

Blue Ridge Barometer

Welcome to the Spring 2022 edition of Blue Ridge Barometer, the biannual newsletter of the National Weather Service (NWS) office in Blacksburg, VA! In this issue, you will find articles of interest about the weather and climate of our County Warning Area (CWA), including the highlights of the 2021-2022 winter season and some tips to keep you safe while you are enjoying the outdoors this summer. You'll also learn about the Citizen Weather Observing Program and the importance of sharing significant weather reports. All this plus the bio of our newest staff member, and updates from our WCM on what we are doing to meet the needs of our partners. We wish all of you a safe and fun-filled Spring and Summer!

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From the Desk of the Warning Coordination Meteorologist

Phil Hysell, WCM

Greetings! My name is Phil Hysell, and I am the WCM at the NWS Blacksburg office. Some of my responsibilities include serving as the principal interface between the NWS Blacksburg office and the users of our products and services; planning, coordinating and carrying out the NWS local office area-wide public awareness program; and leading our staff in our severe weather operations.

While we were not able to meet with partners in person during the pandemic, the NWS Blacksburg office found innovative ways to meet their needs, add new SKYWARN spotters, and conduct weather preparedness presentations. Through video conferencing, we continued our annual Integrated Warning Team meetings in 2020 and 2021 to learn how we can better serve our partners and share updates about our services. We added dozens of new SKYWARN spotters through virtual classes or online training. Anyone can become a SKYWARN spotter at their convenience by taking the online SKYWARN training. Details about how to register are found here:

www.weather.gov/rnk/skywarn

We conducted numerous presentations through Facebook Live and video conferencing about how to become more responsive, resilient, and ready for significant weather events. We also continued to add to the number of recognized [StormReady](#) communities by conducting virtual onsite inspections which included state Emergency Management personnel.

March 2022 marked the first time in over two years that I was able to meet with our partners in Emergency Management at the Virginia

Emergency Management Symposium and later at the North Carolina Spring Emergency Management Conference (see picture below). We look forward to the return of in-person meetings and presentations that are critical to building a Weather-Ready Nation. If you have any comments or feedback about our products or services, please email me at: phil.hysell@noaa.gov.



National Weather Service Warning Coordination Meteorologists at the North Carolina Spring Emergency Management Conference (pictured left to right): Phil Hysell, WCM Blacksburg; Trish Palmer, WCM Greer; Erik Heden, WCM Morehead City; Nick Petro, WCM Raleigh.

“The squall sweeps gray-winged across the obliterated hills, and the startled lake seems to run before it. From the wood comes a clamor of leaves, tugging at the twigs, pouring from the branches, and suddenly the birds are still. Thunder crumples the sky;

lightning tears at it. And now the rain! The rain – thudding – implacable. The wind, reveling in the confusion of great pines! And a silver sifting of light, a coolness; a sense of summer anger passing, of summer gentleness creeping nearer. Penitent, tearful, forgiven!”

From “Squall” by Leonora Speyer

2021-2022 Winter Season Summary

Robert Anthony Beasley, Lead Meteorologist

If you were hoping that this past winter was going to bring a lot of snow, then you may have been disappointed. However, if you were just looking for cold temperatures, then you likely were pleased, thanks to a long cold spell from the beginning of January into early February, as well as several chilly periods throughout March. The significant winter storm of the season occurred on January 16. While the storm was less spectacular than

expected, a persistent period of cold temperatures followed, which allowed the snow from that event to linger on the ground for several days – even into early February for some in the forecast area.

The 2021-2022 Winter Season (which meteorologically runs from December through February) was relatively close to average in temperature, but both precipitation and snowfall were below normal. This marked the third consecutive winter with below normal snowfall for most of the Blacksburg NWS forecast area. The table below summarizes the temperature, rainfall, and snowfall for this season as compared to what we would normally expect in the region.

