

# Blue Ridge Barometer

Welcome to the Spring 2021 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) and the people and technologies needed to bring accurate forecasts to the public. You'll also hear from our acting meteorologist-in-charge, learn more about fire weather and the differences between watches and warnings, and discover some tips to stay safe as you enjoy the great outdoors this summer. We hope you'll enjoy reading this newsletter as much as we enjoyed putting it together!

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## From the Desk of the Acting Meteorologist-in-Charge

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*Steve Keighton, AMIC*

As you will read in this newsletter, there have been, and will continue to be, several staffing transitions this year, which is exciting but also can be challenging, especially as we continue to operate with limited people in the building (yet always maintaining the number we need to meet the operational mission). The limited number of people physically in the office means fewer opportunities to communicate face-to-face with each other, which is the most effective way to grow and maintain relationships on an ever-changing team. Like so many others have dealt with over this past year, we have learned to make good use of video communications for daily internal briefings, conducting meetings with each other and partners, some office training, and even participated in some fun activities as well. However, nothing beats being together in person.

As we move through the remainder of the year and continue to ease out of the pandemic, we hope to be able

to slowly bring more people back into the office and take advantage of the in-person opportunities we all miss so much. We hope this also includes more face-to-face outreach and partnership-building opportunities as well. It is very hard to say at what point we might be able to bring visitors and tours back into the building. If that cannot happen this year, we certainly hope to be able to meet with you in person at our next Open House in 2022. We will update our website and social media pages to reflect when tours will resume, once the COVID-19 restrictions are lifted.

Despite these challenges, we have accomplished a lot so far this year, including transitioning to a new digital phone system (note our new main phone number is 540-553-8900), performing a major hardware upgrade to the WSR-88D radar we operate in Floyd County, and implementing a [“Weather Story”](#) graphic on our web page that is updated once per day. We added over a dozen new Weather Ready Nation Ambassadors (and if your organization is interested in learning more about this program and becoming a WRN Ambassador please visit [this link](#)). We held a virtual Open House last fall, a virtual media workshop, and

conducted virtual [SKYWARN](#) spotter training as well, over the past several months. We are also wrapping up a collaborative research effort with Virginia Tech on biases of computer model forecasts associated with the warm layer aloft during mixed precipitation winter events, and completing a study with neighboring offices on the effectiveness of some new radar-based products for determining hail size in the region.

Overall, from my position, I have to say that I am so grateful and proud of how resilient and flexible ALL the staff at the NWS in Blacksburg have been over the past challenging year plus, as we’ve not only dealt with the pandemic like everyone else, but done so with significant staffing transitions as well. These dedicated folks have managed to always put mission first, which is the protection of life and property for all the people we serve in our [40-county area of responsibility](#), despite these recent unique challenges both at work and in the greater world.

Here’s hoping we get to see some of you when it is safe to do so again later in 2021, because you all help remind us of why we are here, doing what we are doing!



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# Review of the 2020-2021 Winter Season

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*Robert Anthony Beasley, Lead Forecaster*

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Following one of the mildest winters on record in 2019-2020, meteorologists and residents of the area alike were wondering what the 2020-2021 winter would bring. Could we expect record cold temperatures and snow, which we have not seen in any recent winters, or would it bring more warm and wet conditions as we have witnessed the past couple of winters? With El Niño in play in the El Niño-Southern Oscillation pattern, there were certainly going to be some unknowns. After all, we have to go back to 2018 to find any “significant” snow storms that would bring a foot or more of snow to a substantial portion of the forecast area during one event.

As it turns out, the winter ended up being fairly average with respect to temperature, but yet another in the long string of consecutive wet (rainy) winters with minimal snow. While nearly everyone saw more snow than what was observed the previous year, snowfall for the winter remained below average, in general. While for some it may have seemed like a snowy winter, in reality, snowfall was still below average for most, despite experiencing nearly three times the amount of snowfall observed during the 2019-2020 winter. After all, three times an inch or two is still not much snow!

With respect to temperature, there were some notable bouts of cold, but still no extreme

cold of any extent or duration. By the same token, there were no anomalously warm periods of note either. Below zero temperatures, which were fairly common in the 2014-2015 winter, failed to appear again this winter. Of the three meteorological winter months - December, January, and February - only February proved to be a bit below average and simultaneously brought the most snow and ice to the area.

