



Hurricane Matthew

Life Threatening Flash Flooding Possible

Threat Assessment for northeast South Carolina & southeast North Carolina

National Weather Service Wilmington NC

7 AM EDT Friday October 7, 2016

Steven Pfaff, WCM

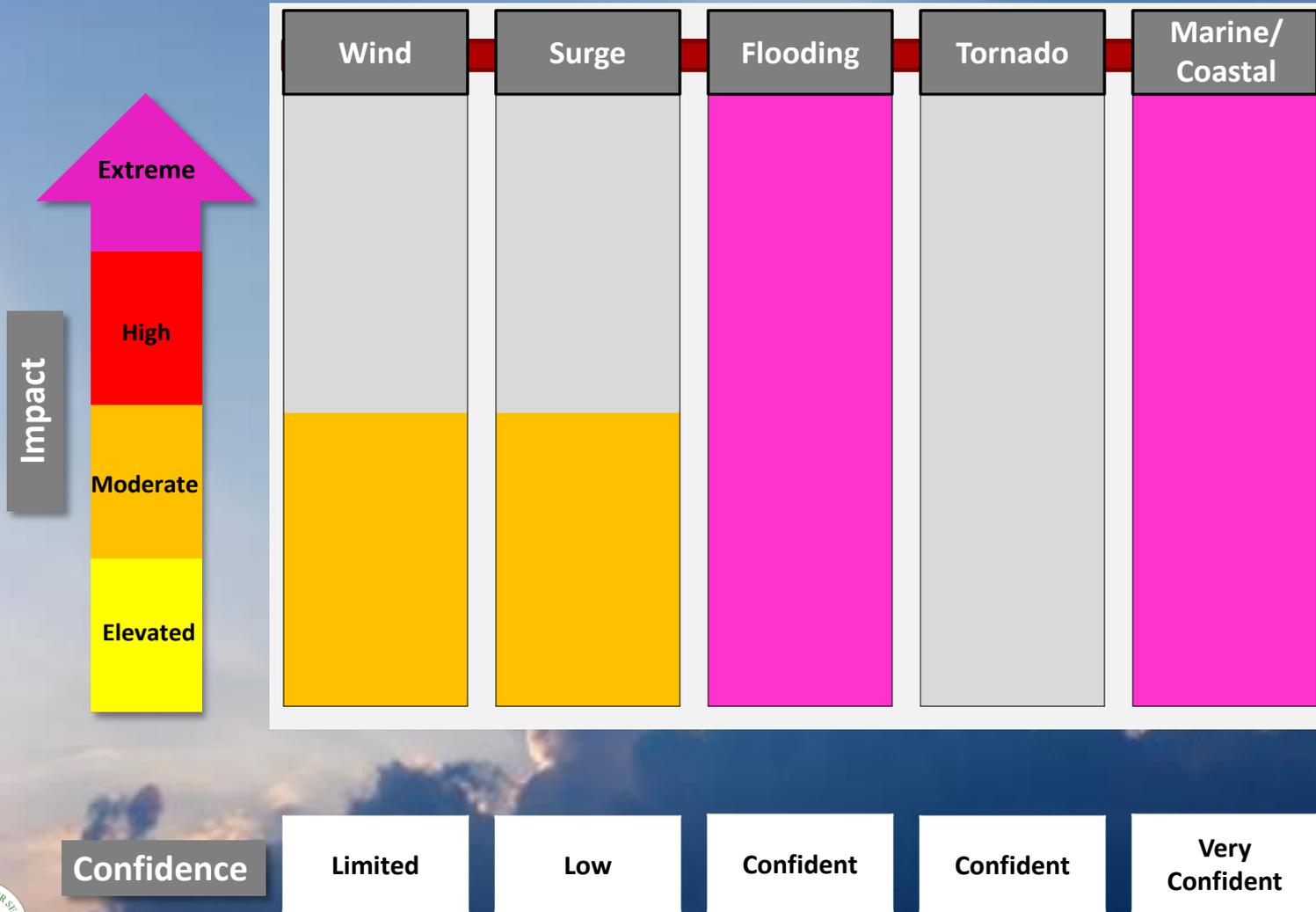
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New Information

- The track has shifted farther to the north and slightly slower, with the turn expected to occur off the middle and upper SC coast. This track still keeps the hurricane south of Cape Fear, but keep in mind the area remains within the forecast cone and impacts will be felt.
- Begin messaging that life threatening flash flooding is possible.

