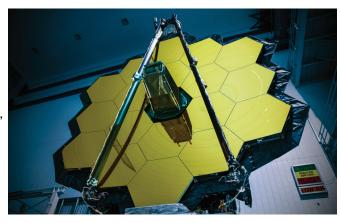


Description: Description: On February 18, 2016, wildfires burned almost 525 square kilometers (129,682 acres) and damaged or destroyed 656 structures across Oklahoma. During this high-impact fire episode, meteorologists at the Norman, Oklahoma, National Weather Service Forecast Office leveraged experimental 1-minute Geostationary Operational Environment Satellite-14 (GOES-14) imager super rapid scan operations for GOES-R (SRSOR) in concert with a text messaging-based notification tool within the Advanced Weather Interactive Processing System (AWIPS) to alert officials of remotely sensed wildfire hot spots. These notifications allowed Oklahoma Forestry Services and Oklahoma Department of Emergency Management to rapidly deploy local firefighting resources to the site of newly detected wildfire ignitions-in some instances before emergency 911 calls were received. This webinar will describe the Python application developed for use in AWIPS during real-time operations and will briefly illustrate SRSOR sampling of the fire outbreak, particularly the Buffalo fire in northwestern Oklahoma. This use of SRSOR demonstrates the applicability of researchto-operations for GOES-R era capabilities in future impact-based decision support services.

NASA Scientist Featured on PBS

THE CROWD & THE **CLOUD** is a documentary series showcasing the power of Citizen Science in the Digital Age. This multi-part series, hosted by former NASA Chief Scientist Waleed Abdalati, takes viewers on a global tour of the projects and people on the front lines of citizen science and crowdsourcing. By observing their environment, monitoring neighborhoods, and collecting information about the world.

Click for PBS and "The Crowd & The Cloud"



The James Webb Space Telescope completed its environmental testing at NASA's Goddard Space Flight Center in Greenbelt, Maryland. The Webb telescope will be shipped to NASA's Johnson Space Center in Houston for end-to-end optical testing in a vacuum at its extremely cold operating temperatures. Credits: NASA/Chris Gunn



New Article in the Journal of Operational Meteorology

One article has been published in the NWA's JOM since the last update in February.

JOM 2017-2 (Article): An Investigation of Local and National NWS Warning Outbreaks for Severe Convective Events, by Zachary S. Bruick and Christopher D. Karstens.

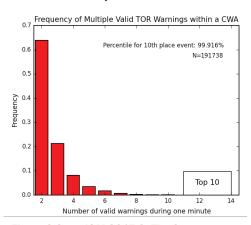


Figure 2 from JOM 2017-2: The frequency of 1-minute periods with at least 2 tornado warnings valid for a single NWS office county warning area.

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, <u>please go to the website</u> for author information.

Thank you to the JOM authors, reviewers and editors for continuing to make JOM a success!

HIGH PLAINS NWA/ CHAPTER NEWS

Jeremy Martin, President Wesley Hovorka, Secretary

The High Plains Chapter of the AMS and NWA held a virtual meeting on Friday, February 24, with 13 members attending. The meeting consisted of a guest presentation followed by a business meeting. Greg Carbin, branch chief at the Weather Prediction Center, was courteous enough to once again present his top 10 meteorological memories of the past year. The new chapter president (Jeremy Martin) and new vice president (Jacyln Gomez) started the business meeting. Two topics were discussed during the meeting. Aaron Johnson provided an update for the 2017 High Plains Conference in Dodge City, Kansas. The conference will be August 9-10 at the Dodge City Community College, and the banquet will be at the Boot Hill Conference Hall. All keynote speakers are confirmed: Karen Kosiba, Mike Coniglio, Chris Strager, and Chris Karstens. The chapter has a block of 40 rooms at the Hampton Inn next to the Boot Hill Conference Hall. This block will be held until May 2; NWS Group Travel requests are due by May 11. A call for abstracts went out in March (see March NWA Newsletter) See the conference website for more details. There was a discussion on whether to continue the student competition this year due to low turnout the last several years. The group consensus was to not have it, although student presenters are still welcome. The second topic of the meeting was an update on the Jim Johnson Scholarship. Matt Gerard (Dodge City), Rick Ewald (Hastings), David Floyd (Goodland), and Shawn Jacobs (North Platte) have taken responsibility for scholarship announcements at their respective offices. They will handle the scholarship process.

