



# Carolina SkyWatcher



National Weather Service, Newport/Morehead City, NC

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

Winter 2019-20 Edition



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## Winter Preview 2019-2020

*By Chris Collins, Meteorologist*

Despite the influence of the nearby ocean, winter weather can and does occur in eastern North Carolina. In fact, it is rare to go through an entire winter in our area without receiving some sort of ice or snow event. For example, on the morning of March 5, 2019, a quick-hitting system produced up to 3 inches of snow in Onslow County. Another system back on December 9, 2018, produced up to 4 inches of snow in Pitt County.

These types of winter events produce very hazardous conditions across eastern North Carolina. Before a winter storm strikes, you should 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. Make sure to winterize your vehicle.

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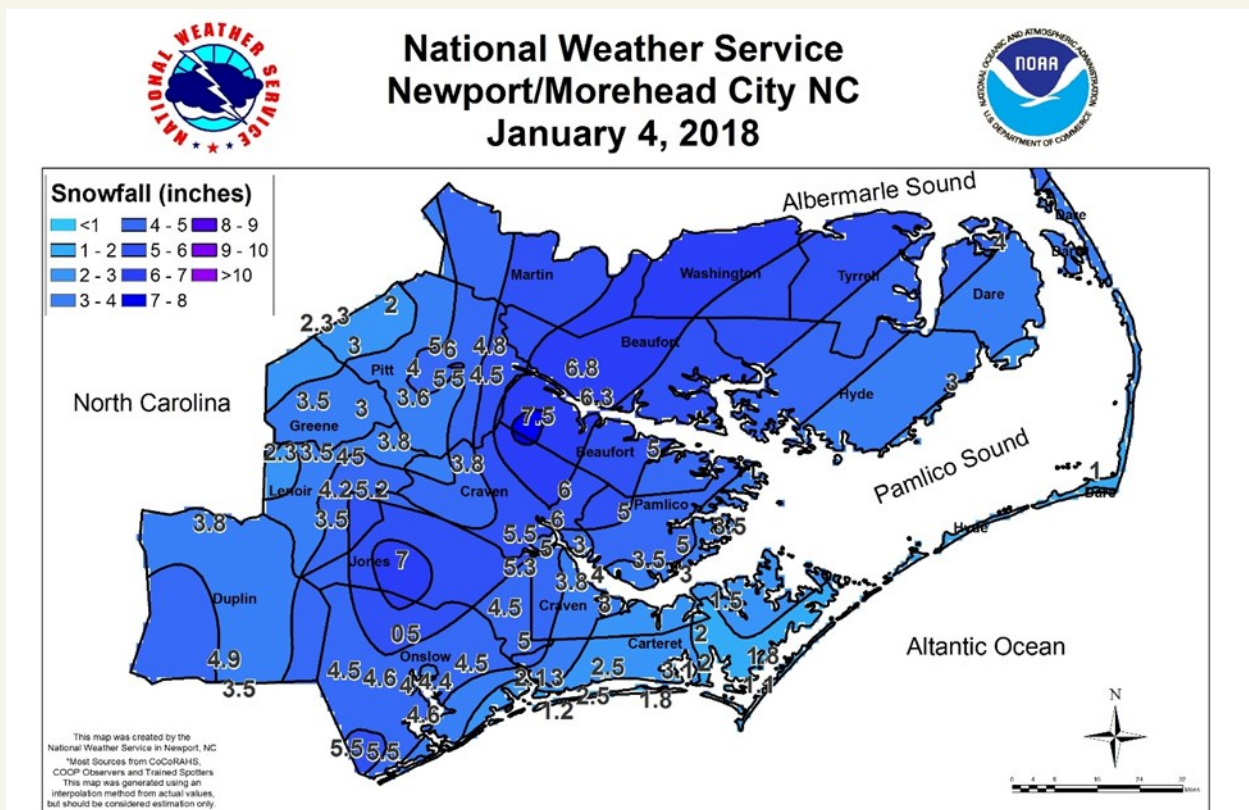


Snow in Jacksonville, March 5, 2019.

## Winter Weather Preparedness Week

By Erik Heden, Warning Coordination Meteorologist

While many associate Eastern North Carolina with beautiful beaches, hurricanes and humidity, we can have snow and ice each winter, even with our proximity to the ocean. During the first week of December, all of the offices that cover North Carolina participated in Winter Weather Awareness week to help the area prepare for the upcoming winter. Highlights includes knowing the different criteria we use for products like Winter Storm Warnings and Wind Chill Watches. We discussed some recent winter storms that impacted our area, like back to back storms in January of 2018 when we saw snows of 2-8" plus, with low temperatures below zero!



