



Carolina SkyWatcher



National Weather Service, Newport/Morehead City, NC

<http://weather.gov/Newport> —> **Bookmark it!!**



Winter 2020-21 Edition



Winter Preview 2020-21

By Chris Collins, Meteorologist



Despite our location near the ocean and away from the mountains, eastern North Carolina frequently has bouts of severe winter weather and cold. It is actually quite unusual to not have at least some snow or ice during the course of a winter in our area. Annual snowfall typically ranges from 2 inches or less near the coast, with areas around Greenville normally receiving between 4 and 6 inches. Larger storms do occasionally occur. Right before Christmas in 1989, a snowstorm dumped 12 to 18 inches along the coast of eastern North Carolina.

These type of winter events produce very hazardous conditions. Before a winter storm, make sure your home, office and vehicles have the supplies you need. Roads often become very treacherous and secondary roads are often untreated immediately after a storm. Always carefully plan your travel and check the latest weather reports.

CONTENTS

Winter Preview 2020-2021	1
NWS Newport/Morehead City now on Instagram	2-3
Winter Preparedness	4-7
Winter Weather Skywarn	8
New Weather Story Infographic	9
Utilizing Dual-Pol Radar for Winter Weather Forecasting	10-12
Winter Events of 2019-2020	13-15
Summary of the Busy 2020 Atlantic Hurricane Season	16-18



Snow in Greene County, February 20-21, 2020

NWS Begins Prototype Instagram Social Media Service

By Mike Lee, Meteorologist

You can now follow us on Instagram! As of November 2nd, the National Weather Service launched its Prototype Instagram Social Media Service to determine the potential use of Instagram as a strategic asset for the NWS mission at field offices around the country. An exploratory group of 28 local and national sites have volunteered to be among the first to engage in prototype usage of the social media platform, including the Newport/Morehead City Weather Forecast Office. Follow us today by searching for our handle **@nwsmoreheadcity**.

Part of the NWS mission is our Weather-Ready Nation initiative, a vision of empowering our communities across the country to prepare for extreme weather events. The devastating impacts of extreme events such as record-breaking snowfall, violent tornadoes, destructive hurricanes, widespread flooding, and devastating drought can be reduced through early education and advanced action. Engaging the public and our partners in an effective conversation around severe weather preparedness is part of our effort to build a Weather-Ready Nation.

Social media is one of many critical communications tools that helps the NWS share accurate and critical information directly with the general public. Instagram's focus on mobile photo and video sharing targets the media consumption habits of a younger age demographic. Having a presence on Instagram allows us to gauge the social media platform's practicality for expanding our outreach toolkit and ultimately broaden the scope of our effective communications with the public.

The NWS is seeking public comments on the potential use of Instagram in the agency's mission at weather service field offices during the prototype period. Based on the findings, NWS will determine whether to continue to pursue the use of Instagram at field offices.

Feedback can be provided online at surveymonkey.com/r/NWS_Prototype_Instagram. The prototype period will last approximately through June 8th, 2021.



NWS Begins Prototype Instagram Service (Continued)



Winter Preparedness

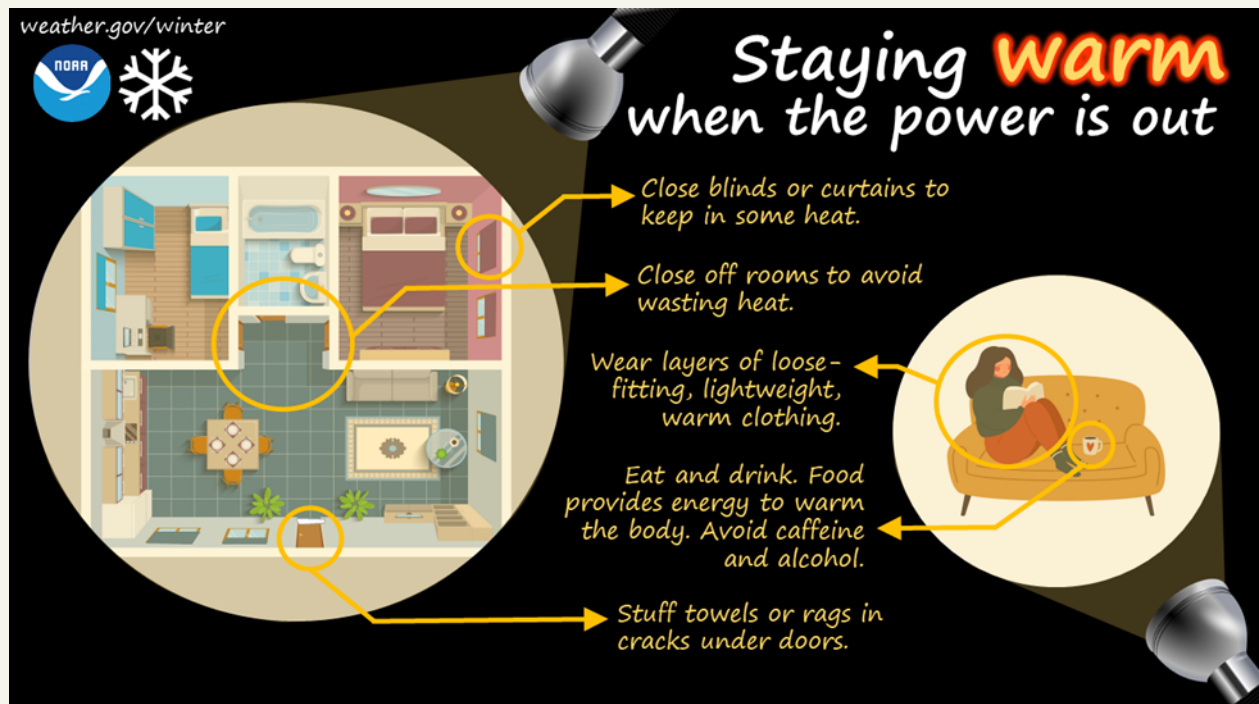
By Erik Heden, Warning Coordination Meteorologist

This year Winter Preparedness week in North Carolina was December 6th to 12th, but it is NEVER too late to prepare. While the [official forecast from the Climate Prediction Center](#) is for above normal temperatures, it only takes one snowstorm or ice event to cause problems. When we think of preparedness for winter weather, you can break it down into three areas: In your home, on the road, and being outside.