www.highplains-amsnwa.org



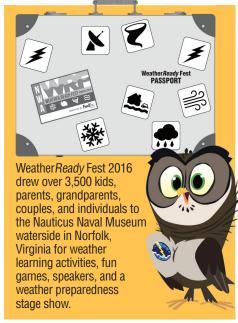
WEATHERREADYFEST SO CAL 2017

ADay of Family Friendly Weather Games and Activities Is Coming To The OC!



The National Weather Association is coming to Orange County September 16-21, 2017 for its Annual Convention. Meteorologists from all over the country will be learning, sharing ideas, and reaching out to the community. Part of that is our huge public offsite event that has something for everyone.

- · Over 50 exhibitors
- Hands-on activities including NOAA's Young Meteorologist Program
- Fun learning games and activities
- Owlie Skywarn
- The OU WeatherFriends
- · Jim Cantore from The Weather Channel
- Prizes
- · And much more!





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Click titles for details!



'97 Blizzard Marks 20-year Anniversary

Two days into a three-day blizzard, cabin fever was setting in for Randy Brousseau of Kidder County. He was huddled under the blankets with his family trying to stay warm without power when he got the call. A farmer was having a heart attack.

Three Tornadoes Touched Down in DC Area During Strong Storms

Thunderstorms and three tornadoes barreled through the Washington D.C. area, uprooting trees, ripping down power lines, tearing apart rooftops and raining debris onto streets and highways.

El Faro's Final Hours: How the Story was Told

The story of the cargo ship El Faro's final hours was reconstructed using thousands of pages of public documents, hours of testimony before the U.S. Coast Guard's investigative board and interviews with crew family members and maritime experts.

<u>Texas Interstate Traffic and 15 Other Weird Things That Have Shown Up on</u> Radar

Rain and thunderstorms swept through South Texas Monday morning, but that wasn't the only thing detected by Doppler radar.

Social Impairments in Autism Spectrum Condition: A Brief Overview for Meteorologists

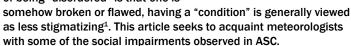
Matt Bolton

Diversity Committee, Disability Subcommittee Chair

Autism is a complex neurodevelopmental condition, generally characterized by delays in communication ability, repetitive behaviors, sensory sensitivities, impairments in cognitive development and social interaction, and by the possession of a narrow range of interests that are typically the subject of intense focus. According the latest report from the U.S. Centers for Disease Control (2014), it occurs in one in 68 individuals.

Historically, autism was diagnosed under a number of different

names including (among others)
Asperger's Syndrome, Autism, and
Pervasive Developmental Disorder. Since
2013, all of these have been consolidated
under the Autism Spectrum Disorder
(ASD) umbrella. However, the author of
this article supports the idea that autism
is not necessarily a disorder but rather
a manifestation of individual difference
along a continuous spectrum of being,
and therefore prefers to use Autism
Spectrum Condition (ASC) over the more
popular ASD. Where the implication
of being "disordered" is that one is



Autistic individuals typically have impairments in theory of mind (ToM), which involves both the capacity to attribute mental statessuch as purpose, intention, thoughts, knowledge, belief, doubts, and likes and dislikes-in oneself and others, and the ability to recognize that other people have perspectives that differ from one's own. ToM allows people to temporarily overcome the fact that they are inherently blind to the minds of others; it allows for an inference of what others are thinking or feeling and correspondingly enables a prediction to be made regarding their behavior. It also facilitates differentiating fact from fiction, allowing one to successfully and consistently discern meaning from, and recognize, deception, jokes and lies, and other communication subtleties (such as sarcasm, irony, and white lies). An inhibition in this social informationprocessing mechanism is perhaps the most noticeable feature of ASC that meteorologists will observe when interacting with autistic individuals in the course of their work, whether at conferences, public weather events, school talks, or elsewhere.

