Carolina SkyWatcher

Hurricane Ida, August 29, 2021 | Source: NOAA

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NOAA Updates Atlantic Hurricane Season Outlook for 2021

In an annual mid-season update for the Atlantic Hurricane Season Outlook, the Climate Prediction Center increases the chances for an above-normal 2021 season. What does that mean for us?

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This past summer, the NWS Morehead City team had the pleasure to host two rising meteorology students who worked on local research projects to help improve forecasts for Eastern North Carolina.

Breaking the Ice: Meeting Ryan Fucheck

Get to know our newest NWS meteorologist!

Hurricane Irene 10 Years Later
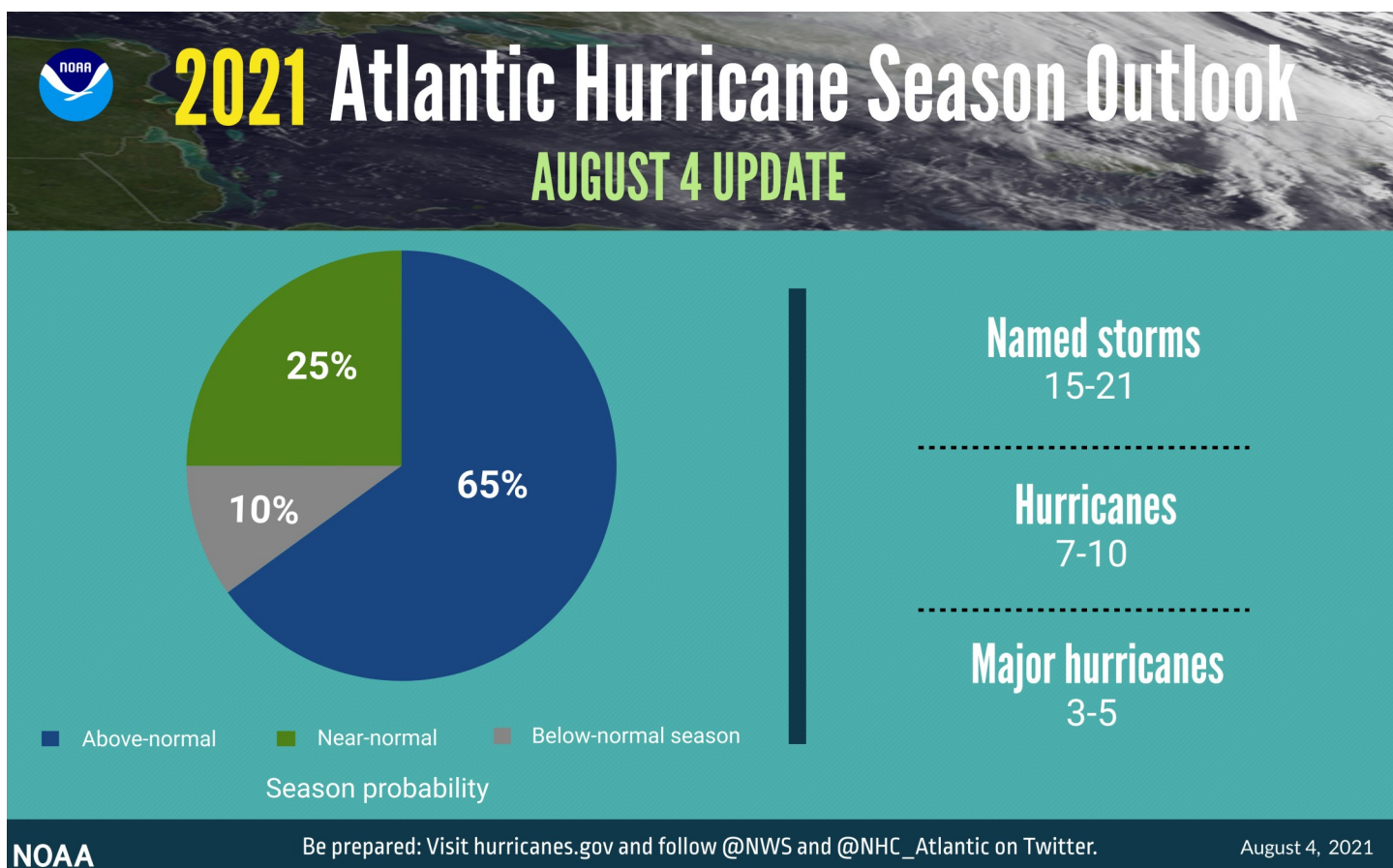
We look back on Hurricane Irene in 2011.

