

Stormbuster

NATIONAL WEATHER SERVICE ALBANY, NY



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Spring 2021

Meet a Meteorologist

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Welcome to “Meet a Meteorologist!” This is where you will get to know fun facts about one of our Meteorologists. In this edition, we introduce one of our Meteorologists, Mike Main, who comes to us from Connecticut.

When did you first become interested in Meteorology?

Like many meteorologists, I have been interested in the weather since I was in elementary school. Growing up, I was always fascinated by the weather, and I was especially interested in extreme weather such as snowstorms, thunderstorms, and hurricanes. As I got older, I was still fascinated by weather, and I knew that I was going to study meteorology in college. However, one event that showed me how important it is to accurately forecast the weather was the snowstorm that hit the Northeast in late October of 2011. My family received around 18 inches of wet, heavy snow that brought down trees and power lines, and we lost power for 10 days. Seeing the impact that this storm had on my community helped me realize the importance of providing accurate weather forecasts to allow people to prepare for extreme weather events.

Where did you go to college and where did you work before the NWS at Albany?

I received both my B.S. and M.S. degrees from SUNY Albany. During my junior year, I was fortunate enough to have the opportunity to intern with NWS Albany as a student volunteer. This internship taught me a lot about how the National Weather Service operates and what is included in the job description of an NWS meteorologist. I also interned with the National Weather Service in Huntsville, Alabama for a summer where I worked on a research project to help with understanding of environments that can produce severe thunderstorms. These two internships played an important role in preparing me for my role as a full-time meteorologist with NWS Albany. Finally, during many of the summers when I was in college, I worked with the maintenance department as a landscaper at my high school. At my landscaping job, I provided unofficial weather forecasts to my bosses. This helped me understand how to communicate weather information in a way that was useful to people who had to make important personnel and economic decisions.

What do you enjoy most about coming to NY (from CT)?

One of my favorite things about living in upstate NY is that there are plenty of places to spend time outdoors. I enjoy hiking, so I love that Thatcher Park is nearby. It also nice being able to make a day trip out to the Catskills or Adirondacks. Another thing I like about Albany is that there are many more restaurants within reasonable driving distance compared to where I grew up in Connecticut. As someone who loves food, I am excited to continue exploring the various local restaurants Albany has to offer.



Continued on Page 2

What will you miss the most about Connecticut?

The thing I will miss the most about CT is being close to my family and friends. But Albany is less than 2 hours away from where I grew up, so I am still able to make trips back home when I have time off from work. I am thankful that I am still close enough to my family that I can go and visit whenever I want.

What aspect of weather do you enjoy the most? Any favorite storms or historical weather events?

I enjoy studying and learning about extreme weather (and experiencing it too)! Snowstorms and thunderstorms are probably the two types of weather that I find most interesting. Growing up in CT and going to college in Albany, I experienced many memorable snowstorms, but the biggest was the blizzard in February 2013. Twenty-nine inches of snow fell at my house during that storm, and most of it occurred in less than 24 hours. It was really cool waking up the next morning and seeing everything completely buried in snow. The October 2011 snowstorm, as I mentioned earlier, was another event that had a big impact on me.

Do you have any hobbies? What do you like to do in your spare time?

I enjoy any activity that includes spending time outdoors. During my free time, I like to play golf and go for bike rides. I also love hiking, especially during fall when the weather turns cooler and the leaves change color. My girlfriend and I also enjoy going out to eat and trying new restaurants.

What are you most excited about working for the National Weather Service?

I am excited to be a part of NOAA and the NWS and to contribute to the lifesaving information that they routinely provide to partners and to the general public. Being able to study something I love while at the same time providing information that can help save lives and property is a dream come true for me. The meteorologists who work for the NWS are some of the best in the world at what they do, and I am grateful to have the opportunity to learn from them. Last but not least, I am looking forward to working with the Atmospheric Science department at SUNY Albany to conduct research to improve our ability to forecast the weather. I know many of the faculty and staff in the department from my time as a student at SUNY Albany, and I think having these connections will prove beneficial in terms of collaborating on research that could potentially help us to better predict the weather.

What are your career goals/hope to accomplish in the National Weather Service?

As an NWS meteorologist, I first hope to build connections with our partners and with the community since these are the people who benefit most from our forecasts. I also look forward to participating in research that will help us to better understand and predict the weather. While I may not know exactly what my career path will look like 5, 10, or 50 years down the road, every day I try to learn something new and try to get better at my job than I was the day before.

- Mike Main, Meteorologist

Spring Skywarn Safety Training Sessions

Your Albany National Weather Service, along with our state and county partners, are excited to announce our spring/summer Skywarn Safety Training Sessions. To adhere with our health and safety guidelines, all sessions will be conducted virtually. These interactive sessions will teach you more about our Weather-Ready Nation initiative, how to measure snow and ice, ways to communicate your observations back to the forecast office and several unique case studies from recent notable high-impact winter weather events. To register for these free sessions, please visit <https://www.weather.gov/aly/skywarn> and select a date convenient for you. Additional classes may be added over the next several weeks so check back often. Announcements will also be made on social media through [Facebook](#) and [Twitter](#).

