



# Carolina SkyWatcher



National Weather Service, Newport/Morehead City, NC

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Fall 2017 Edition



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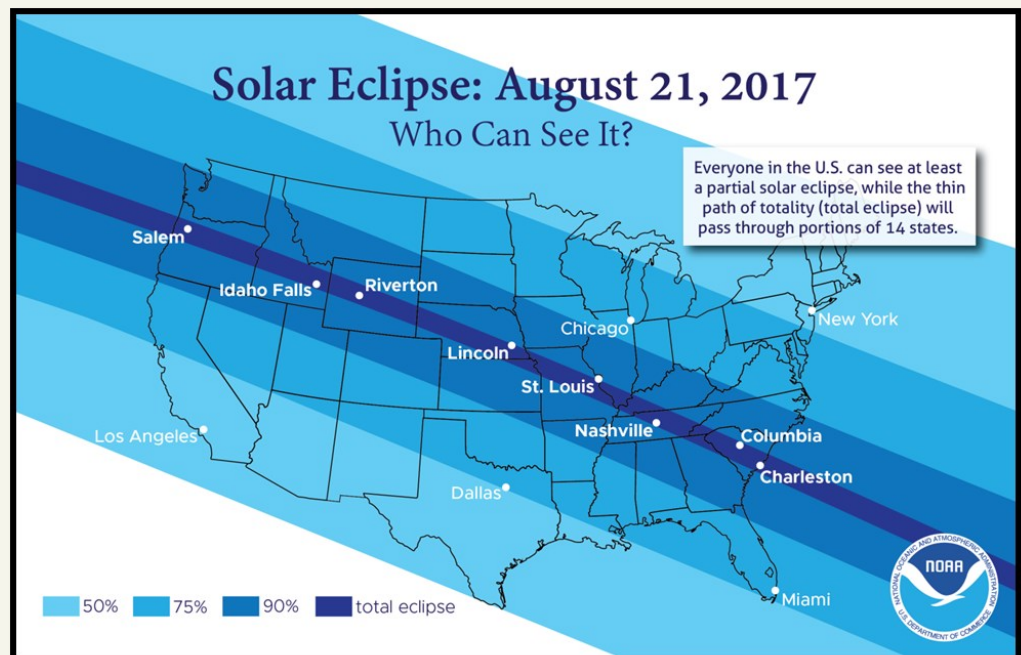
## Total Solar Eclipse, August 21, 2017

*By Shane Kearns, Meteorologist*

On August 21<sup>st</sup>, 2017, a total solar eclipse occurred for portions of the United States, with a partial eclipse visible for most places in the contiguous U.S. You can see the path of the eclipse below. Here in Eastern NC, the total percent coverage of the sun varied from the upper 80s in the Northern Outer Banks, to the mid 90s over Duplin and Onslow Counties. Still, most of the awesome effects of an eclipse remained very close to the path of totality, as the sun's light is so bright. Even when the sun is covered 90% by the moon, the effect on the ambient light of daytime isn't very significant. It is only when you are in the path of totality that the awe inspiring effects of the eclipse occur. The sky becomes similar to dusk, and bright stars and planets are visible. If you were to look closely enough, you would be able to see the corona of the sun, which is the outer atmosphere of the sun, and is only visible to the naked eye during a total solar eclipse.

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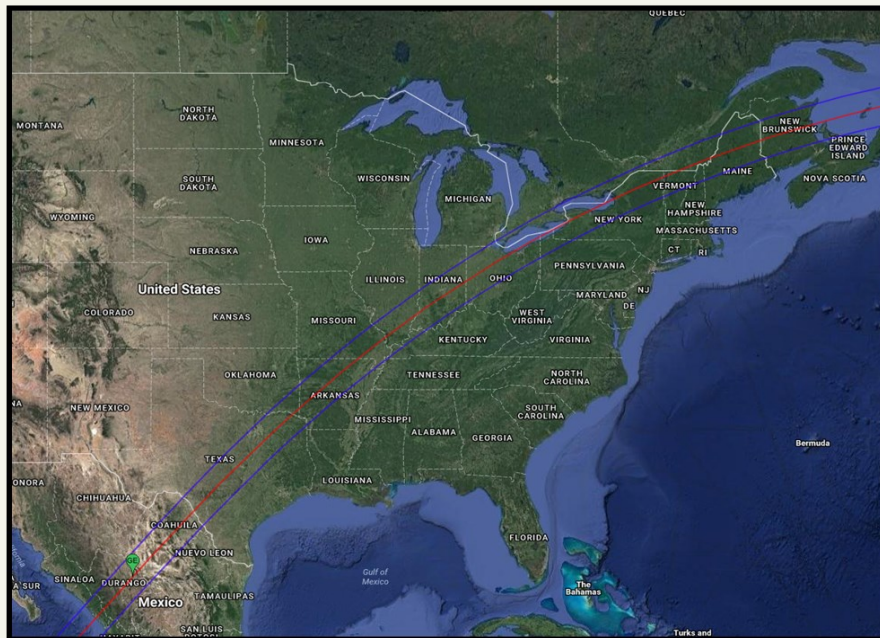
The 2017 eclipse path, with the path of totality the darkest shade of blue.