January 4<sup>th</sup>, 2018 snowfall that produced heavy snow across much of the area. The following mornings were cold, with some locations experiencing below zero temperatures.

Throughout the awareness week, tips for preparing your home for winter weather along with what supplies to have in your emergency kit were detailed. Very similar to what you would have for tropical season, you should always have at least 3 to 5 days of non-perishable food, water, and medical supplies on hand in the case of an emergency. Keep in mind that while we do not see the frequency of winter weather here as often, when it does occur it may be quite difficult to travel for a period of time.

## Winter Weather Preparedness Week (Continued)

Lastly we spoke about driving in winter weather, along with an emphasis on how reporting weather information to us as a trained spotter can help the office. You can always find the latest weather spotter training information on our [spotter page](#).

If you missed our information during Winter Weather Awareness Week, you can always visit our newly designed winter preparedness website here: <https://www.weather.gov/mhx/wwaw> Below are some sample graphics that can be found on our winter weather awareness page.

**first snow**


*The first snow of the year can often cause major problems on the road as people adjust to the poor driving conditions.*

**safety tips**

- Slow down
- Don't use cruise control
- Leave plenty of distance between you and other vehicles

**"Sneaky" Winter Hazards**

The winter season brings many weather events that can "sneak" up on you. These are weather hazards that cause big impacts and make travel difficult without making big news.

weather.gov 

Often the first snow of the season can be dangerous, especially when not all drivers have a lot of experience in our area driving in snow.

## Winter Weather Preparedness Week (Continued)



Before any trip, knowing the forecast and road conditions, along with having safety supplies on hand in case of an emergency, can ensure you make your final destination safely.



Winter driving is more difficult and requires even more concentration than normal driving conditions.

## Winter Weather Preparedness Week (Continued)

**NO WIND**

**98.6°F**  
Average temperature of the human body

Under calm conditions, the body radiates heat, creating a layer of warmth between our skin and the cold surroundings.

**The Science of Wind Chill**

**WINDY**

**95°F**  
Hypothermia begins when our body temperature drops two to four degrees

But when it's windy, the moving air breaks up this insulating layer. It speeds up heat loss by whisking away the warmth from our skin.

Heat is moved away from our bodies.

[weather.gov/winter](http://weather.gov/winter)

This is why it feels so much colder on a windy day!

**DRESSING FOR COLD WEATHER**

adding layers will help keep you warm as the temperature drops

**CHILLY**

1-2 layers  
long layer  
outer layer to keep out wind, rain  
warm shoes water proof

**COLD**

2-3 layers  
gloves  
boots water proof  
warm hat  
outer layer to keep out wind, wet snow

**EXTREME COLD**

3+ layers  
1 insulating  
gloves  
boots water proof  
warm hat  
face mask  
outer layer to keep out wind

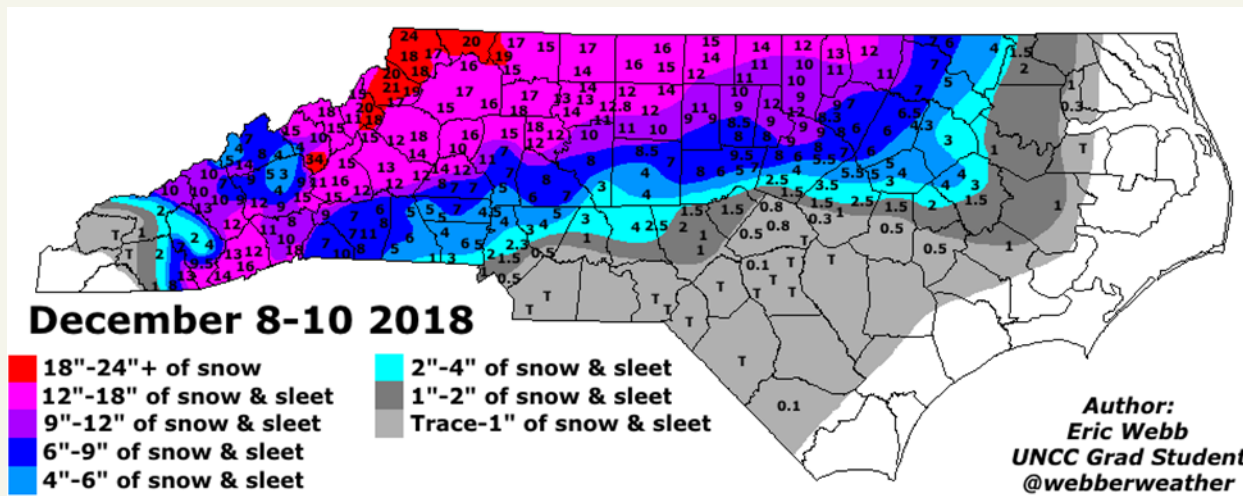
[weather.gov/safety](http://weather.gov/safety)

Just like mom always said, dressing in layers, and wearing a hat and gloves in extreme cold is always a good idea if you're headed outside in the winter.