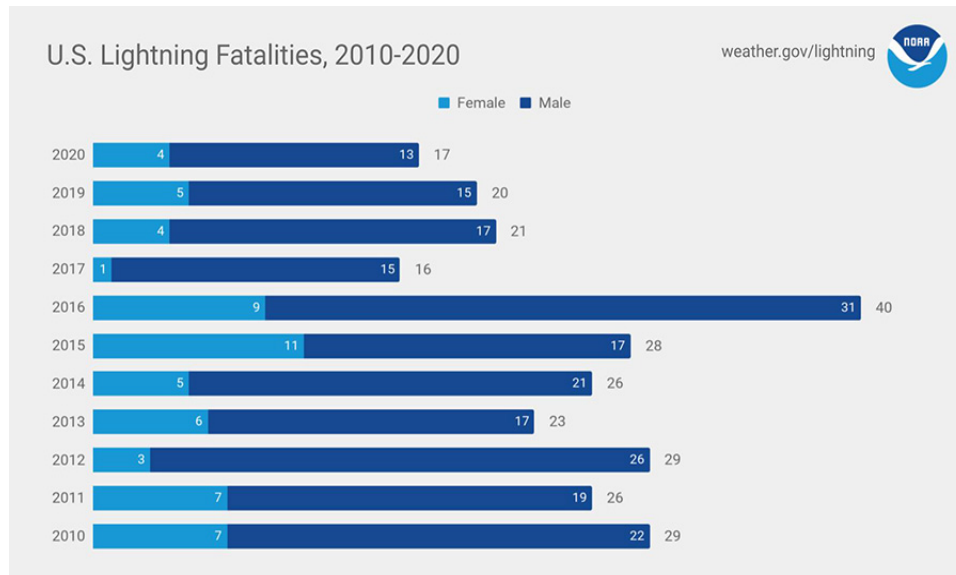


-Brian Montgomery, Lead Meteorologist



Lightning: Statistics and Facts

Thunderstorms produce 20-25 million flashes that strike the ground each year in the United States. About 10% of people who are struck by lightning are killed. From 2006 through 2019, 418 people were struck and killed by lightning in the United States.



Ways lightning can strike people:

- ◆ Direct strike is when a person is struck directly by lightning becoming a part of the main lightning discharge channel.
- ◆ Side flash occurs when lightning strikes a taller object near the victim and a portion of the current jumps from taller object to the victim.
- ◆ Ground current is when a lightning strikes a tree or other object, much of the energy travels outward from the strike in and along the ground surface.
- ◆ Conduction: Lightning can travel long distances in wires or other metal surfaces. Metal does not attract lightning, but it provides a path for the lightning to follow.

The Science Behind Lightning: <https://www.youtube.com/watch?v=Zd-Lc1cZDtA>

Lightning activity occurs throughout the year with a peak during the summer months. More than 70% of deaths from 2006 through 2019 occurred during June, July and August (Figure 1). Lightning deaths occurred on all days of the week however Saturday has had the greatest number of fatalities (Figure 2).



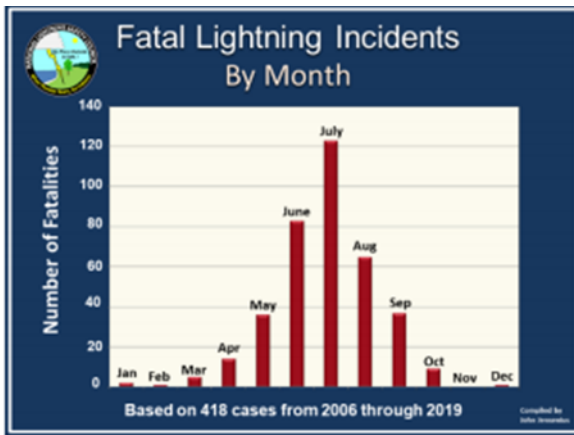


Figure 1

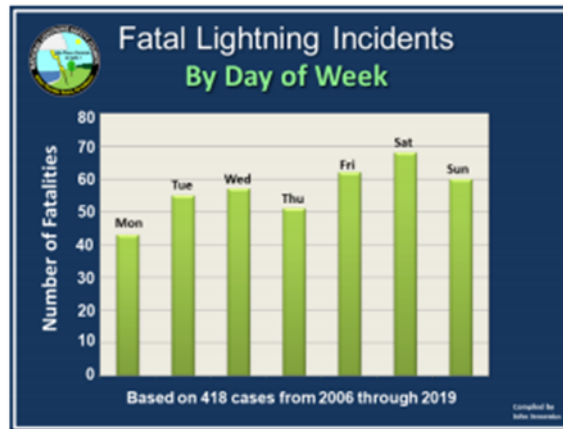


Figure 2

Males constituted most of the lightning deaths from 2006 through 2019 (Figure 3). This has been fairly consistent with males accounting for a low of 62% in 2015 and high of 94% in 2017. The most lightning deaths have occurred to males in their 20s (Figure 4).

