



Hurricane Dorian 09.01.19 Analysis

Risk Services Division

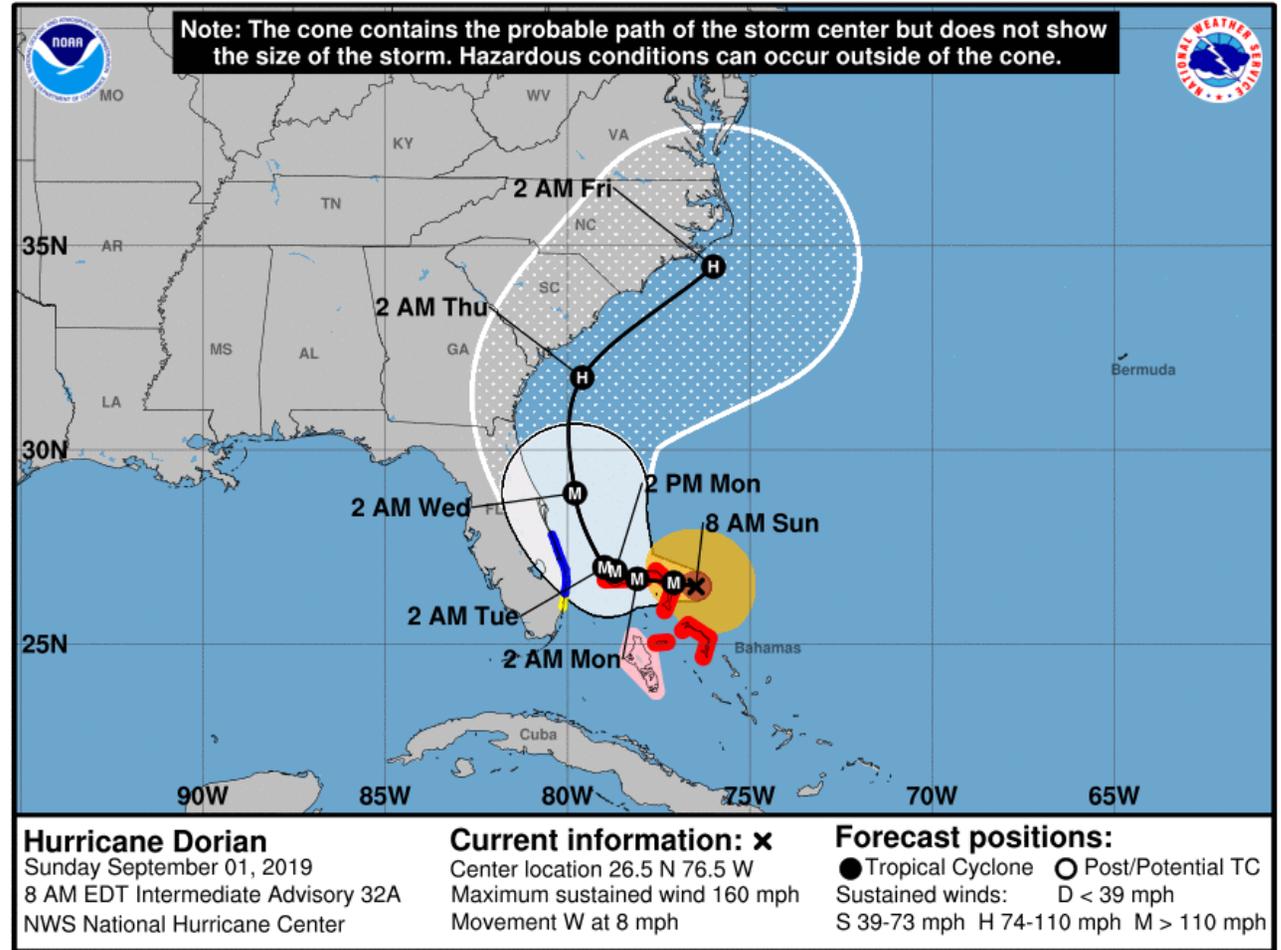
1 September 2019

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Hurricane Dorian Status at 09:30 EDT (13:30 UTC) 1 September, 2019