## A Mild 2018-2019 Winter Season

*By Tom Lonka, Meteorologist*

With the exception of two light snow events, the winter of 2018-2019 was quite mild across Eastern North Carolina, averaging several degrees above normal from December through February. Meteorological winter is defined from December 1<sup>st</sup> through February 28<sup>th</sup>. The first event occurred the second week of December, where up to several inches of snow fell across the northern Coastal Plain. Heavier amounts fell across northern and western NC. The snow quickly turned to rain early Sunday morning, and no major impacts were felt as any snow on the roads quickly melted as temperatures warmed.

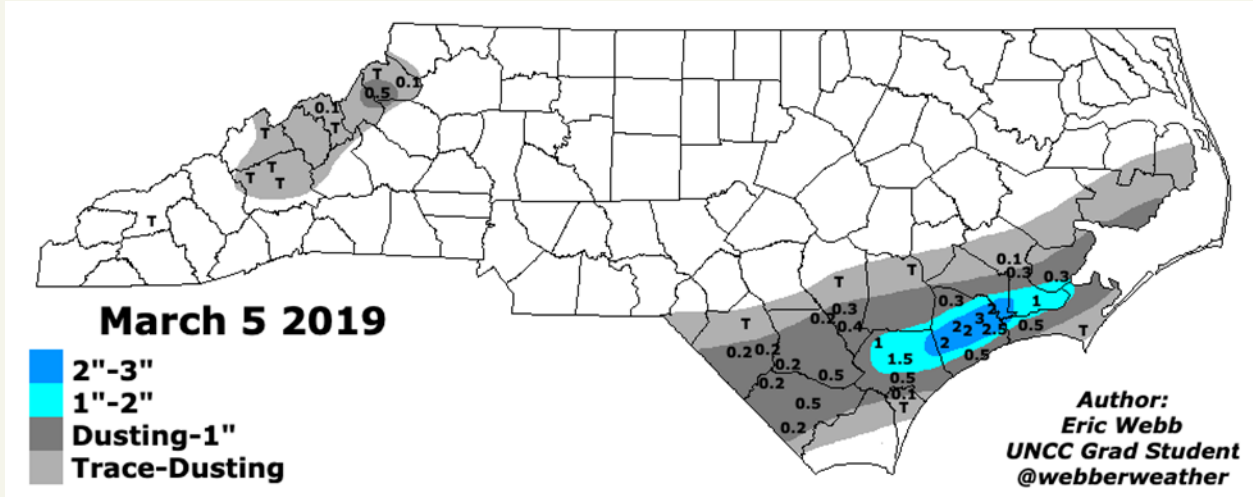


Snowfall Amounts from December 8-10, 2018 Event.

The second event occurred during the first week of March. Light snow developed over the southern tier of Eastern North Carolina, generally along Highway 17 from south of New Bern to Jacksonville. Areas around Jacksonville picked up a quick couple of inches, with snowfall rates around 1 inch per hour. This event was more impactful, as the higher snowfall rates occurred just before the morning commute. The snow tapered off by mid morning Tuesday. With the high March sun angle, the snow was already a distant memory by afternoon.

# A Mild 2018-2019 Winter Season

By Tom Lonka, Meteorologist



Light Snow Amounts from the Morning of March 5, 2019.

## Tuesday's Snowfall (in)

2 SSE Pumpkin Center	3.2	2 NW Midway Park	3
Verona	2.5	2 WNW Haws Run	2
1 NE Jacksonville	2	1 ENE Deppe	2
3 W Jacksonville	2	Piney Green	2
Haws Run	1.5	3 S Havelock	1
2 SW Jacksonville	1	1 SW Havelock	0.8
James City	0.3	Oriental	0.3
2 SSE Havelock	0.3	2 SSE Trent Woods	0.2

data valid as of Tue 11:47 am - NWS Newport/Morehead City  
photo by: Zach Frailey

