Stormbuster

NATIONAL WEATHER SERVICE ALBANY, NY

Volume 29, Issue 1 Spring 2023

INSIDE THIS ISSUE

NWS Albany Staff Updates

In this edition, we will share interviews with two of our departing NWS Albany Meteorologist. First, our Science Operations Office Michael Evans retired after 31 years of federal service on May 29, 2023.

When did you first become interested in Meteorology?
Like a lot of meteorologists, I became interested at a young age. I remember always hoping for snow while growing up in New Jersey. My mom got tired of me asking her when it would snow, so she gave me a NOAA weather radio for Christmas. The highly active winters of 1976-1977 and 1977-1978 followed and I was hooked.

Where did you go to college and where did you work before the NWS at Albany?
I earned a Bachelor of Science degree in Meteorology from Penn State in 1985, and a Master of Sciences degree from UAlbany in 1991. I started working at the NWS in 1992 and worked in Charleston, WV, White Lake, Michigan, State College Pa, and Binghamton NY before starting in Albany in 2017.

How many years have your worked in the NWS?
31 years

What have you enjoyed the most at the NWS Albany?
I have most enjoyed working with people who share my love of weather and are so highly motivated to create the best products and services for our coverage area.

What was the biggest challenge you had to overcome in your career?
I always felt that I have had a charmed career in that I was able to pursue my interests, advance through the organization at a reasonable pace and stay in the northeast third of the U.S. which kept me close to family. The toughest part about being a NWS employee is probably balancing shift work with family.

What will you miss the most about the NWS as you enter retirement at the end of May?
The thing that I will miss the most is the feeling of being part of a team. Especially when the weather is active and impactful, nothing beats the feeling of being on a team working to serve the public.

Continued on Page 2

What aspect of weather do you enjoy the most? What are top 3 historical weather events you recall you have worked?
My number one area of interest going back to childhood is winter storms. I still get excited and even have trouble sleeping prior to a big snowstorm, just like when I was a kid. Having said that, I have really come to appreciate all kinds of interesting weather during my career. The biggest events in my career would probably be the May 31 and June 2, 1998 severe weather / tornado events in central Pa, the flooding with tropical cyclone Lee in central NY in 2011 and the pi day blizzard in central NY in 2017.

Do you have any hobbies? What will you do in your spare time in retirement?
I play in a senior softball league, and enjoy hiking, riding my bike, skiing and going to the gym. I also love taking my daily weather observation for the CoCoRaHS weather network. I plan on doing all of those activities once I retire.

What has changed the most since the first day you entered the National Weather Service?
Just about everything has changed, although I will say that the underlying culture of the organization has stayed pretty consistent. Just like when I first started, the office culture revolves around the idea that we are doing something important, working as a team, and serving the public. Probably the biggest change is that when I first started, all of the forecasts were created by typing into a word processor, while now the forecast revolves around creation and maintenance of a digital database.

Will you still work part time or participate in some operational research in your post NWS Career?
I am planning on working part time for a forensic weather company after I retire. I have always enjoyed looking back at and studying significant weather events, and my new job will focus on collecting and analyzing data for weather cases in the private sector. I would hope that some of the things that I find while looking at these cases would be worth showing at local conferences, and I would be happy to return to some of these conferences to share my findings.

Michael Evans, Science Operations Officer

Next, we interview Meteorologist Daniel Thompson who has been promoted to Lead Forecaster at the Marquette, MI Weather Forecast Office.

When did you first become interested in Meteorology?
I remember a few thunderstorm events vividly as a kid growing up in Wisconsin. One was an F3 tornado that hit Foster, WI, about 15 miles south of where I lived, on August 27, 1994. This one occurred during the evening after dark, and I remember being pretty frightened as the Emergency Alert System interrupted the TV with the Tornado Warning. The other was a nocturnal severe windstorm that caused a lot of damage in Eau Claire, WI, where I grew up. I was pretty scared of storms as a kid, and this fear morphed into a fascination.

Where did you go to college?
Unlike a lot of meteorologists, I didn't know I wanted to go into the field from a young age. I did always know that I wanted to go to school at the University of Wisconsin–Madison. I took a Meteorology 101 class as a freshman there and then I was hooked. I earned my B.S. there in 2008, and later earned my M.S. at the University at Albany–SUNY in 2012.

