Carolina SkyWatcher

National Weather Service, Newport/Morehead City, NC

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2016 Hurricane Season Arrives

The 2016 Hurricane season is underway and off to an early start. By mid-June, there had already been three tropical systems in the 2016 season, the most so early in a season on record. Hurricane Alex became only the second January hurricane and the first since 1938. Tropical Storm Bonnie made landfall just east of Charleston, South Carolina on May 29 and its remnants brought heavy rainfall to eastern North Carolina. Tropical Storm Colin formed in the Gulf of Mexico and moved along the North Carolina coast on June 7, producing gusty winds and heavy rainfall.

The peak of the hurricane season is typically in late August through late September, but destructive hurricanes can form anytime during the hurricane season. Learn what you can do if a hurricane is headed your way and how to take action before, during and after the storm.

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Atlantic Tropical (and Subtropical) Storm Names for 2016		
Alex	Ian	Richard
Bonnie	Julia	Shary
Colin	Karl	Tobias
Danielle	Lisa	Virginie
Earl	Matthew	Walter
Fiona	Nicole	
Gaston	Otto	
Hermine	Paula	

Eastern North-Pacific Tropical (and Subtropical) Storm Names for 2016		
Agatha	Ivette	Roslyn
Blas	Javier	Seymour
Celia	Kay	Tina
Darby	Lester	Virgil
Estelle	Madeline	Winifred
Frank	Newton	Xavier
Georgette	Orlene	Yolanda
Howard	Paine	Zeke

Hurricane Outlook for 2016

By Climate Prediction Center

NOAA's Climate Prediction Center says the 2016 Atlantic hurricane season, which runs from June 1 through November 30, will most likely be near-normal, but forecast uncertainty in the climate signals that influence the formation of Atlantic storms make predicting this season particularly difficult.

NOAA predicts a 70 percent likelihood of 10 to 16 named storms (winds of 39 mph or higher), of which 4 to 8 could become hurricanes (winds of 74 mph or higher), including 1 to 4 major hurricanes (Category 3, 4 or 5; winds of 111 mph or higher). While a near-normal season is most likely with a 45 percent chance, there is also a 30 percent chance of an above-normal season and a 25 percent chance of a below-normal season.