NOAA Updates Atlantic Hurricane Season Outlook for 2021

By: Michael Lee, Meteorologist

The Atlantic Hurricane Season is showing no signs of slowing. NOAA's Climate Prediction Center (CPC), a division of the National Weather Service, released a mid-season update last month for their 2021 Atlantic Hurricane Season Outlook. The latest outlook now calls for a 65% chance of an above-normal hurricane season, with 15-21 named storms, including 7-10 hurricanes, 3-5 of which could become major hurricanes. These numbers are up from the 13-20 named storms and 6-10 hurricanes from the first outlook issued in May.
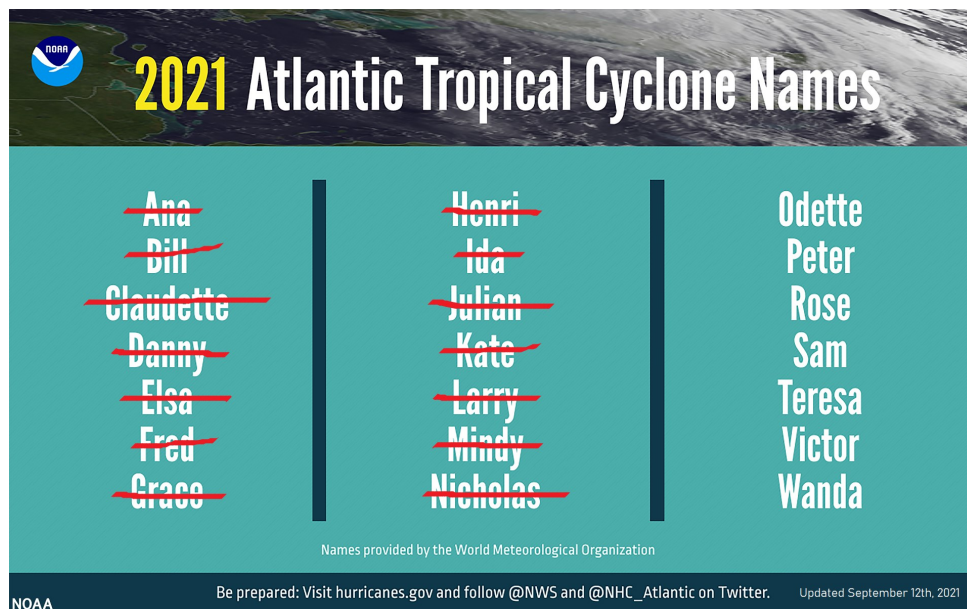

"A mix of competing oceanic and atmospheric conditions generally favor above-average activity for the remainder of the Atlantic hurricane season, including the potential return of La Niña in the months ahead," said Matthew Rosencrans, lead seasonal hurricane forecaster at the CPC.

Warm ocean temperatures, reduced vertical wind shear, and an enhanced west African monsoon are also expected to contribute to an active hurricane season. Additionally, these factors are compounded with the ongoing warm phase of the Atlantic Multi-Decadal Oscillation, which favors a more active hurricane season.

NOAA Updates Atlantic Hurricane Season Outlook for 2021

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So far in the 2021 Atlantic Hurricane Season, we have seen 14 named storms, including five hurricanes, three of which have been major hurricanes. This keeps us right on par with the CPC's seasonal outlook as we reach the climatological peak of hurricane season in mid-September, with two and a half months left of hurricane season, which ends November 30th.

2021 Atlantic Tropical Cyclone Names

Ana
Bill
Claudette
Danny
Elsa
Fred
Grace

Henri
Ida
Julian
Kate
Larry
Mindy
Nicholas

Odette
Peter
Rose
Sam
Teresa
Victor
Wanda

Names provided by the World Meteorological Organization

Be prepared: Visit hurricanes.gov and follow @NWS and @NHC_Atlantic on Twitter.   Updated September 12th, 2021

Right here in Eastern North Carolina, we have experienced direct impacts from two tropical storms so far this year: Claudette and Elsa. Claudette brought heavy rain to the region from June 20th–21st while Elsa brought wind gusts over 50 mph and a confirmed tornado in Fairfield, NC just a few weeks later on July 8th. While the tornado in Fairfield was confirmed visually using photos and videos, it caused no damage from which our survey team could assign an EF-scale rating, thus it was rated as an EF-U (unknown).

