



Carolina SkyWatcher



National Weather Service, Newport/Morehead City, NC

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

Winter 2018-19 Edition



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Winter Preview 2018-2019

By Chris Collins, Meteorologist

Despite our location near the ocean, eastern North Carolina frequently has bouts of severe winter weather and cold. One such bout occurred in January of 2018. A prolonged period of Arctic air led to record-breaking low temperatures, with readings as cold as -2 degrees in Washington and -1 in Greenville. Two significant snow events occurred during the first 18 days of January, 2018, with each event producing up to 8 to 10 inches of snow, accompanied by strong winds and bitter cold.

These type 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.

CONTENTS

Winter Preview 2018-2019	1
Review of the 2017-18 Winter Season	2-4
Winter Outlook 2018-19	5-6
Winter Preparedness	7-9
Winter Weather Reporting	10-11
Student Volunteer Program	12

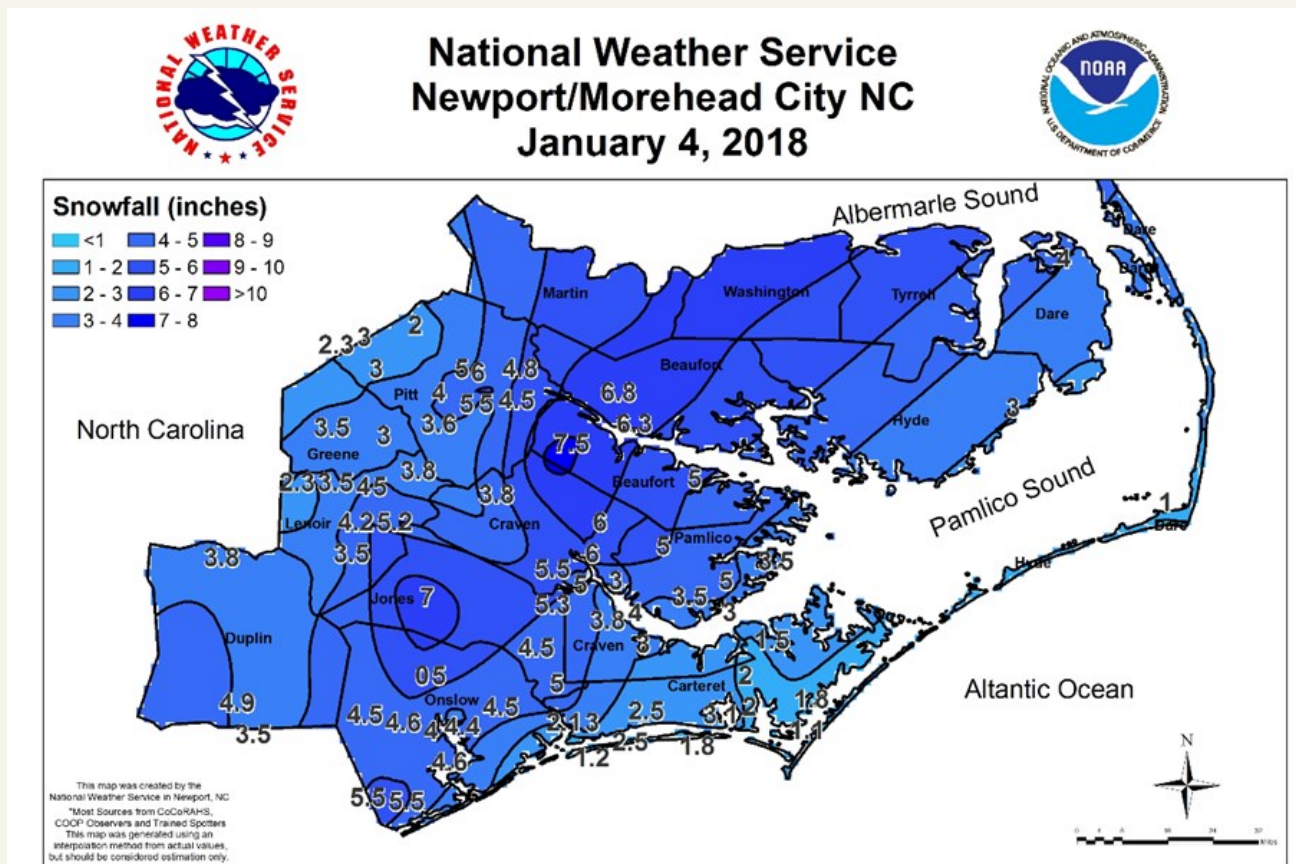


Heavy snow in Kitty Hawk, January 4, 2018

Review of the 2017-18 Winter Season

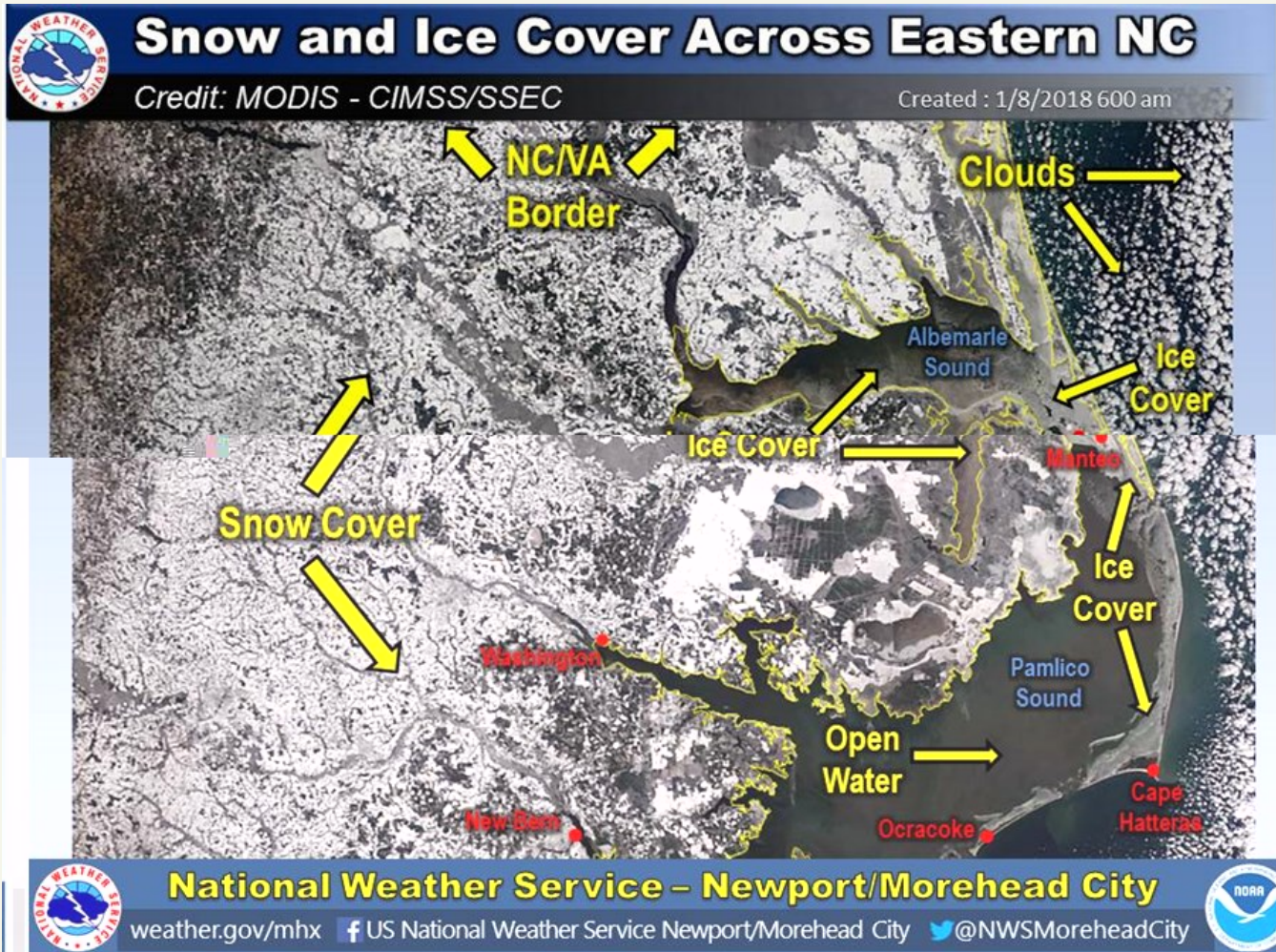
By Bob Frederick, Meteorologist

Last winter season started out quite mild with above normal temperatures through late December, then a dip in the jet stream over the eastern U.S. allowed much colder air to spread south into the region. With cold air in place, the area experienced a significant winter storm on January 3rd through the 4th. As deepening low pressure approached from the south, widespread rain mixed with sleet and snow began