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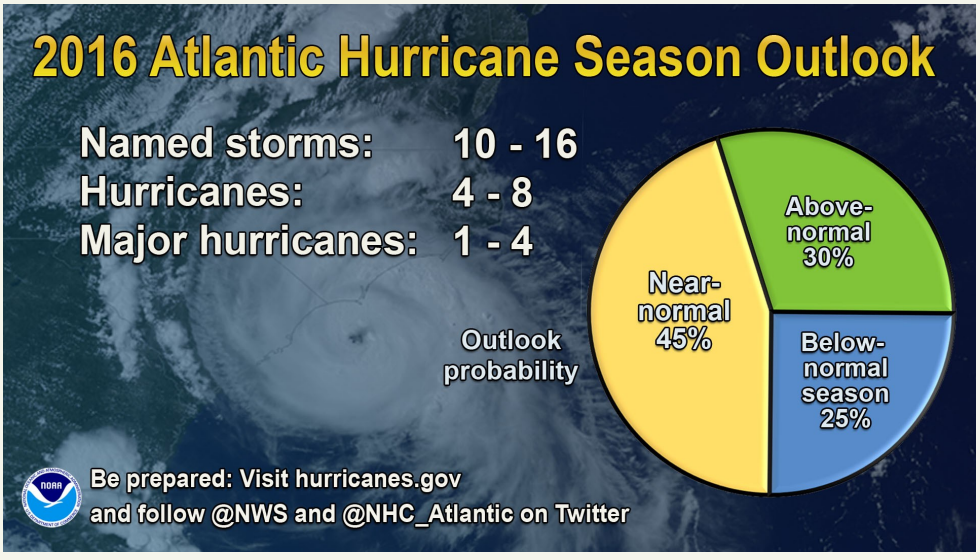
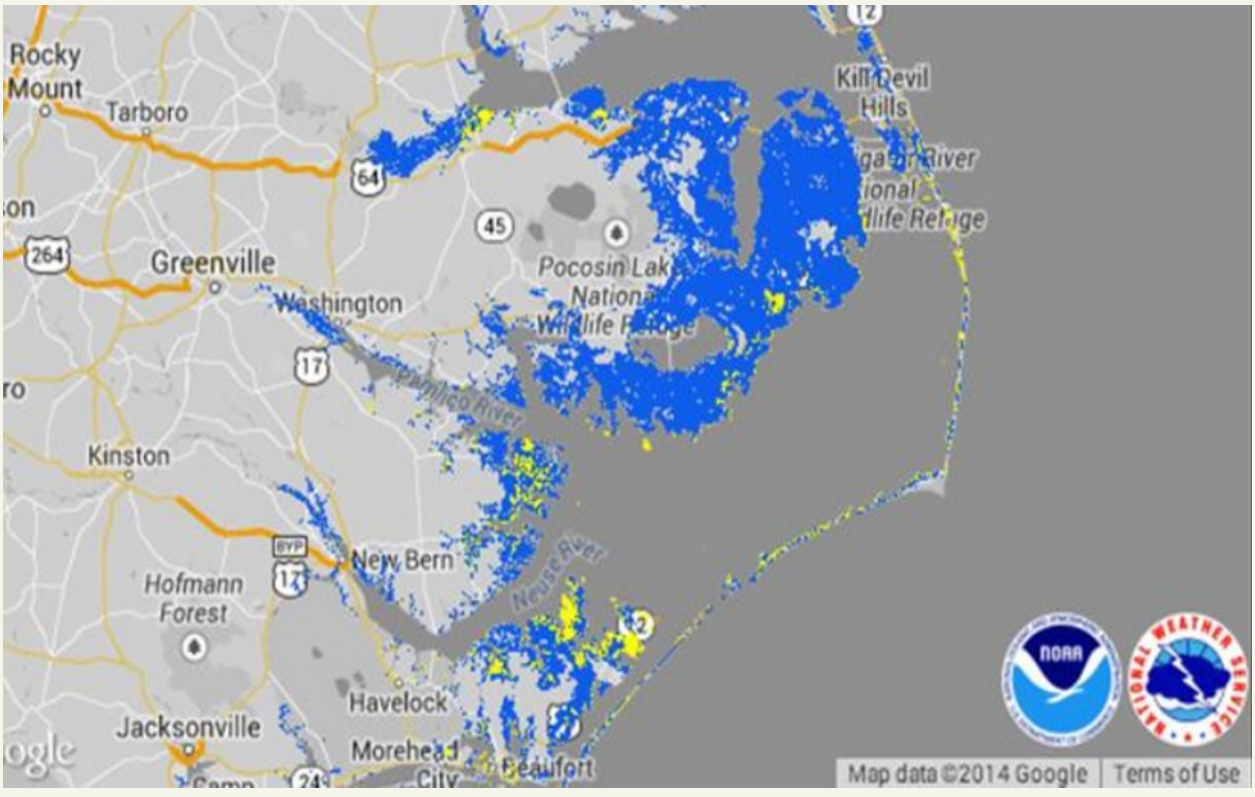


Storm Surge Product Changes

National Hurricane Center

The experimental Potential Storm Surge Flooding Map that debuted during the 2014 hurricane season, with Hurricane Arthur on July 3rd, has become official for the 2016 hurricane season. This product provides quantitative information on the storm surge hazard associated with tropical cyclones, highlighting geographical areas where inundation from storm surge could occur and the height above ground that the water could reach. The map depicts inundation levels that have a 10 percent chance of being exceeded, which can be thought of as a reasonable worst-case scenario for any individual location. The map will usually be issued at the same time as the initial hurricane watch, although in some cases it will be issued with the initial tropical storm watch. The map is based on the latest forecast track and intensity for the tropical cyclone, and takes into account forecast errors. The map is subject to change every six hours with each new NHC full advisory package, and may not become available until about 60-90 minutes following the advisory release due to processing time required to produce the image.