In Your Home:

In your home, preparation begins with assessing whether or not you have enough nonperishable food, water and medicine for at least 3 to 5 days. For many of you, your hurricane kit from this past tropical season is a good place to start. Do you need to add any items? To you need to replace any items? In addition to ensuring you have enough supplies on hand, how is the heating system in your home? Ensuring that your heating system is in good working order is a good checklist item heading into the winter season.

Severe winter storms can produce conditions which can isolate you in your home for several days. Prolonged loss of power and telephone services can severely limit your ability to heat your home and call for help. In severe winter storms, obtaining supplies, food and other necessities can be hampered or prevented by poor road conditions. For tips on how to stay warm when the power is out, see the graphic below.



Winter Weather Preparedness (Continued)

One of the biggest winter risks is losing power during an ice storm. This graphic gives you ways you can keep your home warm even when the power is out. For more infographics visit: <https://www.weather.gov/mhx/wwaw>

On The Road:

1. Seventy-five percent of all winter weather related deaths occur on the road, either in accidents or by people becoming stranded. When the weather is bad and driving conditions are poor, the best bet is to stay at home. If you do have to travel in wintry weather, follow these tips below.
2. Make sure your car is in good running condition. Make sure that your battery, anti-freeze, windshield wipers, ignition and thermostat are all in good working order. Be sure your tires have enough tread. Replace any of these items if necessary.
3. If you must go out when snow and ice are on the ground, let someone know your destination and when you plan to arrive. Also take a cell phone with you if possible.
4. Clean snow and ice off all parts of your car before you drive away.
5. Keep your gas tank as full as possible when snow and ice are forecast. This will not only give you added peace of mind, it also increases the weight of your car and this will provide additional traction.
6. Keep the following basic items in your car - windshield scraper and brush, booster/jumper cables, a tow chain or rope, bag of sand or salt, blankets, flashlight, first aid kit and road map.
7. Overall drive slow. Driving at even posted speeds is extremely dangerous when snow and ice are on the road. Many vehicles will lose traction especially at higher speeds resulting in serious accident and vehicle rollovers.
8. Steer your car into the skid. If your vehicle loses traction and begins to skid, steer the front tires into the direction of the skid. Never hit your brakes as this will result in a more serious skid and spinning of the vehicle. When your vehicle skids keep your cool and remain calm. Again driving at slower speeds will help you recover from a skid.

Winter Weather Preparedness (Continued)



Winter driving can be dangerous but if you check the forecast ahead of time, you may be able to avoid wintry weather all together. If you must go, be sure your vehicle is ready and you have an emergency supply kit. For more infographics visit: <https://www.weather.gov/mhx/wwaw>

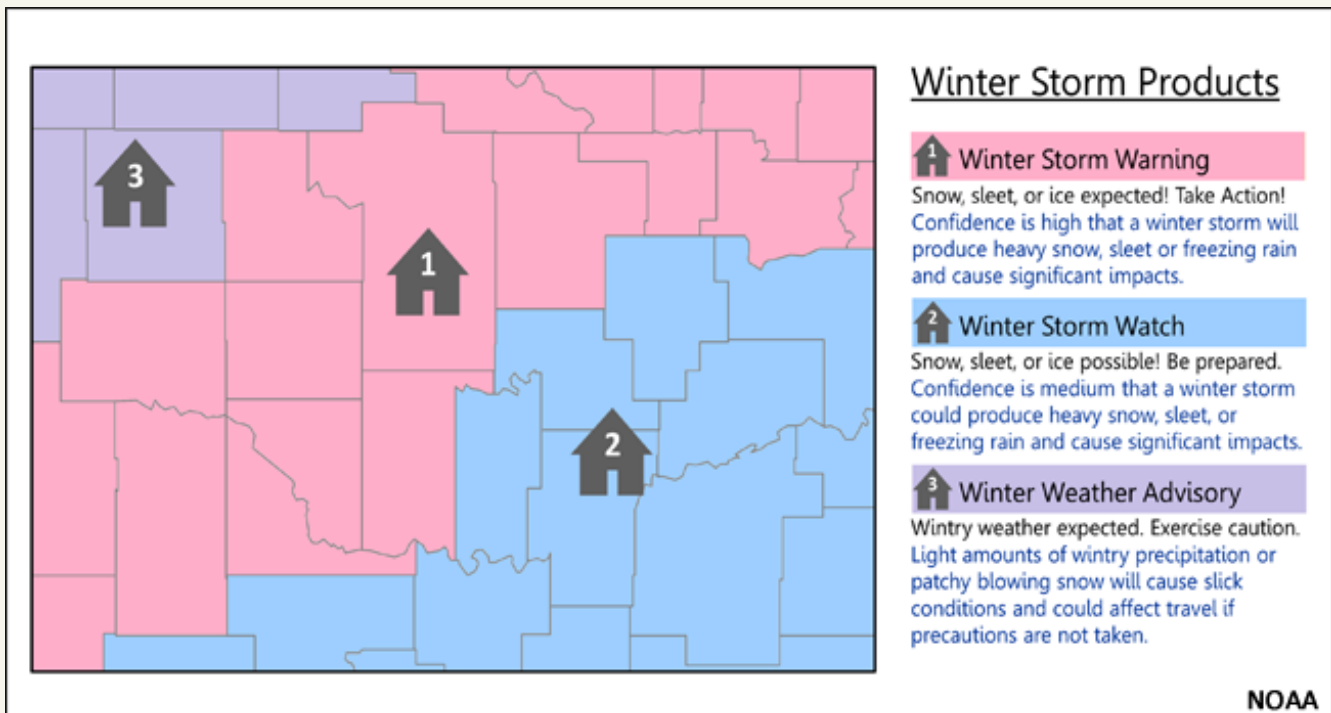
Being Outside:

While extreme cold is rarer in Eastern North Carolina than other parts of the country, we often experience at least a few mornings where temperatures fall back into the teens or 20s. When you must be outside during periods of cold, learning how to dress properly makes all the difference. From the graphic below, how you dress will vary depending on the temperature and wind forecast. In periods of colder weather, especially if it is windy, adding extra layers of clothing can make a big difference. Don't forget about your extremities. Hats, gloves, and thicker socks or boots can help prevent frostbite. If you have extra hats, gloves or jackets, it's not a bad idea to throw these into your vehicle if you plan to go on a long trip to an area that experiences colder weather than we do.

Winter Weather Preparedness (Continued)



Dressing for cold weather is one of the easiest things we can do. An extra layer of clothing, a hat, and gloves can make a huge difference in preventing frostbite. For more infographics visit: <https://www.weather.gov/mhx/wwaw>



Winter Weather Spotter Season 2020-21

By Erik Heden, Warning Coordination Meteorologist

With chilly weather upon us, it's time for our winter weather spotter season to begin! If you've never been to a class before, these are free and open to all ages with no equipment required. All that we ask is you have a general interest in weather and would like to volunteer to report weather information to us throughout the year. The main focus of the winter classes will be on reporting snow and ice measurements. All classes will be virtual with classes through January. Throughout the class, we will discuss a bit about who the National Weather Service is and what we do, along with discussing the types of winter weather that can impact Eastern North Carolina. The trained eye of the storm spotter is very valuable to us because you can confirm what is exactly happening or not happening on the ground at your location. We use this specific information to help in our warning process at the office. Your reports truly can save lives! We truly want you to become a year round spotter for us.

If you want more information please visit our website at www.weather.gov/mhx and click on the SKYWARN logo at the bottom. You will notice that most of our classes are during the evenings and include weekends and weekdays. If you can't find a class that fits your schedule we have recorded versions via our YouTube channel or by clicking the tab labeled "recorded training on our official SKYWARN website. Once you complete these, information follows on how to register to become a spotter.

NOAA

Six Basic Steps for Properly MEASURING SNOW

Accurate and timely snowfall measurements are extremely important to your National Weather Service office, your community, local media, and many others. Here are the six steps you need to know for measuring snow:

- 1 Supplies**
Ruler or yard stick
24" X 24" white board, flag
- 2 Planning**
Find an open area away from tall objects, but sheltered from wind
- 3 Set-up**
Set up before snow begins
Put your board out and mark it with the flag
- 4 Measuring Snow**
Record your total to the nearest tenth of an inch
Wipe the board off after measuring
Measure once daily at the same time, after measuring place the board on top of snow
- 5 When Snow Stops**
Measure as soon as the snow stops to avoid lower totals due to melting, settling and drifting
- 6 Reporting**
weather.gov
social media
SEND us your report!

New “Weather Story” Info-Graphic

By Shane Kearns, Meteorologist

Recently the Newport/Morehead City NWS office has started publishing a “Weather Story” information graphic on our webpage, which is meant to capture the essential “headline of the day” for eastern North Carolina. It will be yet another method where we can share critical weather information to the public, and acts as a visual summary of upcoming weather events. Additionally, this content will feature easy to understand language, and is streamlined for public consumption. This type of graphic has already had great success for other offices across the country, and has been used by the public, emergency managers and the news media.

You can find the Weather Story on our main webpage (www.weather.gov/mhx) just below the Watch, Warning, and Advisories map. The Weather Story will be updated every morning, with additional updates during the day possible if the forecast changes significantly. As always with new products, we appreciate any feedback that can be provided on the usefulness (or not) of the Weather Story.

NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by "City, St" or ZIP code
Enter location:
[Location Help](#)

News Headlines

- [Winter Preparedness Week Is December 6th - 12th, 2020. New Infographics Have Been Added!](#)
- [Winter SKYWARN \(Weather Spotter Classes\) Are Back! Free, Virtual Weather Classes Now Scheduled Through Mid-January](#)
- [The NWS radar display will be changing in December. Here's a tutorial to help you navigate the upcoming changes.](#)

MY FORECAST
San Angelo TX

Fair
39°F
4°C [Get Detailed info](#)

Overnight
Mostly Clear
Low: 35°F

Tuesday
Sunny
High: 73°F [change location](#)

NWS Forecast Office Newport/Morehead City, Newport/Morehead City, NC
Weather Forecast Office
[Weather.gov](#) > Newport/Morehead City, NC

[Current Hazards](#) [Current Conditions](#) [Radar](#) [Forecasts](#) [Rivers and Lakes](#) [Climate and Past Weather](#) [Local Programs](#)

Click a location below for detailed forecast.