early on January 3rd and gradually transitioned to all snow before ending early on January 4th. The heaviest snow fell inland and over northern areas, but even the coast had measurable snow. Due to very cold air in wake of the storm many roads remained snow and ice covered for days leading to significant travel difficulties.



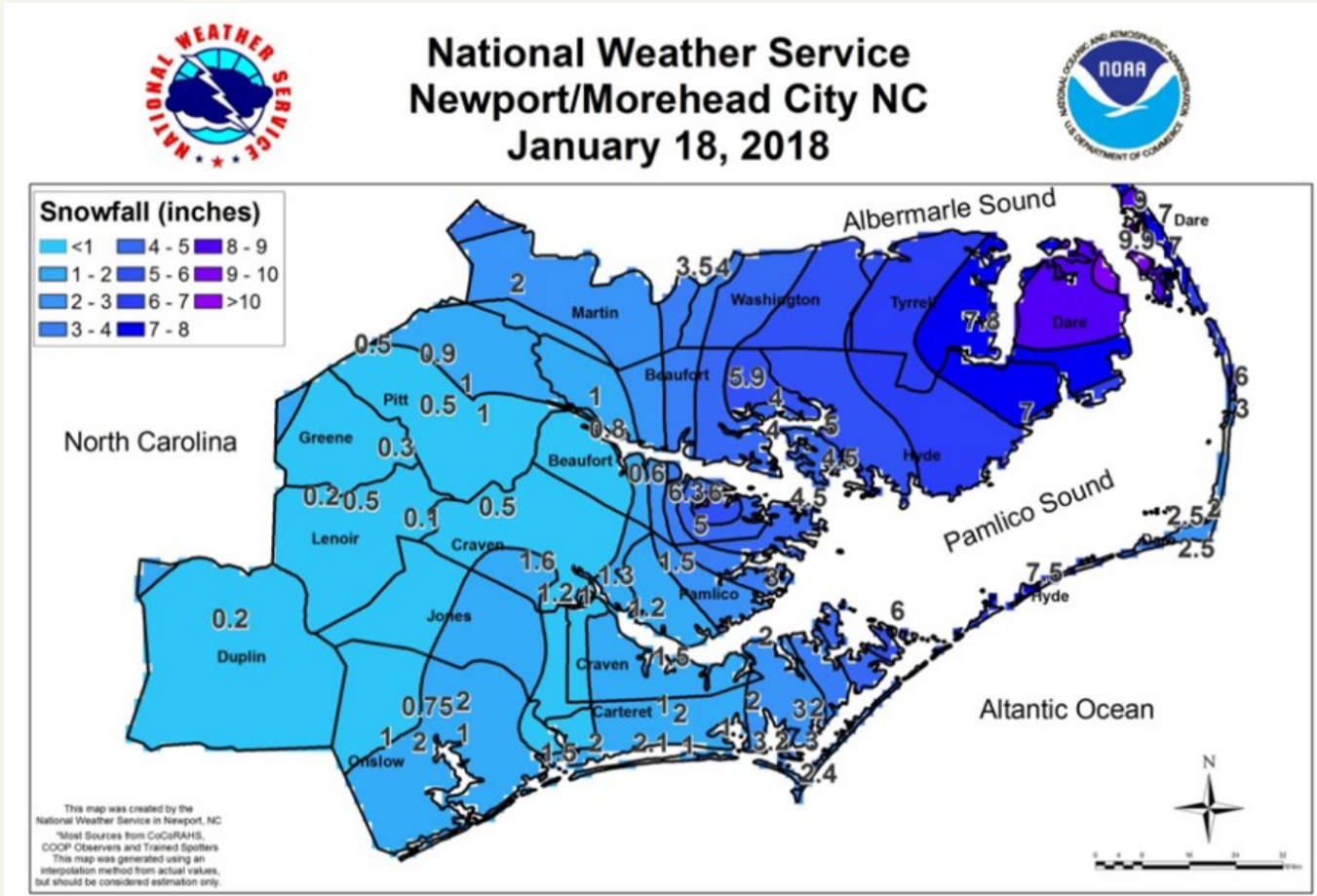
Following this snow, a record breaking duration of extreme cold developed over the area with many spots remaining below freezing for several days. During the mornings of January 6th and 7th extreme low temperatures were observed over the region with Greenville reaching 1 degree below zero, Washington 2 degrees below and Williamston 3 degrees below zero. The duration of the cold air led to many coastal sounds and rivers freezing over.