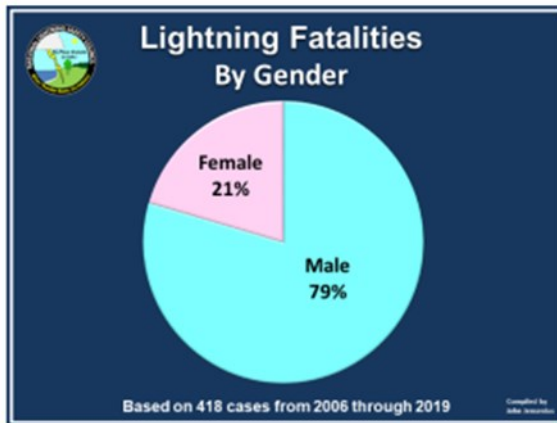


Figure 3

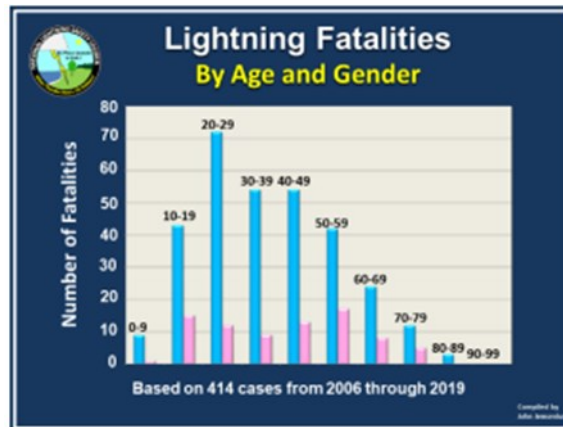


Figure 4

Leisure activities accounted for 62% of the overall deaths from 2006 through 2019. Of the leisure activities, 35% of the deaths occurred while the people were involved in water-related activities (Figure 5) with most of those fishing-related (Figure 6).

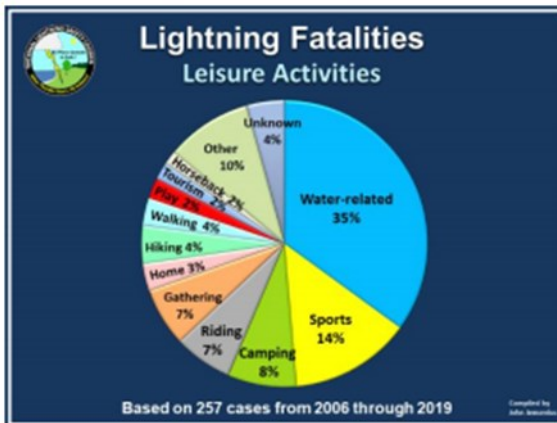


Figure 5

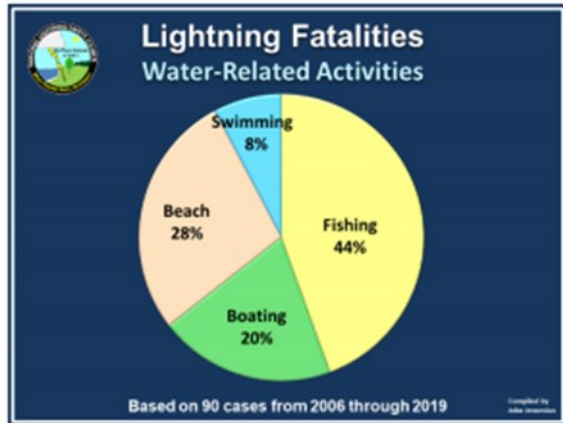


Figure 6

Activities that would be considered routine contributed to 16% of the overall of the lightning deaths with 24% of those occurring to people who were heading to/from or waiting for a vehicle and walking to/from home (Figure 7). Females accounted for a third of routine deaths (Figure 8).