Speaking of ice, it was perhaps one of the most ice-prone winters in recent memory. Several freezing rain and sleet events were noted from December through February, but back-to-back ice storms in mid-February were perhaps the most notable winter weather phenomena observed this past winter. There was significant damage to trees and power lines along the southern Blue Ridge and into Southside Virginia and adjacent areas of the Virginia and North Carolina Piedmont area. These back-to-back ice storms in mid-February left hundreds of trees uprooted, split in half, or with numerous broken limbs. A ride along the Blue Ridge Parkway from Rocky Knob to Bent Mountain proves this point, as even today, the sides of the Parkway are strewn with hundreds of downed limbs and trees. Many in these areas also suffered extensive power outages during the height of the ice storms in mid-February.

The following tables provide more detail regarding the temperature, precipitation, and snowfall patterns of the 2020-2021 winter season. Shades of red indicate warmer than normal temperatures, while blue equals cooler than normal. Cells shaded in green indicate wetter than normal, while brown reflects drier than normal.

Table 1 is a comparison of 2020-2021 winter temperatures (from December-February) with 2019-2020 temperatures and the 30-year (1980-2010) normal winter average temperature.

<b>Station</b>	<b>2020-2021 Winter Average Temperature</b>	<b>2019-2020 Winter Average Temperature</b>	<b>Normal Winter Average Temperature</b>
Roanoke	39.2	42.8	38.3
Lynchburg	38.6	42.6	36.9
Danville	39.8	43.5	39.5
Bluefield	32.8	38.3	36.2
Blacksburg	33.9	38.2	33.1

*Table 1*

Tables 2-4 provide the average temperatures around the region in December, January, and February 2021, as compared to those in 2020 and the average normal temperature.

<b>Station</b>	<b>Dec 2020</b>	<b>Dec 2019</b>	<b>December Normals</b>
Roanoke	40.7	43.1	39.0
Lynchburg	40.0	43.0	37.6
Danville	40.9	43.5	40.1
Bluefield	34.2	39.9	37.2
Blacksburg	34.9	38.7	33.8

*Table 2*

<b>Station</b>	<b>Jan 2021</b>	<b>Jan 2020</b>	<b>January Normals</b>
Roanoke	38.1	41.5	36.6
Lynchburg	37.4	41.1	35.1
Danville	38.7	42.6	37.7
Bluefield	31.5	37.3	34.2
Blacksburg	32.8	37.2	31.5

*Table 3*

Station	Feb 2021	Feb 2020	February Normals
Roanoke	38.7	43.9	39.6
Lynchburg	38.4	43.6	38.2
Danville	39.8	44.4	40.9
Bluefield	32.8	37.4	37.7
Blacksburg	33.9	38.9	34.2

*Table 4*

Table 5 is a comparison of the liquid precipitation and snowfall for 2020-2021 with that of 2019-2020, as well as what is normal for the forecast area. Note the significant increase in snowfall this past winter (highlighted in bold).

Station	2020-2021 Winter Precipitation	2019-2020 Winter Precipitation	Normal Winter Precipitation	2020-2021 Snowfall	2019-2020 Snowfall
Roanoke	12.19	10.18	8.75	<b>10.3</b>	1.6
Lynchburg	13.40	12.20	9.31	<b>8.9</b>	T
Danville	12.44	<b>13.34</b>	9.70	<b>5.8</b>	1.6
Bluefield	11.18	9.73	8.57	<b>44.9</b>	11.4
Blacksburg	11.41	11.34	8.84	<b>23.1</b>	4.8

*Table 5*

Tables 6-8 compare the liquid precipitation and snowfall for 2020-2021 to 2019-2020 and what is normal for the individual months of December, January, and February, respectively.