Station	Average Temp	Normal Temp	Total Rainfall	Normal Rainfall	Total Snowfall	Normal Snowfall
Roanoke	41.9	39.9	7.19	9.14	11.5	12.3
Lynchburg	53.2	48.2	8.01	9.87	9.5	9.1
Danville	55.1	51.1	6.64	9.20	9.0	6.1
Bluefield	46.2	42.2	10.07	8.94	27.7	25.3
Blacksburg	48.2	43.9	7.82	9.36	13.0	19.4

Table 1: Comparison of 2021-2022 Winter Season (December 2021 through February 2022) temperatures, rainfall, and snowfall. Red indicates above normal temperatures. Brown and yellow denote below normal rainfall and snowfall, respectively. Green and blue represent above normal rainfall and snowfall, respectively.



The Importance of Sharing Significant Weather Reports with the National Weather Service

Phil Hysell, Warning Coordination Meteorologist

As a thunderstorm sweeps through your neighborhood, winds suddenly increase and topple a few trees in your backyard. Once the storm has passed, you check to make sure no one was hurt and no property was damaged, and then begin the cleanup process. Since there were no injuries or damage, why should you bother relaying this event to the National Weather Service (NWS)?

There are several reasons why it is extremely important to notify the NWS about storm damage, flooding, and hail.

Your report may save lives.

Spotter reports coupled with radar, satellite, and other data have enabled the NWS to issue more timely and accurate warnings in order to save lives. In 2021, the NWS Blacksburg office issued severe thunderstorm and tornado warnings 87% of the time before the first report of a tornado, large hail, or damaging wind event was received. This means that 13% of the time, severe weather occurred before the warning was issued. Receiving these timely reports can help us issue warnings to alert those in the path of severe thunderstorms. Social science research also shows that people in the path of a severe thunderstorm are more likely to take the appropriate actions if there is ground-truth information that severe weather has already occurred.

Your report helps with internal NWS verification.

The Government Performance and Results Act (GPRA) mandates that the NWS track and report a number of operational metrics, including Probability of Detection (POD), Average Lead Time (LT), and False Alarm Ratio (FAR) for many of our warnings. Congress assesses our performance, in part, using these data. Your reports determine the values of these metrics. Our staff spends hours searching for verification of significant weather events when warnings are issued and our office does not receive any reports.

Your reports become part of the historical weather database.

All significant weather reports are entered into a publication called “StormData.” Anyone can query, by county, all historical weather reports here:

<https://www.ncdc.noaa.gov/stormevents/>

This robust dataset of historical weather reports is used by countless private and public entities, including insurers and researchers. Emergency Management uses the data for Hazard Mitigation Grants, which help improve the resilience of communities to extreme weather events.

So, the next time you witness a significant weather event, please share it with our office. You will not only be assisting the NWS, you will be helping your local community and potentially saving lives!

There are several ways you can submit a significant weather report to the NWS. If you are a SKYWARN spotter, call our 1-800 number so we can obtain the information quickly. If you are not a spotter, call us at 1-866-215-4324. Anyone can submit a report

through the online spotter form located at <https://inws.ncep.noaa.gov/report/index.html> You may email us your reports at rnk.skywarn@noaa.gov. You can also connect with us through social media on Twitter (@NWSBlacksburg) or Facebook (fb.com/NWSBlacksburg). Share your reports of damaging winds, flooding, and tornadoes with us as quickly as possible, if you can do so safely. Please **call us** with this information. We look forward to hearing from you!

Do You Have a Weather Station? Join the Citizen Weather Observing Program!

Stacie Hanes, Lead Meteorologist

The National Weather Service in Blacksburg, VA, is working with a group of local Virginia Tech students on incorporating personal weather stations into the Citizen Weather Observing Program (CWOP). This program allows personal weather station data to reach our forecast offices, and incorporates them into our forecasts. This is a free service, but you do have to own a personal weather station in order to sign up for the program.