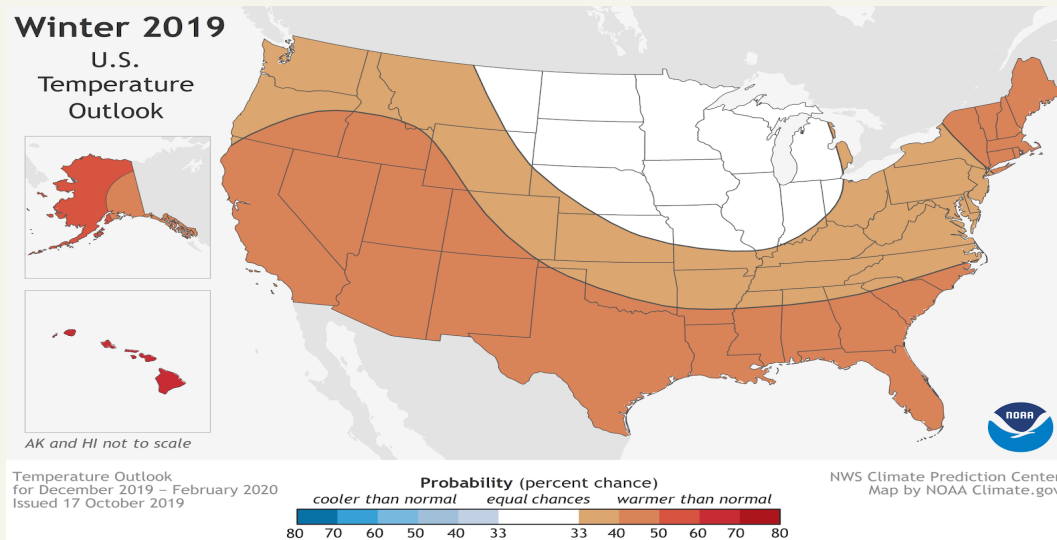
Areas around Jacksonville received up to 3+ inches of snow on March 5, 2019.

## Eastern North Carolina Winter Outlook

*By Bel Melendez, Meteorologist*

Usually, when an El Niño or La Niña is forecast to occur during the winter season, it's easy to dictate what type of winter we will have. This coming winter, there will be no El Niño or La Niña to help predict our winter pattern; therefore, we will be in a neutral state. Other climate patterns including the Madden-Julian Oscillation (MJO) or the Arctic Oscillations (AO) may yield more information. The MJO is an abundance of moisture that travels along the subtropical jet stream across the central Pacific, acting with similar characteristics of an El Niño, bringing us cooler and wetter weather conditions. Meanwhile, the Arctic Oscillation influences the United States when we have a cold front that brings in an Arctic air mass. This is often referred to as a "Polar Vortex." Its predictability is limited to only a few weeks. Overall, predicting what type of winter Eastern North Carolina will have is challenging. As Mike Haplert, the deputy director of NOAA's Climate Prediction Center said,

"Without either El Niño or La Niña conditions, short-term climate patterns like the Arctic Oscillation will drive winter weather and could result in large swings in temperature and precipitation."



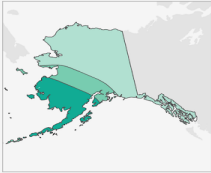
No below-average temperatures are forecast for the United States this winter. North Carolina has a 40-50 % chance of above normal temperatures.



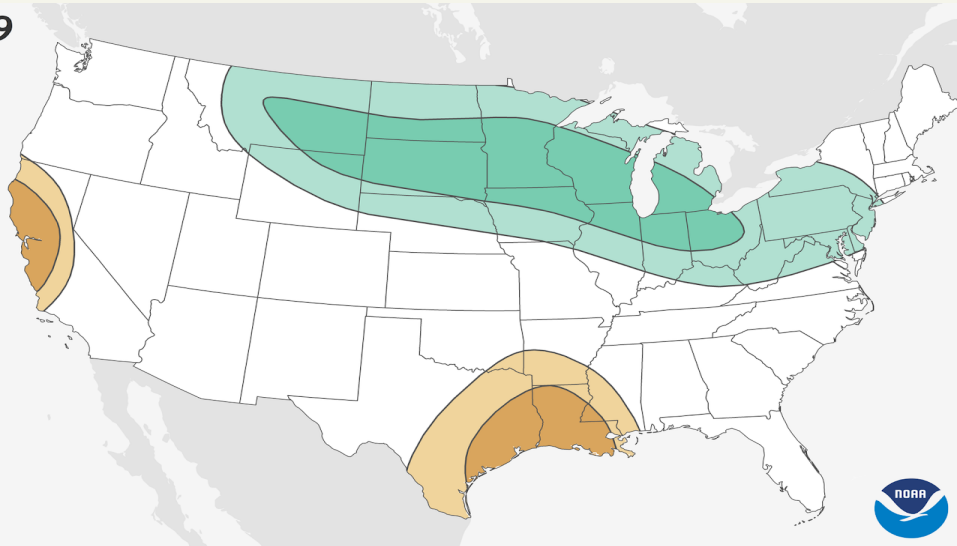
## Eastern North Carolina Winter Outlook (Continued)

