



## Update on NHC Products and Services for 2015

NOAA's National Hurricane Center (NHC) will implement the following changes to its text and graphical products for the 2015 hurricane season:

### 1) Prototype Storm Surge Watch/Warning Graphic

NOAA's National Hurricane Center will 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 new graphic 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, experimental storm surge watches and warnings are expected to debut in 2016. After incorporating both user and partner input, the NWS expects to make the new storm surge warning system fully operational in 2017.

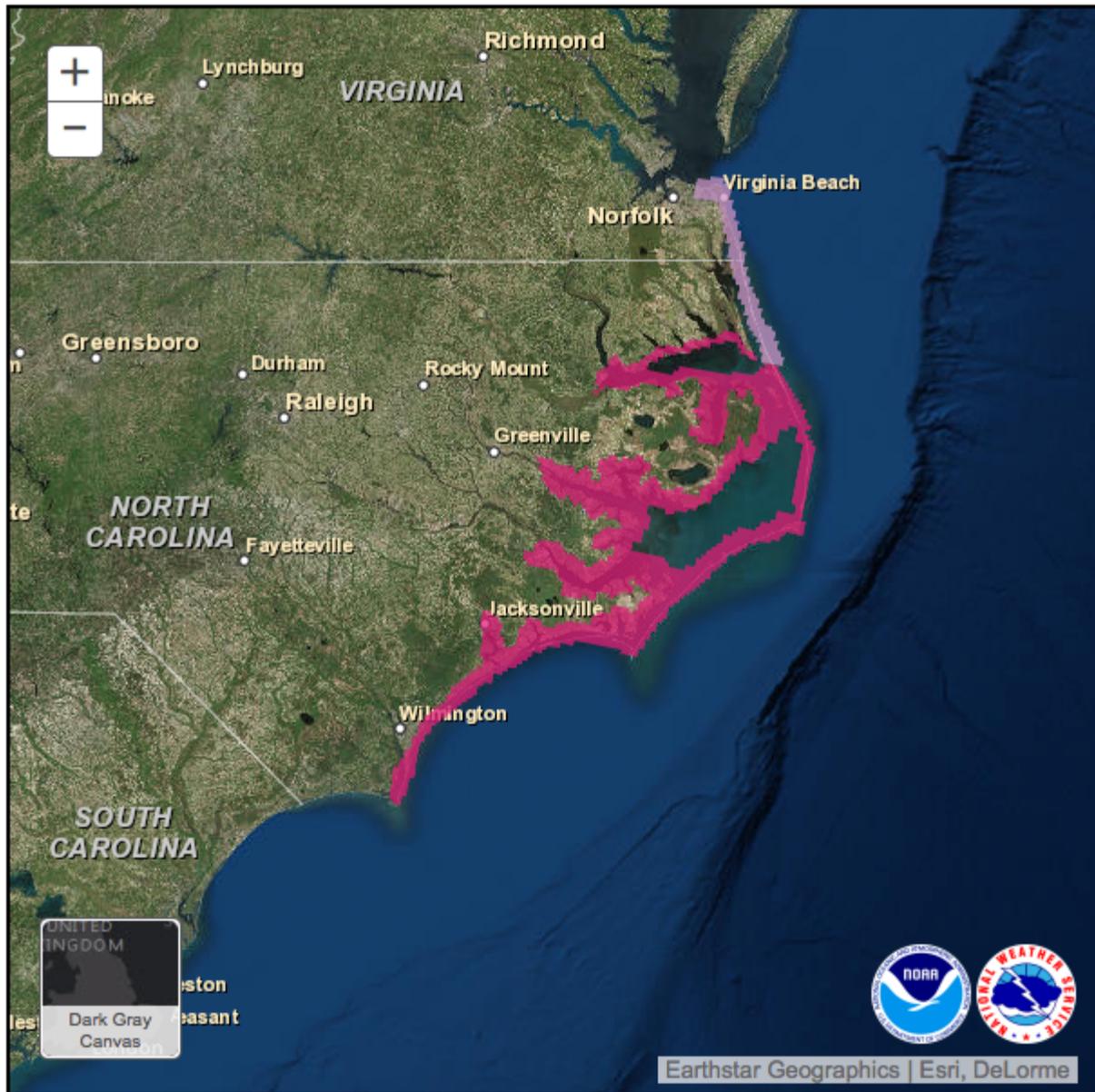
Storm surge is often the greatest threat to life and property from a tropical cyclone, and it can occur at different times and at different locations from a storm's hazardous winds. In addition, while most coastal residents can remain in their homes and be safe from a tropical cyclone's winds, evacuations are generally needed to keep people safe from storm surge. 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 areas most at risk from life-threatening surge through a collaborative process.