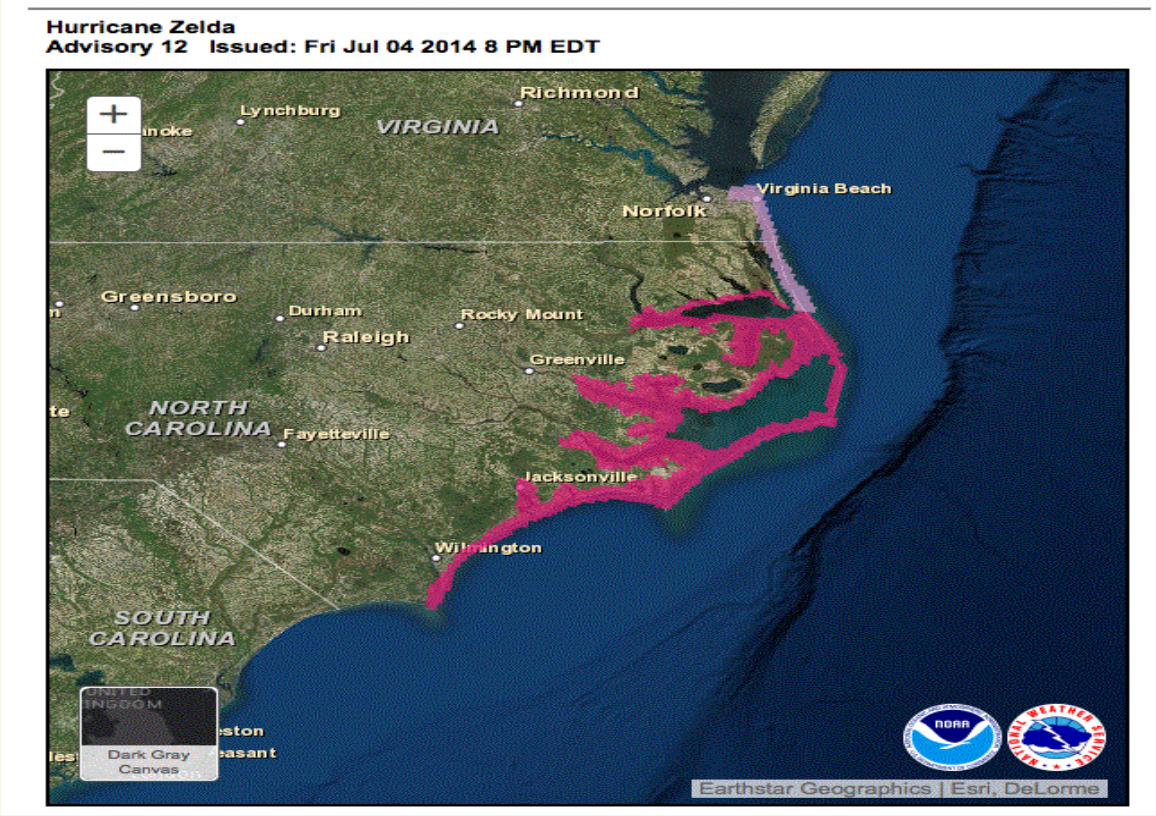
Experimental Potential Storm Surge Graphic

Prototype Storm Surge Watch/Warning Graphic

National Hurricane Center

The National Hurricane Center will again offer an experimental graphic to highlight those areas along the Gulf and Atlantic coasts of the United States most at risk for life-threatening inundation by storm surge from a tropical cyclone. (The experimental program began in 2015, but none of the 2015 storms produced a storm surge threat that met the issuance criteria.)

The graphic, which will be available on the NHC website, www.hurricanes.gov, is designed to introduce the concept of a watch or warning specific to the storm surge hazard, displaying areas that would qualify for inclusion under a storm surge watch or warning system currently being developed by the National Weather Service. As part of a phased implementation plan, storm surge watches and warnings are expected to debut in 2017. Storm surge is often the greatest threat to life and property from a tropical cyclone, and it can occur at different times and at different locations from a storm's hazardous winds. In addition, while most coastal residents can remain in their homes and be safe from a tropical cyclone's winds, evacuations are generally needed to keep people safe from storm surge.



Example of Storm Surge Watch/Warning Graphic

Prototype Storm Surge Watch/Warning Graphic (Continued)

Having separate warnings for these two hazards should provide emergency managers, the media, and the general public better guidance on the hazards they face when tropical cyclones threaten. NHC and NOAA National Weather Service (NWS) Forecast Offices will determine the area most at risk from lifethreatening surge through a collaborative process.

In addition to the graphic, the risk areas will be mentioned in Hurricane Local Statements issued by NWS Forecast Offices in the affected areas and in the Hazards section of the NHC Public Advisory. Here is a sample surge statement from the Hazards section of a Public Advisory:

HAZARDS AFFECTING LAND

STORM SURGE: The combination of a dangerous storm surge and the tide will cause normally dry areas near the coast to be flooded by rising waters moving inland from the shoreline. There is a danger of life-threatening inundation during the next 36 hours along the North Carolina coast from Cape Fear to Duck, including the Outer Banks, the Pamlico and Albemarle Sounds, and along adjacent rivers and estuaries. For a depiction of areas at risk, please see the prototype National Weather Service storm surge watch/warning graphic. This is a lifethreatening situation. Persons located within these areas should take all necessary actions to protect life and property from rising water and the potential for other dangerous conditions. Promptly follow evacuation and other instructions from local officials.