- Hurricane Dorian is a Category 5 hurricane and has reached the Bahamas' Abaco Islands; this is a life-threatening situation; storm surge is 15 to 20 feet above normal tide levels with higher destructive waves
- The center of Hurricane Dorian is located at 26.5N 76.5 W about 25 miles (40km) ENE of Great Abaco Island, Bahamas and 210 miles (340km) E of West Palm Beach, Florida
- Dorian is moving westward (275°) at 8 mph (13 km/h)
- Maximum sustained winds are 160 mph (260 km/h) with higher gusts
- Hurricane-force winds extend outward up to 30 miles (45 km) from the center, and tropical-storm-force winds extend outward up to 105 miles (165 km)
- A prolonged period of life-threatening storm surge, devastating hurricane-force winds, and heavy rains are hitting the Abaco Islands and Grand Bahama through Monday, and a hurricane warning is in effect for these areas
- A tropical storm warning is now in effect for portions of the Florida east coast
- There is an increasing risk of strong winds and dangerous storm surge along the coasts of Georgia, South Carolina, and North Carolina later this week



Summary

At 0930 AM EDT (1330UTC), the National Hurricane Center reports the eye of Hurricane Dorian was located at 26.5N 76.5 W, in open ocean about 25 miles (40km) ENE of Great Abaco Island, Bahamas and 210 miles (340km) E of West Palm Beach, Florida. Dorian is moving toward the west at approximately 8mph (13 km/h). A slower westward motion should occur for the next day or two, followed by a gradual turn toward the northwest. On this track, the core of Dorian should move over Great Abaco Island, Bahamas soon, and continue near or over Grand Bahama Island later tonight and Monday. The hurricane should move closer to the Florida east coast late Monday through Tuesday night.

Maximum sustained winds are 175mph (280 km/h) with gusts over 200mph (322km/h). **Dorian is an extremely dangerous category 5 hurricane** on the Saffir-Simpson Hurricane Wind Scale. Dorian is expected to remain a powerful hurricane during the next few days.

Hurricane-force winds extend outward up to 30 miles (45 km) from the center and tropical-storm-force winds extend outward up to 105 miles (165 km).

The estimated minimum central pressure is 922mb (27.73 inches).

Discussion

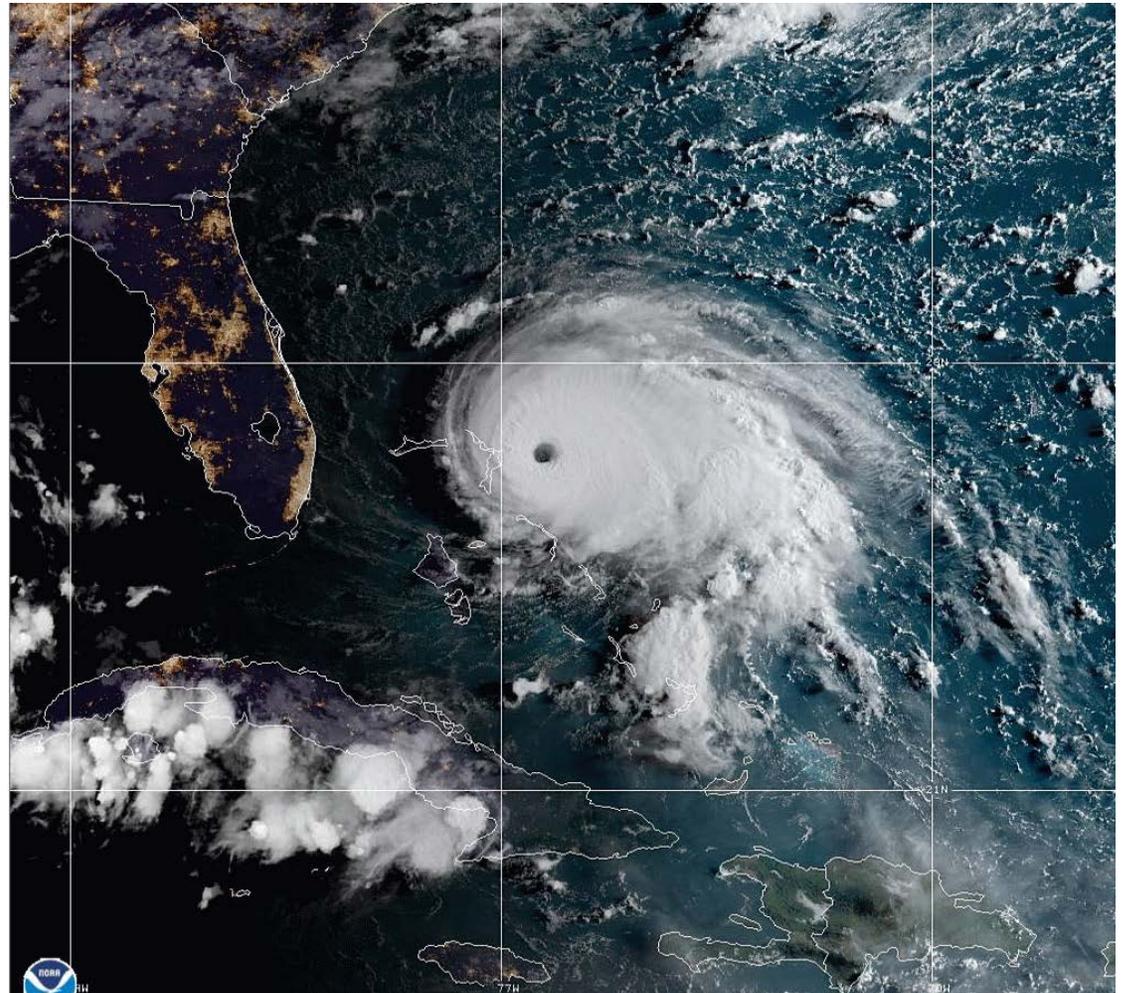
Hurricane Dorian continues moving westward and this movement is expected to continue through today. By tonight, forward motion may weaken resulting in the hurricane becoming nearly stationary. Dorian should turn northward in 2 to 4 days and continue to move northeastward near the Carolinas. Although the current NHC track forecast keeps the center of Dorian offshore of the southeast Florida coast, the track is uncertain and there is still a reasonable risk of tropical-storm force winds across portions of south Florida, with the highest chances in eastern portions of Palm Beach and Broward Counties. Tropical storm conditions are expected to arrive on the Treasure Coast early Monday morning, Brevard County by Monday night, and Volusia County on Tuesday.

