



# Carolina SkyWatcher



National Weather Service, Newport/Morehead City, NC

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

Spring 2019 Edition

## Tornadoes in North Carolina

*By Chris Collins, Meteorologist*



follow us on  
**twitter**



The typical peak tornado season in North Carolina runs from March through May, though tornadoes can occur at any time of year. Although North Carolina has fewer tornadoes than the Midwest, we still see an average of 31 tornadoes a year.

On March 28, 1984, tornadoes took the lives of 42 North Carolinians, and injured 801. On November 28, 1988, a single deadly tornado killed four and injured 154, leaving 982 homeless. This storm stayed on the ground for 83 miles on a path from Raleigh to Northampton County. More recently in 2011, during the three-day period from April 14-16, more than 177 tornadoes erupted across the country. Thirty of those were confirmed in North Carolina, and left 22 dead in their wake, including 12 in Halifax County. This outbreak also included strong tornadoes in Snow Hill, Havelock and Jacksonville in eastern North Carolina.

It is always critical to be prepared for severe weather season. Identify and practice going to a safe shelter in the event of high winds. The best protection is a small interior windowless room on the lowest level of a sturdy building. Stay away from windows, doors and outside walls. If you are driving, do not get under an overpass or bridge. Watch out for flying debris that can cause injury or death. Get a NOAA Weather Radio to ensure that you can receive important severe weather warning information day or night.

### CONTENTS

Spotter Training	2-3
Cocorahs March Madness	4-5
Aviation Services	6-7



Tornado damage from Jacksonville, NC, April 16, 2011.

## Weather Spotter Season

*By Erik Heden, Warning Coordination Meteorologist*

With spring weather upon us, it's time for our spring 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 that 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 spring classes will be on reporting spring and summer severe weather. This includes: tornadoes, hail, high winds, and heavy rain. During the class we will discuss how each of these type of weather can impact Eastern North Carolina while we train you on how to safely report this information to us. 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! Don't forget later in the summer we will hold tropical SKYWARN classes, with Winter SKYWARN in the fall. 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 spring we also hold online versions of our spotter class. These are relatively short and are designed for people with internet access to take the training from home. If these don't work, we have recorded a seven part series on YouTube. Once you complete these, information follows on how to register to become a spotter. All of this can be found on our website by clicking on the SKYWARN logo or directly going to this link: <https://www.weather.gov/mhx/MHXSkywarn>

We hope to see you in person this spring and if not, we hope you find our online options useful.




# Weather Spotter Season (Continued)

**YouTube Training:** Basic Skywarn (Parts 1 through 7). Watch all 7 videos and instructions on how to receive your certificate. (Click on the image to watch the video)

**How do Weather Spotters help the NWS?**

- Real time reports **assist** the National Weather Service in our warning decisions.
- Helps forecasters **gauge** how severe a storm is.
- Your information may be the reason a warning is issued, and/or provides **credibility** to a warning.
- You could help provide the citizens of your community with potentially **life-saving** information.
- SKYWARN provides a backbone of emergency communications.
- The trained eye of the storm spotter is still our greatest asset!



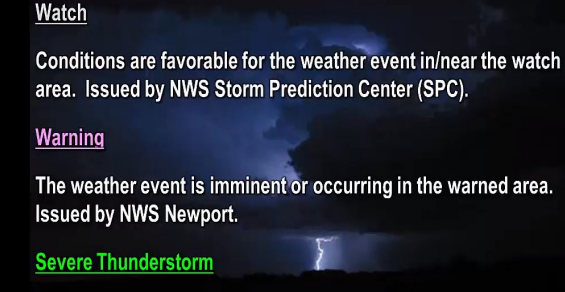
1

**Fundamental Definitions**

**Watch**  
Conditions are favorable for the weather event in/near the watch area. Issued by NWS Storm Prediction Center (SPC).