Review of the 2017-18 Winter Season (Continued)



Another significant winter storm impacted the area January 17th and 18th. Rapidly deepening low pressure off the Outer Banks produced snow over the region with the northeast sections seeing the heaviest amounts. Near blizzard conditions developed over the northern Outer banks where snowfall reached 8 to 10 inches and strong winds produced large drifts up to 3 feet in spots.

Review of the 2017-18 Winter Season (Continued)



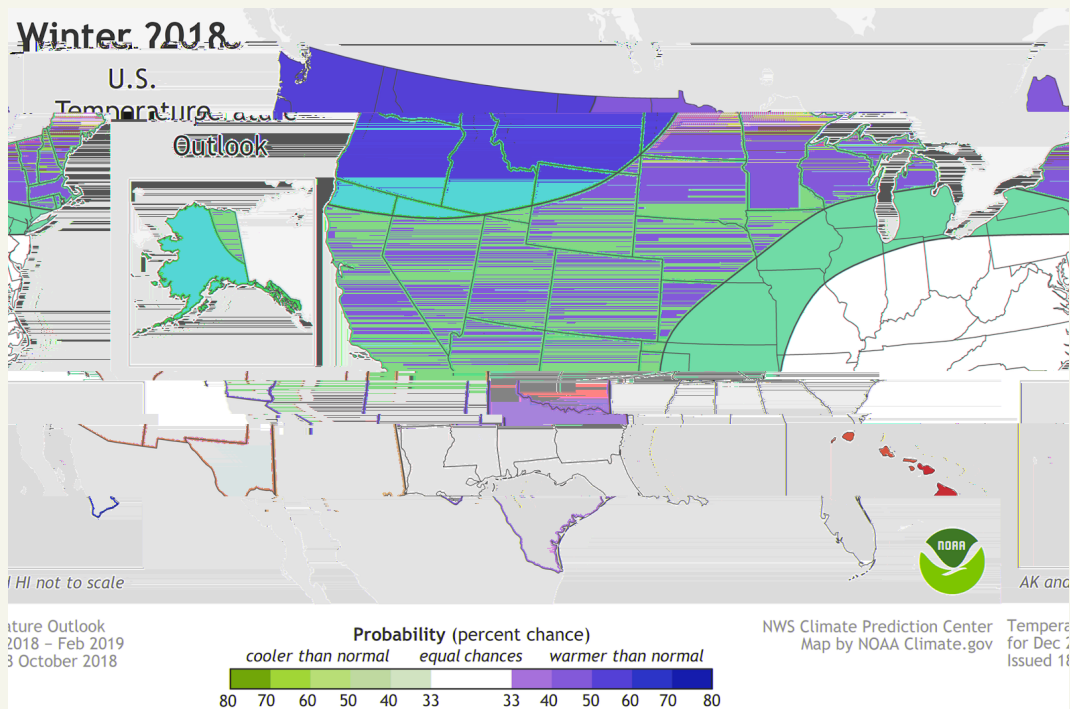
The winter conditions quickly departed in February with much above normal temperatures observed over the area. In March a minor winter event occurred on the 12th to 13th as low pressure moved offshore of the coast. Snowfall ranged from a trace to around 1 inch in spots, however impacts were minor as ground temperatures were above freezing.