Lightning Safety

By Chris Collins, Meteorologist

A new partnership between NOAA and the Deaf and Hard of Hearing community has yielded a fresh safety campaign slogan to protect more people from lightning strikes this summer. NOAA's traditional motto, "When Thunder Roars, Go Indoors," has helped countless people understand how to protect themselves from lightning during a dangerous thunderstorm. This slogan doesn't resonate with everyone – especially those who can't hear. That motto is built around the simple premise of hear a weather threat (thunder), take action (go inside to safety). Upon realizing there was a gap in NOAA's lightning safety effort, NOAA has expanded partnerships with Deaf and Hard of Hearing organizations and within the agency to solve the problem.

The result is a new campaign slogan based on sight rather than sound. Under the guidance of experts at Gallaudet University, NOAA has produced a national video public service announcement (PSA) to promote the new safety guidance for the Deaf and Hard of Hearing. The video promotes a more helpful tip to remember: "When you see a flash, dash inside!"

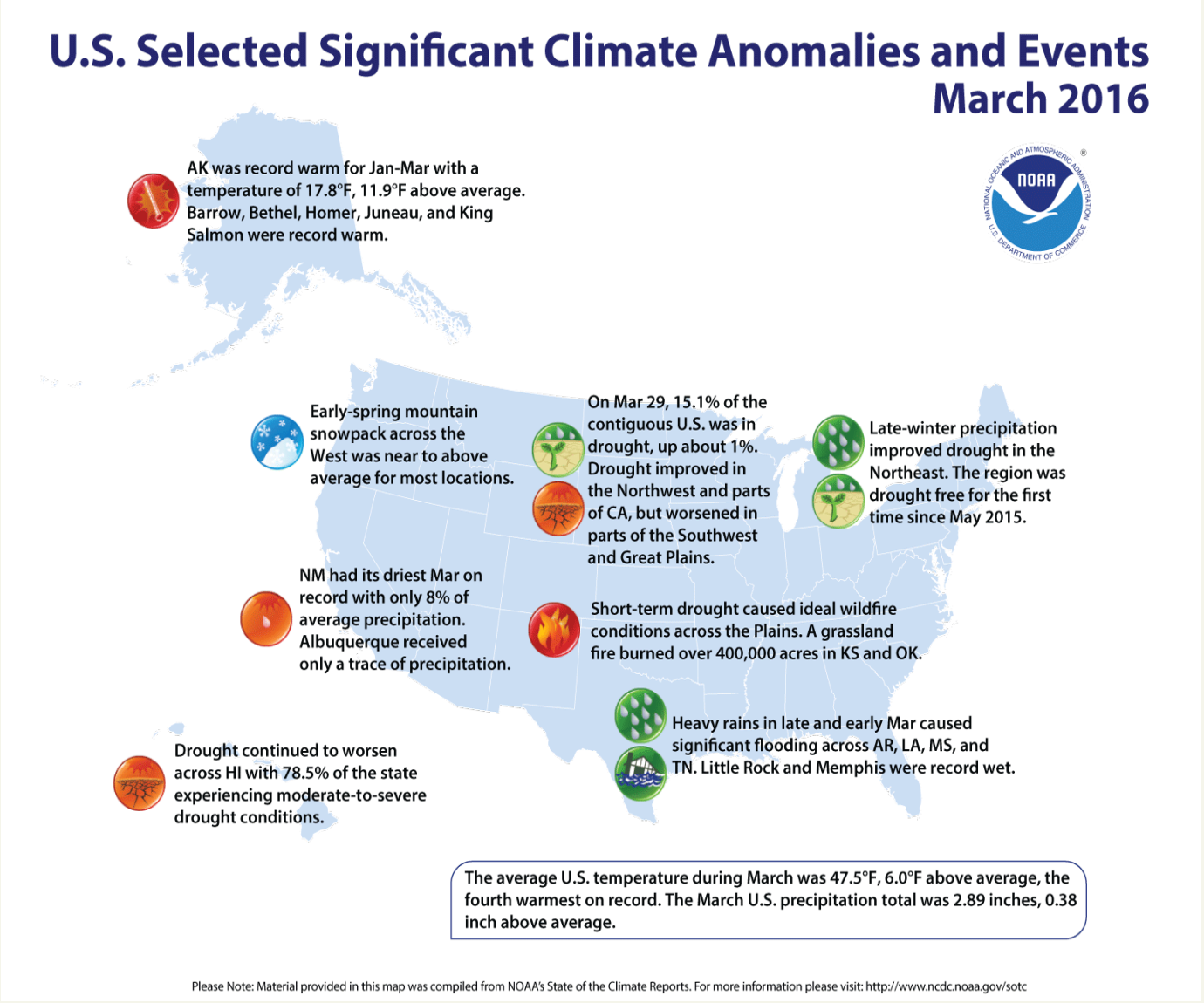
The following is a news story about the new campaign from WNCT-TV in Greenville, featuring NWS Newport Meteorologist Intern Shane Kearns and Student Volunteer Kyle Noel.