In what other sectors and NWS offices did you work at before coming to NWS Albany?
In between earning my B.S. and M.S., I worked for two years at Weather Central, LLC, in Madison, WI, mostly producing weather graphics for newspapers. I also briefly worked at WeatherWorks in Hackettstown, NJ, doing a lot of forecasting for snow removal companies. I got into the NWS in 2013 as a Meteorologist Intern at the office in White Lake, MI, outside of Detroit. After 3.5 years there, I made it back to Albany as a Forecaster in 2016.

What have you enjoyed the most at NWS Albany?
I'm very fortunate to work with a lot of great people here, both within the office and with some of the partners we serve, and that's probably what I'll take away most from my time here. I also really enjoy the challenge that comes with forecasting the weather in the complex terrain of eastern New York and western New England. We get all kinds of hazardous weather here, and forecasting for this area and trying to effectively communicate information in an actionable way is very challenging but also rewarding.

Continued on Page 3

NWS Albany Staff Update (cont'd)

What are you looking forward to as you start your new career at NWS Marquette, MI?
I am looking forward to getting to know a totally new area, both in terms of its weather patterns and the people I will help to serve. There are a lot of remote areas and a lot of outdoor recreationists in the Upper Peninsula, both of which present challenges in carrying out the NWS mission to protect lives and property. There is also a significant marine forecasting responsibility for shipping interests on the open waters of Lake Superior. I am also looking forward to meeting new coworkers and seeing how things are done in a new office.

What will you miss the most about the NWS Albany?
I will miss my colleagues the most, as well as our brand new office in the ETEC building, where I can look out the window and see the Catskills and have informal chats with friends from the university in the halls. It is a really great and unique work environment that we are lucky to have.

What aspect of weather do you enjoy the most? What are your top 3 most memorable weather events you have worked at NWS Albany?
Severe thunderstorms are the most interesting type of weather to me, and I think working severe thunderstorm events is when we meteorologists are most valuable in protecting lives and property. I also enjoy the anticipation that comes with the potential for a big snowstorm. Top 3 weather events:
1) May 15, 2018 severe weather event. There were several supercells producing hail up to baseball size and tornadoes in the Mid-Hudson Valley and northwest Connecticut, as well as a devastating macroburst along the I-84 corridor. I was one of the warning decision forecasters on this day, and it was the event with the worst storms that I have worked in my career thus far.
2) March 14, 2017 Pi Day Blizzard. This one was very memorable as it was the first blockbuster Nor'easter that I experienced as a forecaster. I remember the models shifting the focus of the heaviest snow from near New York City to the Capital District in the days leading up to the event, and being part of the team that issued a rare Blizzard Warning.
3) August 4, 2020 Tropical Storm Isaias. Even though we've had several tropical systems impact this area over the last few years, it's still somewhat rare, and working them is a completely different beast compared with the more "typical" types of extreme weather that we get. I was working a stretch of 7 straight midnight shifts leading up to this event, and it was challenging and exciting to forecast and communicate the heavy rain and wind hazards associated with Isaias. I also ended up with a bunch of water in my basement from the 5" of rain we got in Albany.

What are some of your hobbies? Do you plan to take up new hobbies as you settle into the Upper Peninsula of Michigan?
I have enjoyed hiking and backpacking in the mountains of the Northeast, and I expect to continue that in the UP. It snows about 200" at the NWS office near Marquette, so I plan to get into cross country and downhill skiing. I also plan to go to more Badger, Packer, and Brewer games now that I will be back within driving distance of Madison, Green Bay, and Milwaukee.

Since you have been promoted to a Lead Forecaster, what qualities are most important for this role?
It's in the name - to be a good lead forecaster, you have to be a good leader. It's important to act with integrity and be a positive role model, and to know what to do when things aren't going according to plan. I'm fortunate to have worked with some great lead forecasters at White Lake and Albany, so I will try to emulate some of their qualities.