Because awareness for, and understanding of, mental states is typically not intuitive for people on the autism spectrum, they often struggle to carry conversation and misinterpret social cues; they may also appear to show little concern for others. In situations of improper social inference, behaviors exhibited by the person with ASC can be disruptive to others as they may ask questions repetitively, sometimes in inappropriate situations and contexts,

or say inappropriate and/or overly candid things, not realizing their inappropriateness until it has been pointed out. ToM impairments also contribute to social anxiety, and may majorly affect the individual's ability to socialize in that way. It is important for the meteorologist, if they suspect or have been told that someone is autistic, to be patient in interactions with the individual: this is not something they can necessarily help or control. For tips on communicating with autistic individuals, please see the National Autistic Society webpage. Furthermore, it is critical that the

meteorologist aims to be respectful in interactions with people on the spectrum, and avoids projecting stereotypes and generalizations onto the individual. This respect extends to possessing an awareness of the language used in reference to these individuals - for example, many people on the spectrum prefer "autistic" (identity-first language) over "person with autism" (person-first language)².

Social impairment does not prevent people on the spectrum from being

extremely enthusiastic for things they are interested in (e.g., weather). The role of the meteorologist, then, when they recognize that the autistic individual is having a hard time in conversation, is to guide the conversation, to find some common ground in which they may connect with the individual. If weather is of interest to the autistic, successful one-on-one mentorships can be formed, where the meteorologist provides structured interaction and opportunities for meteorology-focused learning. The Southwest Florida Weather Camp (for middle and high school students), part of the National Weather Camp Program coordinated by How The Weatherworks, is one weather/science-focused program that aims to be accessible to and inclusive of people from all learning backgrounds. Faculty there (including the author) are familiar with a number of learningaffecting conditions, including ASC, and have been successful in facilitating weather learning to individuals with ASC and other conditions over the past several years. How The Weatherworks provides after-camp mentoring and internship opportunities to interested students, some of whom over the years have been on the autism spectrum.

In closing, perhaps the most important thing to remember in interactions with autistic individuals: One autistic person is one autistic person; each is ultimately unique, with their own strengths and weaknesses. Whether one is autistic or has autism, whether it be called disorder or condition - regardless of the specific language used to define it, autism represents a unique way of thinking. It does not make one less or unworthy in some way, only different.

For more information about mentorships and the camp program, please contact Matt Bolton at matt.bolton@weatherworks.com. For more on ASC and theory of mind, please see www.mattbolton.me/blog/?p=216.

- See www.youtube.com/watch?v=BDEHjLMOhHI&t=1s for a discussion of this.
- Kenny, et al. (2016). Which terms should be used to describe autism? Perspectives from the UK autism community. Autism, 20(4), 442–462. doi:10.1177/1362361315588200 for an excellent analysis of autism reference terms.

All in a Day's Work



Janice Bunting, NWA executive director, and Leslie Chapman-Henderson, president and CEO of FLASH, being #HurricaneStrong at the NWA WeatherReady Fest in Norfolk, Virginia, in September 2016.

PROFESSIONAL DEVELOPMENT

NWA Sponsored Meetings, Conferences & Special Events in 2017

(Click titles for more information)

August 9- 10: 19th Annual High Plains Conference*

Dodge City, Kansas

September 16-21: NWA 42 Annual Meeting * Garden Grove, California (see page 9)

<u>September 16: WeatherREADYFest</u>

Garden Grove, California (see page 5)

October 25-27: FLASH Annual Conference Atlanta, Georgia

Other Meetings, Conferences & Special Events in 2017

May 7 12: Hurricane Tour

See page 5

* CEU options for Seal Holders. One CEU for full day; .5 CEU for half days

NEW NWA MEMBERS

Please welcome these members who joined the in March 2017!