Tornado from Tropical Storm Elsa Fairfield, NC | Credit: Lindsey Mooney

As we continue through an already active 2021 Atlantic Hurricane Season, it is important to remain vigilant and stay Weather Ready. Folks in Eastern North Carolina should perform an annual check on their hurricane preparedness plans and supplies if they have not done so already. Use the link below to get started today!

Be Weather Ready for Hurricane Season!

NWS Morehead City Hosts Students for Summer Programs

By: Ryan Ellis, Science and Operations Officer

This summer, NWS Morehead City had the pleasure of hosting not one but two students virtually to work on a couple of local research projects. The first was Zachary Chalmers, an Earnest F. Hollings Undergraduate Scholarship recipient. The Hollings program was established in 2005 under the Consolidated Appropriations Act and its purpose is fourfold:

1. Increase undergraduate training in oceanic and atmospheric science, research, technology, and education and foster multidisciplinary training opportunities;

2. Increase public understanding and support for stewardship of the ocean and atmosphere and improve environmental literacy;

3. Recruit and prepare students for public service careers with the National Oceanic and Atmospheric Administration and other natural resource and science agencies at the federal, state and local levels of government; and,

4. Recruit and prepare students for careers as teachers and educators in oceanic and atmospheric science and to improve scientific and environmental education in the United States.

Zachary Chalmers, Hollings Scholar, University of Illinois

Zach joined us remotely from the University of Illinois and participated in a study that looked at the conditions favorable for waterspouts in Eastern North Carolina. Zach built off of previous work by NWS offices in Wilmington, NC, Charleston, SC and Key West, FL. Zach used Python programming to look through data from atmospheric soundings (weather balloons) to find variables that could potentially play a role in waterspout formation. After finding the ones that fit best, Zach was able to combine them into a waterspout index that forecasters are able to use in operations to better identify days that could potentially yield waterspouts. His work was presented at a forum at the office and will be submitted for presentation at the American Meteorological Society's 2022 Annual Meeting in Houston, TX.

We are happy to also report that Zach will be continuing this work with us through the Capstone research program working with us and his advisor at the University of Illinois.

NWS Newport/Morehead City Hosts Students for Summer Programs

(continued)

Our office also had the pleasure of hosting Elizabeth Danco, a student volunteer and rising senior at Virginia Tech University. Elizabeth took on her first big data project, a foray into something we call the National Blend of Models (NBM), a forecasting system that NWS forecasters use to try and objectively account for and decipher the wide array of forecast model solutions available to them. Specifically, Elizabeth looked at temperature verification of the NBM over the Outer Banks, an area notoriously difficult to forecast for. Because of the relatively narrow strip of land surrounded by water, forecast models have a difficult time accurately predicting things like high and low temperatures. Eliza-

Elizabeth Danco, Student Volunteer, Virginia Tech University

beth's conclusions will help forecasters to adjust the output of the NBM to more representative values for the Outer Banks. Her work will be expanded this fall by a team of forecasters and the findings also presented at the AMS Annual Meeting.

Elizabeth will now move on to a Capstone project with the NWS office in Blacksburg, VA, also on the campus of Virginia Tech.

In addition to the research experience that both students received this year, NWS staff provided virtual operations training where the students could experience what it was like to work in operations and be a part of the forecasting team. They looked at various weather patterns in Eastern NC, were able to see what systems forecasters use to make their predictions and also were able to understand how the NWS connects with core partners such as Emergency Managers and the media to help drive the mission of saving life and property and building a more weather ready nation.

Finally, students were exposed to various leadership topics that will help them build their interpersonal skills as they move into a phase in their lives where they will be applying for jobs or graduate school. Discussions included topics such as organization and productivity, interpersonal skills such as personality type training and networking, and finally, culture topics aimed at bringing ideas to fruition and working successfully in a team environment.