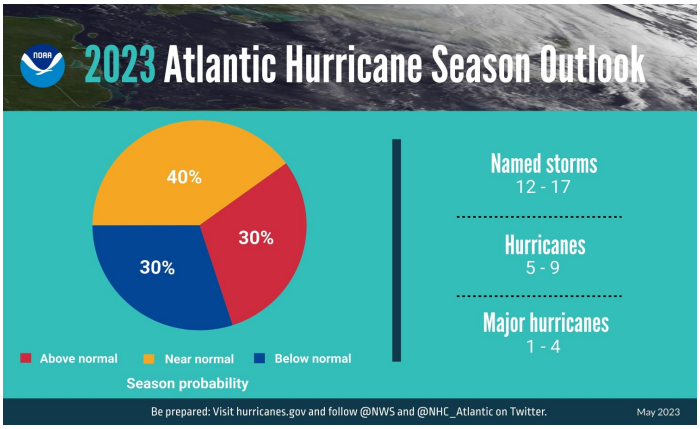
What are your future career aspirations in the NWS?
In the near term, I just want to figure out how I can best contribute to the team in my new office. Further down the road, I would like to become a Science Operations Officer.

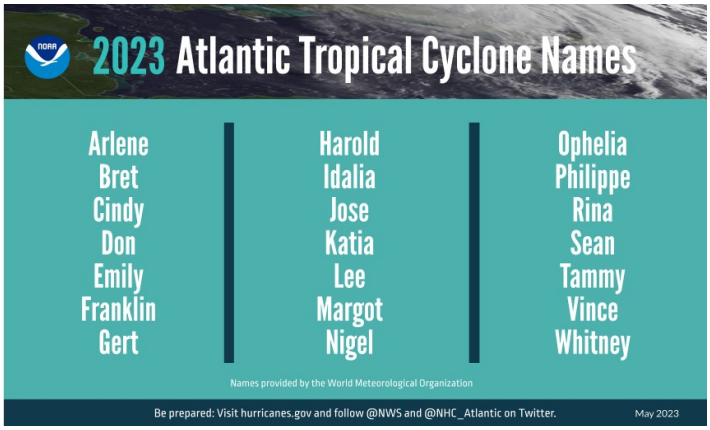
-Daniel Thompson, Meteorologist

2023 Hurricane Season Outlook– NOAA Press Release

NOAA's Hurricane Season Outlook was released on May 25, 2025 by the Climate Prediction Center - a division of the National Weather Service.

Here's the big picture:

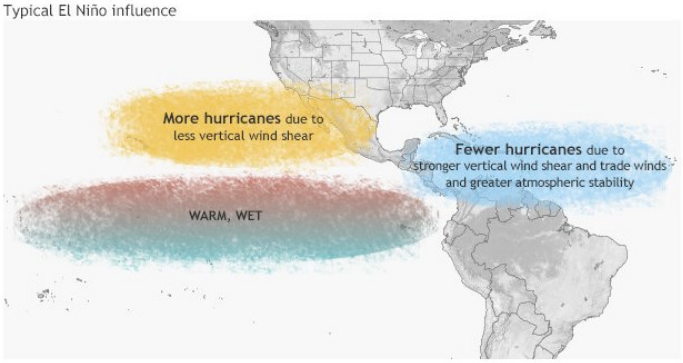




NOAA forecasters with the Climate Prediction Center, a division of the National Weather Service, predicts near-normal hurricane activity in the Atlantic this year. NOAA's outlook for the 2023 Atlantic hurricane season, which goes from June 1 to November 30, predicts a 40% chance of a near-normal season, a 30% chance of an above-normal season and a 30% chance of a below-normal season.

NOAA is forecasting a range of 12 to 17 total named storms (winds of 39 mph or higher). Of those, 5 to 9 could become hurricanes (winds of 74 mph or higher), including 1 to 4 major hurricanes (category 3, 4 or 5; with winds of 111 mph or higher). NOAA has a 70% confidence in these ranges.

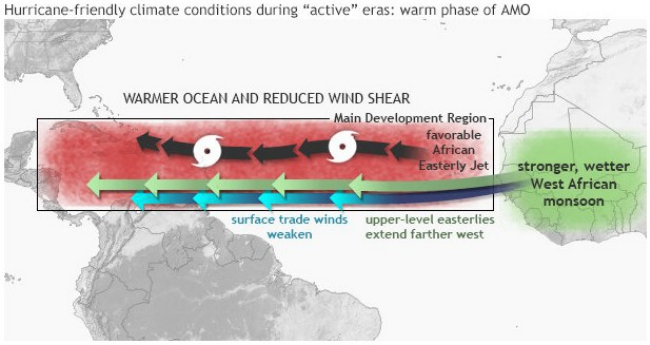
Typical El Niño influence



Typical influence of El Niño on Pacific and Atlantic seasonal hurricane activity. Map by NOAA Climate.gov, based on originals by Gerry Bell.