Watches, Warnings & Advisories

- Gale Warning
- Small Craft Advisory
- Hazardous Weather Outlook

[Zoom Out](#)

Weather Story
Light Rain and Cool Temperatures Today
Radar this morning showing light rain overspreading much of eastern NC. Rain should end late tonight, with cold weather through midweek.
National Weather Service | WFO Morehead City
[weather.gov/mhx](#) [Facebook](#) [Twitter](#) [Instagram](#)

Local Radar

Satellite
12/08/20 07:21Z GOES-East

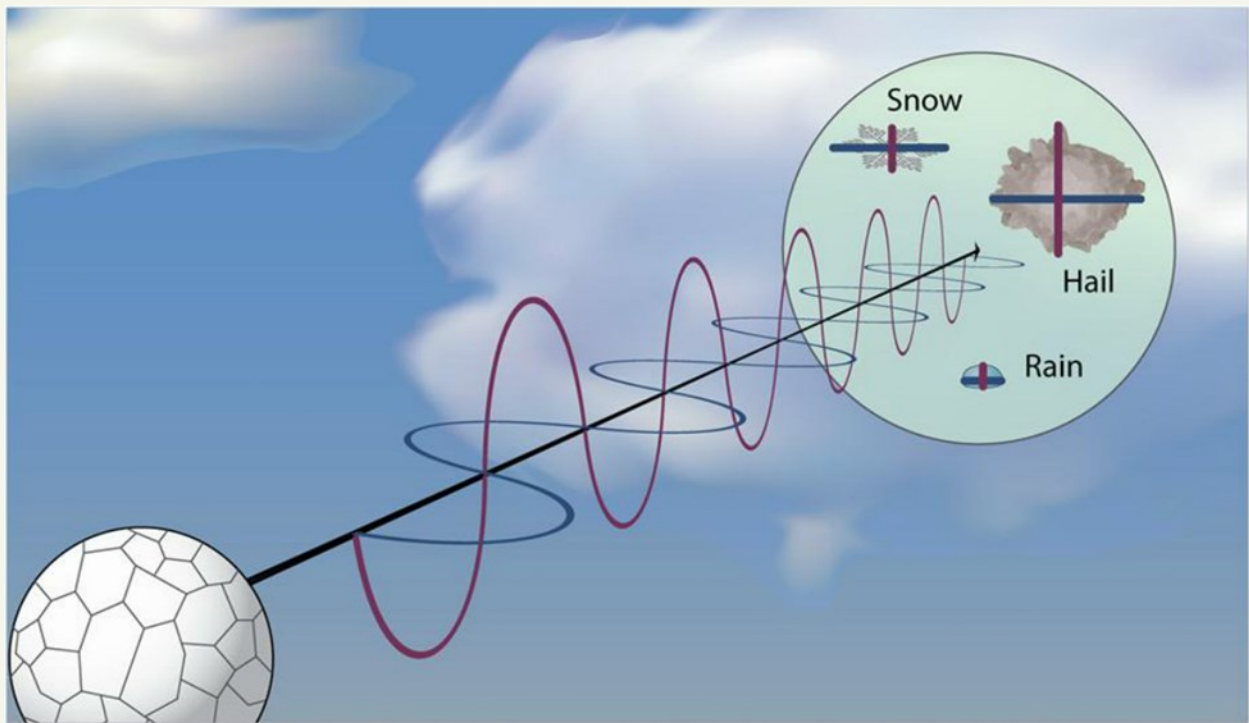
Text Product Selector (Selected product opens in new window)
Latest Text Products Issued by MHX

Utilizing Dual-Pol Radar for Winter Weather Forecasting

By Tom Lonka, Meteorologist

While the NEXRAD (Next-Generation Radar, WSR-88D) gives forecasters a revolutionary way to detect tornadoes, due to the ability to detect velocity in addition to reflectivity, the advent of Dual Polarimetric technology (Dual-Pol) to the NEXRAD system gave forecasters a new look at the shape of hydrometeors (rain, hail, snow, etc).

Dual-Pol radar transmits and receives pulses in both a horizontal and vertical orientation. As a result, the returning frequencies provide measurements of the horizontal and vertical dimensions of targets, versus only the horizontal dimensions as with conventional Doppler radar. This supplies forecasters with better estimates of the size, shape, and variety of targets.




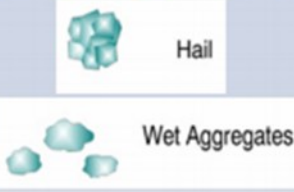

Schematic showing how both horizontal and vertical pulses detect various types of precipitation.

Many benefits are owed to Dual-Pol radar, including better estimates of rainfall to detect flash-flooding, distinguish between biological (birds, insects, etc) scatterers and precipitation, detect hail, and detect tornadic debris.

Dual-Pol Radar for Winter Weather Forecasting (Continued)