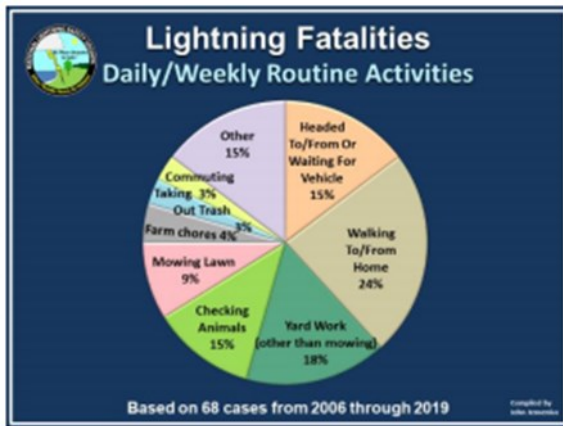


Figure 7

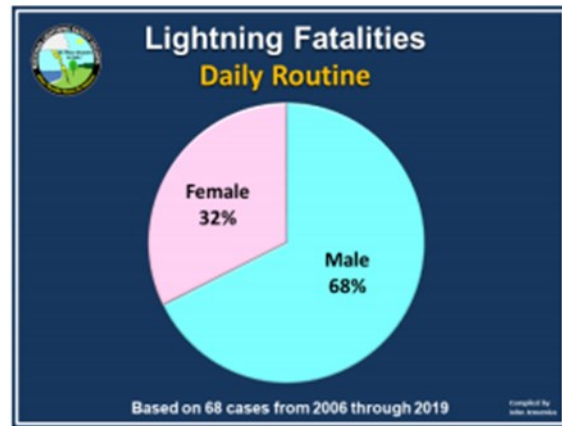


Figure 8

Work-related activities accounted for 18% of the overall of the lightning deaths with a quarter of those occurring to people while they were farming or ranching (Figure 9). Males accounted for 90% of work-related deaths (Figure 10).

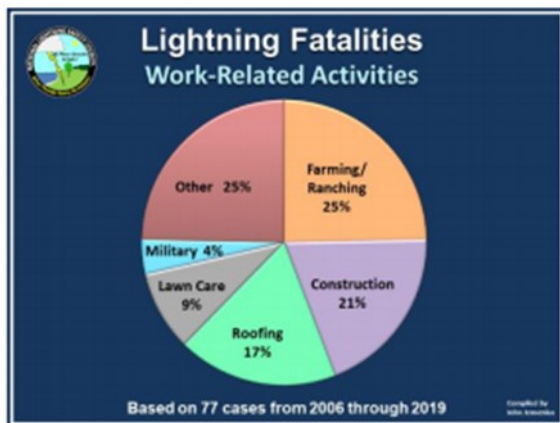


Figure 9

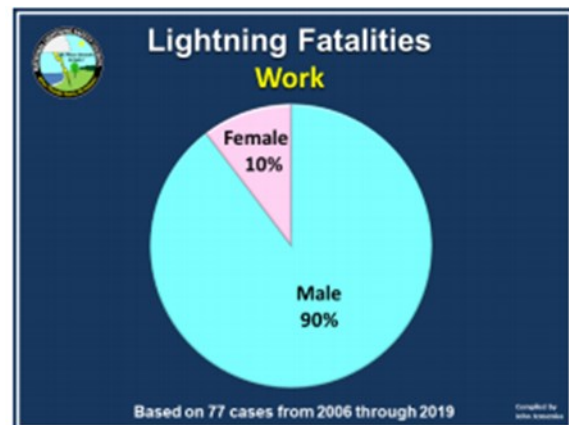


Figure 10

Being outdoors any time when a thunderstorm is in the area is dangerous. If you hear thunder, lightning is close enough to strike you. The willingness to cancel or postpone activities, being aware of an approaching and/or developing storm, and the ability and willingness to get to a safe place quickly all contribute to lightning deaths and injuries. Situational awareness and planning are essential to safety. Check the forecast before you head out: weather.gov.

Outdoor Lightning Safety: <https://www.youtube.com/watch?v=p4V1eFa1vxw>

Sources:

A Detailed Analysis of Lightning Deaths in the United States from 2006 through 2019 by John S. Jensenius, Jr. Lightning Safety Specialist / National Lightning Safety Council February 2020

National Weather Service: Weather-Ready Nation: weather.gov/wrn
 Safety: weather.gov/safety

- Ingrid Amberger, Lead Meteorologist

The New York State Mesonet: What is it and How Does it Benefit Weather Predictions?

Launched in 2014, the New York State Mesonet consists of 126 sophisticated weather stations. At least one station is located in every county of the Empire State and one in every borough of New York City. Each station updates every five minutes, displaying the latest temperature, dew point, relative humidity, wind speed, wind gust, solar radiation, soil temperature, and snow depth measurement. One of the most popular features of each station is a web camera that takes a still image every five minutes. These images are very useful to meteorologists as it can show what type of precipitation is falling and, since the camera is pointed at a ruler, it can show how much snow is on the ground. In case of severe weather, the camera image tells us if the sky looks ominous and, in some instances, if any trees have fallen as a result of strong thunderstorms. Data over the last 24 hours is freely available online from any of the mesonet weather stations and can be viewed at www.nysmesonet.org. A slew of state maps are also available that show how weather currently varies across the state in addition to a variety of summary maps. Examples include the total amount of precipitation over various time increments, maximum and minimum temperatures and even maximum wind gusts.

One may wonder why New York needs such a network of weather stations when many airports across the state already report weather observations every five minutes not to mention the network of Cooperative Weather Stations and even CoCoRaHS sites. The answer is rather simple: we do not receive weather data everywhere. Many areas of New York are data sparse which means meteorologists may struggle to ascertain current weather conditions, especially in remote areas of the Adirondacks and Catskills. For example, during early spring snow melt, if we do not know how much snow is on the ground or how temperatures change with elevation, it becomes difficult to predict if flooding will occur and to what severity. In cases of severe weather, if an organized squall line is approaching, meteorologists need to know if thunderstorms are producing wind gusts capable of damage to make warning decisions. When meteorologists know what is happening, we can communicate our forecasts more confidently, concisely and clearly. The New York State Mesonet improves our understanding of current weather conditions tremendously and therefore assists our ability to prepare New York for any type of hazardous weather that Mother Nature may throw our way. To learn more about the New York Mesonet, check out this [video](#).