Winter Outlook 2018-19

By Bel Melendez, Meteorologist

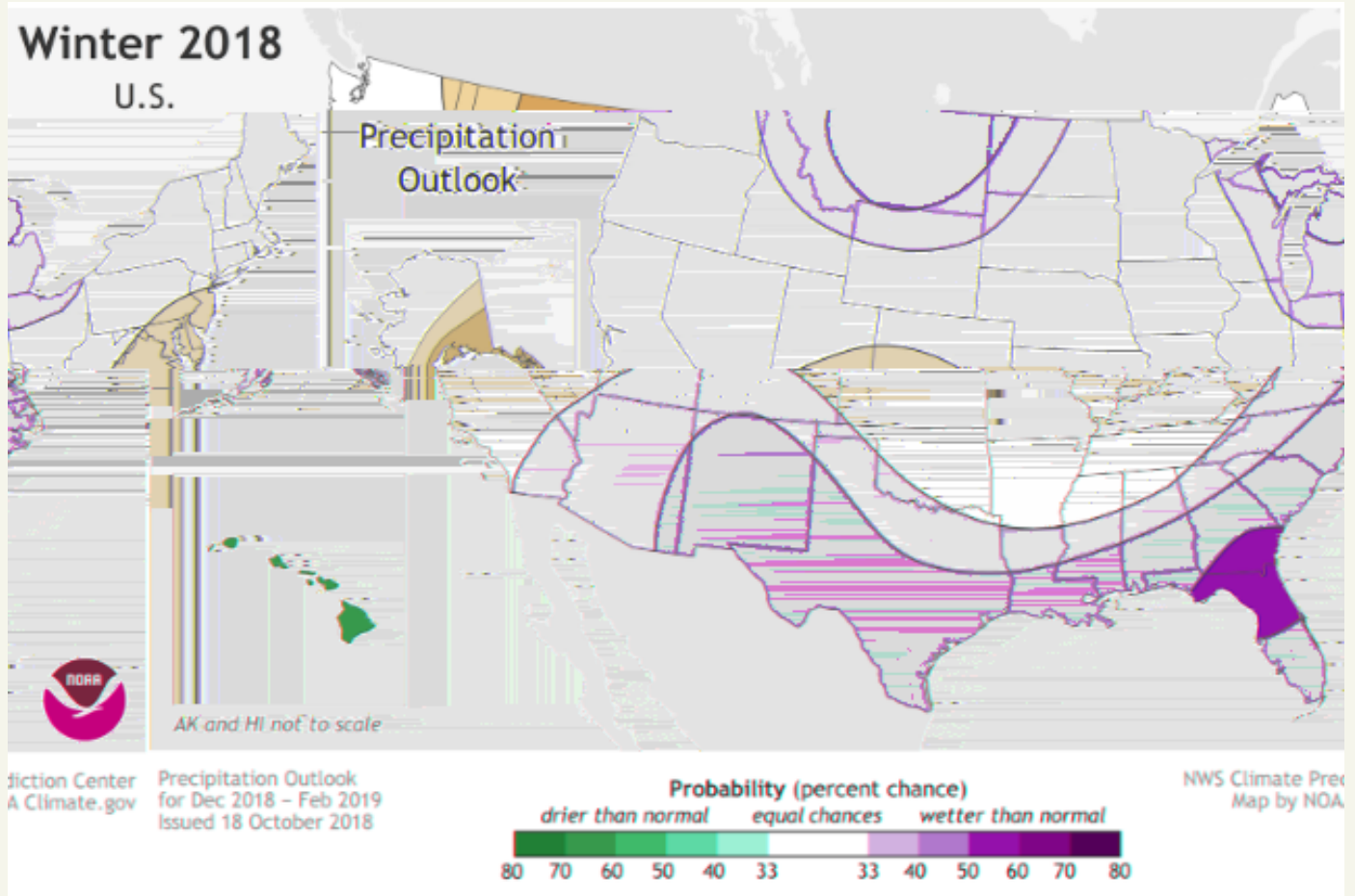
The official [Winter Weather Outlook](#) from the Climate Prediction Center (CPC) has been issued, and it calls for a mild winter for most of the country. You may have noticed warmer and more rainy conditions than usual across the Southeast than usual this fall. The atmosphere is transitioning to an El Nino pattern. What is El Nino you may ask? It's when the tropical Pacific Ocean waters become warmer than normal off the western coast of South America. This will naturally cause a change in the weather pattern as the jet stream shifts farther south across the southern half of the country, and therefore increases the amount of moisture. As a result of this pattern, storms tend to develop along the Deep South/Gulf States and Southeast which then move toward Eastern NC bringing wetter and cooler conditions. But, this El Nino is expected to be weak, which can bring a mix of below, near, or above normal temperatures across North Carolina.