Station	Dec 2020 Precipitation	Dec 2019 Precipitation	December Normals	Dec 2020 Snowfall	Dec 2019 Snowfall
Roanoke	3.63	2.84	2.94	1.9	T
Lynchburg	<b>5.35</b>	2.85	3.24	T	0
Danville	4.44	3.19	3.27	T	0
Bluefield	3.05	2.37	2.91	10.4	4.6
Blacksburg	3.44	2.80	2.95	5.3	0.5

*Table 6*



Station	Jan 2021 Precipitation	Jan 2020 Precipitation	January Normals	Jan 2021 Snowfall	Jan 2020 Snowfall
Roanoke	4.18	3.26	2.92	6.6	1.6
Lynchburg	3.81	3.98	3.14	7.3	T
Danville	3.57	3.82	3.42	5.4	T
Bluefield	3.47	2.42	2.90	24.4	2.8
Blacksburg	3.62	3.12	3.08	11.2	2.5

*Table 7*

Station	Feb 2021 Precipitation	Feb 2020 Precipitation	February Normals	Feb 2021 Snowfall	Feb 2020 Snowfall
Roanoke	4.38	4.08	2.89	1.8	T
Lynchburg	4.24	5.37	2.93	1.6	T
Danville	4.43	6.33	3.01	0.4	1.6
Bluefield	4.66	4.94	2.76	10.1	4.0
Blacksburg	4.35	5.42	2.81	6.5	1.8

*Table 8*

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## Is It a Watch or a Warning? And, What's the Difference?

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*Stacie Hanes, Lead Meteorologist*

Many people become confused as to the difference between a weather warning and a watch. It may be helpful to remember that a watch is generally broader, longer lasting, and less specific than a warning. It is a heads up that severe weather *may* occur.

A Severe Thunderstorm Watch or Tornado Watch is issued by the Storm Prediction Center, located in Norman, Oklahoma. A watch is issued when conditions become favorable for organized severe thunderstorms and tornadoes to develop. A tornado may occur under a Severe Thunderstorm Watch, but a Tornado Watch is issued when conditions favor the development of multiple

and/or strong tornadoes. Watches are generally 20,000 to 40,000 square miles, with an average duration of six to seven hours.

Watches give a heads up to the public, as well as to emergency managers, school districts, broadcast media, and storm spotters. The public is encouraged to pay more attention to the weather if a watch is issued and listen for any subsequent warnings. Emergency managers, broadcast media, and storm spotters use the extra time to ramp up their operations and call in more assistance if needed. However, it is important to remember that a watch is *not* a warning, and

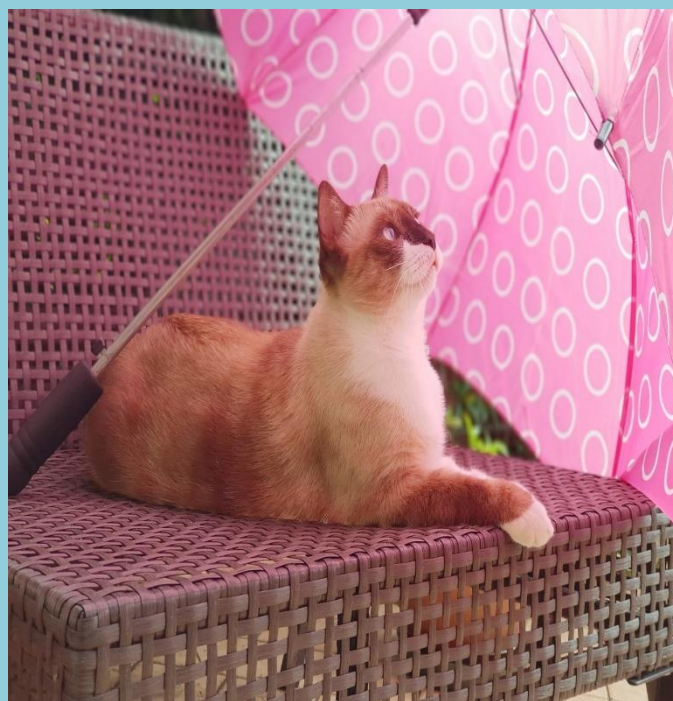
severe weather is not guaranteed under a watch.

A Severe Thunderstorm or Tornado Warning is issued by your local National Weather Service office on a case-by-case basis. These are issued when a storm has produced, or is expected to produce, hail one inch or larger, damaging winds 58 mph or greater, and/or tornadoes. Generally, these warnings are based on clues given by radar or storm spotter reports. A Tornado Warning is issued if strong rotation is indicated on radar or a tornado has been sighted. Warnings do not account for lightning, since lightning is a danger in any thunderstorm. Warnings are generally issued ten to twenty minutes before the severe weather occurs.