A Florida landfall remains a distinct possibility. Due to Dorian's close proximity to the Florida east coast, small shifts in the track of the hurricane would bring substantial changes in expected impact. Regardless of the eventual track of Dorian, significant marine and beach impacts are expected along the entire southeast Florida coast. A prolonged period of strong winds over the Atlantic coastal waters will cause very hazardous seas, rough surf, and beach erosion through the middle of the week. Coastal flooding is also possible in vulnerable locations along the east coast each day through the middle of the week, particularly during times of high tide.



Key Messages

1. A prolonged period of life-threatening storm surge, devastating hurricane-force winds, and heavy rains capable of producing life-threatening flash floods are expected on the Abaco Islands and Grand Bahama through Monday, and a hurricane warning is in effect for these areas.
2. A tropical storm warning is now in effect for a portion of the Florida east coast. Since Dorian is forecast to slow down and turn northward as it approaches the coast, life-threatening storm surge and dangerous hurricane-force winds are still possible along portions of the Florida east coast by the middle part of this week. Residents should have their hurricane plan in place, know if they are in a hurricane evacuation zone, and listen to advice given by local emergency officials.
3. There is an increasing risk of strong winds and dangerous storm surge along the coasts of Georgia, South Carolina, and North Carolina later this week. Residents in these areas should continue to monitor the progress of Dorian.
4. Heavy rains, capable of producing life-threatening flash floods, are possible over coastal sections of the southeast and lower mid-Atlantic regions of the United States through late this week.



Watches and Warnings

A hurricane warning is in effect for northwestern Bahamas excluding Andros Island

A hurricane watch is in effect for Andros Island

A Tropical Storm Warning is in effect for North of Deerfield Beach to Sebastian Inlet

A Tropical Storm Watch is in effect for North of Golden Beach to Deerfield Beach

Interests in southern and central Florida should monitor the progress of Dorian

A Storm Surge Warning means there is a danger of life-threatening inundation, from rising water moving inland from the coastline, during the next 36 hours in the indicated locations. 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.

A Storm Surge Watch means there is a possibility of life-threatening inundation, from rising water moving inland from the coastline, in the indicated locations during the next 48 hours.

A Hurricane Warning means that hurricane conditions are expected somewhere within the warning area. A warning is typically issued 36 hours before the anticipated first occurrence of tropical-storm-force winds, conditions that make outside preparations difficult or dangerous. Preparations to protect life and property should be rushed to completion.

A Hurricane Watch means that hurricane conditions are possible within the watch area. A watch is typically issued 48 hours before the anticipated first occurrence of tropical-storm-force winds, conditions that make outside preparations difficult or dangerous.

A Tropical Storm Warning means that tropical storm conditions are expected somewhere within the warning area within 36 hours.

A Tropical Storm Watch means that tropical storm conditions are possible within the watch area, generally within 48 hours.

Hazards Affecting Land

WIND: Devastating hurricane conditions are expected in the Abacos Islands very soon and these conditions will spread across Grand Bahama Island later today.

Tropical storm conditions are expected within the tropical storm warning area on Monday.

Tropical storm conditions are possible within the tropical storm watch area by Monday night.