It is likely a number of individuals in West Virginia, Virginia, and North Carolina are interested in weather, have a personal weather station, and would be willing to share their data with the NWS. We are hoping to encourage these weather enthusiasts to sign up for CWOP. Surface observations are one of the cornerstones of forecasting, and the more data we have, the more accurate our

forecasts. In a nutshell, this program is a way to get personal weather stations online and shared with the broader meteorological community.

Anyone who joins will be able to view their data online and compare it with nearby stations. In addition, you will have the satisfaction of knowing that your data has helped to inform and improve our forecasts for river flooding, tropical systems, drought, rain and snow chances, and more.

There are over 800 organizations that use CWOP data, including:

NWS Weather Forecast Offices

River Forecast Centers

National Center for Environmental Prediction

National Transportation Safety Board
Department of Homeland Security
Kennedy Space Center
NASA Marshall Space Flight Center
MIT Lincoln Laboratories
Penn State University
Mississippi State University

Virginia Tech University
Texas A&M University
Florida State University
Weather Underground

If you have a weather station and want to help, please see this link with instructions on how to sign up:

<https://www.weather.gov/rmk/CitizenWeatherObservingProgram>

Weather Witticism

Q: Where did the meteorologist stop for a drink on the way home from a long day at work?

A: The nearest isobar.

Q: What is the opposite of a cold front?

A: A warm back.

A windmill and a solar panel are talking during a storm. The windmill says, "Awesome weather we are having!"

The solar panel replies, "I am not a fan."

The nearby nuclear power plant overhears them and feels left out, so it has a meltdown. What an over reactor!

When the Romans landed in Britain,
The weather proved a teaser!
The emperor asked "Could this be rain?,"
But the answer was "Hail, Caesar!"



Lightning Awareness for Summer Safety

Robert Anthony Beasley, Lead Meteorologist

After the typically long and cold months of the winter season, everyone is looking forward to the warmer and more enjoyable outdoor conditions that spring and summer bring. Outdoor activities abound during the summer months. However, with this warmer weather also comes the hazard of thunderstorms. All thunderstorms, severe or not, produce lightning, and many produce cloud-to-ground lightning. Did you know that a lightning strike is hotter than the surface of the sun? Cloud-to-ground lightning is extremely dangerous. It can start fires and injure, or even kill, people.

Thunderstorms can and do occur in all fifty states within the United States. They can occur anywhere and at any time of the year. Thunderstorms need warm, moist air to develop and maintain themselves. This is why they are most common in the southern and especially southeastern United States, where the warm, moist Gulf of Mexico air is close at hand. As one would expect, Florida is where we find the greatest concentration of thunderstorms and lightning, with the area around Tampa being known as the hot spot in the United States for lightning activity (see Figure 1).