In short, if there is a weather watch, pay attention to the environment around you, and be ready to act if severe weather develops. If you are under a Severe Thunderstorm or Tornado Warning, it is imperative that you

act quickly, as severe weather is already underway.

For more information on thunderstorms, visit <https://www.nssl.noaa.gov/education/svrwx101/>.



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## New Thunderstorm Warning Format – Coming This Summer!

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*Phil Hysell, Warning Coordination Meteorologist*

On June 29<sup>th</sup>, 2012, a destructive line of thunderstorms, called a Derecho, brought widespread damage to our area. Despite the fact the National Weather Service in Blacksburg issued Severe Thunderstorm Warnings 25 minutes in advance, on average, many in the path of the storms were unaware such a destructive storm was approaching.

Currently, Severe Thunderstorm Warnings do not trigger Wireless Emergency Alerts (WEA) on cell phones. Beginning in mid-July 2021, the format of Severe Thunderstorm Warnings will change, allowing for WEA alerts for particularly destructive severe thunderstorms that produce large or baseball size hail and/or 80

mph winds or greater, as experienced with the June 29<sup>th</sup>, 2012 Derecho.

These Impact-Based Severe Thunderstorm Warnings focus on the expected storm impacts, allowing for more precise communication and recommended actions. Specifically, Damage Threat Categories will be applied to all Severe Thunderstorm Warnings.

The highest of the categories (destructive) will be invoked if *either* the hail or wind thresholds in the destructive category are met or exceeded. WEA messages will be activated on mobile devices whenever a “destructive” Severe Thunderstorm Warning is issued. For more information on WEAs, please visit [www.weather.gov/wrn/wea](http://www.weather.gov/wrn/wea).

There are many other services that provide notifications for severe thunderstorm warnings with the base or considerable damage threat tags, as well as many other types of warnings. A list of these services can be found here: [www.weather.gov/subscribe](http://www.weather.gov/subscribe)

For more information about Impacted-Based Severe Thunderstorm Warnings, please visit: [https://www.weather.gov/media/notification/pdf2/scn21-22svr\\_ibwaaa.pdf](https://www.weather.gov/media/notification/pdf2/scn21-22svr_ibwaaa.pdf)



Thunderstorm Damage Threat (tag category)	Wind	Hail diameter	WEA?
Base (no tag; default)	58 mph (60 mph will appear in the warning)	1.00 inch (U.S. quarter)	NO
Considerable	70 mph	1.75 inch (golfball)	NO
Destructive	80 mph	2.75 inch (baseball)	YES

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## Weather Witticism

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“Don’t knock the weather. If it didn’t change once in a while, nine-tenths of the people couldn’t start a conversation.” ~ Kin Hubbard

“Weather forecast for tonight: dark.” ~ George Carlin

“If you saw a heat wave, would you wave back?” ~ Steven Wright



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# Fired Up About the Weather

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*Phillip Manuel, Incident Meteorologist*



The National Weather Service wears different proverbial hats. In the early spring, one of the hats that gets worn most often by NWS Blacksburg is Fire Weather. Our forecasters support other federal and state land managers in their efforts to create a healthier ecosystem through the use of prescribed fire. We provide the fire weather forecasts in order for these agencies to plan their burns effectively and safely. Occasionally we participate in the burns so that we can learn how our partners use our forecasts and to observe the direct impact that weather has on fire behavior and smoke.

On Monday, April 5th, 2021, NWS meteorologists Phil Manuel and Reggie Roakes assisted a multi-agency team to introduce fire to the Bolar Mountain Wildlife Management Area, near Lake Moomaw in

Bath County, Virginia. Prior to the burn, crews gather to discuss the objectives and operational plan of the burn. Weather is part of the crew briefing.



*NWS Incident Meteorologist Phil Manuel provides a weather update at the morning crew briefing prior to the burn.*

There are many weather and fuel variables that must be considered prior to, and during a prescribed burn. First and foremost, is it dry enough to burn? To answer these questions, fuel moisture measurements are made in addition to assessing the relative humidity.