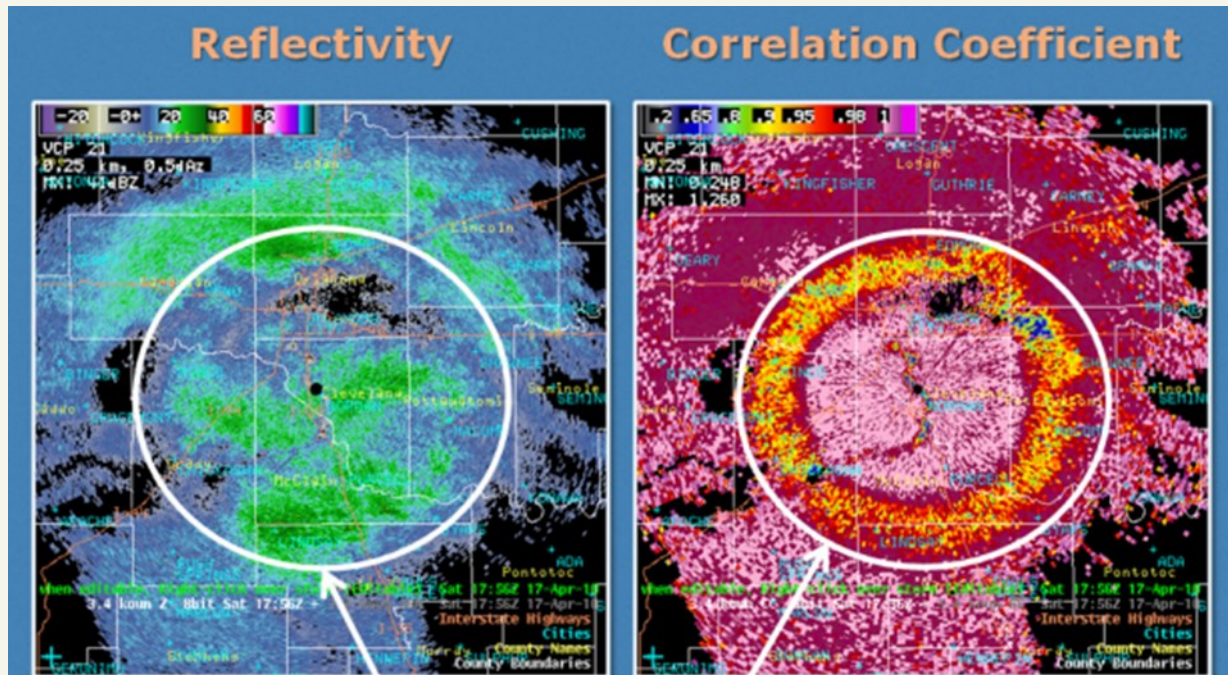
As we head into the winter season, Dual-Pol radar assists forecasters in the detection of rain versus snow, or mixed precipitation, and where and how the rain/snow line is evolving. Correlation coefficient, or CC, is one particular product within Dual-Pol that is used often to aid forecasters in detecting where the rain/snow line resides. The higher the CC value, the more uniform the droplets will be. High CC values indicate either a majority of snow or a majority of rain. Lower CC values indicate mixed precipitation, or where snow is melting and changing to rain. During a transition period of rain to snow at the ground, the CC can help the forecaster better locate where the transition is occurring. A brief drop in CC is associated with the melting of snow to rain near the surface.

Physical Interpretation

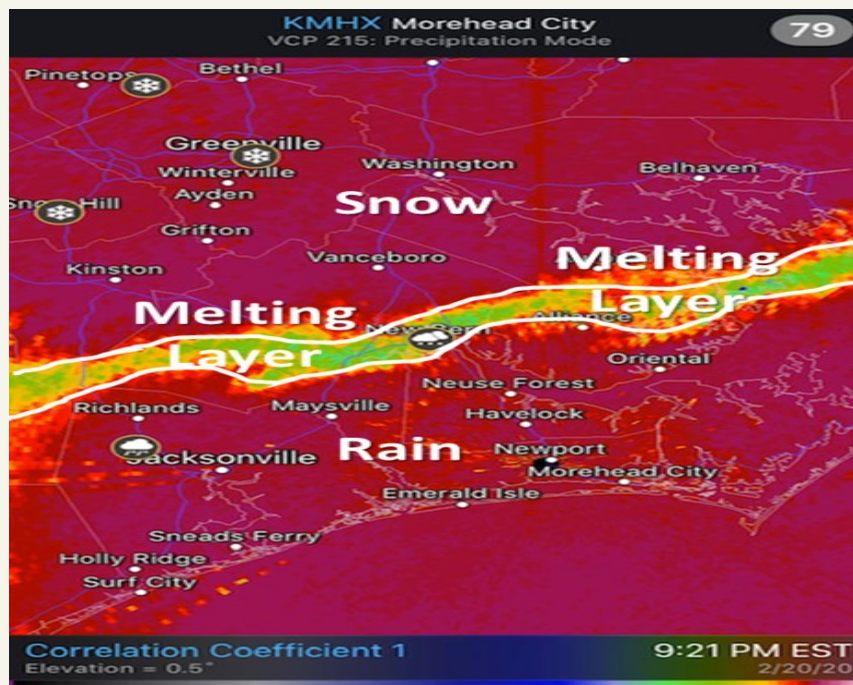
<u>Non-Meteorological</u> (birds, insects, etc.)	<u>Metr (Non-Uniform)</u> (hail, melting snow, etc.)	<u>Metr (Uniform)</u> (rain, snow, etc.)
		
Shapes are complex and highly variable. Horizontal and vertical pulses will behave very differently with these objects	Shapes can be complex and are mixed phase. Horizontal and vertical pulses behave somewhat differently with these objects	Shapes are fairly simple and do not vary much. Horizontal and vertical pulses behave very similarly with these objects
Low CC (< 0.9)	Moderate CC (0.85 to 0.95)	High CC (> 0.97)

Correlation coefficient, or CC, is a valuable base product within Dual-Pol radar to help determine precipitation type.

Dual-Pol Radar for Winter Weather Forecasting (Continued)



Identification of the melting layer is a big advantage of CC. In a standard reflectivity image, the melting layer is difficult to discern. With CC, it usually stands out readily. The melting layer is characterized by a ring of low CC values, which is where there is a mixture of precipitation types, in this case rain and snow. The CC values increase again when the changeover to all rain has occurred.