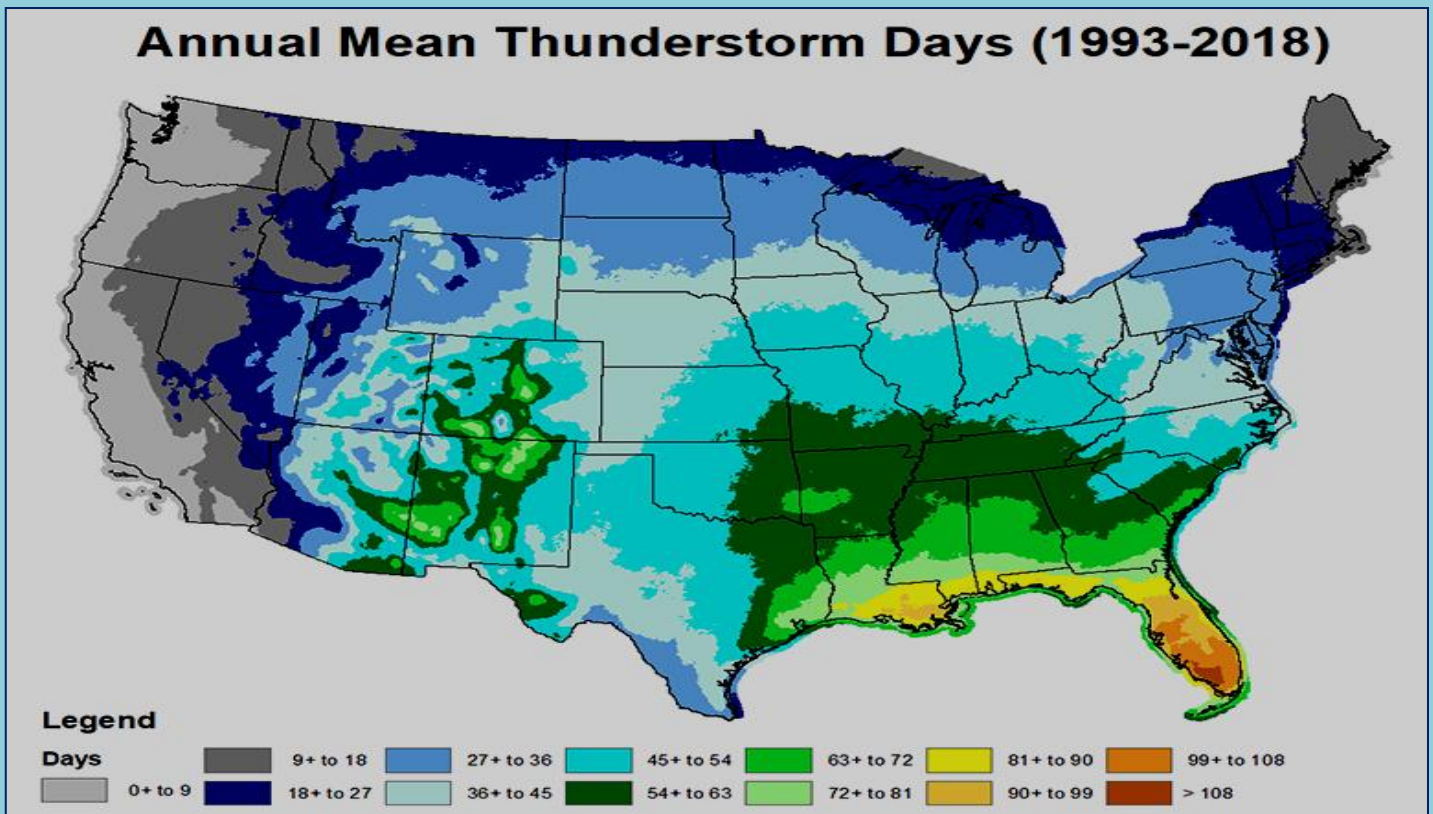


Figure 1. Annual Mean Thunderstorm Days (1993-2018)

Regardless of the frequency of lightning in a particular spot or location, keep in mind that if it is a thunderstorm, then by definition it has produced lightning. It only takes one lightning strike to start a fire, injure, or even kill someone.

During the winter months, cold air often prevents thunderstorms from developing or occurring much in the northern United States. Lightning is often less frequent in the winter, even when associated with thunderstorms in the southern United States. However, as warm air spreads further north during the spring and summer seasons, thunderstorm development becomes more likely and more frequent, even in the northern states.

When cold fronts track southward into the continental United States during the summer months, numerous strong to severe thunderstorms can impact many of the northern states from the Great Plains to the northeast and in between.

So with all of this in mind, what are some things that you and your loved ones can do to protect yourself from the dangers of lightning? The National Weather Service has created a Lightning Safety Awareness page, which you can find here:

<https://www.weather.gov/iln/lightningsafetyweek>

Please take some time to review the many safety tips and important information that will help you stay safe this season!