Fuel sticks are weighed to obtain an estimate of how dry the fuels are prior to the burn. This is important for determining fire behavior and how well the fire will burn with respect to consumption of the smaller dead fuels. If the moisture content is too high, then you will have poor consumption and will end up generating more smoke than fire.



*NWS meteorologist Reggie Roakes (right) is assisting Samantha Lopez (left) from the Virginia Division of Wildlife Resources to assess the fuel moisture by weighing fuel sticks.*

Sunny dry days are preferable for conducting prescribed burns. The sunshine heats the ground and dries the dead leaves and ground litter. Fuel moisture of about 7 to 10 percent is a desirable range for burning leaves. In addition, a preferable range for the relative humidity is 25-50%. On this particular day, the fuel moisture was 9% and the humidity of the air was around 30%, a good day to burn.



In the picture above, NWS Meteorologist Reggie Roakes is taking a weather observation. One of the tools used in this process is known as a sling psychrometer which measures dry bulb and wet bulb temperatures. From these two temperatures,

relative humidity may be calculated. Reggie is seen here using a chart to compute the relative humidity.



Above is a close-up view of a sling psychrometer. Dry bulb is on the left. Wet bulb is on the right. The wet bulb temperature is attained by wetting the wick with distilled water and then slinging the entire instrument for 1-2 minutes before reading and comparing the two temperatures. The temperature difference is needed in order to compute the relative humidity.

After the fuel dryness and relative humidity are assessed, other weather variables are considered to determine how and when the firing will commence. Wind (horizontal movement of air), stability (vertical movement of air), and mixing height (the depth the smoke is expected to rise above ground level) are extremely important because it helps manage the smoke, through



ventilation and dispersing the smoke quickly. Consideration is also given to wind direction, to limit exposure to those who may be down wind.



Weather plays an integral role in the firing operations. Temperature, humidity, wind, stability, and fuel moisture have to be "just right" before fire is put on the landscape.



Why burn? Fire is natural and plays a very important role in creating a healthy ecosystem by eliminating invasive species. In addition to ecosystem improvement, prescribed burns keep the public and homes safe by reducing the buildup of dried leaves and dead wood that can lead to uncontrolled wildfires.

Bolar Mountain is an example of "good fire," managing fire when the weather conditions support the practice of controlled burning and

there is a set of achievable objectives. Fire can be and is a very valuable tool for many reasons as long as it is used by individuals, agencies and organizations that know what they are doing.



At the end of the day (similar to the morning crew briefing), the fire personnel come back together to discuss successes and challenges... what was planned, what actually happened, and what can be done next time to make the operation better. This is called an After Action Review (AAR) and is done in an effort to learn from everyone that participated in the burn... including the meteorologist.



Did you know? The National Weather Service has a cadre of Incident Meteorologists (IMETs) that provide weather support nationally and internationally. The mission of the National Weather Service is

the protection of life and property, and this includes sending our folks directly to the front lines with boots on the ground to assist teams of wildland fire fighters during destructive wildfires.

For more information on the IMET program, follow us on Facebook:

<https://www.facebook.com/US.NationalWeatherService.IMET.gov/>

For information on local Fire Weather Forecasts: <https://www.weather.gov/rnk/fire>



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## Staying Safe While Enjoying the Great Outdoors

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*Stacie Hanes, Lead Meteorologist*

Summer is the perfect time to enjoy the many outdoor activities that our area is known for, such as boating, hiking, or biking. But whether you plan to kayak around Smith Mountain Lake or hike the Appalachian Trail, there are certain guidelines you should remember regarding the weather.

Thunderstorms occur frequently and can develop rapidly during the summer months, quickly turning a trip to the beach into a scary ordeal. In particular, lightning poses a great risk to those enjoying outdoor activities. You can substantially reduce your risk of getting struck by lightning if you are caught outside in a storm by quickly finding shelter in a building or a car. The safest buildings include completely enclosed rooms. Car ports, covered patios, and tents are the least safe. If you are caught out in the open, do not

take shelter near trees. If there is no safe building or vehicle nearby, avoid open fields and the tops of ridges, and stay away from water.