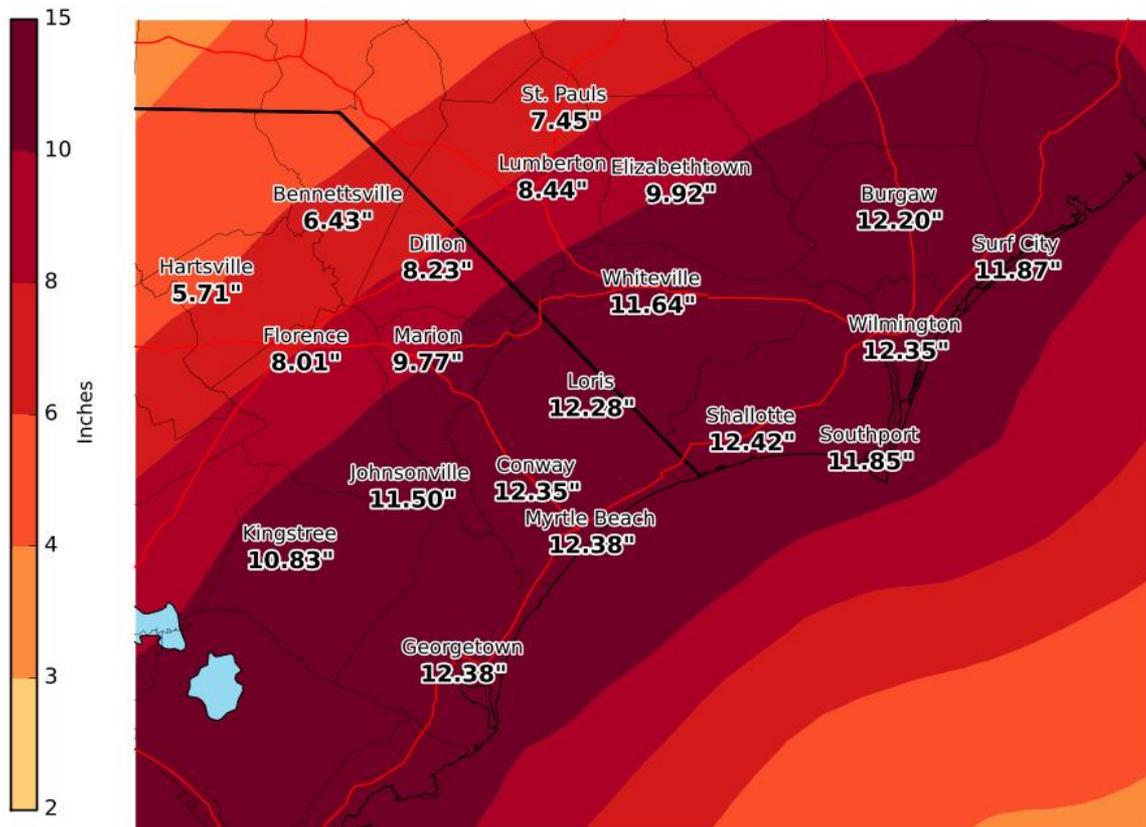
Initial Look at Potential Impacts and Confidence



Rainfall Information

Storm Total Rain

Valid: 10/07/2016 08:00 AM - 10/09/2016 08:00 PM EDT



- Life Threatening Flash Flooding Possible!
- Rain chances will continue to increase during the day ahead of the storm. Heavy rain is possible with an increasing potential for flash flooding, especially Sat and Sat night.
- Rainfall totals >10" are possible, especially across the eastern half of the forecast area. Lesser, but still significant amounts, are expected farther inland. These values will be adjusted with the storm track.
- Impacts include: impassable roads, road wash-outs, many low-lying and prone areas flooded, structures in low-lying areas flooded.