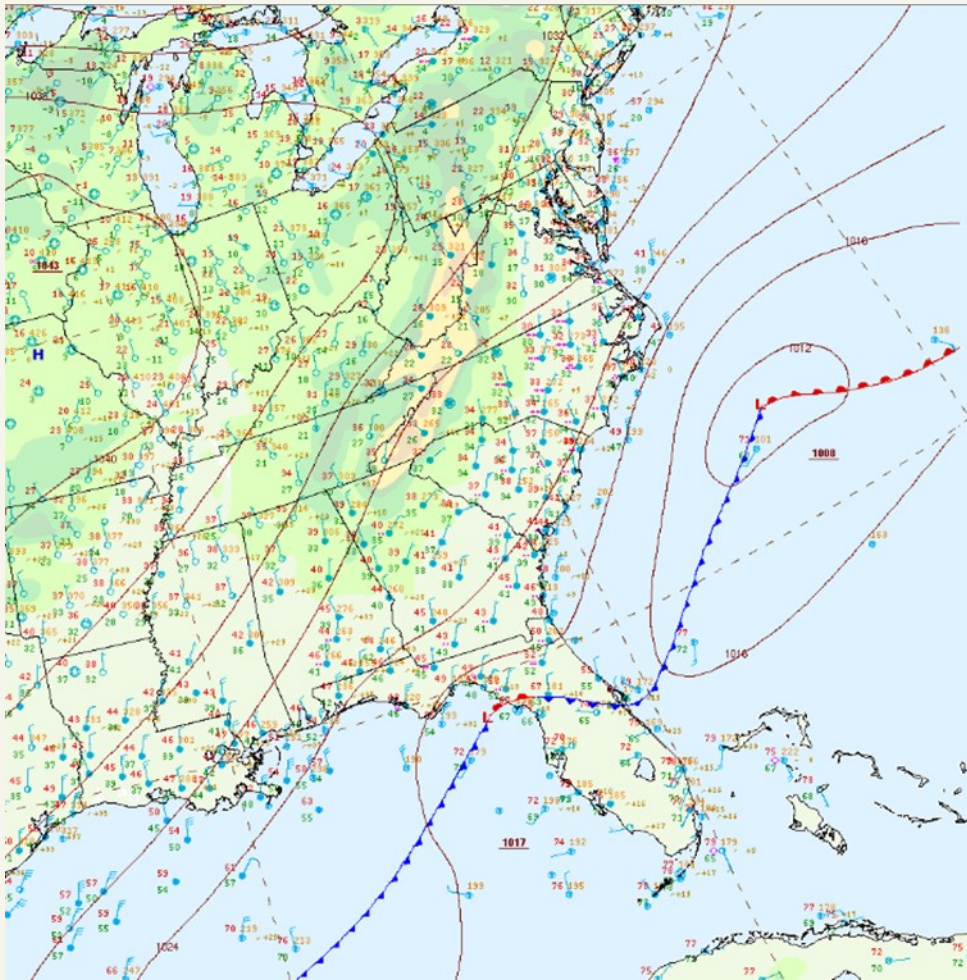


A clearly discernable melting layer is observed across Eastern NC with the Correlation Coefficient product. The transition from rain to snow is moving southward towards the Crystal Coast in this example. When animating the radar imagery, forecasters can get a good estimation of where and when this transition will occur using CC.

The 2019-2020 Winter Season

By Bob Frederick, Meteorologist

There was only one winter weather event that impacted the area last winter. An area of low pressure developed offshore and strengthened as it moved northeast during the afternoon of February 20th through the morning of February 21st.

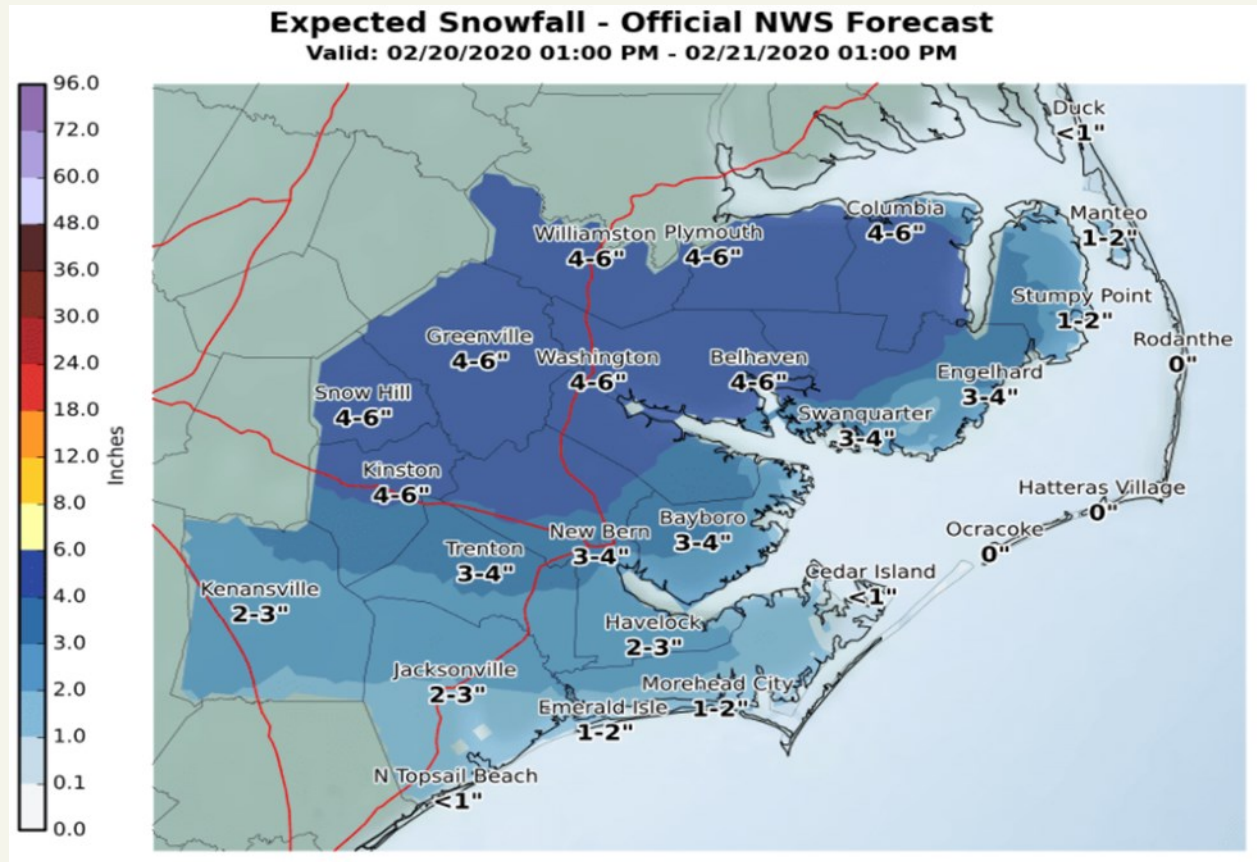


Surface map showing developing low pressure off the coast during the evening of Feb 21st, 2020.