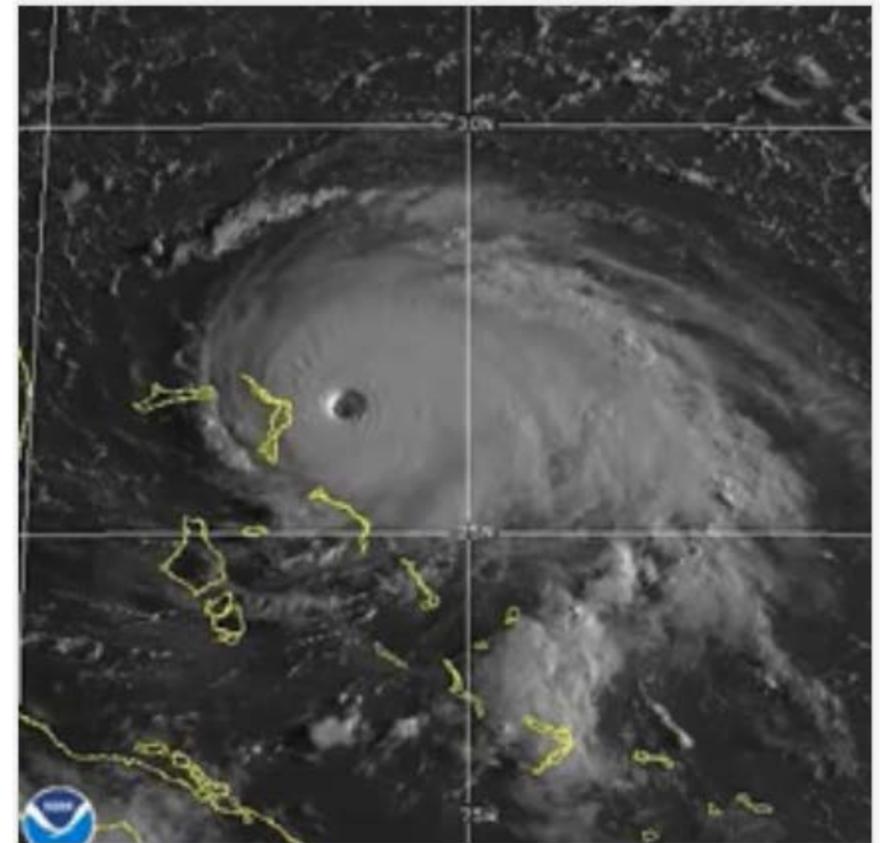
STORM SURGE: A life-threatening storm surge will raise water levels by as much as 15 to 20 feet above normal tide levels in areas of onshore winds on the Abaco Islands and Grand Bahama Island. Near the coast, the surge will be accompanied by large and destructive waves.

RAINFALL: Dorian is expected to produce the following rainfall totals through late this week:

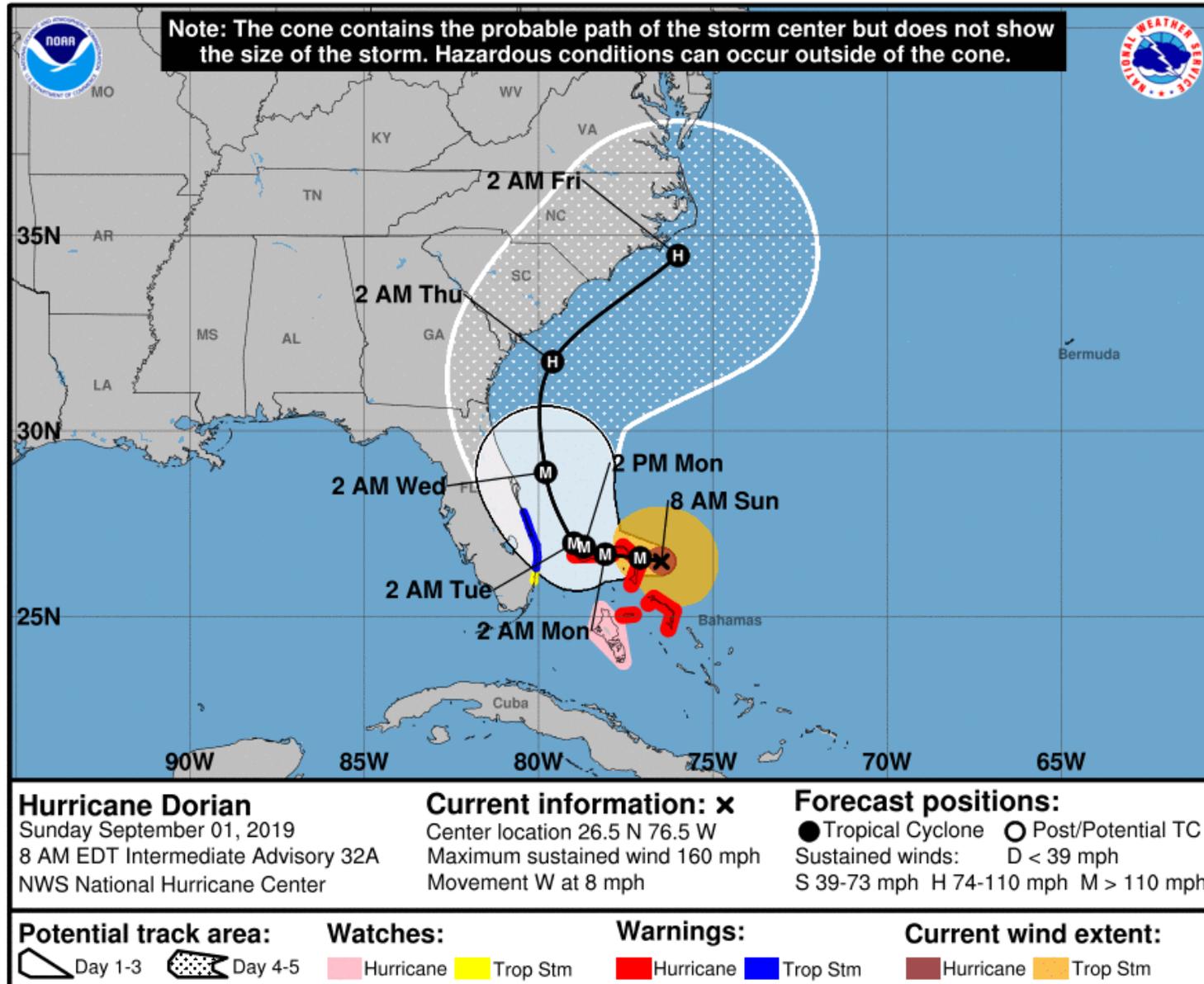
- Northwestern Bahamas: 12 to 24 inches, isolated 30 inches
- Coastal Carolinas: 5 to 10 inches, isolated 15 inches
- Central Bahamas: 2 to 4 inches, isolated 6 inches
- Atlantic Coast from the Florida peninsula through Georgia: 2 to 4 inches, isolated 6 inch

This rainfall may cause life-threatening flash floods.

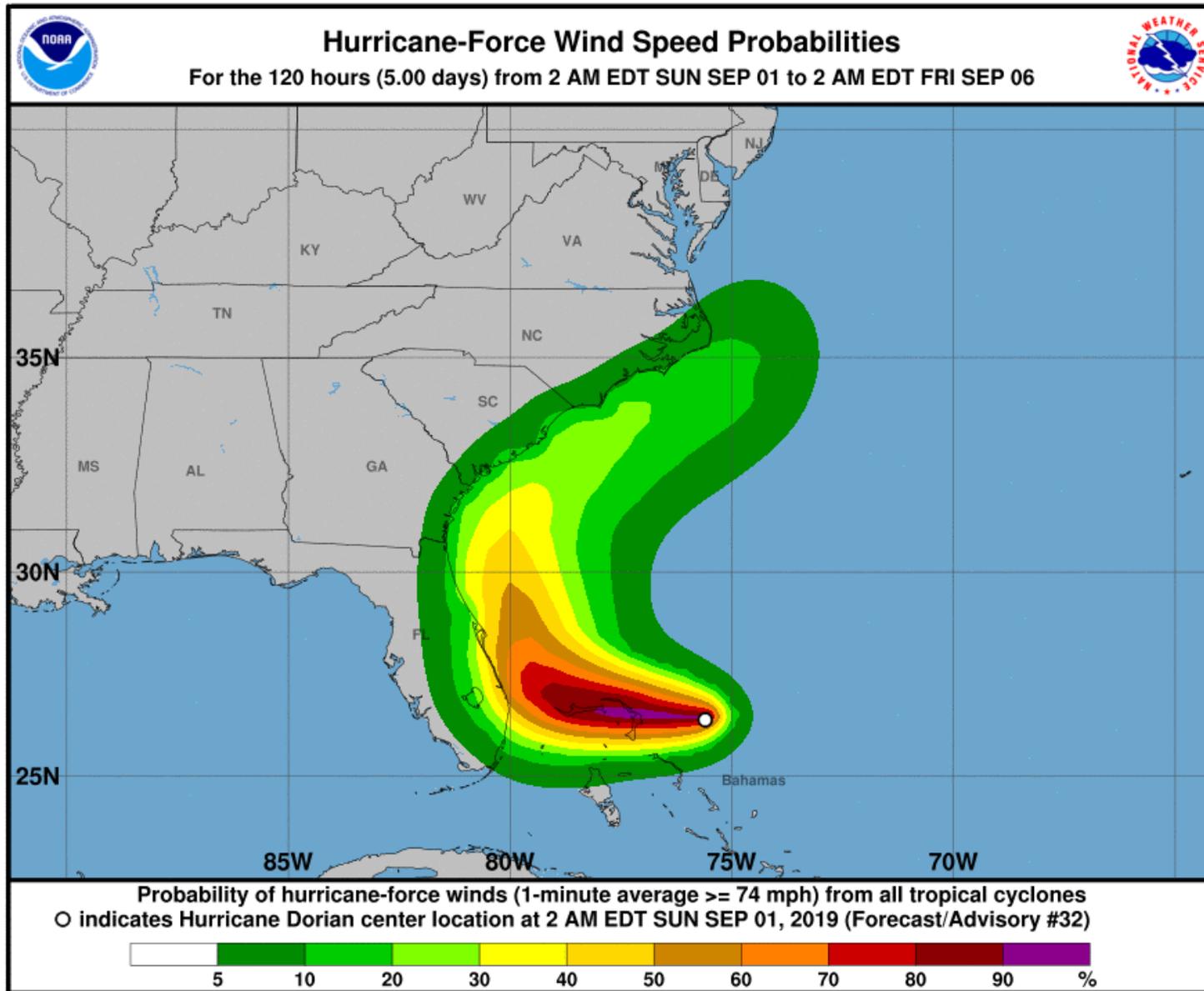
SURF: Large swells will affect the east-facing shores of the Bahamas, the Florida east coast, and the southeastern United States coast during the next few days. These swells are likely to cause life-threatening surf and rip current conditions.