Here is an example of the new graphic, which will be available on the NHC website ([www.hurricanes.gov](http://www.hurricanes.gov)):

# Prototype Storm Surge Watch/Warning Graphic\*

Hurricane Zelda

Advisory 12 Issued: Fri Jul 04 2014 8 PM EDT



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## Prototype Storm Surge Watch/Warning

-  Prototype Storm Surge Warning
-  Prototype Storm Surge Watch

\*Prototype Product - For official NWS tropical cyclone information, see [hurricanes.gov](http://hurricanes.gov). This graphic displays areas that would qualify for inclusion under a storm surge watch/warning that is under development by the National Weather Service. A storm surge warning indicates there is a danger of life-threatening inundation from rising water moving inland from the shoreline somewhere within the specified area, generally within 36 hours. A storm surge watch indicates that life-threatening inundation is possible somewhere within the specified area, generally within 48 hours. All persons, regardless of whether or not they are in the highlighted areas shown in the graphic, should promptly follow evacuation orders and other instructions from local officials. User feedback on the prototype storm surge watch/warning graphic can be provided at [LINK](#). Upon completion of development, formal public comment/review of this graphic and the experimental storm surge watch/warning will take place in 2016, with operational implementation planned in 2017, if approved.

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

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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 life-threatening 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.

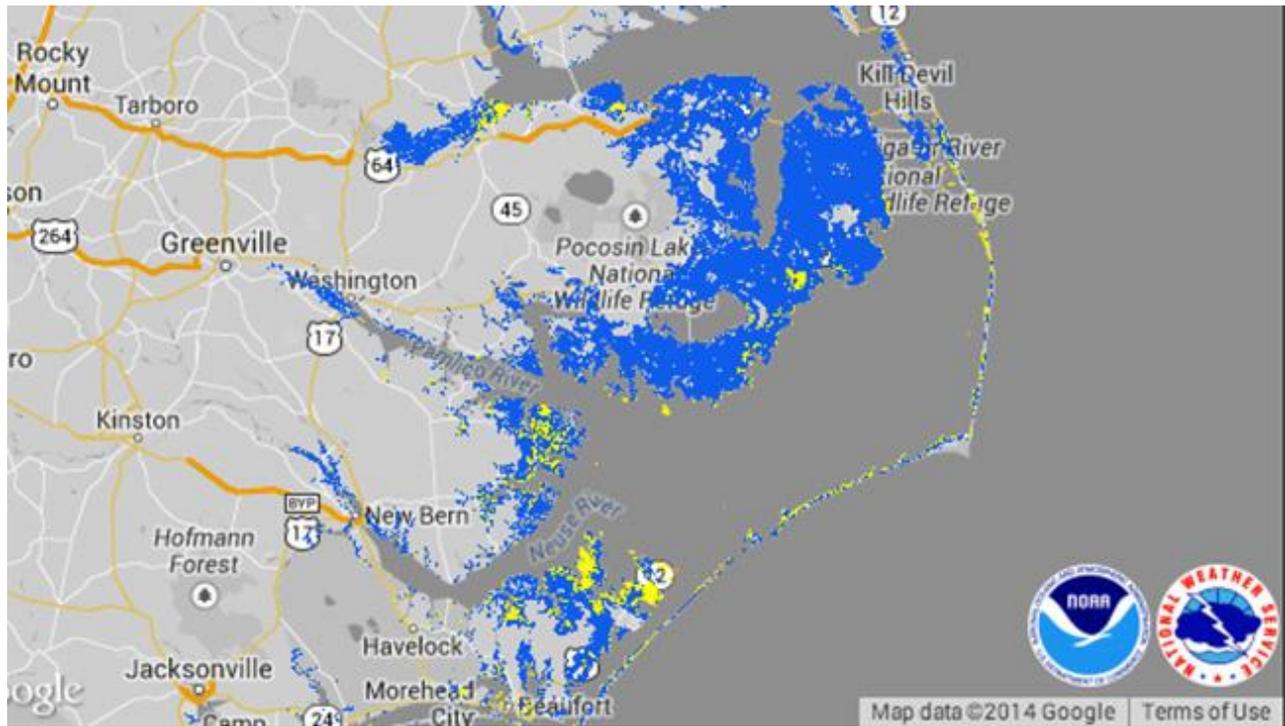
In addition, NHC plans to consolidate the dissemination of wind and surge watches and warnings in 2016. This new process will merge inland and coastal warning information for both threats into a single NWS product.