William Baldwin
Eddie Bloodsworth
Christine Bristow
Samara Clarke
Todd Cook
Jaime Firster
Julius Jackson
Kaitlin Kring
Adrean Mendoza

John Misiewicz Marshall Moss Matthew Noyes Christopher Nuttall Justin Roberson Ann Roberts Christopher Roe Mark Rose Robert Royals Erin Rupinta-Ferro Valerie Sanders Michael Steinberg Meaghan Thomas Dave Vogan Cassandra Wilson Violeta Yas

Clap Your Hands Everybody and Everybody Clap Your Hands! Two More Mets Earn the NWA Seal

Justin Chambers, Publicity Chair, Broadcast Committee



Mike Taylor

Meteorologist Mike Taylor from WMAR Baltimore earned his NWA Seal. Originally from Detroit, Mike studied meteorology at Mississippi State University. He currently holds a Bachelor's Degree in meteorology, but has plans on achieving his master's degree in atmospheric science soon.

Taylor joined WMAR in June of 2015 after working in Champaign, Illinois. He likes to work on cars in his spare time and also likes to spend time outdoors.

Taylor enjoys a good IPA when the time calls for it and likes checking out local sites near the Inner Harbor of

Baltimore. He says as a kid, he was the one that always asked a bunch of questions and was really into the weather. Congratulations to Mike!

Next up, congratulations are in order for meteorologist Matt Brickman of WCCO Minneapolis. Brickman joined WCCO in 2011 and loves playing golf and eating pizza. Originally from the Northeast, he prefers winter weather to summer.



Matt Brickman

"Forecasting precip type and snow totals is still the most challenging and fun part of my job," says Brickman. "I love a good snowstorm."

If he wasn't doing weather, Brickman says he would be a movie critic. "Watching movies and getting paid to talk about them? You can't beat that. Plus, think of all the popcorn," he exclaims.

Being from New England, we asked him who his favorite player is that is NOT named Tom Brady. "Rob Gronkowski is my favorite player. He's like a Great Dane puppy."

Once again, congratulations to Mike Taylor and Matt Brickman. Well done gentlemen!

Recently Recertified NWA Seal Holders

Digital seal holder Bill Murray Broadcast seal holder Nick Walker

Click for information on recertifying

"Putting Science into Service"



The 42nd NWA Annual Meeting

Hyatt Regency Orange County

Garden Grove, California September 16 - 21, 2017



Important Dates

- Oral and Poster Presenters Notified: Early May
- Preliminary Agenda Posted On-line: Summer 2017
- NWA Annual Meeting: September 16-21

"Putting Science into Service"

Every day, operational meteorologists put their knowledge and understanding of the science of weather, climate, and related fields to work, in service to a wide variety of partners and users. They work together in a circular process chain – with researchers providing relevant study and modeling results to those creating warnings and forecasts and to those charged with clearly conveying this information to the public and other users, in order to help them make crucial weather-and climate-dependent decisions.

The needs of these users then help inform the research, and the process begins anew. Within this process, achieved through strong partnerships among all entities within the weather enterprise, operational meteorologists apply the science to solve weather- and climate-related problems, benefit society, and fulfill countless weather and climate needs.

Helpful Links

- Annual Meeting Site
- Hyatt Regency Site

Schedule of Events

- WeatherReady Fest: Saturday, September 16
- Broadcast Meteorology Workshop: Sunday, September 17
- Ninth Annual Student Session including Speed Mentoring: Sunday, September 17
- General Sessions: Monday-Thursday, September 18-21
- NWA Annual Awards Luncheon: Wednesday, September 20

Abstract Submission

The period to submit abstracts for this annual meeting is closed. The Committee is excited to have over 250 submissions to review.

Program Committee Co-Chairs

Todd Lericos NOAA National Weather Services Las Vegas, NV

Miles Muzio KBAK-TV Bakersfield, CA

Broadcaster Meteorology Workshop Program Chair Mike Goldberg WTVR-TV Richmond, VA

Click for program chair contact info

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