## Solar Eclipse 2017 (Continued)

If you missed out on this solar eclipse, fear not because another total solar eclipse will cross the United States (relatively) soon. On April 8<sup>th</sup>, 2024 a total solar eclipse will occur starting in Texas, and then moving northeast over the Great Plains, then to eastern Great Lakes, and finally through northern New England. Will you be in the path of totality next time?



The view during totality over Oregon, as well as the composite images of the partial eclipse positions. Photo courtesy of NASA.



The path of totality (between the blue lines) of the next total solar eclipse in the United States, which will occur on April 8<sup>th</sup>, 2024.

## Category 4 Hurricane Irma Strikes the United States

*By Chris Collins, Meteorologist*

Hurricane Irma was a very powerful Cape Verde hurricane, which became the most intense storm observed in the Atlantic Basin in over a decade. At its peak, Hurricane Irma was a Category 5 storm with maximum sustained winds of 185 mph and a minimum central pressure of 914 mb or 26.99 inHg. Irma interacted with Cuba which caused the storm to weaken a bit. The storm made landfall at Cudjoe Key, Florida as a Category 4 storm with winds of 130 mph, with a second landfall near Marco Island, Florida where [wind gusts of 142 mph were recorded in Naples, Florida](#). It is estimated that over 6 million Floridians evacuated ahead of Irma. Initial projections were for a path up the east coast of Florida, but the strength of the Bermuda Ridge helped push Irma a bit further to the west and it made its trek just inland from Florida's West Coast. However, Irma produced significant surge flooding in Miami and Jacksonville, Florida and in Savannah, Georgia and Charleston, South Carolina.

Hurricane Irma came on the heels of Hurricane Harvey, marking the first time in United States modern history that two Atlantic Basin Category 4 landfalls have occurred in the same year. Harvey's legacy was record rainfall for Texas, with up to 52 inches measured in the Houston area, while Irma's legacy will be its strength, maintaining 185 mph maximum sustained winds for 37 hours, longest in the satellite era.



Damage from Hurricane Irma near Jacksonville, Florida. (Photo Courtesy ABC News)

## Skywarn Recognition Day 2017

*By Hal Austin, Meteorologist*

Skywarn Recognition Day 2017 will be held from 7 pm Friday, December 1st to 7 pm Saturday, December 2nd. Skywarn Recognition Day is an annual event begun in 1999 by the National Weather Service (NWS) and the [American Radio Relay League](#) (ARRL). It celebrates the contributions that volunteer Skywarn radio operators make to the National Weather Service. During the 24-hour event, ham radio operators come out to NWS offices and try to make as many contacts as possible with other NWS offices as well as other hams in general. All amateur radio bands are used.

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.

In years past, many members of the [Carteret County Amateur Radio Society](#) as well as other amateur radio clubs in the area have come out to our office and took turns operating the NWS radios (callsign WX4MHX). At the same time, hams also operated their own radios from our conference room, as well as from a mobile station in a portable trailer parked outside next to the office and even their own personal vehicles. It has always been a busy but very fun day, and this year will be no different! For the latest information including operating procedures, participating NWS offices, as well as stats, pictures and news stories from past events, go [to hamradio.noaa.gov](http://to.hamradio.noaa.gov).  
73!



## Student Volunteers 2017

*By Casey Dail, Meteorologist*

This summer our staff had the privilege of getting to know and working with two graduate students, Cody Ledbetter and JD Jorgensen. Cody is a graduate student at the University of North Carolina at Charlotte, where he also earned his Bachelor's degree in meteorology. This summer Cody worked on a rip current project. He analyzed the Near-shore Wave Prediction System (NWPS) rip current model output and compared that to our local National Weather Service rip current forecasts and local lifeguard reports. His analysis and findings will serve as a foundation for future research with the goal of improving rip current forecasts along the North Carolina coast. JD is a graduate student at East Carolina University, pursuing a Master's degree in Instructional Technology Education. He earned his Bachelor's degree in Environmental Science from the University of North Carolina at Asheville. He is also a full time science teacher at Dixon High School in Holly Ridge, NC. JD worked on several GIS based projects this summer. One of those involved creating GIS based story maps for Hurricane Matthew, Hurricane Hermine and the April 16, 2011 Tornado Outbreak. These story maps are available to view on our website, under the [Significant Event Reviews](#). He also worked to improve our cities (location) files in our computer system, AWIPS, which will help us significantly with the messaging and detail in our warnings and advisories. His GIS skill set proved to be very valuable this summer.

In addition to completing their research projects, both Cody and JD spent many hours shadowing the forecast staff in operations: from launching weather balloons to assisting with forecasts. We would like to thank each of them for their hard work this summer and we wish them the best of luck with their future endeavors! For additional information on our volunteer program, please visit our webpage <http://www.weather.gov/mhx/StudentInterns>, or contact [Casey.Dail@noaa.gov](mailto:Casey.Dail@noaa.gov).