Once in a safe building or vehicle, stay put for at least 30 minutes after you hear the last clap of thunder. A lightning flash can travel over 10 miles from the parent thunderstorm, so it is important to keep abreast of changing weather situations. If a thunderstorm poses a tornado, damaging wind, or large hail threat, a Severe Thunderstorm Warning or Tornado Warning will be issued by your local NWS office. A great way to stay up to date on life-saving warnings and weather information is to invest in a portable NOAA Weather Radio. These are very helpful for getting weather



information in remote locations where cell phone service may not be available.

Flash flooding often accompanies thunderstorms, and can strand campers or even wash away cars. Even a small amount of rain may cause creeks and streams to rise suddenly. Your best protection is being aware of the threats and always knowing where to find higher ground. Again, having a way to receive warnings when out of cell phone range may save your life.

Other favorite summer pastimes in the Virginias and North Carolina include boating and kayaking. Studies have shown that the vast majority of injuries and deaths due to lightning occur near water. This is because water is an excellent conductor of electricity. If thunderstorms are in the forecast, postpone the trip for another day. If you are out on the water and skies become threatening, get back to shore as soon as possible.

Enjoy the great outdoors this summer, but always remember to check the forecast and take your NOAA Weather Radio along on any outings. You can find weather forecast information for several points of interest at <https://www.weather.gov/rnk/recreation>.

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## What's New In Our Office: Personnel Changes

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*Steve Keighton, AMIC*

Spring is certainly a time of weather transitions, but this first half of the year we are also undergoing our share of staffing

transitions at the National Weather Service in Blacksburg. Here are some highlights:

### *Jeffrey Moss*

Jeffrey is neither a new employee nor on his way out, but he was recently promoted from Electronics Technician, a position he had held since joining our team in the summer of 2018, to Information Technology Specialist in January of this year, filling a nearly year-long vacancy in that position. Jeffrey has always had a strong interest in problem-solving, IT system management, and coding/scripting, and is quickly sharpening those skills in his new role. Whether he is in the building or in a video meeting, he can often be heard laughing, and he always brightens the mood of those around him.

### *Nick Fillo*

Like Jeffrey, Nick is neither coming nor going. He has actually been in this office for quite a few years now - first as a forecaster and then as our Observational Program Leader. He will be starting in his new role (also a promotion) as our Senior Service Hydrologist in May. He has been serving in that role for about eight months already, while at the same time performing his other duties and working the forecast desk as needed. He had also been assisting our previous Hydrologist, Peter Corrigan, in a variety of ways for several years before Peter's retirement late last summer. So, Nick is hitting the ground running (or diving into the water, already swimming?) in his new position, knowing the hydrology of the

region and our partners very well to begin with. Given his previous role, Nick certainly understands the importance of quality data and its role in helping produce the most accurate river forecasts possible. We are excited for what he will bring to the office in his new position.

### *Doug Butts*



We are also excited to announce the expected arrival of a new Meteorologist-in-Charge by the end of May - Mr. Doug Butts! Doug replaces Dave Wert, who retired at the beginning of 2020, and comes to Blacksburg from the NWS in Binghamton, New York where he has been in that same position for three and a half years. Doug was previously the Science and Operations Officer in Mobile, Alabama (his home state), and also spent time at the NWS offices in Brownsville, Texas, Shreveport, Louisiana, and Jackson, Mississippi, after beginning his NWS career in the Mobile, Alabama office. He brings a wealth of experience from many different weather regimes and offices, and he is happy to be getting back down south again! Doug is married with three children, and will likely be out on the many biking and running

trails in this area during his spare time. Doug is looking forward to getting out and meeting as many of our partners as soon as it is safe to do so again, and we are looking forward to having a new supervisor to lead our team here at NWS Blacksburg.

### *Mike Sporer*

Finally, we will be bidding a bittersweet farewell to Meteorologist Mike Sporer, who accepted a promotion to Lead Forecaster at the NWS in North Platte, Nebraska! Mike, and his wife Cathy, will be heading out to the northern Plains in early June. Mike has been instrumental in helping our office find new and more efficient ways of doing business, but he has also been one of the leaders in moving the agency forward with drone technology to supplement ground-based storm damage surveys, as well as surveying instrument locations to track changes in surroundings. He has involved Virginia Tech student volunteers in some of his projects as well, and has done a great job mentoring many of our newer meteorologists here. We will miss Mike's experience, strong meteorology skills, and can-do attitude! We know Mike will bring these same attributes to his new office in Nebraska. Congratulations, and best of luck Mike!