### Winter 2019

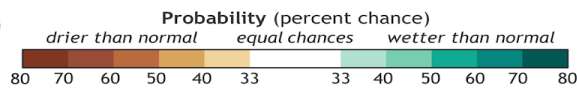
#### U.S. Precipitation Outlook



AK and HI not to scale



Precipitation Outlook  
for December 2019 – February 2020  
Issued 17 October 2019



NWS Climate Prediction Center  
Map by NOAA Climate.gov

There is no strong signal with regard to rainfall, with equal chances of above or below normal precipitation.

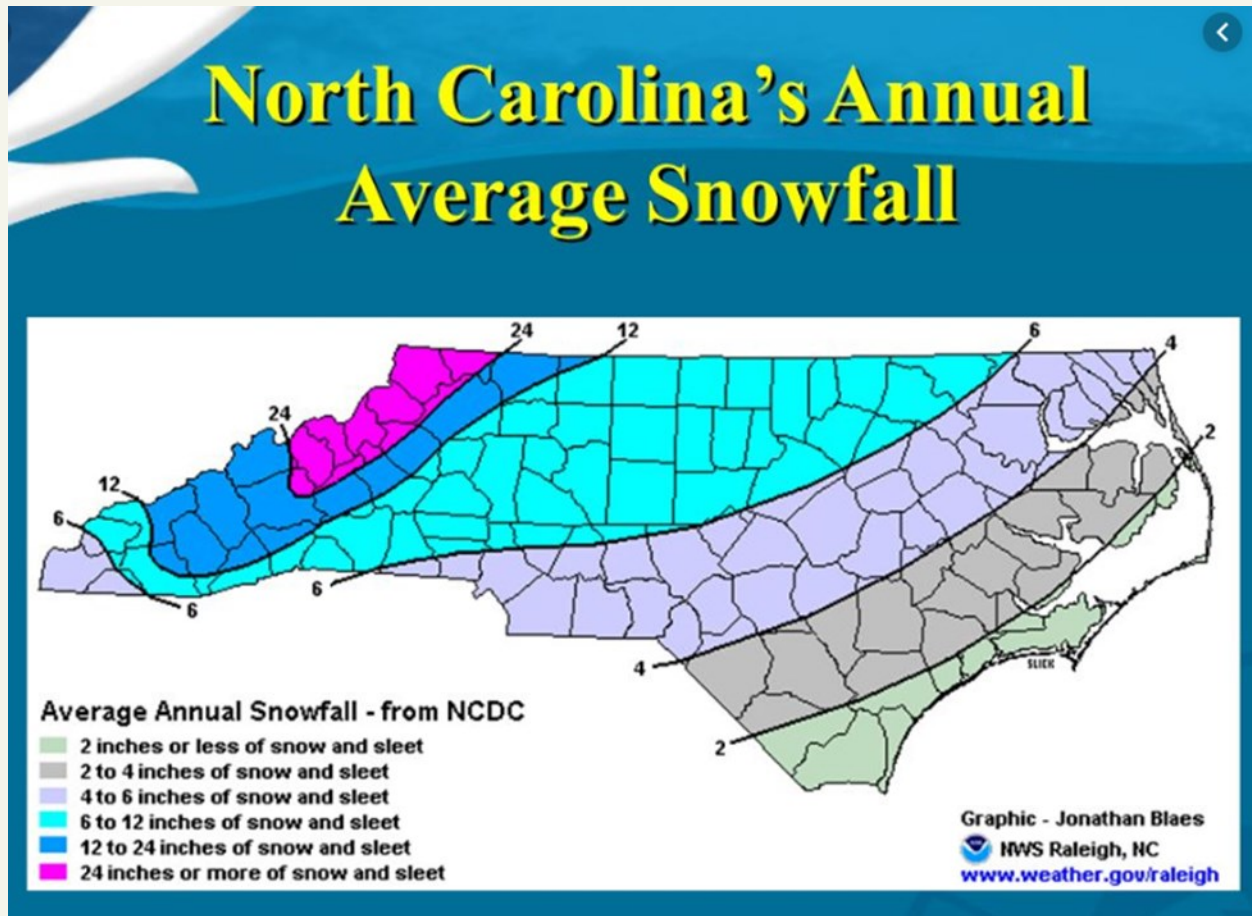
Overall, the purpose of the Winter Outlook is to help prepare the general public for what might happen within the coming months. The outlook does not include how many snowstorms will occur during the winter months. Even though the Climate Prediction Center is predicting a warmer-than-average winter, there will still be colder periods and winter precipitation types are still possible.