It is always rewarding for us to be able to mentor the students and watch as their journeys take shape. Inevitably we always end up learning as much from them than they do from us. It was a joy to have them and we wish them both the best of luck moving forward in their education and careers.

Breaking the Ice: Meeting Ryan Fucheck

By: NWS Morehead City

Ryan Fucheck, Meteorologist, NWS Morehead City

This past August, NWS Morehead City welcomed a new member of our team, Ryan Fucheck. We took a moment to ask him a few questions about himself so folks can get to know Eastern North Carolina's newest NWS meteorologist!

Can you tell us a bit about where you are from?

I grew up in Newburgh, New York which is located in the Lower Hudson Valley. Newburgh was only about an hour north of New York City and close to the Appalachian mountain range. There was always the opportunity to take a day trip to New York City and explore. Or if you wanted to be out in nature, there was no shortage of state parks and hiking trails as well.

What got you into weather and how early did you know you wanted to be a meteorologist?

What got me really interested in the weather was living through the Storm of the Century in 1993. Funny enough, this snowstorm occurred right around my birthday. At that time, I was only four, but could vividly remember the amount of snow the system produced in New York and the awe I had with the conditions that impacted the Northeast. Newburgh itself received over a foot and a half of snow from that storm. Between the storm itself, and the coverage The Weather Channel had on the system, I instantly got hooked on the weather. After that, I basically made up my mind and have wanted to become a meteorologist ever since.

Where did you go to school and what was your favorite thing to study?

I went to school at the University at Albany and graduated with a Bachelors in Science back in 2011. Although I grew up fascinated by winter weather, after I took some classes in Tropical Meteorology, which quickly became my favorite course to study and learn more about.

What is your favorite type of weather to forecast?

Tropical Storms and Hurricanes have quickly become my favorite to forecast. Although the hope is always to have the systems remain out in the open waters of the Atlantic or Pacific, the complex nature of these storms as well as the amazing satellite imagery some of these storms have produced has fueled my love for forecasting these systems.

Breaking the Ice: Ryan Fucheck

(continued)

What was your career path like on the road to coming to NWS Newport/Morehead City?

I originally started my career in 2011 in Hopewell Junction, New York as a Marine Meteorologist at a company called FleetWeather. While I worked there, I was able to get my foot in the door as an operational meteorologist. In addition to that, I was also able to learn something I knew little about when I first got out of college: marine meteorology and ship routing. After about four and a half years, I left FleetWeather and began working in Norman, Oklahoma as an operational meteorologist at another private company called Weather Decision Technologies in 2016. Here I was able to hone my skills as a forecaster and a risk communicator. The team had a wide range of clients from oil rigs out in the Gulf of Mexico, emergency managers from varying cities, school districts/colleges, T.V. networks, and even stage managers at concert venues across the globe. I was able to learn more about tropical meteorology, winter weather, and severe weather throughout my years working here. The company stayed in Norman, Oklahoma until they were bought by another private weather company, DTN, and moved the forecast office up to Burnsville, Minnesota in the summer of 2020. After that, the rest is history as I jumped at the chance to join the team in Newport.

> *"Tropical Storms and Hurricanes have quickly become my favorite to forecast for."*
> *-Ryan Fucheck*