## **2) Experimental Potential Storm Surge Flooding Map**

The experimental Potential Storm Surge Flooding Map that debuted during the 2014 hurricane season will be available once again during the 2015 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 representing a reasonable worst-case scenario for any individual location.

The first 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 in to account likely forecast errors. The map is subject to change every six hours in association with each new NHC full advisory package. Due to the processing time required to produce the map, it will not be available until about 60 to 90 minutes following the advisory release.

Here is an example of the map used during 2014's Hurricane Arthur:



### 3) Change to the Tropical Weather Outlook color-coded categories

Beginning in the 2015 hurricane season, the categorical bins in the Tropical Weather Outlook will be adjusted as follows:

Category Label	2014 Range	2015 Range
Low	0-20%	0-30%
Medium	30-50%	40-60%
High	60-100%	70-100%

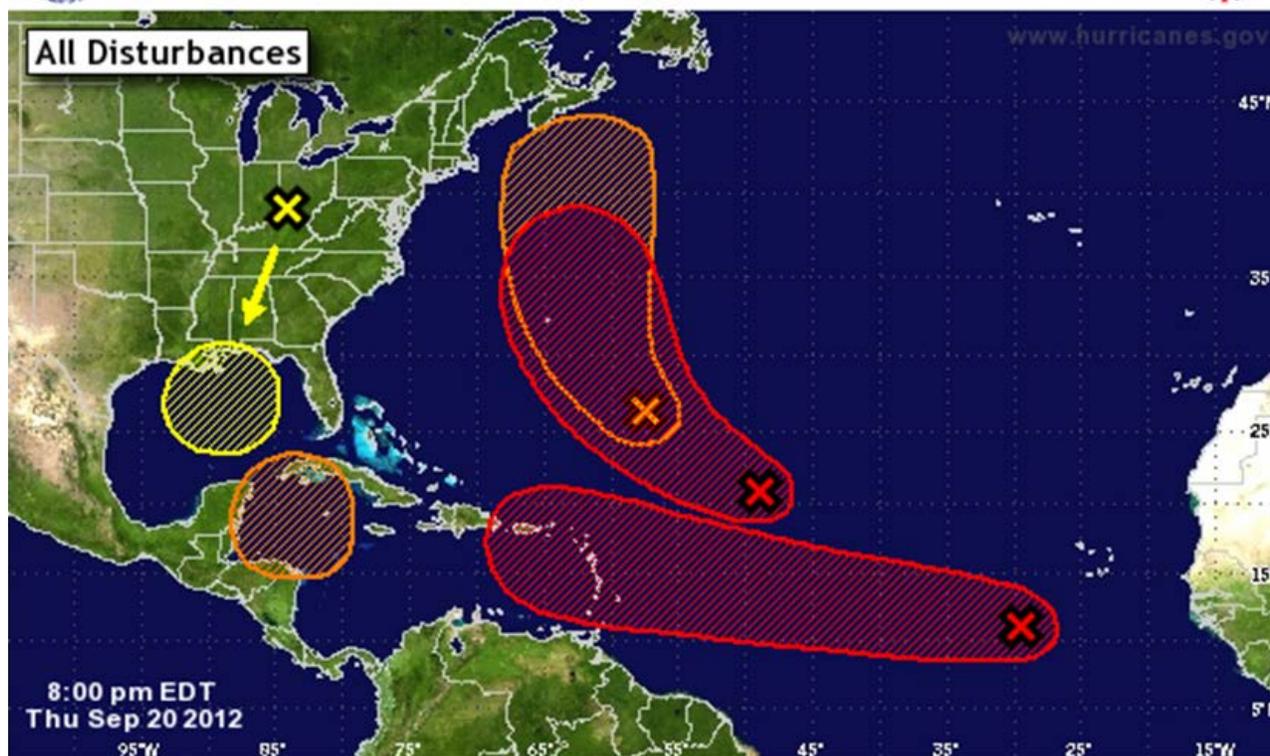
The original category definitions were established to best reflect forecasters' ability to assess formation potential. Unfortunately, the original definitions did not correspond with some users' expectations of what the everyday terms "low", "medium", and "high" mean. For example, a 30% chance of occurrence falls in the lowest third of possible outcomes, yet was described as being "medium". This mismatch led some users to overestimate the chance of formation when they heard that a system had entered the medium or high categories.