## Average Annual Snowfall for Eastern North Carolina

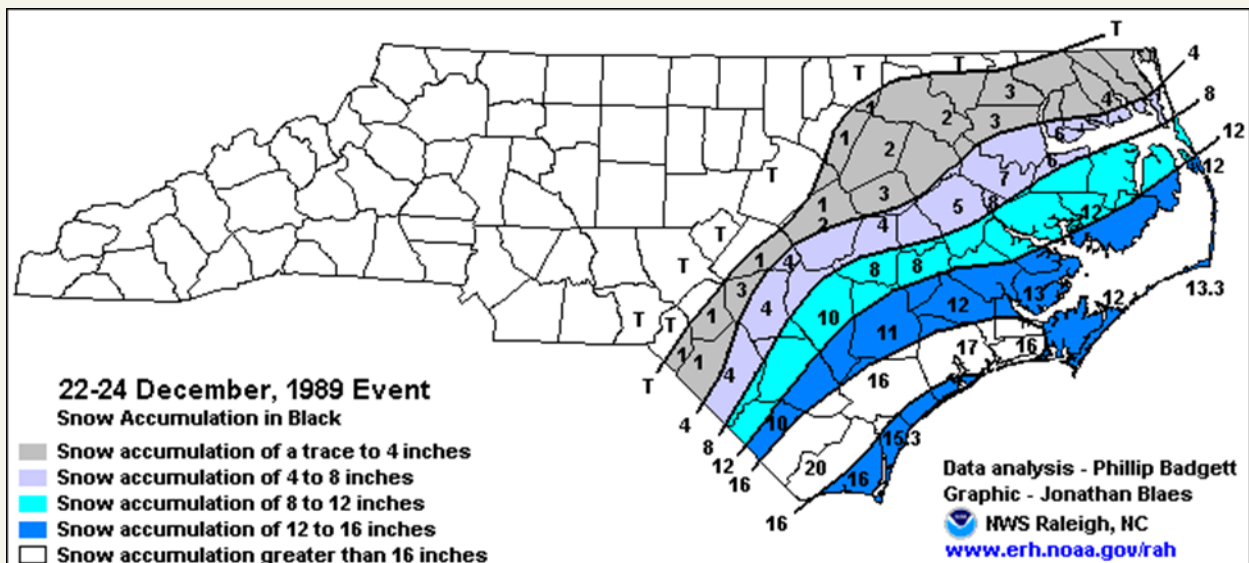
*By Bob Frederick, Meteorologist*

Snowfall amounts vary greatly from year to year across eastern North Carolina. Last year most of the area saw little or no accumulating snow. The following map created by NWS Raleigh shows how much snow can be expected during a normal winter.



As expected the coast typically receives the least amount of snow with 2 inches or less. Amounts gradually increase as you go north and west with areas around Greenville normally receiving between 4 and 6 inches. Although rare, significant snowstorms and even blizzards do occasionally impact the region. Right before Christmas in 1989 a snowstorm dumped 12 to 18 inches along the coast of eastern North Carolina.

## Average Annual Snowfall for Eastern North Carolina (Continued)



This snowstorm produced the first white Christmas on record for coastal North Carolina. It was also brutally cold following the storm with record lows at or even below zero in spots Christmas morning.

Even though significant snowstorms are rare across the region, all residents are urged to be prepared for winter weather. The following website has lots of information and advice on preparing for dangerous winter weather. <https://www.weather.gov/safety/winter>



## Winter Weather Spotter Season

*By Erik Heden, Warning Coordination Meteorologist*

With cooler 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. 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 it confirms exactly what is happening or not happening at your location. We use this specific information to help in our warning process at the office. Your reports truly can save lives! Don't forget this spring and summer we will hold both Basic SKYWARN (tornadoes, high winds, hail, etc) and tropical SKYWARN (rainfall, flooding, and tropical cyclones) classes. 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](http://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 near you that fits into your schedule, you still have a few options. Throughout the winter we also hold online versions of our spotter class. These are slightly shorter and are designed for people with internet access to take the training from home. If these don't work, we have both a short and long version of the winter training on our YouTube channel. This is linked on our official SKYWARN website. Once you complete these, information follows on how to register to become a spotter. We hope to see you in person this winter and if not, we hope you find our online options useful.