After three hurricane seasons with La Nina present, NOAA scientists predict a high potential for El Nino to develop this summer, which can suppress Atlantic hurricane activity. El Nino's potential influence on storm development could be offset by favorable conditions local to the tropical Atlantic Basin. Those conditions include the potential for an above-normal west African monsoon, which produces African easterly waves and seeds some of the stronger and longer-lived Atlantic storms, and warmer-than-normal sea surface temperatures in the tropical Atlantic Ocean and Caribbean Sea which creates more energy to fuel storm development. These factors are part of the longer term variability in Atlantic atmospheric and oceanic conditions that are conducive to hurricane development — known as the high-activity era for Atlantic hurricanes — which have been producing more active Atlantic hurricane seasons since 1995.

Hurricane-friendly climate conditions during "active" eras: warm phase of AMO



Climate patterns associated with the warm phase of the Atlantic Multi-decadal Oscillation (AMO). Map by NOAA Climate.gov, based on originals by Gerry Bell.

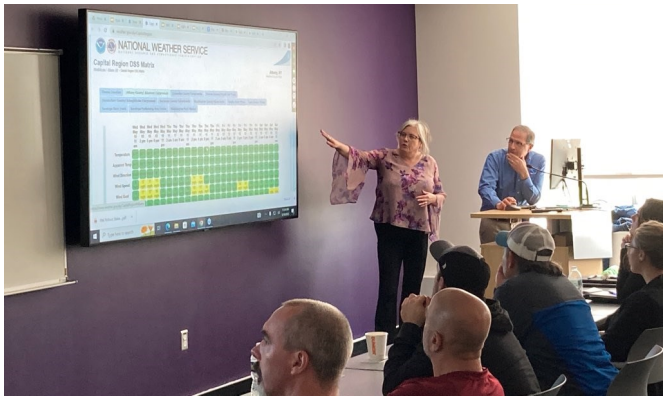
There is a focus on El Niño-Southern Oscillation (ENSO) when making seasonal outlooks, including the hurricane season outlook, as it is one of the most important climate phenomena on Earth due to its ability to change the global atmospheric circulation. ENSO's arrival can often be predicted many seasons in advance of its strongest impacts on weather and climate. La Niña is a cooling of the ocean surface, or below-average sea surface temperatures, in the central and eastern tropical Pacific Ocean. El Niño is a warming of the ocean surface, or above-average sea surface temperatures, in the central and eastern tropical Pacific Ocean.

-Christina Speciale, Meteorologist

NWS Albany Integrated Warning Team Meeting

Nearly 50 partners attended NWS Albany's first in-person Integrated Warning Team (IWT) meeting since the COVID-19 pandemic on May 10, 2023 in the new ETEC building. This presented us with an exciting opportunity to meet face to face with partners we have not seen in over three years and meet new ones as well. Impressively, an additional 50 partners attended our meeting virtually. Broadcaster media meteorologists, county emergency managers, hydroelectric and utility partners and representatives from New York State Division of Homeland Security and Emergency Services representatives and FEMA Region II were all in attendance and provided us with the opportunity to speak with a diverse group in one setting and receive feedback on our products and services.

The NWS Albany staff prepared presentations on the upcoming Flood Inundation Mapping products, Slack, extreme heat, severe weather, a review of the recent winter season, and our deployment experience at the World University Games. During the severe weather session, we had a great discussion about the Wireless Emergency Alerts and offered clarifications on which warnings are automatically disseminated to cell phones and which are not. Following the meeting, we sent our partners a one-pager (see below) developed by the WFO Duluth WCM to ensure our partners were clear on which warnings are disseminated to cell phones. We concluded the meeting with a tour of the new NWS Albany operations area, the science on the sphere located on the first floor of the building and even a tour of the observation deck at the top of the ETEC building.