**Warning**  
The weather event is imminent or occurring in the warned area. Issued by NWS Newport.

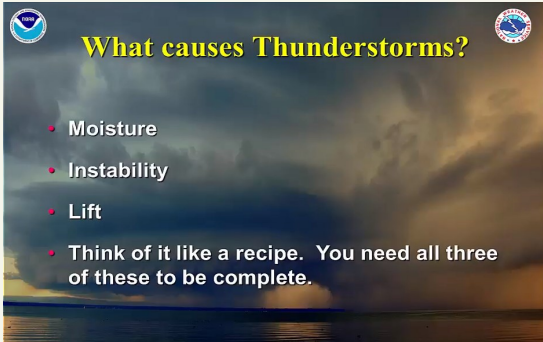
**Severe Thunderstorm**



2





**What causes Thunderstorms?**

- Moisture
- Instability
- Lift
- Think of it like a recipe. You need all three of these to be complete.



3

**Types of Thunderstorms**

Single Cell	Multicell Cluster	Multicell Line "Squall Line"	Supercell
Weak updraft (non-severe or severe)	Moderate updraft (non-severe or severe)	Moderate updraft (non-severe or severe)	Intense updraft (Always severe)
Slight threat	Moderate threat	Moderate threat	High threat
			

4

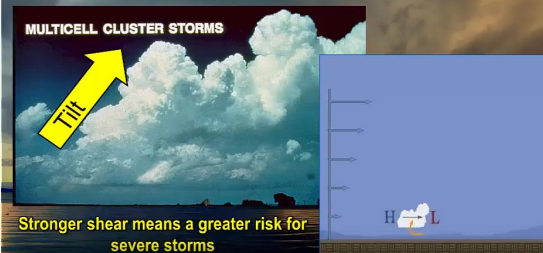
**Multi-cell Storm Clusters & Lines**

If there is moderate wind shear the storms tilt and can organize into multi-cell clusters or lines

**MULTICELL CLUSTER STORMS**

**Tilt**

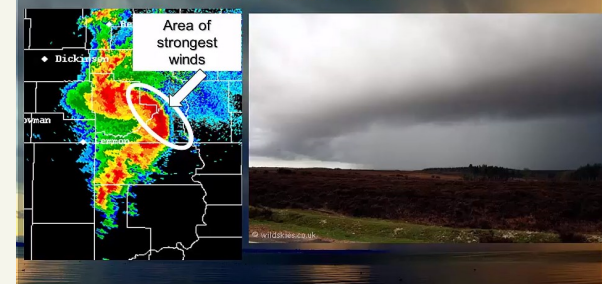
Stronger shear means a greater risk for severe storms



5

Squall lines and multicell storms occasionally develop the appearance of a "bow echo".

Area of strongest winds



6

**REMEMBER - Your reports are *critical* so that the NWS can issue *life saving* warnings!**

**Our Warning Objectives:**

- Issue warnings *before* severe weather occurs.
- *Don't issue* warnings for non-severe events.

**MORE REPORTS = CLEARER PICTURE OF HOW WELL WE ARE DOING WITH OUR WARNINGS.**

Real time reports are *crucial*, but even reports received the next day are *extremely* helpful.

**CALL US WITH YOUR REPORTS: 1-800-889-6889**



7

## Citizen Science Program Needs Your Help Observing the Weather

*By David Glenn, Meteorologist-in-Charge*

Have you ever wondered how much rainfall fell during a recent thunderstorm? How about snowfall during a winter storm? If so, an important volunteer weather observing program needs your help! The Community Collaborative Rain, Hail, and Snow network, or CoCoRaHS, is looking for new volunteers across North Carolina. The grass-roots effort is part of a growing national network of home-based and amateur rain spotters with a goal of providing a high density precipitation network across the country.

CoCoRaHS came about as a result of a devastating flash flood that hit Fort Collins, Colorado, in July 1997. A local severe thunderstorm dumped over a foot of rain in several hours while other portions of the city had only modest rainfall. The ensuing flood caught many by surprise and caused \$200 million in damages. CoCoRaHS was born in 1998 with the intent of doing a better job of mapping and reporting intense storms. As more volunteers participated, rain, hail, and snow maps were produced for every storm showing fascinating local patterns that were of great interest to scientists and the public. Recently, drought reporting has also become an important observation within the CoCoRaHS program across the nation. In fact, drought observations from CoCoRaHS are now being included in the [National Integrated Drought Information System](#).

North Carolina became the twenty-first state to join the CoCoRaHS program in 2007, and by 2010, the CoCoRaHS network had reached all 50 states with nearly ten thousand daily observations. Through CoCoRaHS, thousands of volunteers, young and old, document the size, intensity, duration and patterns of rain, hail, and snow by taking simple measurements in their own backyards.