**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!**

## **NWS Newport Welcomes New Science and Operations Officer**

*By Ryan Ellis, Science and Operations Officer*

In October, the NWS office in Newport welcomed a new Science and Operations officer. Ryan Ellis joins the management team after ten years as a forecaster at the NWS office in Raleigh, NC. Below is an introductory Q & A.

### **What led you to Eastern North Carolina?**

Well first there is the obvious, the WEATHER! My background is in tropical meteorology and as we all are aware, eastern NC has been ground zero for tropical systems over the past couple of years. In the past, having spent years in Miami and Hawaii, the draw of the ocean is something that was still very strong and was missing living in Raleigh for the past decade. I have multiple family ties in the area and the small town vibe and tight knit community feeling is very appealing to my family and I.

### **Most people are familiar with what a forecaster does, but what is the role of the Science and Operations officer?**

My job includes a little bit of everything. Formally, I am in charge of operations for the weather forecast office and making sure the forecasters have all that they need to do their jobs well. I also have to ensure that the office is in tune with what is going on in the research community and making sure those advances in the science are making it into operations; better known as Research to Operations or R2O. That is a two-way street as I am able to take forecast problems back to the research community to try and work on improving the forecast process. Training is a big portion of what I do as well. Making sure forecasters and managers alike are constantly learning the latest and greatest is all part of the job, whether that is in regards to forecasting or other skills like communications and decision support training. Finally, what is maybe the most rewarding part of my job is mentoring forecasters and giving back in order to get people where they want to go in their careers. I will always have time for my fellow employees and students alike as they navigate through their careers, keeping in mind that everyone's path is different and worthy of the individualized attention and cultivation that it needs to grow.

### **Where did you get your education?**

I completed my Bachelor of Science in 2004 from the University of Miami and my Masters of Science in 2008 from the University of Hawaii at Manoa. While those two programs got me on the road to success, a vast majority of learning comes on the job in the NWS. Formalized courses help you to become certified to do various tasks, but nothing is more valuable than sitting next to a forecaster who has been on the job 20 to 30 years and has a lifetime of experience.

## **New Science and Operations Officer (Continued)**

### **What motivates you in your job?**

It sounds cliché but I love helping people. Whether that is the public trying to figure out their weekend, an emergency manager trying to support an event with 50,000 people, or a co-worker trying to navigate through the organization, I love to teach as well as to learn from everyone I encounter on the job. Secondary is my desire to be a problem solver. The weather presents a new challenge every day which keeps you on your toes, but I also love solving things like computer programs or larger scale research questions.

### **What is the most challenging part of your job?**

Easily the most challenging part of the job is prioritizing what needs to be done first. The role of a Science and Operations Officer requires you to be a bit of a jack of all trades (and probably a master of none!). You have to come to terms with the fact that you will never get everything done that is on the list, but you sure can put a good dent in it and know that tomorrow is another day.

### **Did you have any mentors along the way and what did they teach you?**

Many! Tim Ferriss has a book entitled “Tribe of Mentors” which is a collection of life advice from 100’s of the worlds most successful people. My life is no different. From my parents who were there from day one, to my wife and son, teachers, professors, co-workers, etc. there is always something to learn from someone. The key is knowing what to filter out and taking those tools that apply to you and put them in your toolbox for a rainy day. Eventually you will have a whole suite of things to pull from that came from not just one mentor but many over the course of your life.

### **What are some of your interests and activities outside of work?**

I believe in a work life balance and in order to achieve that I have many interests including photography, sports, travel, culture, and even learning languages. These artistic and physical interests help me balance out the science that I get on the job every day.



Science and Operations Officer Ryan Ellis

## Skywarn Recognition Day 2019

*By Erik Heden, Warning Coordination Meteorologist*

The 21st Annual Skywarn Recognition Day (SRD) special event took place here at the office in Newport on Saturday December 7<sup>th</sup>. Skywarn Recognition Day was developed in 1999 by the National Weather Service (NWS) and the American Radio Relay League (ARRL). It celebrates the contributions that volunteer Skywarn amateur radio operators make to the NWS. On SRD, Skywarn amateur radio operators visit NWS offices and contact other radio operators across the nation and around the world. In the past, NWS offices have contacted all 50 states and more than 40 countries during the 24 hour event. This year our local amateur radio community made contact with 13 other National Weather Service offices, as far away as Oxnard, California and Salt Lake City, Utah!