Welcome to the spring edition of Kidz Korner! Our topic today is:

# Thunder & Lightning!

Spring and summer bring green grass and trees, homegrown flowers, fruits, and vegetables, warm days and the smell of sunscreen, and the occasional thunderstorm. Earlier in this edition, you may have read the article our meteorologist, Stacie Hanes, wrote about weather safety. All of her information is very important, and something you and your family should keep in mind during and before a thunderstorm.

The National Weather Service radar allows meteorologists to see where thunderstorms are across the region, which way they are moving, and how far away they are from a particular location. It is a pretty nifty piece of equipment!

Guess what! By seeing lightning and hearing thunder, you too can determine just how far away a thunderstorm is from your location. The light from a flash of lightning travels amazingly fast. Its speed would take it from the earth to the moon in just one second! In contrast, the short distance light must travel

from a thunderstorm to your eye is practically zero seconds.

When lightning occurs, it heats up the air around it to a temperature greater than that of the sun. This happens very rapidly and causes an explosion of the air. The result is the sound of thunder. While the speed of sound is fast, it is not even close to the speed of the light that the lightning generates. If you are located one mile from a thunderstorm, you will have to wait five seconds for the sound of thunder to reach you after you see a flash of lightning.

With this information, you are able to act as your own kind of weather radar! When you see your first flash of lightning from a storm, start counting your Mississippi's -- "One-Mississippi, two-Mississippi, three-Mississippi," and so on -- until you hear thunder. If it took 15 Mississippi's between when you saw the lightning and when you heard the thunder, the storm is three miles from you.

(CAUTION MATH AHEAD: 15 seconds divided by 5 seconds for every mile equals 3 miles.) As the storm moves through your area, the time it takes for you to hear the thunder will either increase or decrease. If it increases, that means the storm is getting farther away from you. If the time decreases, that means the storm is getting closer to you.

Keep in mind this method works best when there is only one thunderstorm for you to track. If there is more than one storm, it becomes almost impossible to tell which storm produced the thunder you are hearing.



### *Take the Time*

My day is so busy, with homework and chores,

But I always like to dance in the rain

When it pours.

The flowers are growing, and dandelions too.

I enjoy picking them for my mom

When she's blue.

The thunder grows louder, the showers begin.

I look out my window and wave at you,

"Please, come in!"

When the storms roll away, all will be fine.

Let's watch nature at work -

Take the time.

*~ Author Unknown*

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, 2021. Please email your entries [here](#).

We look forward to hearing from you!





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## From Piedmont to Mountaintop

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In this edition, we share with you a few pictures that were taken by our meteorologists. The first one was captured right before sunrise on a December morning. Scattering of sunlight by the atmosphere during the day produces the familiar blue color. When the sun is still below the visible horizon, the red and orange side of the spectrum (remember Roy G. Biv?) is scattered and intersects the bottoms of the clouds, which in turn is reflected to our eyes and generates this fiery sky image. The same effect can also happen at sunset.



Our second picture captures the arrival of a snow squall. Much like a line of showers or storms in the spring, the snow squall line has a relatively narrow width, and crosses an area rapidly with a sudden burst of precipitation. Notice how the landscape in the background on the left side of the picture is completely obscured by the snow? In contrast, in the background on the right side, we can still see clear sky, and even the foreground is still snow-free. This type of event can reduce visibilities to near zero and make travel extremely hazardous very quickly.



Our final picture is a combination of flora and fauna. Here, we can see four deer searching for food among the bare patches of melted snow cover.



While we at the National Weather Service enjoy taking weather-related pictures, we would love to see snapshots of the weather in your neighborhood! From now through October 1, 2021, 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 select a few photos from the total number submitted by the public for inclusion 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 would also be credited appropriately. We look forward to seeing our region through your lens!

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## Stay Safe & Stay Involved!

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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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