Improvements in forecast accuracy over the past few seasons now allow for a more natural assignment of the three bins. To better match users' expectations of the three categories to the traditional meanings of the category labels, the bin definitions have been adjusted.

In addition, the Five-Day Graphical Tropical Weather Outlook becomes operational in 2015. Here is an example:



## Five-Day Graphical Tropical Weather Outlook National Hurricane Center Miami, Florida



Tropical Cyclone Formation Potential for the 5-Day Period Ending 8:00 pm EDT Tue Sep 25 2012  
Chance of Cyclone Formation in 5 Days: ■ Low < 40% ■ Medium 40-60% ■ High > 60%  
X indicates current disturbance location; shading indicates potential formation area.

#### 4) Maintaining a three-hourly Public Advisory cycle when watches or warnings are in effect

Beginning in 2015, NHC will maintain a three-hourly Public Advisory cycle whenever coastal tropical cyclone watches or warnings are in effect or a tropical cyclone is over land at tropical storm strength or greater. Previously, when watches or warnings were in effect and coastal radars were able to provide reliable hourly center position estimates, NHC would issue Public Advisories every two hours, with a Tropical Cyclone Update (TCU) issued in between each Public Advisory to provide a continuous flow of information. Switching between three-hourly and two-hourly Public Advisory issuances was sometimes confusing to users. This change preserves the issuance of Public Advisories at standard times throughout a watch/warning event. The change, however, will not affect the hourly flow of key storm information, as NHC will continue to issue TCUs at hourly intervals whenever the center can be easily tracked on radar. The TCU contains all the key storm parameters, and allows the inclusion of additional statements of interest as appropriate.

An example of the product issuance sequence for 2015 follows:

Time (UTC)	Watches/Warnings not in effect	Watches/Warnings in effect	Watches/Warnings in effect and center can be easily located on coastal radar
0900	Public Advisory	Public Advisory	Public Advisory
1000			Tropical Cyclone Update
1100			Tropical Cyclone Update
1200		Intermediate Public Advisory	Intermediate Public Advisory
1300			Tropical Cyclone Update
1400			Tropical Cyclone Update
1500	Public Advisory	Public Advisory	Public Advisory

## 5) Mixed-case text products

NHC began issuing the Tropical Weather Outlook and Tropical Cyclone Discussion in mixed case (upper and lower case) text in 2014 after World Meteorological Organization standards were changed. Beginning in 2015, NHC will issue the Tropical Cyclone Public advisory and Intermediate Public Advisories using mixed-case text and the full set of standard punctuation symbols. NHC will also issue the Tropical Cyclone Update and Monthly Tropical Weather Summary (TWS) in mixed-case text. An example of an NHC Public Advisory in mixed case can be found at:

[http://www.nhc.noaa.gov/news/20150318\\_pa\\_mixedCaseTCP.pdf](http://www.nhc.noaa.gov/news/20150318_pa_mixedCaseTCP.pdf)

## 6) Use of local time for eastern Pacific Tropical Cyclone Advisory Products

NHC will begin referencing the time of day in certain eastern Pacific products using the time zone in which the storm is located. . Central Time will be used for tropical cyclones located east of 106°W, Mountain Time will be used for cyclones located between 106°W and 115°W, and Pacific Time for cyclones west of 115°W. This change applies to the Public Advisory, Tropical Cyclone Discussion, and Tropical Cyclone Update. Atlantic basin advisory products have for many years been issued in varying time zones based on the location of the storm, and this change extends that policy to the eastern North Pacific basin. Tropical Cyclone advisory packages will continue to be issued at 0300, 0900, 1500, and 2100 UTC.