Camping Safety

Stacie Hanes, Lead Meteorologist

Spring and summer are terrific times to get out and enjoy the beautiful scenery nature provides in West Virginia, Virginia, and North Carolina. Before setting out on a trail or heading to the lake, check the forecast on your favorite weather sites online, or tune in to your local TV broadcast or NOAA weather radio. Remember, storms are a threat whenever you see lightning or hear thunder, when you hear loud static on AM radio stations, or when very heavy rainfall develops. If storms are forecast, the best bet is to stay in camp! While in camp, if storms are imminent, seek shelter in a sturdy building if possible, or go to higher ground immediately!



Your vehicle is safe from lightning, but may not be the safest spot for winds or a tornado. If your campground's alarm system relies on electricity, have an alternate method to receive severe weather warnings.

National Weather Service Blacksburg's Listening Areas:		
Roanoke, VA	WXL-60	162.475 MHz
Lynchburg, VA	WXL-92	162.550 MHz
Halifax/South Boston, VA	WNG-586	162.525 MHz
Richlands, VA	WZ-2543	162.425 MHz
Wytheville, VA	WXM-72	162.450 MHz
Hinton, WV	WXM-72	162.425 MHz
West Jefferson, NC	WNG-588	162.525 MHz



NOAA Weather Radio is the only direct means to receive warnings from the National Weather Service.

There are several specific weather threats that commonly crop up during a hike or a swim. These include flash flooding, lightning, damaging winds, and heat-related dangers. Flash flooding can occur any time of year, and thunderstorms upstream can cause a flood downstream. Avoid camping on banks of high and fast running streams, creeks, or rivers, and in narrow valleys. If you notice even a slight rise in water levels, seek higher ground immediately! Be alert for thunder or lightning in the immediate vicinity or over nearby hills. Distant rain may be channeled into gullies, narrow canyons, ravines, and

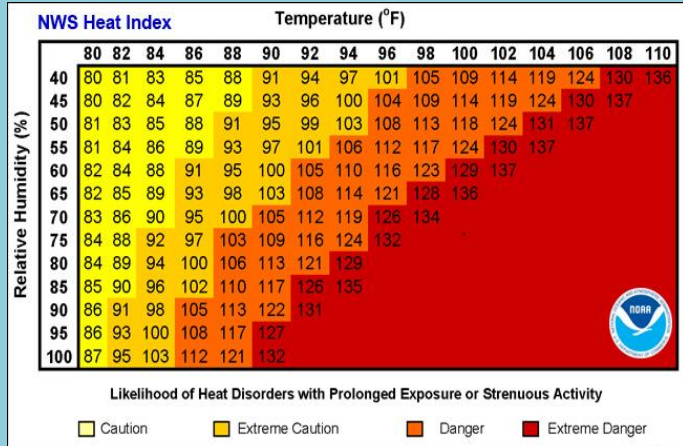
burn scars from recent wildfires. Heavy rain can cause debris flows, especially in hilly or mountainous terrain. Debris flows can completely destroy campsites and bury campers in a matter of minutes. Six inches of fast-moving water can knock you off your feet. **DO NOT DRIVE** through water flowing over roads! Most flash flood victims die in vehicles at night.



Lightning injuries and deaths are more likely if you are exposed on higher ridges, out in fields, or are seeking shelter under a solitary tree. Thunderstorms typically develop in the afternoon, so plan to hike earlier in the day. Stay **AWAY** from isolated taller objects such as large trees or metal poles, go downhill off ridges and mountain tops, and get off of open water. Remember- warnings are **NOT** issued for lightning – it's up to you to take cover!

Severe thunderstorms can include damaging wind gusts of 60 mph or greater, 1" diameter or greater hail, and/or tornadoes. On days when thunderstorms are predicted, frequently monitor the forecast for severe, tornado, and flash flood watches (which indicate a growing threat, and you should remain alert), and warnings (an imminent threat that means you should **TAKE COVER NOW!**) A tent or camper is not safe in high winds.