Wireless Emergency Alerts & Impact-Based Warnings

Albany, NY
WEATHER FORECAST OFFICE

Warning Type	Tag Selection Notes	Wireless Emergency Alert?
Tornado with no tag		Yes
Tornado with Considerable tag	Should only be selected when reports and/or radar signatures give high confidence for the presence of a possibly strong or violent tornado occuring in a supportive environment	Yes
Tornado with Catastrophic tag	Tornado is 100% confirmed AND destructive tornado/catastrophic potential **Use of Tornado Emergency Should Be A Consensus Team Decision**	Yes (Emergency Language)
Severe Thunderstorm with no tag	Wind ≥ 58 MPH and/or Hail ≥ 1.00" (US quarter)	No
Severe Thunderstorm with Considerable tag	Wind ≥ 70 MPH and/or Hail ≥ 1.75" (golf ball)	No
Severe Thunderstorm with Destructive tag	Wind ≥ 80 MPH and/or Hail ≥ 2.75" (baseball)	Yes
Flash Flood with no tag		No
Flash Flood with Considerable tag	Use rarely, when there are indications flash flooding capable of unusual severity or impact is imminent or ongoing and urgent action is needed to protect lives and property.	Yes
Flash Flood with Catastrophic tag	Exceedingly rare, violent flash floods which threaten lives and cause disastrous damage when floodwaters are placing or will place people in life-threatening situations by rapidly rising to levels rarely, if ever, seen. **Use of Flash Flood Emergency Should Be A Consensus Team Decision**	Yes (Emergency Language)

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- Christina Speciale, Meteorologist

Three-Body Scatter Spikes—Use in Severe Weather

National Weather Service meteorologists can use a "Three-Body Scatter Spike" (TBSS) radar signature when issuing a potential severe thunderstorm warning for large hail. The TBSS is sometimes called a hail spike. A TBSS showing up on a radar display nearly always indicates severe thunderstorm hail greater than or equal to three quarters of an inch in diameter. It is typically identified by a spike of weak reflectivity echoes extending out from a thunderstorms' strong reflectivity core away from a radar location.

The TBSS or hail spike occurs from the scattering of radiation. The spike results from the microwave energy of the radar striking the hail and being deflected to the ground. The energy reflects from the ground back to the wet hail, and then finally returns to the radar. These three scatterings produce the triple reflection. The radar beam energy hitting the ground at least once, and the hail many times, then results in a weaker return echo than the initial radar energy that went from the radar to the hail, and back to the radar. The hail spike results due to the energy taking more time to go from the hail to the ground and back, in contrast to the energy that went from the hail to the radar. Simply, this radar artifact is caused by the radar beam hitting the wet hail, scattering to the ground below, then scattering back upward into the sky, and finally being scattered by the hail aloft. Figure 1 is a schematic of the TBSS. A TBSS only appears at the height levels aloft that accompany the most intense hail. Hail cores are most intense typically at higher radar elevation heights.

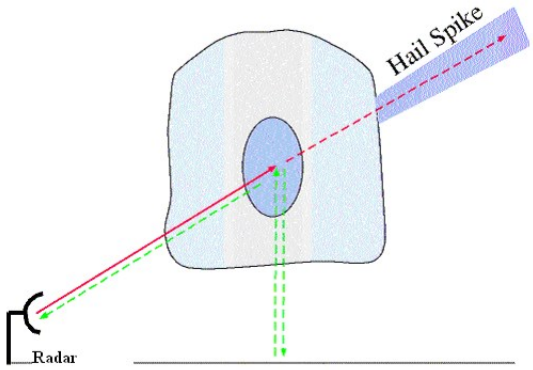


Figure 1: A diagram of a three-body scatter spike (courtesy of Lyndon St. College, VT - http://apollo.lsc.vsc.edu)

About 15 years ago back on June 16, 2008, a devastating large hail-producing thunderstorms struck portions of upstate New York. There was over 16 million dollars worth of agricultural damage to orchards in Ulster county, and over a half million dollars in Dutchess county. A great example of a TBSS occurred on the Albany (KENX) radar over western Dutchess County. The storm was located north of Poughkeepsie near the Hyde Park area at 2146 UTC or 546 pm EDT (Fig. 2). The KENX radar is located northwest of the hail core and its associated TBSS. The TBSS showed up on the 0.5°, 0.9° and 1.3° radar elevation angles (between 5-12 kft AGL). A severe thunderstorm warning was issued 15 minutes earlier mentioning the potential of golf ball size hail. The TBSS increased forecaster confidence that large hail was ongoing. A tornado warning was also issued at 548 pm EDT based on the reflectivity and storm-relative velocity radar data for a potential tornado. No tornado was confirmed. However, golf-ball size hail was reported at Hyde Park at 555 pm EDT. A picture of the golf-ball size hail is shown in Figure 3.