Volunteers may obtain an official rain gauge through the CoCoRaHS website (<http://www.cocorahs.org>) for about \$31 plus shipping. Besides the need for an official 4 inch plastic rain gauge, volunteers are asked to review simple training modules online and use the CoCoRaHS website to submit their reports. The process takes only five minutes a day, but the impact to the community is tenfold: by providing high quality, accurate measurements, the observers are able to supplement existing networks and provide useful data to scientists, resource managers, decision makers and others.

"Monitoring weather and climate conditions in North Carolina is no easy feat," said Heather Dinon Aldridge, Assistant State Climatologist and Interim Assistant Director of the State Climate Office, based at North Carolina State University. "CoCoRaHS volunteers help by painting a better picture of precipitation patterns across North Carolina, filling in data gaps where there are no nearby stations."

## Citizen Science Program Needs Your Help Observing the Weather (Continued)

“An additional benefit of the program to the National Weather Service is the ability to receive timely reports of significant weather such as hail, intense rainfall, or localized flooding from CoCoRaHS observers that can assist meteorologists in issuing and verifying warnings for severe thunderstorms,” says David Glenn, CoCoRaHS State Coordinator and meteorologist with the National Weather Service in Newport/Morehead City.

How does one become a CoCoRaHS observer? Go to the CoCoRaHS website above and click on the “Join CoCoRaHS” emblem on the upper right side of the main website. After registering, take the simple online training, order your 4 inch rain gauge and start reporting!

“We are in need of new observers across the entire state. We would like to emphasize rural locations, areas of higher terrain, and areas near the coast,” added Glenn.

North Carolina CoCoRaHS can also be reached on [Facebook](#) and through [Twitter](#).



*Cocorahs Rain Gauge*

## Aviation Services

*by Casey Dail, Meteorologist*

Locally our forecasters are responsible for issuing specific aviation forecasts for four of our regional airports: Pitt-Greenville (KPGV), Coastal Carolina Regional Airport (KEWN), Albert J. Ellis Airport (KOAJ), and Kinston Regional Jetport (KISO). These forecasts are known as Terminal Aerodrome Forecasts (TAFs). TAFs are routinely issued four times a day and consist of: wind speed/direction, visibility, cloud height and weather type.

Over the last several years we have changed the way we create the TAFs, and we have transitioned to enhanced digital aviation services, producing digital forecast of ceiling and visibility, in support of the changing needs of the aviation community. This initiative continues to expand across the country, resulting in seamless and consistent forecast products from the local TAF to the regional and to the national en-route aviation weather products. This provides a consistent and cohesive message for the National Airspace System. Eventually this information will be able to be viewed graphically as a national mosaic of aviation forecast elements available for the aviation community to utilize in their decision making process.

Creating and producing digital aviation grids leads to improved short term and aviation forecasts, as well as improved decision support services for the aviation community. Improved aviation forecasts also lead to improved economic productivity. Newer ceiling and visibility parameters not only benefit the aviation community, but other groups and organizations as well. The National Weather Service has received positive feedback from the Coast Guard, medical helicopter pilots and other groups/organizations. These forecasts are now available on our webpage and can be found through the Hourly Weather Forecast Graph.