To avert heat-related dangers, avoid the hottest time of day, usually between 1 and 5 PM. Slow down, drink plenty of water, and take frequent breaks. Stay in the shade when possible. Wear lightweight, loose-fitting and light-colored clothing.



Enjoy the nice weather and our great outdoors, but remember weather changes quickly. Be prepared!

What's New In Our Office: Personnel Changes

As we rang in the new year, we also welcomed **Amanda Sava** to our office as a new meteorologist. Amanda comes to us from Seaford, Delaware, a small town in Sussex County that you may have driven through on your way to Rehoboth or Bethany Beach. She has a bachelor's degree in meteorology from Florida Institute of Technology and a master's degree in meteorology from Florida State University. After teaching sixth grade science for a year in her hometown middle school, she wanted

to get back to the field of meteorology. Amanda's fascination with weather actually started as a deep fear of thunderstorms and tornadoes when she was a young girl; a few colorful children's books about the weather later, and she was hooked. She is looking forward to a fulfilling career in the National Weather Service, and embracing all that Blacksburg has to offer. Outside of the office, Amanda is a dedicated runner, and has some big goals in the marathon. She can also often be found spending time on the local trails with her dog, Indy. Check out her article about severe weather that is featured in this edition's Kidz Korner!



Kidz Korner

Amanda Sava, Meteorologist

Spring is here and summer is around the corner! That means warmer temperatures, sunny skies, and lots of time to play outside. However, it also means the beginning of Severe Weather Season. Thunderstorms, hurricanes, floods and fires, oh my! These can all be scary; in fact, they used to scare me too when I was little. The best way to be less afraid is knowing what to do when any one of those types of weather events comes our way.

Let's first go over the difference between a watch and a warning. You'll probably see those on TV or hear them on the radio when bad weather is coming. A watch means that one of those types of weather events is possible in your area, so stay tuned to your local weather station and National Weather Service office. A warning means that severe weather is very close or already in your area! When your county or city gets a watch, that is when you should start preparing for the weather event. When your county or city gets a warning, that means you need to get to safety, quickly!

So, what are some severe weather events that you might see in your neighborhood?

Thunderstorms. Picture big, dark, scary looking clouds that may have lightning flashes. Even if they look miles away, remember that lightning can travel really far away from the clouds. "When thunder roars, go indoors!"

The safest place to be is inside a sturdy building or a car with all the windows shut. Stay away from the windows and avoid going outside for any reason until the storm is over. If you can't get inside a building or a car before the storm arrives, stay away from trees and crouch down. Stay away from any water, even puddles, and don't touch anything metal. You'll know it's safe once the warning has gone away, or at the very least, thirty minutes after you saw a lightning strike.



Hurricanes. These are huge, swirly storms that form over the ocean, filled with lots of rain and fast winds. Usually, thanks to folks at the National Hurricane Center and your local National Weather Service office, you'll know a few days ahead of time if a hurricane is coming towards you. Make an emergency plan with your family so everyone knows what to do and where to go. This includes your pets too!

Have a supply kit with a flashlight, first aid kit, enough food for your whole family for at least three days, and a radio (a NOAA Weather Radio would be the best so you can hear all the watches and warnings). The adults in your family should find out the evacuation routes and emergency shelters if you are told to evacuate. What do you do when you hear on the news that everyone should evacuate your area and go somewhere safer? You evacuate! During a hurricane, stay inside the whole time. The strong winds will blow things around, like tree branches, signs, or maybe even pieces of furniture. Don't come out until the hurricane is gone.

Floods. This can be way more water than a swimming pool or lake! Just like for a hurricane, make an emergency plan with your family, and have a supply kit ready. When there is a flood happening near you, it is important to stay inside if you can, and move to the highest place you can, like the highest floor of your house. Stay away from areas under water; you never know how deep the water could be or how fast it is moving. "Turn around, don't drown!" Your family could be told to evacuate if the flood heads directly your way, so again, make sure to follow that instruction and evacuate because it will keep you safe. Water can stay on the ground for a long time after a flood, so make sure to stay away from areas still under water, since you might not know how deep the water is.