The NWS and the ARRL both recognize the importance that amateur radio provides during severe weather. Many NWS offices acquire real time weather information from amateur radio operators in the field. These operators, for example, may report the position of a tornado, the height of flood waters, or damaging wind speeds during hurricanes. All of this information is critical to the mission of the NWS which is to preserve life and property. The special event celebrates this special contribution by amateur radio operators.

Here at NWS Newport operators from ham radio clubs in Carteret County, New Bern, Jacksonville and beyond participated. We typically operate on the 2 meter, 440 mHz, 20 meter, 40 meter, and 80 meter bands as well as PSK 31. Our callsign is WX4MHX.

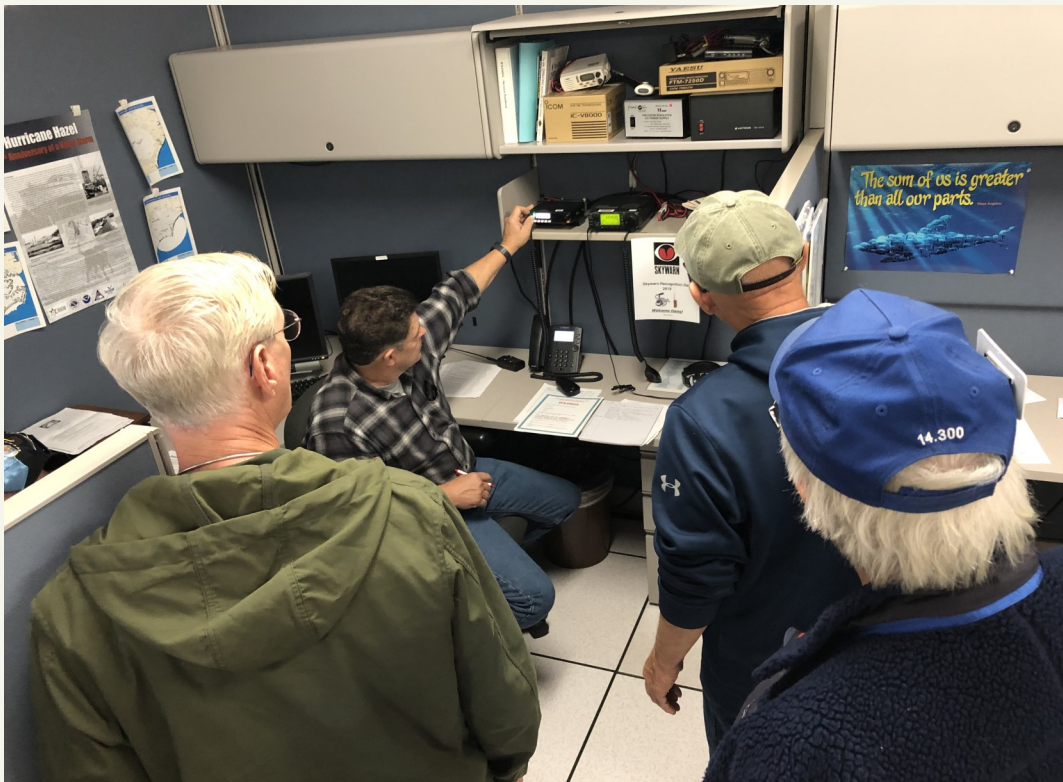
On any given day, we have a pool of radio operators we can call on to come to our office and operate our radios to help gather reports during a weather event. We very much appreciate them giving of their time to help us and the citizens here in central eastern North Carolina!

To learn more about SRD, go to <https://www.weather.gov/crh/skywarnrecognition>

## Skywarn Recognition Day 2019 (Continued)



As part of the SKYWARN Recognition Day, we had office tours and a winter SKYWARN training session led by our Warning Coordination Meteorologist, Erik Heden.



Various amateur radio groups from our local area took turns contacting other offices throughout the day.





## National Weather Service

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Phone: 252-223-5122  
 Fax: 252-223-3673  
 Website: <http://weather.gov/Newport>  
 Twitter: @NWSMoreheadCity  
 Facebook: [/www.facebook.com/NWSMoreheadCity](http://www.facebook.com/NWSMoreheadCity)

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

Frostbite Times   
  30 minutes   
  10 minutes   
  5 minutes

**Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V<sup>0.16</sup>) + 0.4275T(V<sup>0.16</sup>)**  
 Where, T= Air Temperature (°F) V= Wind Speed (mph) Effective 11/01/01