Current Predicted Path



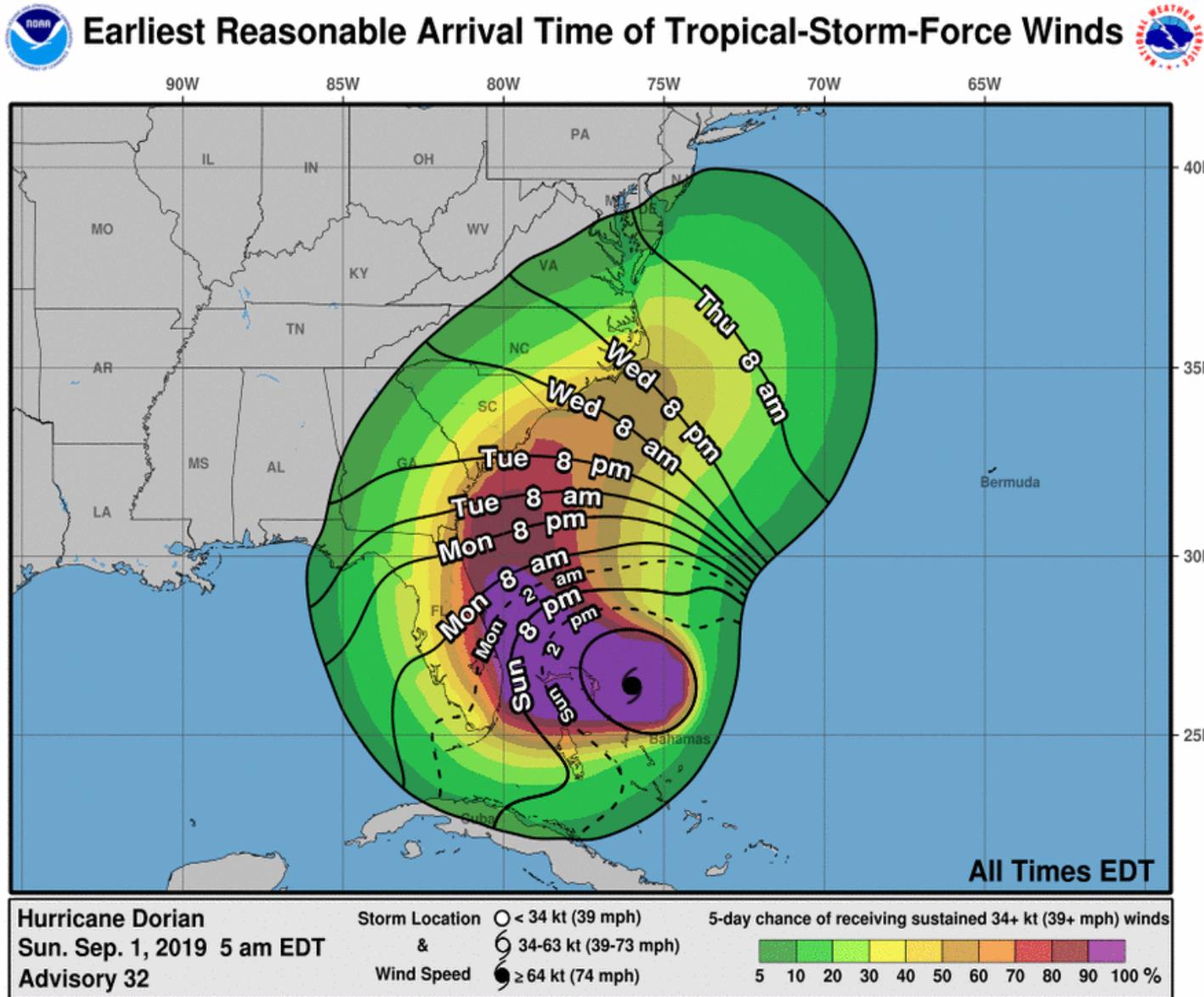
Hurricane-Force Wind Speed Probabilities