## 7) Tropical Cyclone forecast cone

The size of the tropical cyclone forecast cone will be a bit smaller in 2015. The cone represents the probable track of the center of a tropical cyclone, and is formed by enclosing the area swept out by a set of imaginary circles placed along the forecast track (at 12, 24, 36 hours, etc.). The size of each circle is set so that two-thirds of historical official forecast errors over the previous five years (2010-2014) fall within the circle. The circle radii defining the cones in 2015 for the Atlantic and eastern North Pacific basins are given in the table below:

Forecast Period (hours)	Circle radius Atlantic Basin (nautical miles)	Circle radius Eastern North Pacific Basin (nautical miles)
12	32	26
24	52	42
36	71	54
48	90	69
72	122	100
96	170	143
120	225	182

**Other items of interest for 2015:**

1) Pronunciation guides for storm names including the phonetic pronunciations of all Atlantic and Eastern North Pacific storm names can be found on the NHC website at:

Atlantic: [http://www.nhc.noaa.gov/pdf/aboutnames\\_pronounce\\_atlc.pdf](http://www.nhc.noaa.gov/pdf/aboutnames_pronounce_atlc.pdf)

Eastern North Pacific: [http://www.nhc.noaa.gov/pdf/aboutnames\\_pronounce\\_epac.pdf](http://www.nhc.noaa.gov/pdf/aboutnames_pronounce_epac.pdf)

2) The National Hurricane Center has a Facebook page. The “NOAA NWS National Hurricane Center” page provides updates about the NHC outreach and education campaign and other items that might be of interest to the public throughout the year. During the hurricane season, the site contains a daily tropical weather update for both the Atlantic and eastern North Pacific basins, as well as alerts regarding any tropical cyclone activity as needed. The NHC Facebook page is found at: <http://www.facebook.com/NWSNHC>

3) The National Hurricane Center is on Twitter. NHC has two Twitter feeds, one for the Atlantic basin - **@NHC\_Atlantic** (which includes the Gulf of Mexico and Caribbean Sea) and one for the eastern North Pacific basin - **@NHC\_Pacific**

Automated tweets are sent via these accounts whenever NHC issues:

- A public advisory regarding a tropical cyclone (TCP)
- A tropical cyclone update (TCU)

Each tweet contains a link to access the corresponding product on the NHC website. NHC can also tweet a special message at any time.

The NHC storm surge group can be followed on Twitter at **@NHC\_Surge**

This account enhances storm surge forecasts by providing real-time reports and observations during an event (resources permitting). The feed will enhance preparedness and outreach efforts throughout the year, and provide news and announcements on updates to the SLOSH modeling system and storm surge decision support tools.

The Tropical Analysis and Forecast Branch (TAFB) is on Twitter at **@NHC\_TAFB**

TAFB, an operational arm of the NHC, is responsible for issuing more than 100 marine products daily covering millions of square miles of the Atlantic and eastern Pacific Ocean. This account highlights significant weather events over the marine area as well as its outreach programs.

The NHC Director, Dr. Richard Knabb, is on Twitter at **@NHCDirector**

4) Audio podcast will be available when the media pool is activated.

The audio podcast RSS/XML feed for top-of-the-hour briefings will be operational when the media pool is activated: <http://www.nhc.noaa.gov/audio>. The media pool is typically activated when a hurricane watch is issued for any portion of the U.S. contiguous coastline.

**Experimental Products:** (Note that the timeliness and accuracy of these products cannot be guaranteed.)

1) NHC provides various advisory products in GIS format. Information on these products can be found at: <http://www.nhc.noaa.gov/gis/>

2) In 2015, NHC will be working behind the scenes on potential enhancements to products and services. These planned in-house (non-public) experiments include extending tropical cyclone track and intensity forecasts out to seven days from the current five-day period, creation of track and intensity forecasts for disturbances with a high chance of formation, and the issuances of tropical cyclone watches and warnings prior to the formation of a cyclone.

#### **On the Web:**

National Hurricane Center: <http://www.hurricanes.gov>

Graphical Tropical Weather Outlook:  
<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml#GTWO>

Saffir Simpson Hurricane Wind Scale: <http://www.nhc.noaa.gov/aboutsshws.php>

Definition of NHC Track Forecast Cone: <http://www.nhc.noaa.gov/aboutcone.shtml>

National Hurricane Center Facebook page: <http://www.facebook.com/NWSNHC>

National Hurricane Center Twitter page: <http://www.nhc.noaa.gov/twitter.shtml>

**Contact:** NHC Public Affairs: [nhc.public.affairs@noaa.gov](mailto:nhc.public.affairs@noaa.gov)