National Weather Service
Wilmington North Carolina
10/07/2016 05:28 AM EDT

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Initial Projections from River Ensemble Forecasts

| Location | Flood Stage (ft) | Moderate Stage (ft) | Major stage (ft) | chance of minor flood | chance of moderate flood | chance of major flood | Stream could Reach Flood Stage on: | WPC Rainfall Forecast category |
|--|------------------|---------------------|------------------|-----------------------|--------------------------|-----------------------|------------------------------------|--------------------------------|
| Black Creek near Quinby | 10 | 15 | 18 | more than 50% | 24% | less than 5 % | October 8th or 9th | minor to moderate |
| NE Cape Fear River near Burgaw | 10 | 12 | 16 | more than 50% | about 40% | 16% | October 9th or 10th | moderate to major |
| NE Cape Fear River near Chinquapin | 13 | 15 | 16 | about 50% | about 30% | 22% | October 8th or 9th | moderate to major |
| Waccamaw River at Conway | 11 | 12 | 14 | more than 70% | more than 50% | 36% | October 8th or 9th | moderate to major |
| Cape Fear River at Lock and Dam 1 near Kelly | 24 | 26 | 28 | 25% | about 5% | less than 5 % | october 10th or 11th | none to minor |
| Lynches River at Effingham | 14 | 16 | 18 | about 50% | 18% | less than 5 % | October 8th or 9th | none to minor |
| Cape Fear River at Elizabethtown | 25 | 35 | 47 | about 40% | 12% | less than 5 % | October 8th or 9th | minor to moderate |
| Little Pee Dee at Galivants Ferry | 9 | 11 | 12 | more than 70% | more than 30% | 19% | October 8th or 9th | moderate to major |
| Black River at Kingstree | 12 | 14 | 16 | more than 50% | 33% | less than 10% | october 9th or 10th | moderate |
| Lumber River at Lumberton | 13 | 16 | 19 | 100% | about 60% | 20% | already in flood | moderate to record |
| Pee Dee River at Pee Dee | 19 | 23 | 28 | more than 50% | 26% | less than 5 % | October 9th or 10th | minor to moderate |
| Cape Fear at William O Huske Lock and Dam | 42 | 50 | 65 | almost 30% | about 10% | 16% | October 8th or 9th | moderate to major |

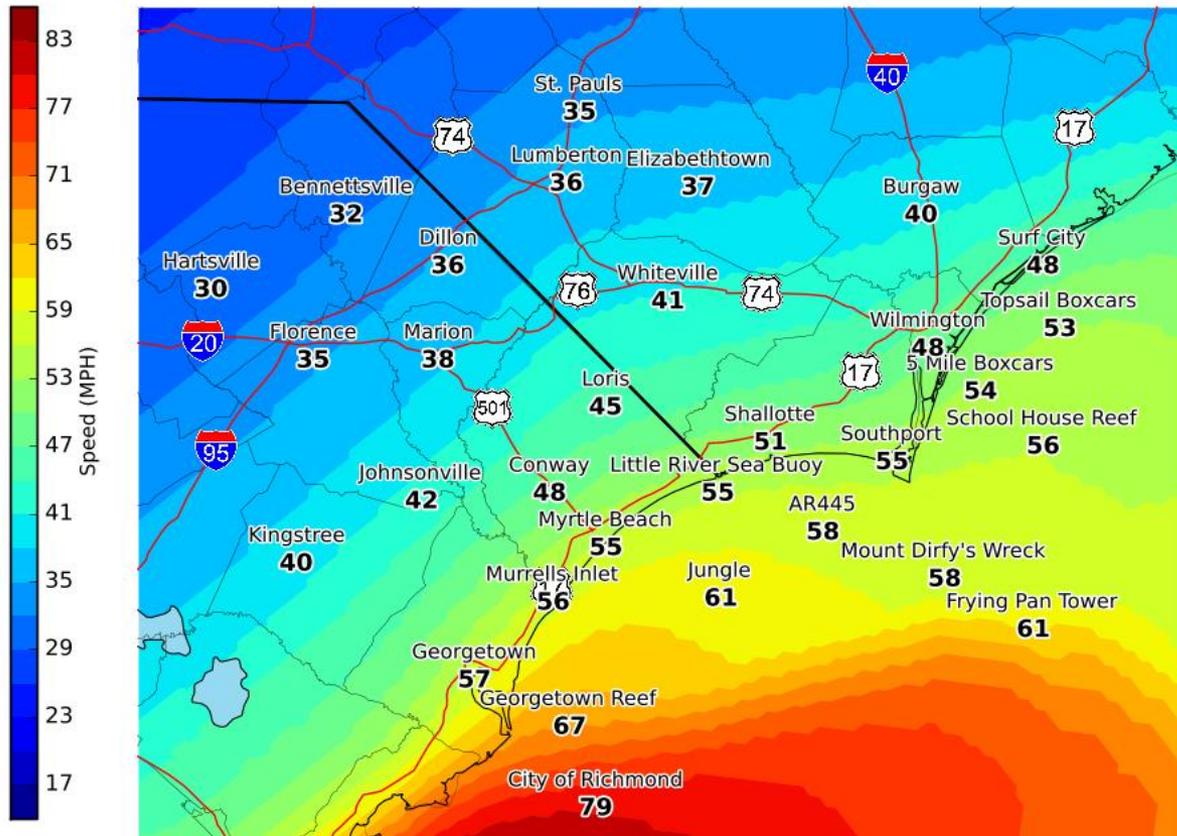
* Updated hydrology assessment will be made later this morning