Figure 1: A look from the web camera at one of the New York State Mesonet sites in the Catskills

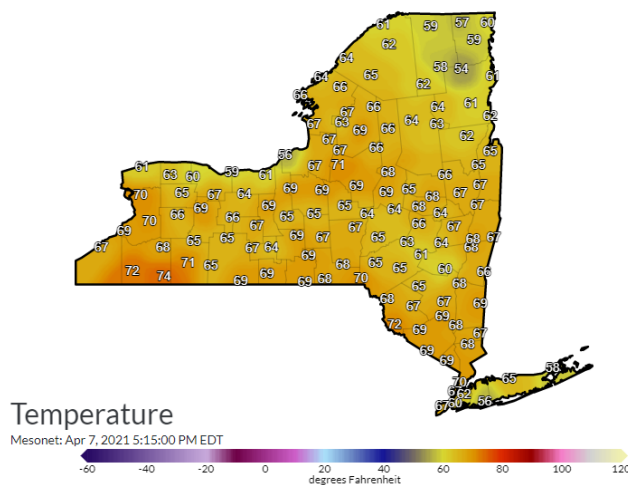


Figure 2: State summary of current temperatures on a warm spring day. www.nysmesonet.org



Record Breaking 2020 Tornado Season across Eastern NY and Western New England

(source(s)): NOAA/NCEI Storm Data and NWS at Albany Public Information Statements)

The National Weather Service (NWS) at Albany forecast area includes east-central New York (NY) and western New England (southern Vermont, the Berkshires of western Massachusetts (MA), and Litchfield County in northwest Connecticut (CT). A total of 14 tornadoes occurred between May 1st and December 31st in 2020 in the NWS at Albany forecast area. This was a record for a season for the Albany forecast area.

There were two tornadoes that occurred in eastern NY last May. One occurred in Saratoga County on May 15th and the other occurred in Warren County on May 29th. Both of the tornadoes were rated EF-1's from the NWS at Albany damage surveys. A total of 11 tornadoes occurred in August across eastern NY and western New England. Four tornadoes occurred on August 2nd impacting western New England. Three tornadoes occurred in Litchfield County in northwest CT, two EF-0's and 1 EF-1. Another tornado touched down in extreme southeast Berkshire County in western MA and was rated an EF-0. Less than a week later, an EF-1 tornado occurred in Argyle, Washington County in eastern NY with the majority of the damage from up-rooted and snapped trees. A little more than two weeks later a pair of significant tornado events would impact the Albany forecast area with three tornadoes on each day. On August 27th a brief EF-1 tornado touchdown would occur in the eastern Catskills in Greene County. Two separate tornadoes would occur later that afternoon in Litchfield County, CT with two brief EF-0's. On August 29th, two EF-1 tornadoes would occur in the Greater Capital Region in southeast Saratoga and northern Rensselaer Counties. The southeast Saratoga County tornado touchdown in Stillwater. It had a narrow path width and was on the ground for about a quarter of a mile. The EF-1 tornado peaked with maximum winds estimated at 100 mph with mostly tree damage occurring. The tornado was viewed by a spotter in southern Washington County looking west (Fig. 1). The northern Rensselaer County tornado impacted Schaghticoke with damage to the roof of a home and destroying a shed behind the house, and also producing structural and roof damage to a school. Estimated winds from this high end EF-1 tornado would be 110 mph. In the late afternoon, a brief touchdown with another tornado that day would occur in Hartman, northern Saratoga County producing tree damage and some trees falling on a home. The serial derecho on October 7th would produce widespread wind damage across eastern NY and western New England with over 100 wind damage reports. An EF-0 tornado would briefly touchdown in the village of Canajoharie in Montgomery County. The EF-0 had maximum estimated wind speeds of 85 mph with a path width of 20 yards and a path length of 75 yards. A barn was almost entirely destroyed with metal siding dispersed around the property. The tornado was a brief touchdown only one downed tree too. It spun up along the squall line or quasi-linear convective system. October tornadoes are super rare, as this was only the second recorded in the Albany forecast area since 1980! All the tornadoes this warm season would not result in any fatalities.