Precipitation began as mainly rain over the area, then as colder air was pulled south the rain mixed with an eventually changed to snow before ending early on Feb 21st. This was a very tricky forecast as trying to time how quickly the rain changed to snow was critical on how much accumulation we would see. The ground was also rather warm and this would lead to some melting that would limit accumulations as well.

The 2019-2020 Winter Season (Continued)

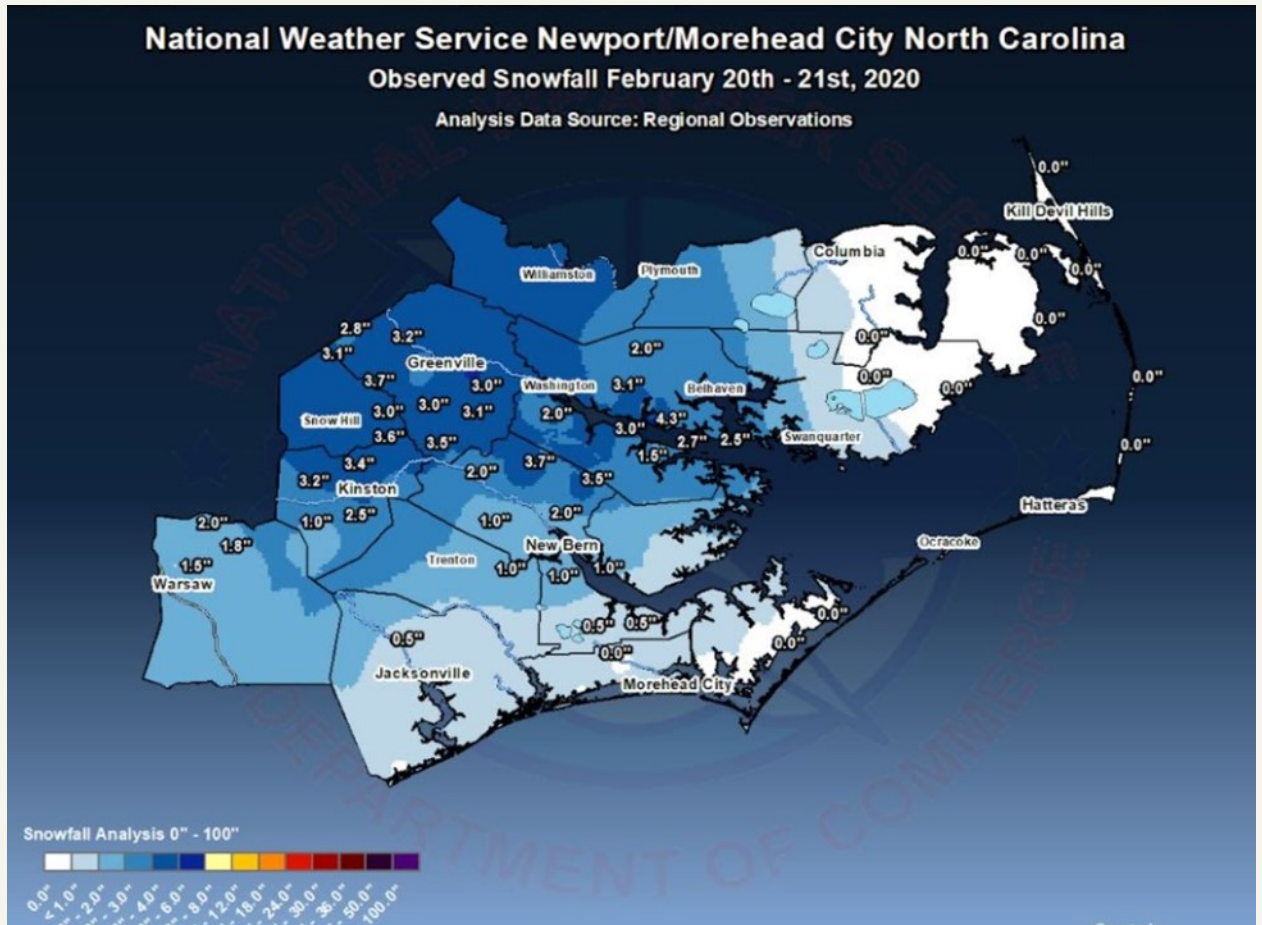
Below is the forecasted snowfall amounts that our office issued right before the event.



Snowfall Forecast issued on Feb 20, 2020.

We were expecting the best coverage of snow over the northwest part of our area with the least amount near the coast. Our forecast did a good job showing what areas would see the most snow, but was a little overdone. With the ground rather warm before the event began, the impacts were short-lived as temperatures rose to the mid 30s during the afternoon, melting the snow on most roads. You can see a map of the what snowfall actually occurred on the next page.

The 2019-2020 Winter Season (Continued)



Observed Snowfall February 20-21, 2020



Snow in Kinston, February 20-21, 2020

Record Breaking 2020 Hurricane Season Draws to a Close

By Carl Barnes, Meteorologist

Predictions of a very active 2020 Atlantic/Gulf of Mexico hurricane season came to fruition as a record-breaking 30 named storms occurred, with 12 landfalling systems. This was the most tropical cyclones on record for a season, surpassing the 28 from 2005. The 2020 season got off to an early and rapid pace with a record nine named storms from May through July, and then quickly exhausted the 21-name Atlantic list when Tropical Storm Wilfred formed on September 18. For only the second time in history, the Greek alphabet was used for the remainder of the season, extending through the 9th name in the list, Iota.