Peak Sustained Wind Information

Max Wind Speed

Valid: 10/07/2016 08:00 AM - 10/10/2016 02:00 PM EDT



- Winds will begin increasing Friday night across northeast SC. During Saturday will continue to increase to 40 to 50 mph with gusts over 60 mph, strongest near the coast.
- Strong winds may also occur on the backside as Matthew pulls away from the area Saturday evening.
- Since soils will be saturated this wind could easily topple trees.
- Wind impacts include: downed trees, downed trees blocking roads and damaging homes, power outages, and some damage to structures.
- Winds will begin decreasing Sunday.

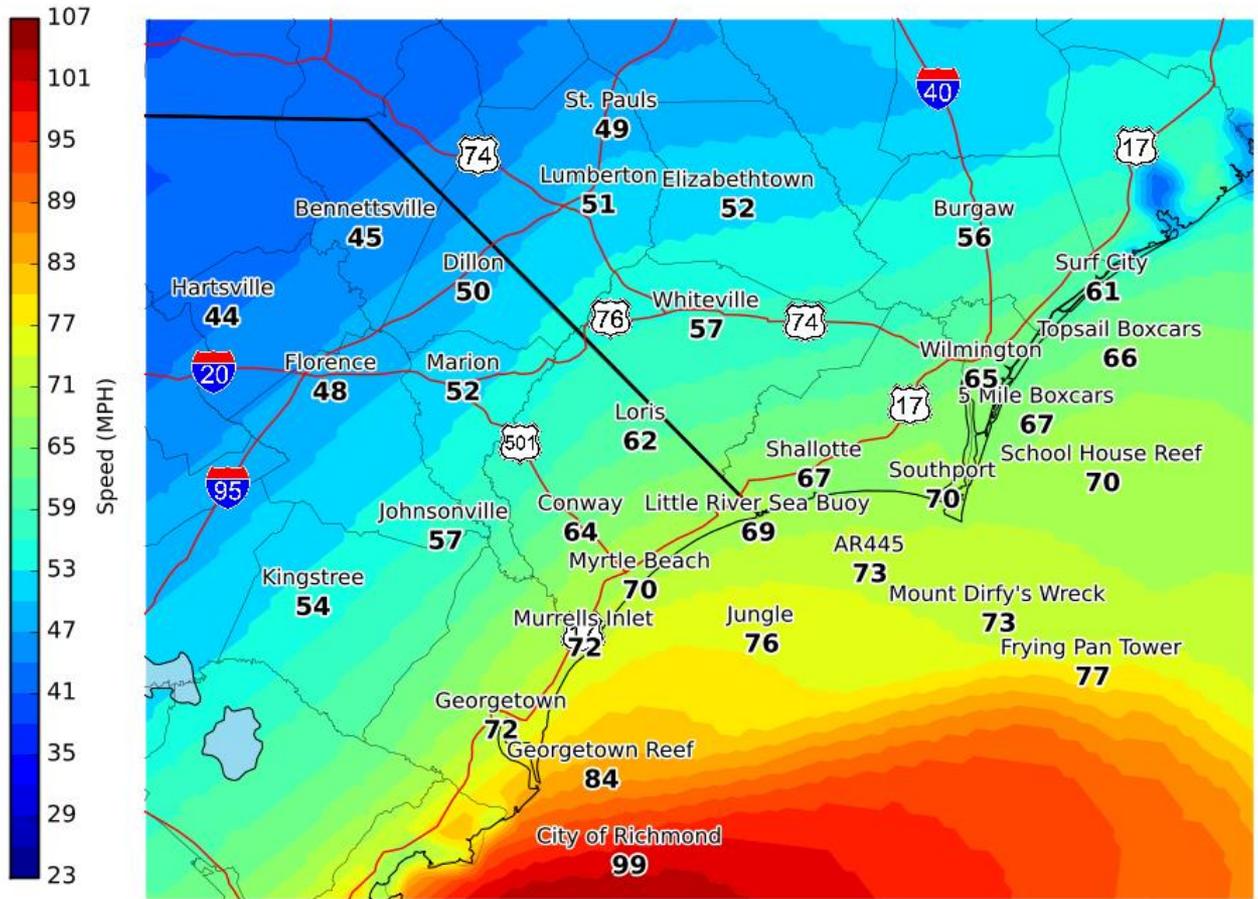


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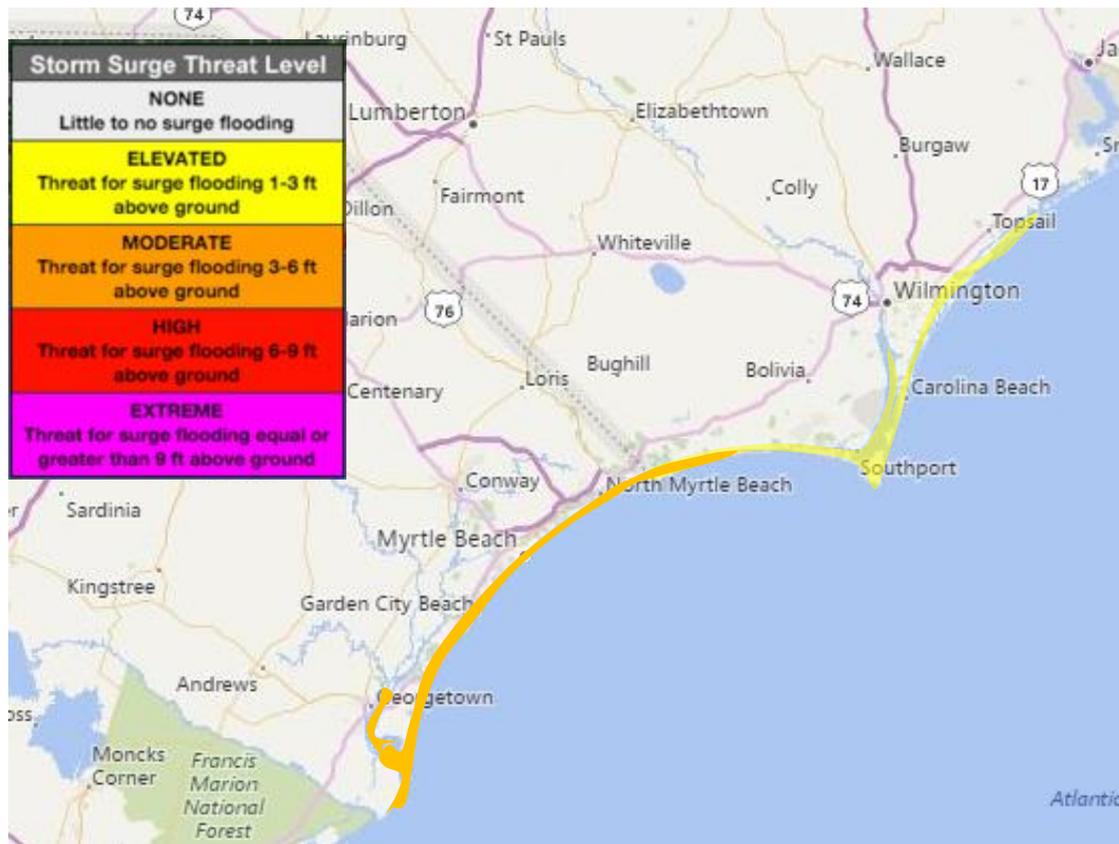
Peak Wind Gust Information

Max Wind Gusts
 Valid: 10/07/2016 08:00 AM - 10/10/2016 02:00 PM EDT



Storm Surge Inundation Information

*For Probabilistic Storm Surge please visit the National Hurricane Center link for a more detailed map of your area:
http://www.nhc.noaa.gov/refresh/graphics_at4+shtml/094542.shtml?inundation#contents



General depiction of coastal inundation for northeast SC and southeast NC.
 Refer to the National Hurricane Center for detail inundation graphics.