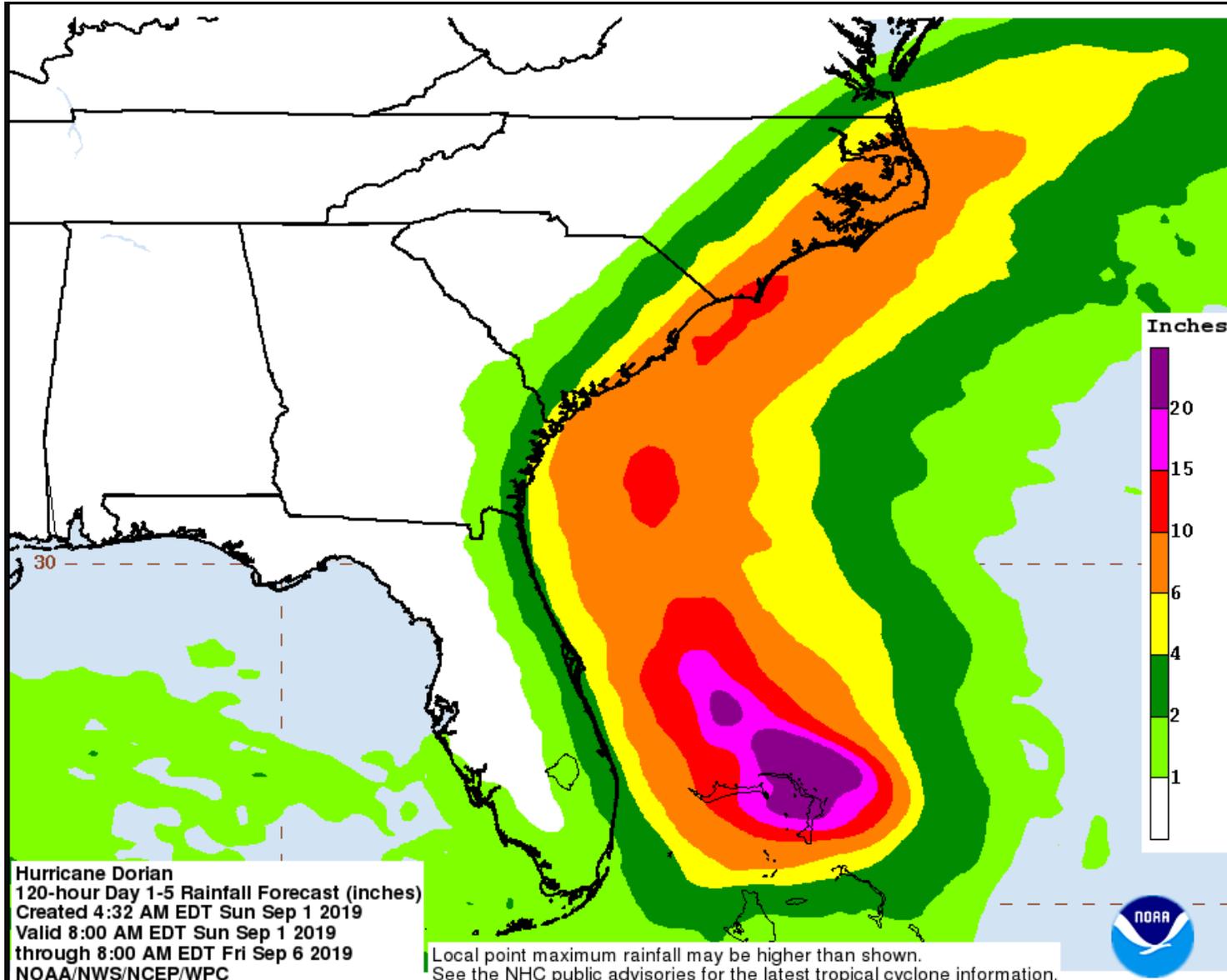
Tropical-Storm-Force Wind Speed Probabilities