The Albany forecast area averages about three tornado events each year based on a tornado climatology mean period from 1950-2020. An analysis since 1980 shows that the 3 greatest seasons annually in the Albany County Warning Area (CWA) occurred in 1992, 2003 and 2020 (Fig. 2). In the past, multiple reports of the same tornado are entered separately in Storm Data which can cause a higher number (i.e. 2003) of total reports. The 2020 season consisted of all separate tornadoes (14). The peak month(s) for tornadoes since 1980 across eastern NY and western New England are usually in May and July (31 each), but August is steadily catching up with 3 last year and 11 this year with a total of 25 since 1980 (Fig. 3). The majority of the tornadoes in the NWS at Albany forecast area are EF-0 or EF-1 (~86%) since 1980 (Fig. 4). The operational Enhanced Fujita Scale is a set of wind estimates based on degree of damage. This tornadic damage scale was modified from the old Fujita Scale by a team of meteorologists and engineers, and was implemented on February 1, 2007. The EF scale ranges from 0 to 5, and has estimated 3-second wind gust ranges in miles per hour (mph). An EF-0 has winds of 65-85 mph, and an EF-1 has winds of 86-110 mph. An EF-2 has estimated 3-second wind gusts of 111-135 mph. Estimates of the damaging gusts are based on the subjective judgment of the survey team on 8 levels of damage to 28 structural and vegetative indicators. More information on the EF Scale, and the transition from the old Fujita Scale, can be found at the following website: <https://www.spc.noaa.gov/efscale/>.

Overall, the tornado season is the greatest on record across eastern New York and western New England with 7 EF-0's and 7 EF-1's that occurred in 2020 between May and November. The rare October tornado with the serial Derecho gave the area the record number. It will be interesting how active the 2021 season will be with tornadoes, as double digit tornado seasons have never occurred in consecutive years.

Continued on Page 8



Figure 1: A trained spotter looking to the west in Easton, Washington County viewed the tornado from the east as it impacted Stillwater in southern Saratoga County. The picture was at about 626 pm EDT on August 29, 2020.

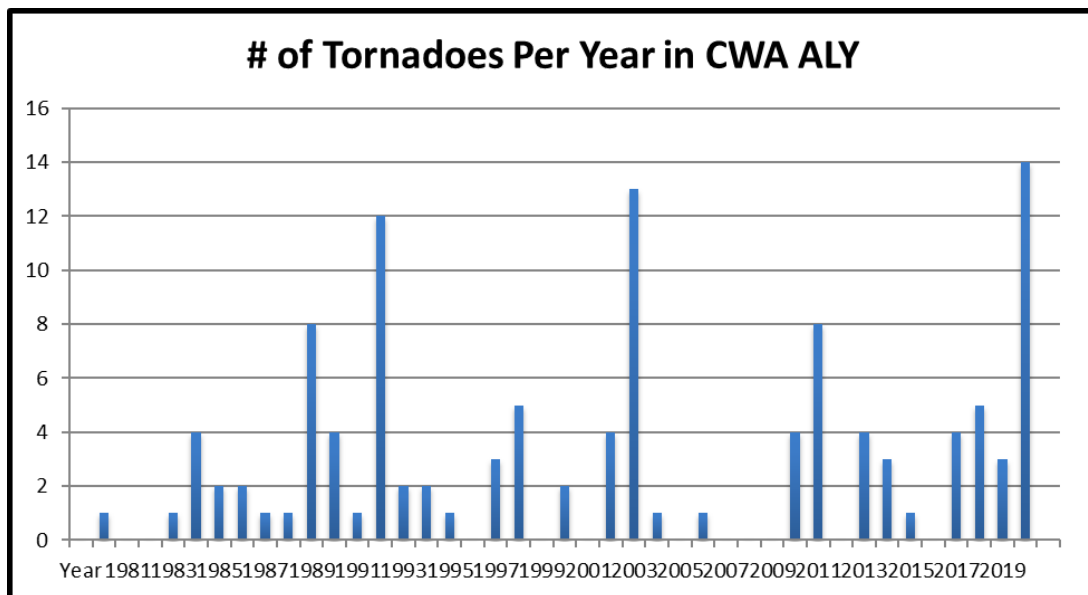


Figure 2: The number of tornadoes per year from 1980 to 2020 in the NWS at Albany County Warning Area (CWA). A total of 117 tornadoes have occurred. The 14 were a record going back to 1950.