Temperature Forecast

- Warmer-than-normal conditions are anticipated across much of the northern and western U.S., with the greatest likelihood in Alaska and from the Pacific Northwest to the Northern Plains.
- The Southeast, Tennessee Valley, Ohio Valley and Mid-Atlantic all have equal chances for below, near or above-average temperatures.
- No part of the U.S. is favored to have below-average temperatures.

Winter Outlook 2018-19 (Continued)



Precipitation

- Wetter-than-average conditions are favored across the southern tier of the U.S., and up into the Mid-Atlantic. Northern Florida and southern Georgia have the greatest odds for above-average precipitation this winter.
- Drier-than-average conditions are most likely in parts of the northern Rockies and Northern Plains, as well as in the Great Lakes and northern Ohio Valley.

Winter Preparedness

By Erik Heden, Warning Coordination Meteorologist

Although our winters can be mild from year to year, last winter was a perfect example of how our area can and will experience extreme cold and snow now and then. Think back to last January when we had multiple snow storms with morning lows in the single digits to even below zero inland! Is your vehicle and home prepared for the upcoming winter? For your vehicle it is always a good idea to have an extra set of warm weather clothes (hat, gloves, etc) in case you break down. If you travel long distances often or travel to the mountains of our state, having a small shovel or nonperishable snacks or food is always a good idea. On the home front preparation for winter is much like hurricane season. Ensuring you have at least a few days' worth of food and water in case travel is impacted by weather is a good idea. Be sure this includes any medicine you need and don't forget about your pets.

Winter driving can be hazardous. One simple way to keep yourself and everyone on the road safe is to slow down. Remember, "Ice and snow, take it slow".

Learn more at weather.gov/winter

Before you go tips:

1. Ready your vehicle. Check your vehicle's battery, wipers, coolant, tires and other systems that are most affected when the temperature drops. Make sure your tires have good tread. When you know your vehicle is ready for the road, clear your car of snow, ice or dirt from the windows, forward sensors, headlights, tail lights and backup camera.
2. Stock your vehicle with a winter supply kit that includes: mobile phone, charger, batteries, blankets, flashlight with extra batteries, first-aid kit, high-calorie, non-perishable food, small can with waterproof matches and candle to melt snow for drinking water, sack of sand or cat litter for traction, shovel, windshield scraper and brush, and battery booster cables.
3. Get the weather forecast and check road conditions. Your drive will be much safer if you know what's ahead. **CHANGE YOUR PLANS** if travel is hazardous.

Winter driving tips:

1. Stay alert. Make sure you keep your gas tank over half full and keep a close eye on road conditions, which can change rapidly. On road trips, take breaks often so you can stay focused on the road.
2. Drive slower than normal and leave more room between you and surrounding vehicles. **DO NOT** use cruise control, brake quickly or make sharp turns. You need to change how you normally drive.
3. Don't crowd the plow. The road behind an active plow is safer to drive on. Give them plenty of room to work and only pass when it is safe to do so.

Winter Preparedness (Continued)

Tips to protect you and your loved ones:

1. Accidents happen. Always wear your seatbelt and ensure everyone in your vehicle does the same. Make sure young children are in car seats.
2. If you're involved in an accident, try to pull your vehicle off the road and use hazard lights, flares, reflectors or flashlights to warn other drivers. **STAY OFF THE ROAD**, dial 911, and wait for the police to arrive.
3. Drive smart. Don't text or make phone calls, speed, or drive under the influence of drugs or alcohol. These activities are always dangerous, but the risk is much higher in winter weather.