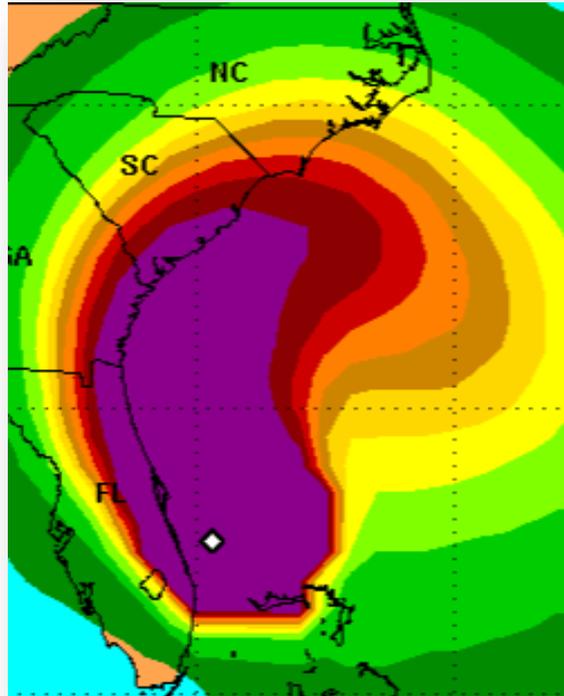
- A Storm Surge Watch is effect from South Santee River northward to Cape Fear NC.
- In general, 1 to 3 ft surge above ground level is expected along the ocean front and low-lying tidal areas/creeks for Pender, New Hanover, and eastern Brunswick County
- For western Brunswick, Horry and Georgetown County surge above ground level may be 3 to 6 ft above ground level along the ocean front, tidal areas/creeks, & areas along Winyah Bay & adjoining rivers feeding into the bay.
- Any coastal inundation will likely be highest with high tide Friday night & early Saturday afternoon.

Other Potential Impacts

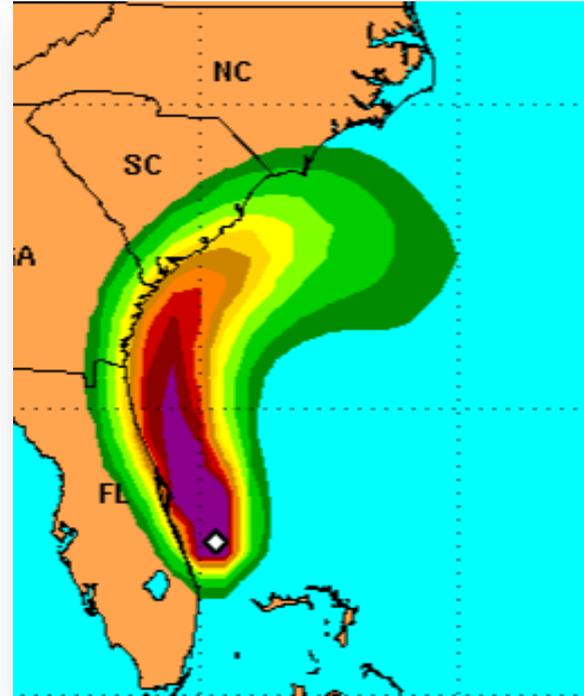
- **Marine/Coastal** – Hazardous marine impacts are expected with large ocean waves and breakers in the surf with the potential for significant beach erosion. Inlet entrances will be hazardous as well with steep wave conditions in/near the entrances. Marine impacts will continue to increase through today and peak this weekend. Large waves could continue into next week as well since Matthew is expected to meander off the Southeast U.S. coast, and swells from Nicole will come into the picture as well.
- **Tornado** – The occurrence of tornadoes is not likely at this time given the current track.
- **Aviation** – Impacts to flight operations are possible at coastal terminals by Saturday as a result of the increasing winds and areas of heavy rain.
- **River Flooding** – Heavy rain combined with already saturated soils will increase the likelihood of increased runoff into area rivers. The threat of river flooding is moderate to high at several of the rivers into next week. This all depends on the amount of rainfall over a particular basin.

Tropical Storm and Hurricane Wind Probabilities

Tropical Storm Force Wind Probs.



Hurricane Force Wind Probs.