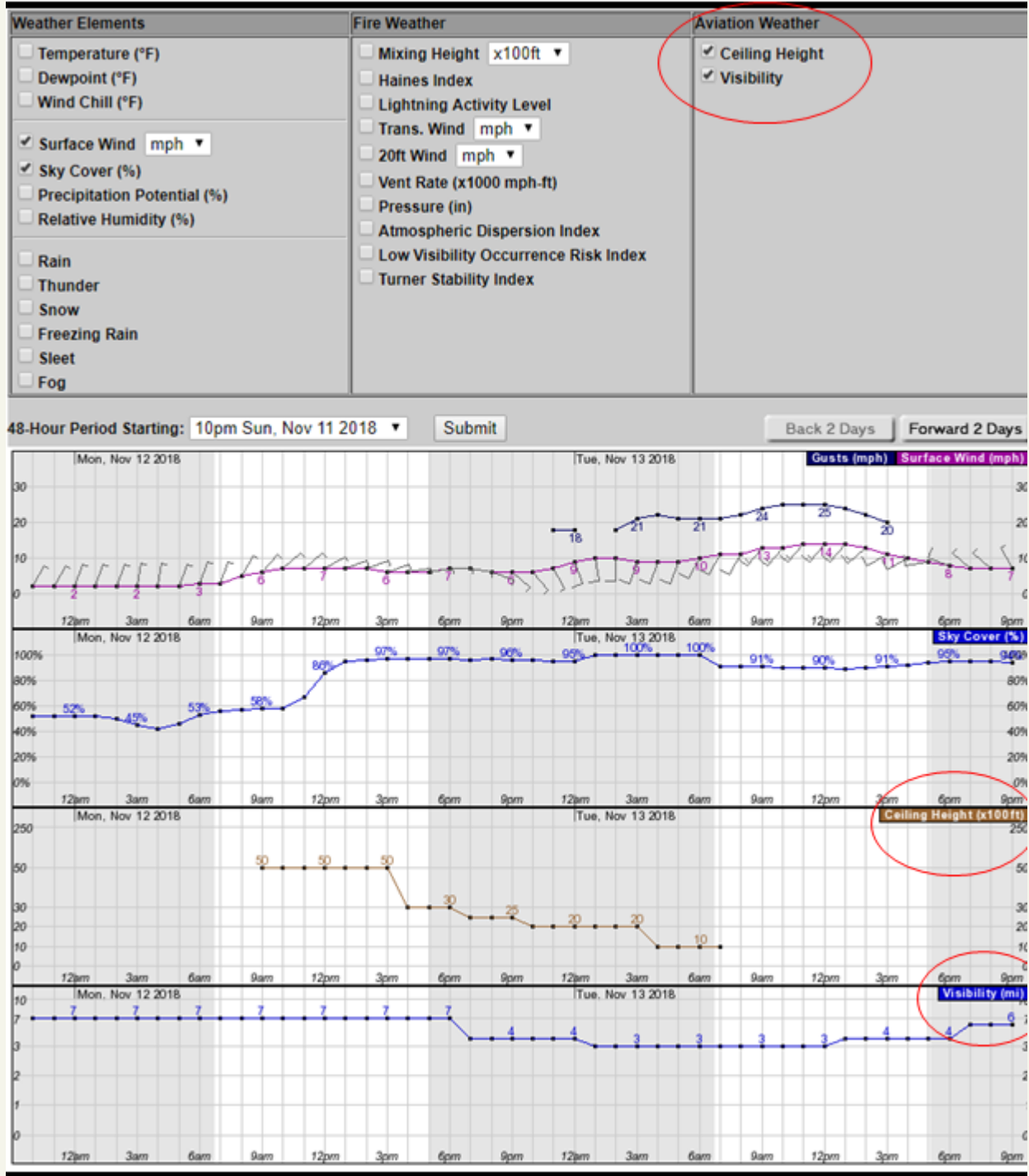
If you have any questions or would like additional information please feel free to contact [Casey.Dail@noaa.gov](mailto:Casey.Dail@noaa.gov).



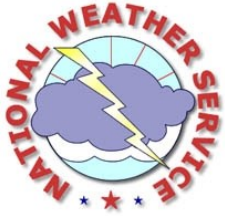
## Aviation Services (Continued)

The Hourly Weather Graph for Aviation parameters is available at:

<https://forecast.weather.gov/gridpoint.php?site=mhx&TypeDefault=graphical>



Example of the Hourly Weather Graph for Aviation Parameters



## National Weather Service

530 Roberts Road  
Newport, NC 28570

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)



Find us on:  
**facebook**®

follow us on  
**twitter**



## Know the Difference Between a **Watch** and **Warning**

### Watch

- Severe thunderstorms or tornadoes possible
- Be aware of weather conditions around you
- Know where to take shelter and what supplies to take with you
- Check for forecast updates
  - NWS Webpage - [weather.gov/ama](http://weather.gov/ama)
  - Facebook and Twitter
  - NOAA Weather Radio
  - Local Media

### Warning

- Severe weather ongoing
- Take shelter immediately
- Seek further information
- Check for forecast updates
  - NWS Webpage - [weather.gov/ama](http://weather.gov/ama)
  - Facebook and Twitter
  - NOAA Weather Radio
  - Local Media