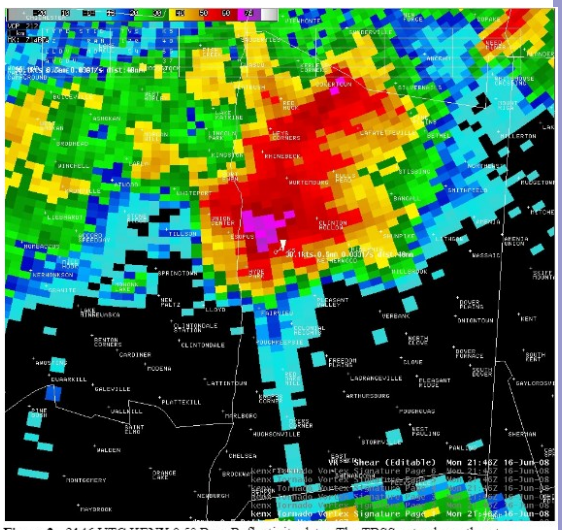


Figure 2: 2146 UTC KENX 0.5° Base Reflectivity data. The TBSS extends southeast from the 65-75 dBZ reflectivity core. The KENX radar is located northwest of the TBSS.

Figure 3: Golf-ball size hail from Hyde Park Cooperative Observer

Hail spikes or TBBS's are artifacts on the radar that are helpful indications of large, damaging hail for operational meteorologists issuing severe thunderstorm or tornado warnings (in tornado warnings large hail can be mentioned). Forecaster confidence increases for the potential of large hail ≥ three quarters of an inch in diameter, when a TBSS shows up on a WSR-88D radar.

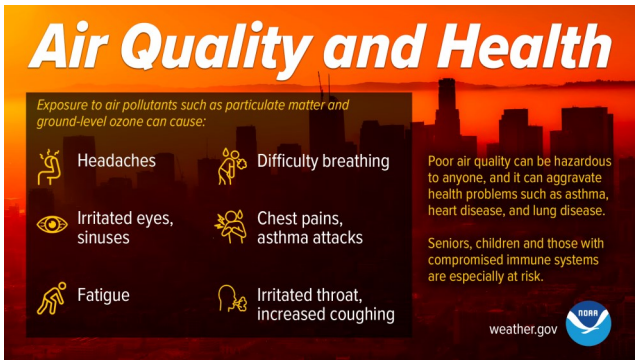
- Tom Wasula, Lead Meteorologist

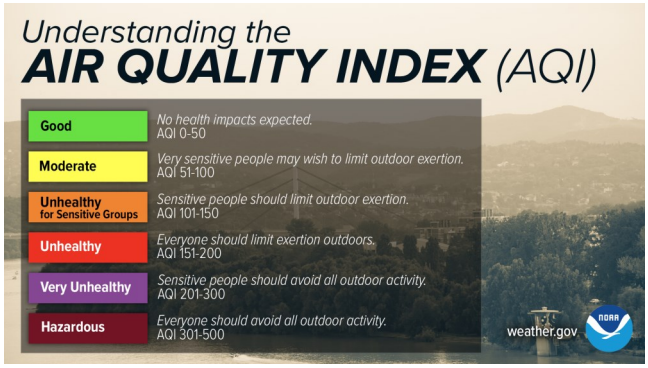
National Weather Service Infographics and Summer Safety

The National Weather Service has a library of social media safety infographics organized by season: Winter, Spring, Summer and Fall: weather.gov/wrn/Infographics These infographics are courtesy of the National Weather Service Communications Division and have been developed to help build a Weather-Ready Nation. NOAA's Weather–Ready Nation is about readying communities for extreme weather, water, and climate events. These infographics are part of that and are here to use to spread the word about weather safety.