Wildfires. Summer is the time of backyard barbecues and bonfires, but also of wildfires in the forests and grassy areas. Your local National Weather Service office is always monitoring weather conditions to see if they might be favorable for wildfires to occur, and they issue warnings for those days too. Even if you think you don't live close to where wildfires occur, it is always a good idea to make an emergency plan and have a supply kit ready in your house. Wildfires can travel fast and can change directions quickly, so if your family is told to evacuate if you are in the path of the fire, then make sure to evacuate immediately. It is always good to have many different "safe places" that you can go to. After a fire, it is important to stay away from any wildfire areas. There could still be burning coals and lots of damaged trees, and that is not safe to be around.

The best thing to do to be prepared for any weather we might receive during this spring and summer is to make an emergency plan

with your family for any severe weather event. Having a plan ready will save you valuable time in case bad weather does head your way. Luckily, there are more sunshiny and good weather days than bad weather days. So, enjoy all the time you spend outside, and feel more comfortable that you know what to do in case of bad weather.



Warm Summer Sun

By Mark Twain

Warm summer sun,
Shine kindly here,
Warm southern wind,
Blow softly here.
Green sod above,
Lie light, lie light.
Good night, dear heart,
Good night, good night.

Feeling creative? Would you like to see your art or writings included in the next edition of Blue Ridge Barometer? If you are between the ages of 3 and 17, we would love to see your hand-drawn artwork, short poems, or short stories about the weather. For the next edition, we are looking for art and writings that involve the fall or winter.



Our meteorologists will review the submissions and select a few to include in the newsletter. Maybe yours will be one of them!

To submit your original drawing, poem, or story, scan your artwork or writing into a .jpg computer image file (with the help of an adult, if needed). You can also write your poem or story using Word and save it as a .doc or .docx file. Please keep any written material to 500 words or less. Artwork may also be completed using drawing or painting software, submitted as a .jpg file.

When submitting your drawing, poem, or story, please include your first name and first initial of your last name, age, and the city/town where you live. All entries should be submitted no later than October 1, 2022. Please email your entries [here](#).

We look forward to hearing from you!

From Piedmont to Mountaintop

In this edition, we have three pictures submitted by our meteorologists. The first is a photo of a particularly colorful sunset on January 12 at Uptown Christiansburg. Only a few days later, on January 16, our meteorologists were in downtown Salem capturing the beginning of the most significant snowfall event of the winter. By the end of the day, the Salem area had received five to eight inches of snow.





As you can see, our meteorologists enjoy taking pictures of the weather in our neighborhood. However, we would really enjoy seeing pictures from yours! From now through October 1, 2022, we invite you to take some weather-related photos and [share](#) them with us. Please include with your photos your first name, the first initial of your last name, and where and when you took the picture. We will include your photos in upcoming newsletters and credit them appropriately. Also, by submitting a picture, you agree that we can use it on one of our social media platforms (Facebook and Twitter) or in our local community outreach presentations (for example, a SKYWARN class). Photos used in these forums will also be credited appropriately.

Stay Safe & Stay Involved!

The spring and summer seasons not only bring warmer temperatures, but a wide range of potential weather hazards, including flooding, lightning, and even tornadoes. Check out the NWS [Weather Safety page](#) for information on all types of weather hazards. If you are interested in helping the NWS with storm spotting and verification, please consider participating in the [SKYWARN](#) program. Additionally, the NWS can always use new rain/snow observers for the [CoCoRaHS](#) network, especially in West Virginia!

To keep up to date on what's happening in our office in between newsletters, please visit our website: <https://www.weather.gov/rnk> or follow us on [Twitter](#) and [Facebook](#).

For questions or comments about this newsletter, please contact the [editor](#) or via snail mail at:

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