http://wnct.com/2016/06/28/new-weather-safety-campaign-to-keep-the-deaf-and-hard-of-hearing-community-safe/

Warm, Dry March in 2016.

By Chris Collins, Meteorologist

March 2016 was warmer than normal over much of the region. With the exception of the Outer Banks and eastern portions of Beaufort and Pamlico counties, the region was also drier than normal. No severe weather occurred across the region in March. A persistent ridge along the eastern seaboard led to warm and relatively dry conditions. Cape Hatteras along with NWS Newport/Morehead City recorded the second warmest March on record with temperatures some 4 to 7 degrees above normal. New Bern reached an incredible 90 degrees on March 16. Other monthly high temperatures included 89 at Plymouth, 88 at Williamston and 87 degrees in Greenville. Rainfall for March ranged from 1.97 inches in Greenville to just under 6 inches at Cape Hatteras.



Impact Based Warnings

By John Cole, Warning Coordination Meteorologist

National Weather Service, NWS, Eastern Region Offices began issuing Impact Based Warnings (IBW) starting April 13th, 2016. In a nutshell IBW enables forecasters to tag warnings for particularity dangerous severe weather (destructive winds 80 mph or greater, EF2 or stronger tornadoes, and very large hail.

The NWS launched a demonstration project to explore the impact based warning/ convective warning experimental product to better communicate threats to partners and constituents. Due to positive feedback, the NWS expanded the demonstration project to include 13 Southern Region Coastal Weather Forecast Offices (WFOs) for a total of 80 WFOs participating nationwide on October 1, 2015. The goals in this process continue to focus on providing more information to media and EM partners, facilitating improved public response and decision making; and meeting societal needs in the most life-threatening weather events.

IBW is an effort to enhance NWS severe thunderstorm and tornado warnings to more effectively communicate severe weather hazards to the media and Emergency Management communities, in order to facilitate improved public response and decision making. IBW enhancements are designed to improve communication of critical information, make it easier to quickly identify the most valuable information and enable prioritization of key warnings. The enhancements will also provide different levels of risk within the me product, enabling the NWS to express a confidence level of potential impacts and risk. For more information about IBW please see the graphic below, and refer to the following link: http://www.weather.gov/impacts/

NWS Stops Issuing Products in All CAPS

By Chris Collins, Meteorologist

As of May 11, National Weather Service forecasts transitioned to mixed-case characters. New forecast software is allowing the agency to break out of the days when weather reports were sent by teletype. This technology only allowed the use of upper case letters, and while the hardware and software used for weather forecasting has advanced over the last century, this holdover was carried into modern times since some customers still used the old equipment. Initially, area forecast discussions and public information statements will be in mixed-case with additional products transitioning during the next year.

Better late than never, but the slow change was not for lack of trying. The National Weather Service proposed to use mixed-case letters several times since the mid-1990s, when widespread use of the internet made teletype obsolete. In fact, the use of all capital letters became synonymous with angry shouting. However, it took the next 20 plus years for users of NWS products to phase out the last of the old equipment that would only recognize teletype. Recent software upgrades to NWS software, including AWIPS –2 (Advanced Weather Interactive Processing System) are allowing for the change to mixed-case letters.

Upper case letters will not become obsolete, as forecasters will have the option to use all capital letters to emphasize threats during warnings and other dangerous weather situations.

Old: Teletype machine

New: AWIPS-2 Workstation

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