Bundling up in layers and staying dry is one of the best things you can do to stay safe this winter. Although not as common or frequent as other parts of the country, extremely cold air can occur here in Eastern North Carolina. Arctic air, together with brisk winds, can lead to dangerously cold wind chill values, which can cause your body to lose heat quickly. weather.gov/safety/cold-wind-chill-chart. If you notice someone exhibiting warning signs of hypothermia, get them to a warm place right away. Cold weather can be life-threatening. If you can't avoid being outside, remember to follow these 3 steps and tell someone where you're going.

- 1) Dress in layers
- 2) Cover exposed skin
- 3) Limit time outside

Winter Preparedness (Continued)

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
- 1-2 layers
- warm hat
- outer layer to keep out wind, wet snow
- boots water proof

EXTREME COLD

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

weather.gov/cold

The Science of Wind Chill

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.

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

Winter Weather Reporting

By Erik Heden, Warning Coordination Meteorologist

Last year was the first year the Newport/Morehead City NWS office offered spotter classes (SKYWARN) for winter weather. These classes went over winter hazards we face in Eastern North Carolina along with winter preparedness. The main focus of the class was to teach spotters how to accurately measure snow and ice and how to report that information to us. Observations of snow are especially useful because we don't have many observers who report snowfall information to us in real time. Spotters can confirm exactly what is happening where they live. We expect to have a few of these Winter SKYWARN classes after the holidays. View the class listing on the SKY-WARN page directly <http://www.weather.gov/mhx/MHXSkywarn> In the meantime here are ways you can learn how to report winter weather to our office, now!

Take our SKYWARN Class Online Via YouTube

View the [Short](#) or [Long](#) version and be sure to email Erik at erik.heden@noaa.gov when you have completed either course.

Join CoCoRaHS

The Community Collaborative Rain, Hail, and Snow Network. This volunteer network of observers measure precipitation from their backyard. Any age can volunteer. Data is used by NWS meteorologists to help with forecasts. www.cocorahs.org

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!

Winter Weather Reporting (Continued)

Check out mPING

Consider downloading the Meteorological Phenomena Identification Near the Ground (mPing) application. Weird name, cool app! You can report the type of precipitation you see where you are. No need to measure! Use the free mobile app to send reports anonymously. Reports are automatically recorded into a database, which improves weather computer models. The information is even used by road maintenance operations and the aviation industry to diagnose areas of icing.

mping.nssl.noaa.gov



The NWS MHX Summer Volunteer Program

By Casey Dail, Meteorologist

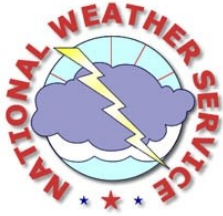
Are you a student interested in a career with the National Weather Service or in the field of meteorology? If so, our student volunteer program may be right for you. Our program is designed to provide students with an opportunity to learn about the science of weather forecasting, which is done through several approaches including research and job shadowing.

The student volunteer program, though not a paid position, has many benefits for college or graduate students and recent graduates. Competition for positions within NOAA's National Weather Service (NWS) has increased in recent years, and it has proven beneficial for recent college graduates to have prior forecasting operational experience when they apply for positions within the NWS. Because of resource restraints, only a few students are selected to the student volunteer program through a competitive application process. Selected students may also be able to gain college credit for their time spent here at the NWS. Students will be required to complete a research project during their time at the office. The research can cover a range of topics from specific forecasting challenges to significant event reviews. Several of our previous volunteers have gone onto graduate school, jobs within the National Weather Service as well as private sector positions in the meteorology field.

The volunteer program is open to current undergraduate or graduate level students:

- ◆ Majoring in meteorology or other related sciences
- ◆ Available to volunteer for at least 120 hours between late May and early August
- ◆ In good academic standing

The 2019 application will become available by early January on the NWS MHX website (<http://www.weather.gov/mhx/StudentInterns>). If you have questions or are interested in meteorology and would like to learn more about the program please contact Casey.Dail@noaa.gov or Carl.Barnes@noaa.gov (252-223-5122).



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Wind Chill Chart

		Temperature (°F)																		
		Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Wind (mph)	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	20	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