This is the fifth consecutive year with an above-normal Atlantic hurricane season, with 18 above-normal seasons out of the past 26. Portions of the Gulf Coast received the most significant impacts this season, with 5 systems coming ashore along the Louisiana coast - including Major Hurricane Laura, which brought widespread devastation when it made landfall along the coast near Lake Charles as a Category 4 hurricane in late August.

2020 Hurricane Season Draws to a Close (Continued)



[Click here for more information on the 2020 Atlantic and Gulf of Mexico hurricane season.](#)

Local Impacts

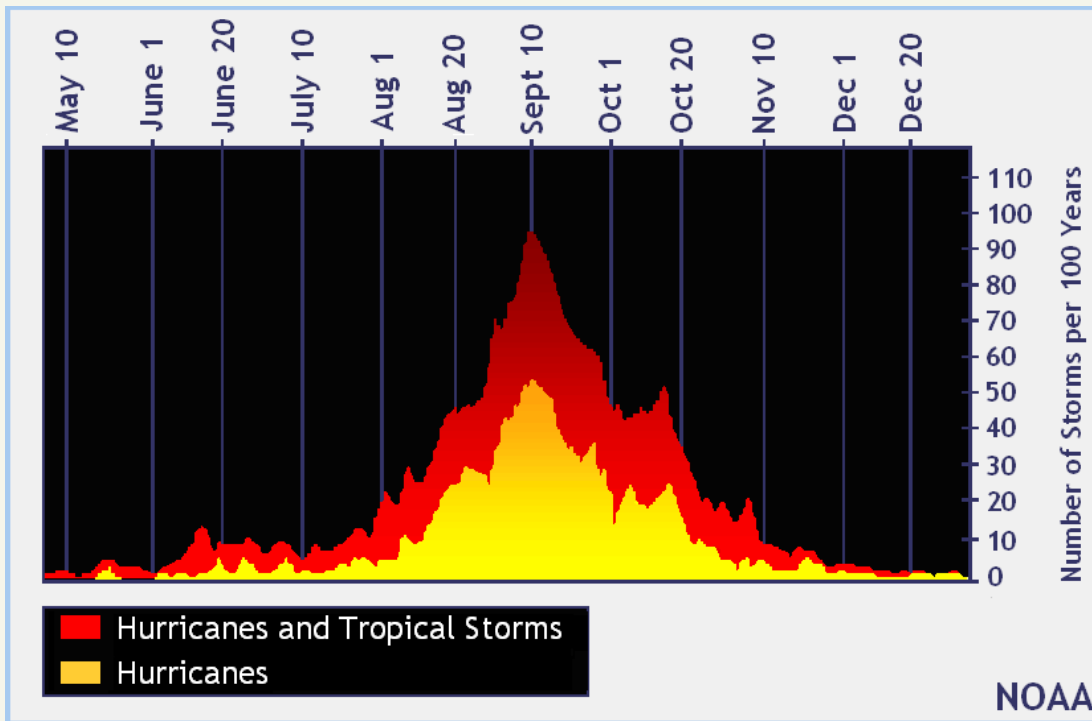
Locally, our area once again received direct impacts - with Tropical Storm Arthur and Hurricane Isaias both passing over or very close to eastern North Carolina - and indirect impacts from several tropical systems. The season started early as Tropical Storm Arthur passed just offshore of the Outer Banks in mid-May, bringing gusty winds, heavy rainfall, and dangerous surf to the area. [Click here for more information on Tropical Storm Arthur.](#)

The most widespread impacts from a tropical system this year came courtesy of Hurricane Isaias, which made landfall near Cape Fear in early August. The center of the storm then tracked across the inner coastal plain, with much of our area experiencing strong winds, periods of heavy rainfall on the east side of the center of the storm. Additionally, 5 tornadoes were confirmed in our area of responsibility and storm surge and beach erosion occurred along the coast. [Click here for more information on Hurricane Isaias.](#)

2020 Hurricane Season Draws to a Close (Continued)

Indirect impacts were also felt when strong swell from the remnants of Sally and distant Hurricane Teddy, in combination with elevated tidal levels, resulted in a prolonged period of dune overwash and significant impacts to travel and properties for Hatteras and Ocracoke Islands in mid-September. [Click here for more information on this prolonged overwash and coastal flooding event.](#)

Finally, moisture from Tropical Storm Eta combined with an approaching cold front to bring widespread heavy rainfall in Mid-November. Five to eight inches of rain fell across much of the area, resulting in flash flooding and longer term major river flooding. [Click here for more information on this flash flooding event.](#)



Graphic showing historical tropical cyclone formation times. Notice that tropical cyclone formation is very rare past the end of November.

Cooler

Cooler ocean water has likely brought an end to the threat for tropical weather for eastern North Carolina until 2021. While the hurricane season officially begins again on June 1st, we have seen in recent years that tropical systems in May are possible. You are encouraged to follow NWS Morehead City on Facebook, Twitter, and Instagram, and be on the lookout for hurricane season safety and preparedness information in the spring as we approach hurricane season 2021!



National Weather Service

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 Twitter: @NWSMoreheadCity
 Facebook: [/www.facebook.com/NWSMoreheadCity](http://www.facebook.com/NWSMoreheadCity)

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twitter



Wind Chill Chart

		Temperature (°F)																	
		40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Wind (mph)	Cal	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97	
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	

Frostbite Times
 30 minutes
 10 minutes
 5 minutes

Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})
 Where, T= Air Temperature (°F) V= Wind Speed (mph) Effective 11/01/01