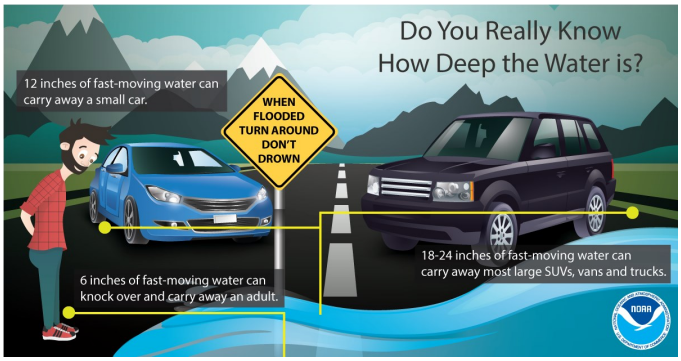
Here are some examples for the summer:

Air Quality:

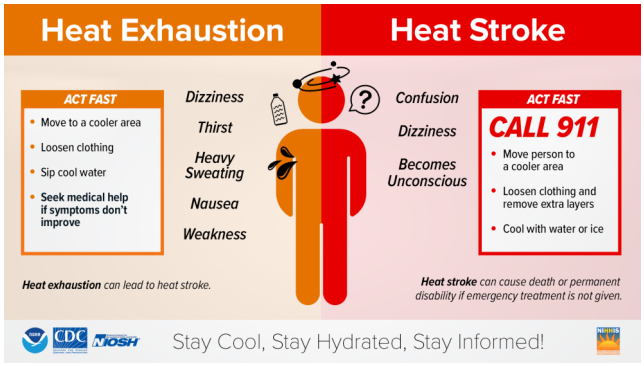




Flooding:



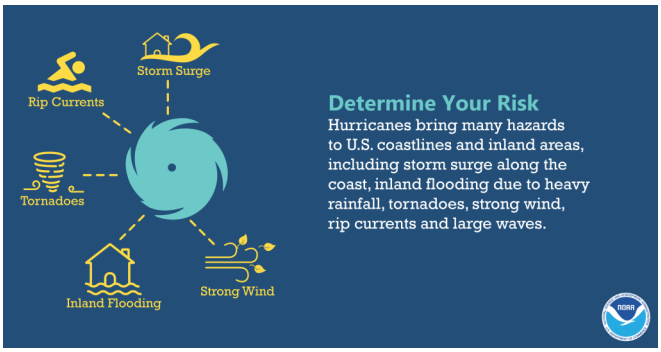
Heat:



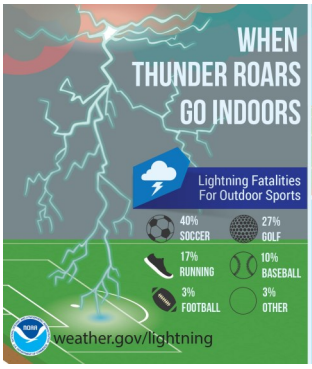
Ingrid Amberger - Lead Meteorologist

National Weather Service Infographics and Summer Safety

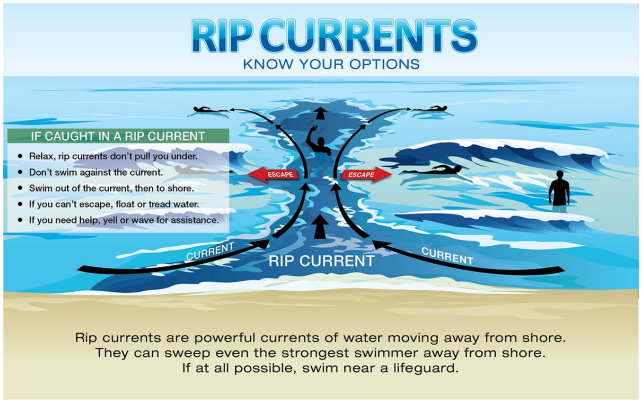
Hurricanes:



Lightning:



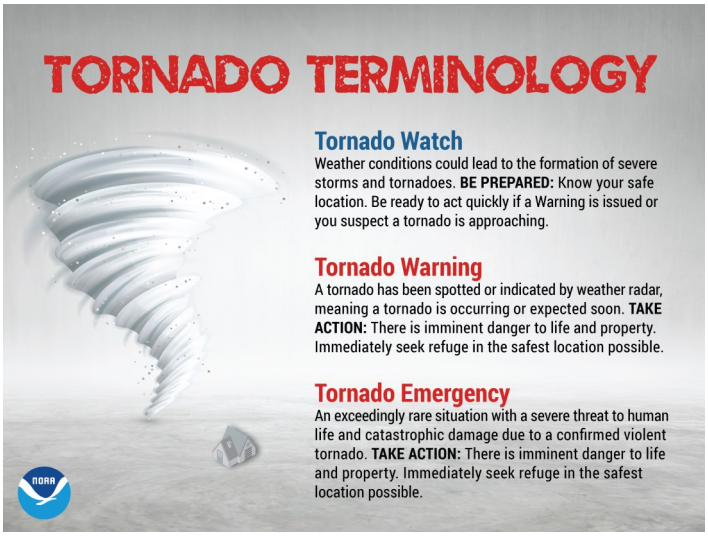
Going to the Ocean? Rip Currents:

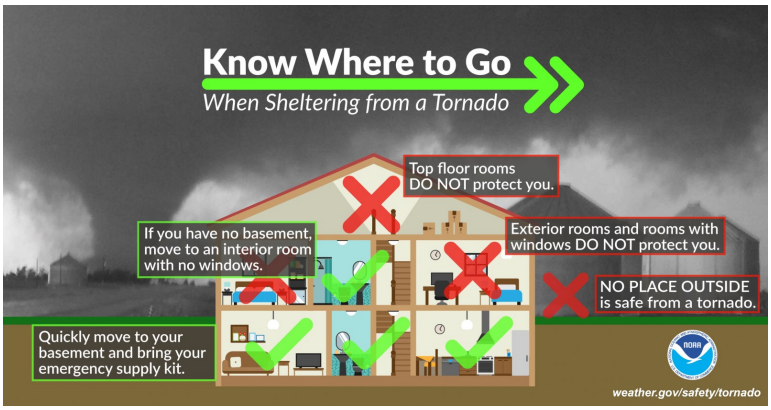


Ingrid Amberger - Lead Meteorologist

National Weather Service Infographics and Summer Safety

Tornado:





Wildfire / Fire Weather:

Word Search

Severe Weather

D G D Y T G F T O F O R Y S N U Z B A R
W U B L R G E H Y K M F V I Z N H Z L F
E S W E C E N Q A M G D P P S E D N N L
U T C U M U L O N I M B U S Q T T L P A
O N M M I W K Q C F L C T W T H O W U S
E A F C X H A H T B U L U X O V R K Y H
I D P R H V S L X A S N B X H O N O Y F
X O P K U F K Q L M I A N G X E A I O L
A K D O V C C M U C E Y U E U R D A M O
D I P Z P E L W H A L E Q M L K O R M O
E L R C S H E L F C L O U D L C D L L D
R W T I O K D K Q O K L U E W U L L K B
E V A M A M M A T U S H L D X B G O B P
C E X X N Y C M X I Q H R I L N E H U X
H E C M A C R O B U R S T O N Q G R C D
O K B M U P D R A F T R W B U E V W X V
D S W B H L Y L K E W Y X E G N O E G L
H Y P G M A N V I L P K S Q B C E N P H
E V G O F M I C R O B U R S T T L A F K
P J R H S G W U T L R C S W I V H I J R

Cumulonimbus
Macroburst
Mammatus
Gustnado
Derecho
Funnel Cloud
Shelf Cloud
Flash Flood
Updraft
Microburst
Squall line
Wall Cloud
Tornado
Anvil
Hail

- Thomas Wasula, Lead Meteorologist

Word Scramble

Tropical Weather

NARHERICU _____

OYNCELC _____

POTOYNH _____

EAELWYL _____

SOTRM GSUER _____

NNSOMOO _____

SCTPOIRALBU OIERNPSSED _____

LICORPTA VWEA _____

RAMENTN OWL _____

LFNALADL _____

- Thomas Wasula, Lead Meteorologist

Word Search Answer Key

Severe Weather

Cumulonimbus
Macroburst
Mammatus
Gustnado
Derecho
Funnel Cloud
Shelf Cloud
Flash Flood
Updraft
Microburst
Squall line
Wall Cloud
Tornado
Anvil
Hail

- Thomas Wasula, Lead Meteorologist

Word Scramble Answer Key

Tropical Weather

NARHERICU	HURRICANE
OYNCELC	CYCLONE
POTOYNH	TYPHOON
EAELWYL	EYEWALL
SOTRM GSUER	STORM SURGE
NNSOMOO	MONSOON
SCTPOIRALBU OIERNPSSED	SUBTROPICAL DEPRESSION
LICORPTA VWEA	TROPICAL WAVE
RAMENTN OWL	REMNANT LOW
LFNALADL	LANDFALL

- Thomas Wasula, Lead Meteorologist

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