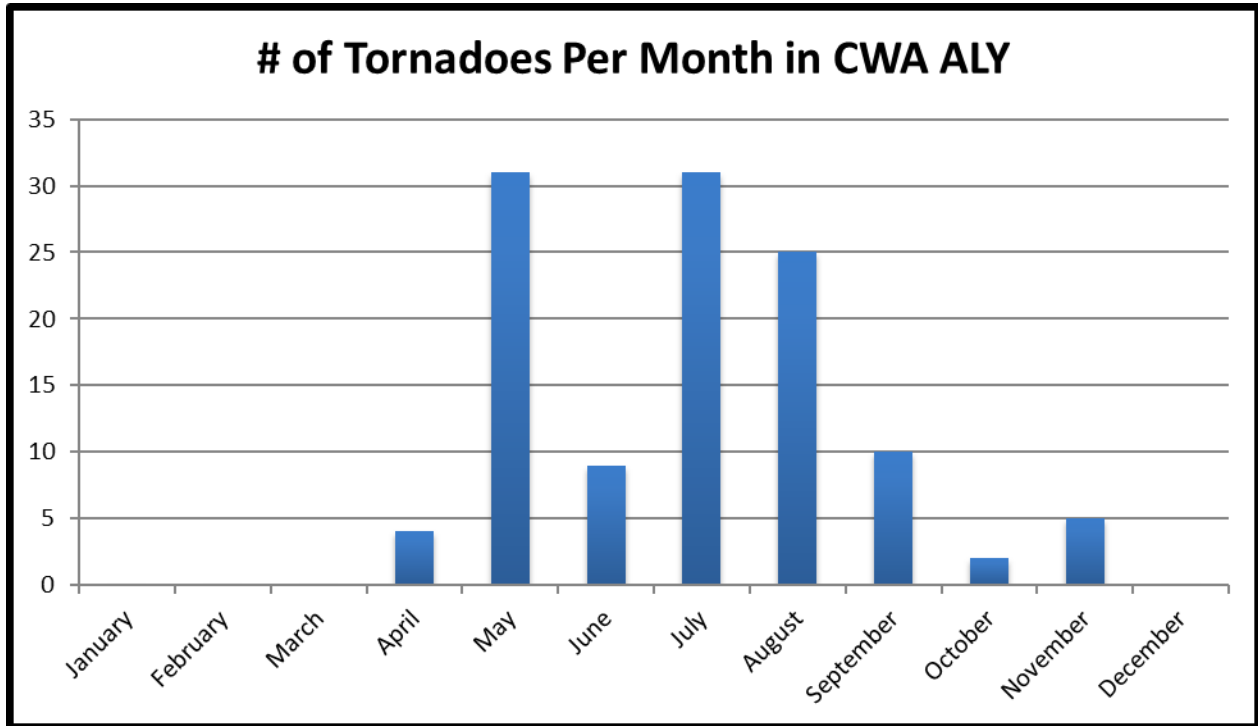


Figure 3: The number of tornadoes by month from 1980 to 2020 in the CWA of the NWS at Albany which is across eastern NY and western New England. A total of 117 tornadoes have occurred with maxima's in the late spring and summer. May and July have the most tornadoes, though a steady increase has occurred in August the past few years.

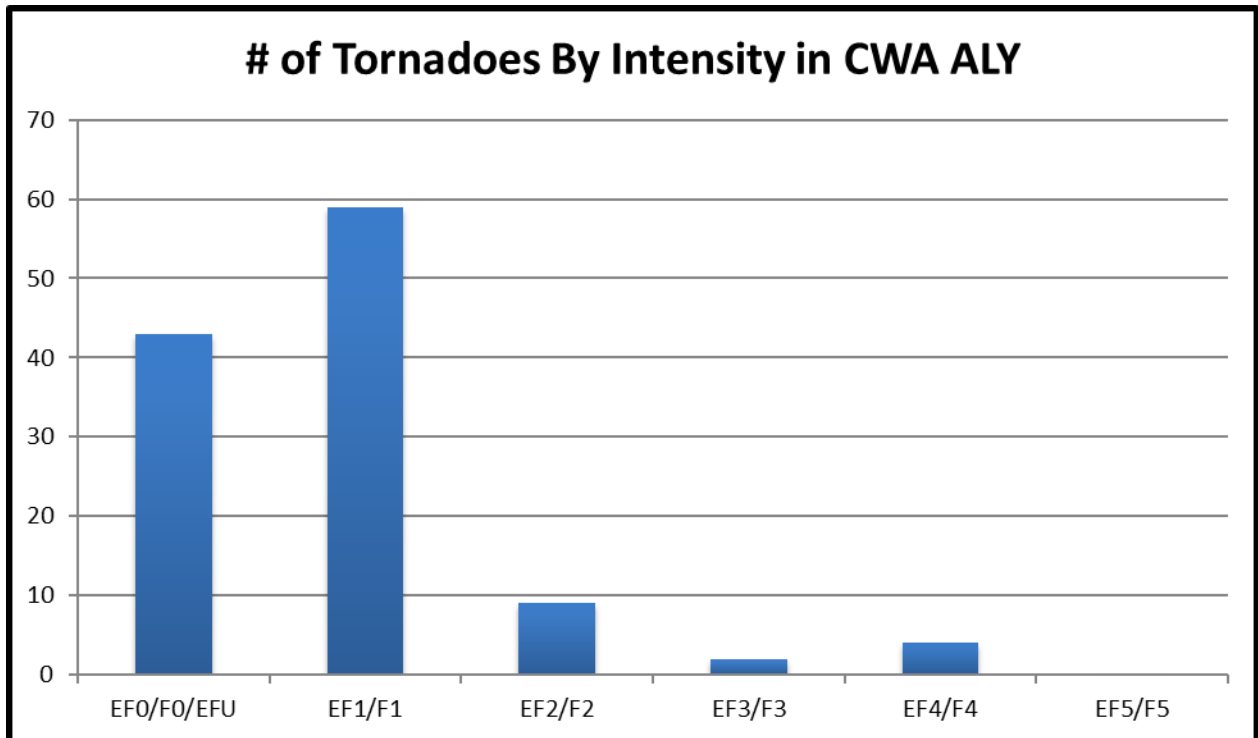


Figure 4: The # of tornadoes by intensity from 1980 to 2020 in the CWA at Albany. 101 of 117 tornadoes are EF-0 (65-85 mph) or EF-1 (86-110 mph).