What is the most memorable weather event you have covered in your career?
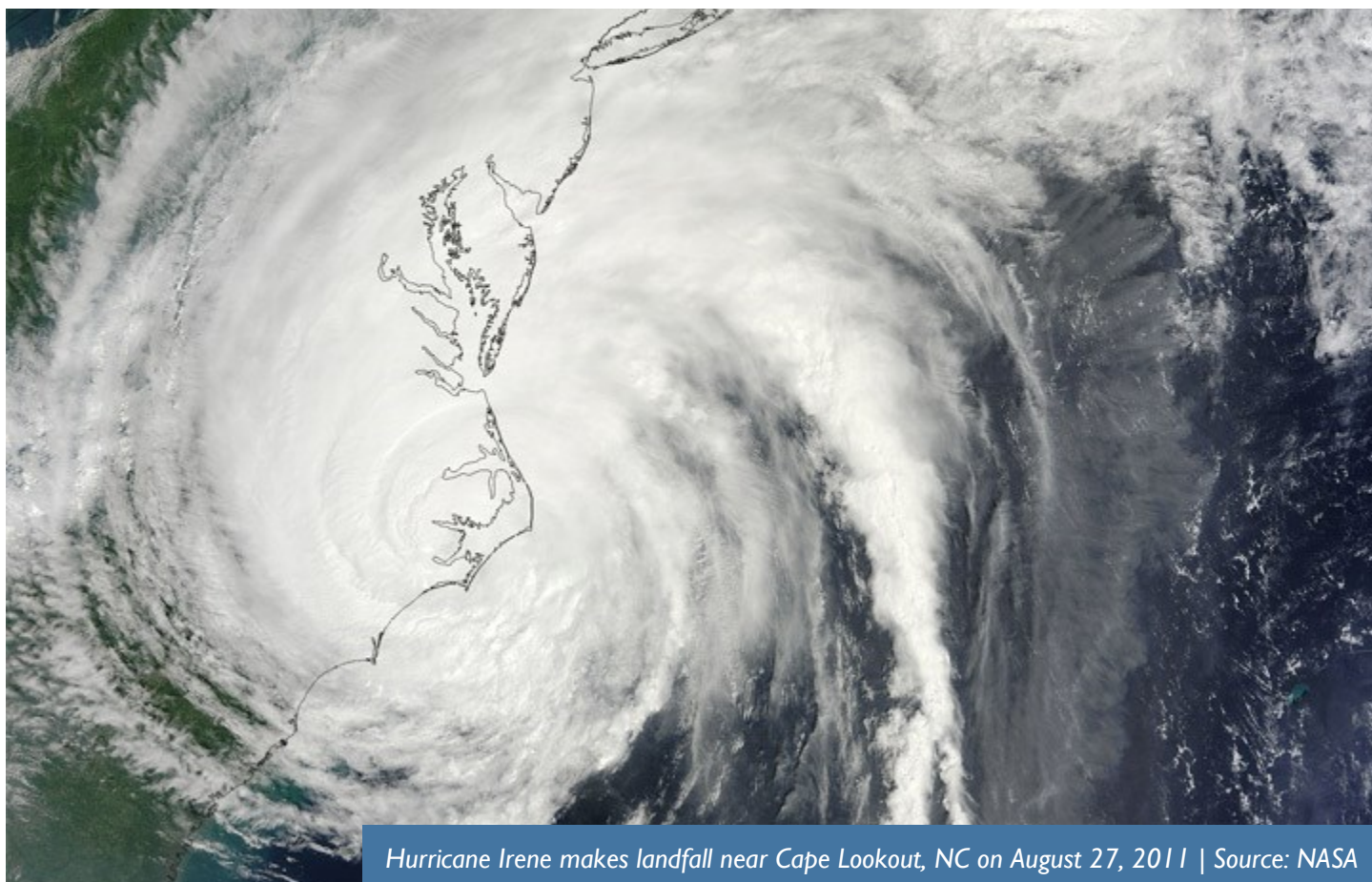
The most memorable weather event I have ever forecasted for was Hurricane Harvey when it impacted Texas in 2017. Unfortunately, the models were in strong agreement that Harvey would not only bring hurricane-force conditions to the region, but also stall and dump prolific amounts of rain across the area. The silver lining, though, was that it made messaging the impacts of the system straightforward. Not only that, but the satellite and radar images were also very interesting to see.

What do you like to do in your spare time?

I like to spend my time outdoors if I can; biking, hiking, or kayaking if the weather is nice enough. I also enjoy watching football and baseball and I am an avid Green Bay Packers and New York Mets fan.

Hurricane Irene 10 Years Later

By: Michael Lee, Meteorologist

Hurricane Irene makes landfall near Cape Lookout, NC on August 27, 2011 | Source: NASA