Student Volunteers JD Jorgensen and Cody Ledbetter

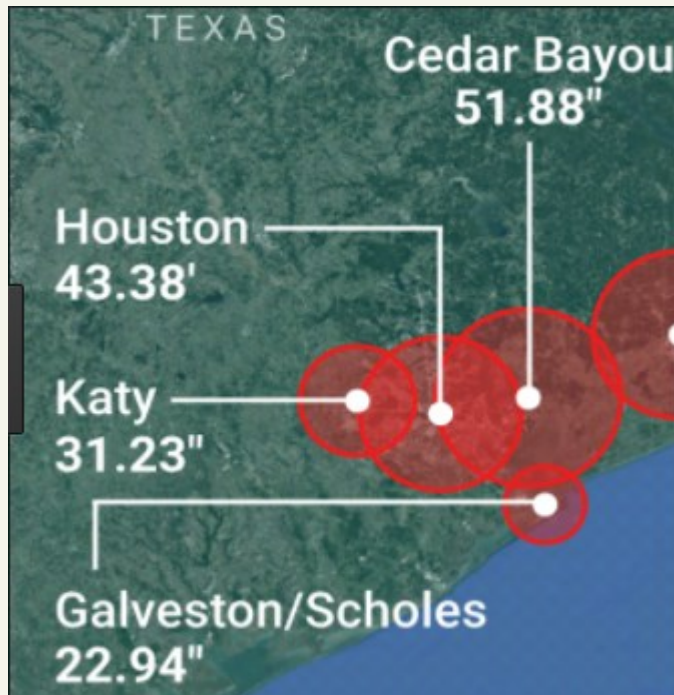
## Historical Hurricane Harvey Hammers Houston

*By Chris Collins, Meteorologist*

Category 4 Hurricane Harvey was the first major hurricane (Category 3 or greater) to make landfall in the United States since Hurricane Wilma struck Florida in 2005, ending a record 12-year period with no major hurricanes making landfall in the country. In a four-day period, many areas received 30 to locally 50 inches of rainfall as the system slowly drifted over eastern Texas, causing catastrophic flooding. Harvey is the wettest tropical cyclone on record in the contiguous United States. Floods inundated hundreds of thousands of homes, displaced more than 30,000 people, and prompted more than 17,000 rescues.



Rescuers in downtown Houston after Hurricane Harvey (Source: ABC News).



Houston area rainfall amounts from Hurricane Harvey (Source : Associated Press)

## Are You Ready For Winter?

*By Chris Collins, Meteorologist*

While many people consider eastern North Carolina a tropical paradise, we can and do get significant winter weather in our area. On Tuesday February 11, 2014, the New Bern area received upwards of 10 inches of snow. On January 23, 2003, up to a foot of snow fell along the Outer Banks and every county in North Carolina received measurable snow. Finally, back on March 3, 1980, up to 30 inches of snow was reported in Carteret and Craven Counties.

Winter storms can bring snow, sleet, and freezing rain across the entire United States and its territories. Even Hawaii gets snow in its Big Island, and major cities as far south as Atlanta and Dallas have been paralyzed by snow and ice. Blizzards occur when strong wind causes blowing snow and whiteout conditions, making roads impassable. Thousands of people are injured or killed every year in traffic accidents related to slippery roads from winter storms.

Probably the primary hazard with significant winter weather in eastern North Carolina, and certainly the one with the most significant impact is hazardous roads that make travel dangerous, is black ice. The most basic definition of black ice is a thin coat of highly transparent ice. The reason it is transparent is because it blends in with road pavements since it is so thin, making it nearly impossible to see. It's called black ice since it looks black, like the color of the road pavement it forms on. If the temperature rises above freezing or the sun comes out during the day, any snow on the ground will slowly melt and cause road surfaces to become wet. If it rains, that could also lead to wet roadways with some puddles. If the temperature then drops below freezing while the ground is still wet, black ice will likely form on paved surfaces due to the refreezing. Black ice can also form if moisture in the air condenses and forms dew or fog, and then the temperature drops below freezing. Common locations to find black ice include bridges, overpasses and spots on the road shaded by trees or other objects. Bridges and overpasses are prone to black ice because cold air is able to flow underneath the road surface, since it is elevated, therefore lowering the pavement temperature. Shaded spots on the road are prone since they receive less warmth from the sun during the day. Since black ice is highly transparent, it is unlikely you'll be able to see it while driving down the road. Roadways become very slippery when black ice forms, leading to hazardous driving conditions and an increased risk of car accidents.

## Are You Ready For Winter? (Continued)

# WINTER DRIVING TIPS

- Clean debris from your vehicle
- Use low gears on hills
- Allow more stopping distance
- Don't drive if you don't have to
- Be mindful of black ice
- Know skid and slide recovery
  - Take your foot off the pedals
  - Steer gently
  - As the vehicle regains traction, gently apply the brakes or the accelerator

## Getting Traction

Tips for  
Traveling  
in Winter Weather



Check the NWS forecast



Check road conditions



Stay mobile



Winterize your vehicle



Pack an emergency supply kit



[weather.gov/winter](https://www.weather.gov/winter)







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To report adverse weather conditions 24/7, please call us at: **1-800-889-6889**