- Thomas Wasula, Lead Meteorologist

Weather Safety Information for Deaf and Hard of Hearing

How NOAA Supports the Deaf and Hard of Hearing Community

Many of us are familiar with the “screech” of an incoming severe weather alert on our TVs, radios and telephones. These alerts provide valuable and life-saving information about severe weather when it threatens your location. But, what if you couldn’t hear it? An emergency or disaster may present unique challenges for people with hearing disabilities. If you or someone you care for has a hearing disability, the National Weather Service has taken efforts to ensure our warnings and alerts can be received and the proper preparations and actions undertaken.

Lightning Safety for the Deaf and Hard of Hearing Community

One of the NWS’s major successes in engaging the deaf and hard of hearing community with weather safety took place in our weather safety messaging regarding thunderstorms and lightning safety. The original campaign slogan, “When thunder roars, go indoors”, did not relate with the hearing-impaired community. As such, a team of NWS meteorologists undertook the mission of coming up with a new slogan that would be more inclusive to the community. As a result, “See a flash, dash inside” is now used in conjunction with the original slogan. A PSA for lightning safety for the deaf and hard of hearing can be seen [here](#).



For more information, please visit: <https://www.weather.gov/wrn/dhh-safety>

- Jennifer Vogt, Meteorologist

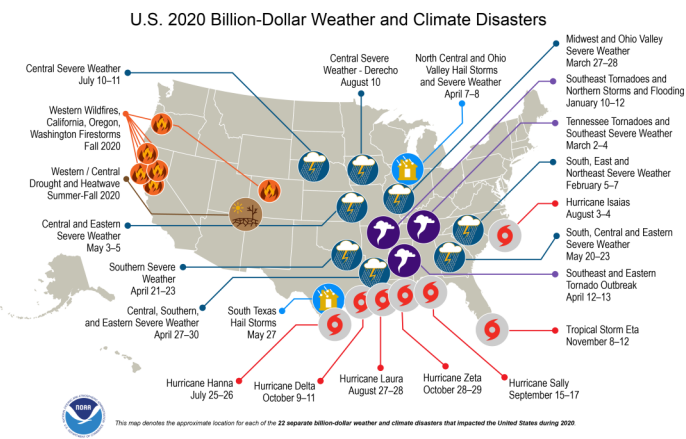
Be a Force of Nature!

Each year, people in this country are killed or seriously injured by all types of extreme weather, despite advance warning.

2020 sets the new annual record of 22 events - shattering the previous annual record of 16 events that occurred in 2011 and 2017. 2020 is the sixth consecutive year (2015-2020) in which 10 or more billion-dollar weather and climate disaster events have impacted the United States. Over the last 41 years (1980-2020), the years with 10 or more separate billion-dollar disaster events include 1998, 2008, 2011-2012, and 2015-2020.

NOAA’s Weather-Ready Nation initiative is about building community resilience in the face of increasing vulnerability to extreme weather and water events. However, NOAA and its partners can’t do it alone. A key member of the team is the public. That is why we are encouraging everyone to do their part. We ask everyone to **“Be a Force of Nature”**.

Be a Force of Nature by knowing your risk, taking action and being an example in your community. For more information, visit: <https://www.weather.gov/wrn/force>



Source: <https://www.ncdc.noaa.gov/billions/>



- Jennifer Vogt, Meteorologist

Word Search

Weather Instruments

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

Psychrometer

Anemometer

Thermometer

Ceilometer

Hygrometer

Radiosonde

Altimeter

Barograph

Rain Gauge

Satellite

Barometer

Doppler

Sounder

Radar

ASOS



Word Scramble

Severe Weather

OCMSBTARUR

ARDONTO

ALWL CDLUO

GTILNHGIN

LIAH

NIVLA DUCLO

WIND ARSEH

DEOHERC

CEEOLMYSNOC

LRCSLPUEE



Word Search Answer Key

Weather Instruments

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

Psychrometer

Anemometer

Thermometer

Ceilometer

Hygrometer

Radiosonde

Altimeter

Barograph

Rain Gauge

Satellite

Barometer

Doppler

Sounder

Radar

ASOS



Word Scramble Answer Key

Severe Weather

- OCMSBTARUR MACROBURST
- ARDONTO TORNADO
- ALWL CDLUO WALL CLOUD
- GTILNHGIN LIGHTNING
- LIAH HAIL
- NIVLA DUCLO ANVIL CLOUD
- WIND ARSEH WIND SHEAR
- DEOHERC DERECHO
- CEEOLMYSNOC MESOCYCLONE
- LRCSLPUEE SUPERCCELL

- Thomas Wasula, Lead Meteorologist

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Editor: Thomas A. Wasula



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