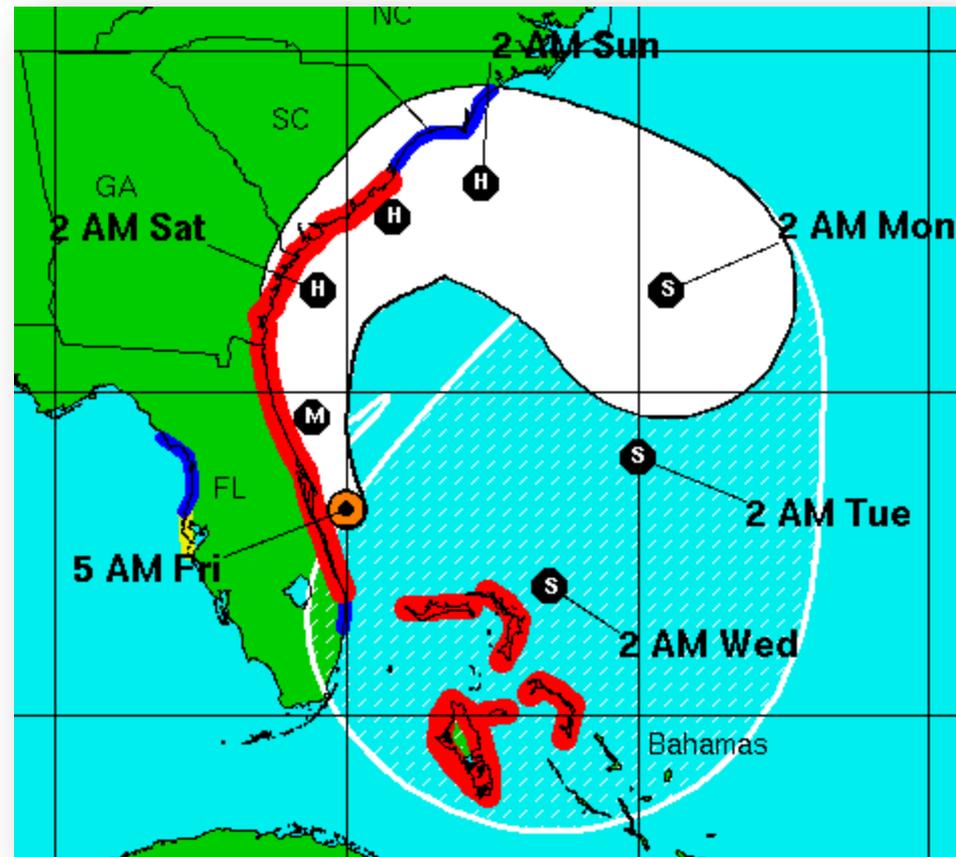
- Tropical Storm Force Wind Speed Probabilities have further increased across northeast SC and southeast NC, and the probabilities for Hurricane Force Winds have slightly increased as well. However the axis of highest Hurricane Force Wind probabilities still remains just off the coast. These graphics are for a 120 hour period from 2 AM EDT Fri Oct 7th to 2 AM EDT Wed Oct 12th.

Official NHC 5 Day Forecast Track

- The official track continues just off the South Carolina coast and passing south of Cape Fear during Saturday night. The forecast cone still includes all of northeast SC and southeast NC.
- Hurricane Matthew's closest approach to northeast SC and southeast NC is expected Saturday and Saturday night.
- Do not focus on the exact track of Matthew as it will shift over time. Note, this is not an impact cone.

Advisory #37 5 AM EDT Fri Oct 7, 2016

| | |
|-----------------------|--|
| Position: | 28.2N / 80.0W (40 Mi. ESE of Cape Canaveral, FL) |
| Movement: | Toward the NNW at 13 mph |
| Intensity: | 120 MPH (Category 3) |
| Min. Pressure: | 938 MB or 27.70 inches |



5 AM NHC Advisory #37 Fri Oct 7, 2016 Hurricane Matthew 5 Day Forecast Cone

*Note: statistically, one third of the time the storm can be outside of the 5 day error cone



Key Points

- Life-threatening Flash Flooding is possible. Do not drive through any flooded areas. Rainfall amounts are expected to be more than 10 inches in many areas.
- Gusty winds could lead to downed trees and subsequent power outages, especially given saturated ground conditions from heavy rain.
- A **Flash Flood Watch** is in effect for all of northeast SC and southeast NC. A **Tropical Storm Warning** is in effect for Pender, New Hanover, Brunswick, Horry, Georgetown, and Williamsburg Counties. Tropical Storm Warning is in effect for the adjacent coastal waters out to 20 nm, and a Hurricane Warning for the offshore waters beyond 20 nm.
- Tropical Storm Force Wind Probabilities continue to increase implying that the risk for tropical storm wind conditions affecting our area continue to go up.

NEXT PDF BRIEFING: 2 PM EDT - Friday October 7, 2016