Most Likely Arrival Time of Tropical-Storm-Force Winds



Rainfall Potential



Safety Procedures & Readiness

Hurricane Hazards

While hurricanes pose the greatest threat to life and property, tropical storms and depressions also can be devastating. The primary hazards from tropical cyclones (which include tropical depressions, tropical storms, and hurricanes) are storm surge flooding, inland flooding from heavy rains, destructive winds, tornadoes, and high surf and rip currents.

- Storm surge is the abnormal rise of water generated by a storm's winds. This hazard is historically the leading cause of hurricane related deaths in the United States. Storm surge and large battering waves can result in large loss of life and cause massive destruction along the coast.
- Storm surge can travel several miles inland, especially along bays, rivers, and estuaries.
- Flooding from heavy rains is the second leading cause of fatalities from landfalling tropical cyclones. Widespread torrential rains associated with these storms often cause flooding hundreds of miles inland. This flooding can persist for several days after a storm has dissipated
- Winds from a hurricane can destroy buildings and manufactured homes. Signs, roofing material, and other items left outside can become flying missiles during hurricanes.
- Tornadoes can accompany landfalling tropical cyclones. These tornadoes typically occur in rain bands well away from the center of the storm
- Dangerous waves produced by a tropical cyclone's strong winds can pose a significant hazard to coastal residents and mariners. These waves can cause deadly rip currents, significant beach erosion, and damage to structures along the coastline, even when the storm is more than a 1,000 miles offshore

Now is the time to prepare. All residents and visitors in the path of Hurricane Lane should review these tips:

- Check to make sure your [emergency kit](#) is stocked and test your [family communications plan](#).
- Know your evacuation routes and how to find higher ground. Determine where you would go, and how you would get there if instructed to evacuate. *If directed to evacuate by local officials, evacuate.*

Stay vigilant and continue to monitor local radio or TV stations and local emergency management officials for updated weather and emergency information.

- The [FEMA App](#) (available in English and Spanish) provides National Weather Service alerts (for up to 5 areas), emergency kit checklists, directions to open shelters, safety preparation tips and more.
- Make plans to secure your property:
 - Cover all of your home's windows. Permanent storm shutters offer the best protection for windows. A second option is to board up windows with 5/8" marine plywood, cut to fit and ready to install. Tape does not prevent windows from breaking.
 - Reinforce your garage doors; if wind enters a garage it can cause dangerous and expensive structural damage.
 - Plan to bring in all outdoor furniture, decorations, garbage cans, and anything else that is not tied down.
 - Determine how and where to secure boats and other marine craft.
- You can safely install a generator for emergencies. Remember, never run a generator inside and keep it away from windows, doors, and vents.
- If using candles, please use caution. If possible, use flashlights instead. If you must use candles, do not burn them on or near anything that can catch fire.
- Your phone is an important tool to ensure your family's safety. Make sure to charge your phone and other electronic devices.
- Businesses of all sizes are encouraged to follow local public safety authority direction and to share safety messaging with employees in order to reduce risk.
- If you have a National Flood Insurance Program (NFIP) flood insurance policy, you may be eligible for reimbursement for actions taken to protect your property. Call your insurance agent to find out more.

The Saffir-Simpson Hurricane Wind Scale

The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures. In the western North Pacific, the term "super typhoon" is used for tropical cyclones with sustained winds exceeding 150 mph.

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 kt 154-177 km/h	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt 178-208 km/h	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

For Additional Information:

American Red Cross	http://www.redcross.org/
US Coast Guard Storm Center	https://www.uscg.mil/news/stormcenter/
US National Hurricane Center	www.nhc.noaa.gov
US Federal Emergency Management Agency	http://www.ready.gov/hurricanes
FEMA – Mobile App	https://www.fema.gov/mobile-app
FEMA – Flooding	https://www.fema.gov/media-library-data/1522342356506-54bd8d92d0d0d07bca4c1250ebde2b21/Flood_508.pdf
Ready Gov	www.ready.gov
Listo Gov (Spanish)	www.listo.gov
Emergency Management Agencies	https://www.fema.gov/emergency-management-agencies
Caribbean Disaster Emergency Management Agency	http://www.cdema.org/index.php?option=com_wrapper&view=wrapper&Itemid=417
Smart Traveler Enrollment Program	https://step.state.gov/