This year marks 10 years since Hurricane Irene wrecked havoc across Eastern North Carolina on August 26-27, 2011. In its wake, Irene left extensive flooding, storm surge, and wind damage across the region. The hurricane also spawned several tornadoes, including one EF-2 tornado near Colombia in Tyrrell County. In total, Irene was responsible for 5 deaths in North Carolina.
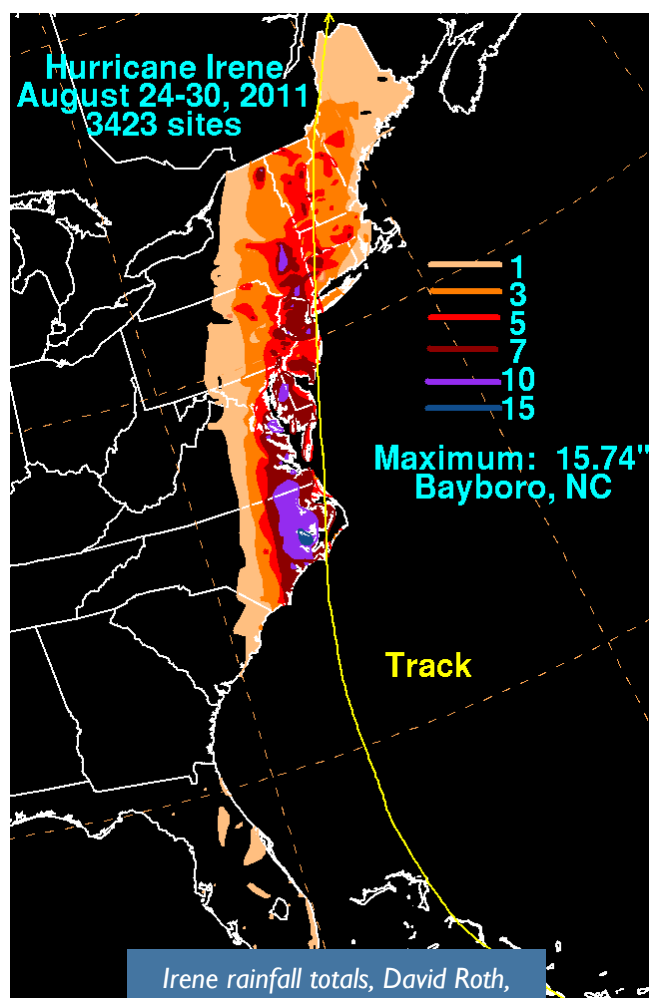

Track of Hurricane Irene August 20-29, 2011

Irene began as a tropical depression on August 20th as it approached the Lesser Antilles before becoming a named tropical storm later that day. Two days later, as it was making landfall over Puerto Rico, Irene became a category 1 hurricane. Soon after, the storm began to rapidly inten- sify as it moved over the warm waters of the Bahamas, strengthening into a category 3 hurricane on August 24th. While Irene began to weaken and lose maximum wind speed as it continued barreling toward North Carolina, it began to grow in size. By the time it made landfall on Au- gust 27th at Cape Lookout, Irene was a massive hurricane,

Hurricane Irene 10 Years Later

(continued)

with maximum sustained winds over 85 mph and an expansive wind field with hurricane-force winds expanding outwards to 80 nautical miles from the center of the storm. Irene then continued northward, impacting locations along the East Coast and New England.

After it was all said and done, Irene left large swaths of damage across North Carolina and the Eastern Seaboard. Widespread heavy rain left many communities with over a foot of measured precipitation, including the community of Bayboro, NC that came in with the highest rainfall total at 15.74 inches, resulting in extensive flooding throughout the region. While Irene's maximum sustained winds were measured around 85 mph, some locations saw wind gusts exceeding 100 mph. The EF-2 tornado near Columbia, NC demolished at least four homes and overturned many vehicles. Numerous downed trees across Eastern North Carolina resulted in thousands without power. Storm surge from the Atlantic Ocean and Pamlico Sound covered portions of Highway 12 along the Outer Banks, causing numerous breaches throughout the barrier island.

Irene rainfall totals, David Roth, Weather Prediction Center

August 31, 2011

Storm surge damage near Rodanthe, NC after Hurricane Irene in 2011, USGS

While an entire decade can seem like a long time, for many, Irene felt like yesterday. If you have a story you would like to share from Hurricane Irene, we'd like to hear it. Send us an email with your story and any pictures you have from Irene to wxobs.mhx@noaa.gov. You can also read more about Hurricane Irene in the National Hurricane Center's Tropical Cyclone Report for Irene and on the NWS Morehead City's Event Review for Irene.

Share Your Stories and Pictures

Happy Retirement, Chris!

After over 32 years of service in the NWS, Lead Meteorologist Chris Collins retired this past August. The folks at NWS Morehead City thank Chris for his many years of service and wish him a happy and healthy retirement with no more alarm clocks!

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