



## Hurricane Dorian 08.29.19 Analysis

Risk Services Division

29 August 2019

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## Hurricane Dorian Status at (11:00 AST) 29 August 2019

- Hurricane Dorian is moving northwestward (325°) at 13 mph (20 km/h)
- Maximum sustained winds are near 85 mph (140 km/h) with higher gusts
- Strengthening is forecast during the next few days and Dorian is expected to become a major hurricane on Friday and remain an extremely dangerous hurricane through the weekend
- The center of Hurricane Dorian was located at 21.4N 67.2 W about 220 miles (355km) NNW of San Juan, Puerto Rico and 370 miles (600km) E of the southeastern Bahamas
- Hurricane-force winds extend outward up to 15 miles (30 km) from the center, and tropical-storm-force winds extend outward up to 90 miles (150 km)
- The risk of devastating hurricane-force winds along the Florida east coast and peninsula late this weekend and early next week continues to increase
- Heavy rains are expected to occur over portions of the Bahamas, Florida, and elsewhere in the southeastern United States this weekend and into the middle of next week



## Summary

At 1100 AM AST, the National Hurricane Center reports that Hurricane Dorian was located at 21.4N 67.2 W, approximately 220 miles (355km) NNW of San Juan, Puerto Rico and 370 miles (600km) E of the southeastern Bahamas. Dorian is moving northwestward at approximately 13mph (20 km/h) and this general motion, is expected to continue through the next 24 to 36 hours. A west-northwestward motion is forecast to begin by Friday night and continue into the weekend. On the forecast track, Dorian should move over the Atlantic well east of the southeastern and central Bahamas today and on Friday, approach the northwestern Bahamas Saturday, and move near or over portions of the northwest Bahamas on Sunday.

Maximum sustained winds remain near 85mph (140 km/h) with higher gusts. **Dorian is a category 1 hurricane** on the Saffir-Simpson Hurricane Wind Scale. Dorian is expected to continue to strengthen as it approaches landfall. **The risk of devastating hurricane-force winds along the Florida east coast and peninsula late this weekend and early next week continues to increase** however, it is too soon to specify where along the Florida east coast the greatest impacts could occur.

Heavy rains are expected to occur over portions of the Bahamas, Florida, and elsewhere in the southeastern United States this weekend and into the middle of next week.

Hurricane-force winds extend outward up to 15 miles (30 km) from the center and tropical-storm-force winds extend outward up to 90 miles (150 km).

## Discussion

Environmental conditions consisting of warm waters and low vertical wind shear along the path of the hurricane should allow for at least steady intensification during the next 2 to 3 days. With the small inner core and favorable conditions, rapid strengthening also remains a possibility, although not likely in the very short term given the concentric eyewall structure. The updated NHC intensity forecast calls for Dorian to become a major hurricane on Friday, and shows a slightly higher peak intensity than the previous forecast.

## Key Messages

1. The risk of life-threatening storm surge and hurricane-force winds this weekend continues to increase in the northwestern Bahamas, and hurricane watches could be issued there tonight or Friday. Residents should have their hurricane plan in place and listen to advice given by local emergency officials.
2. There is an increasing likelihood of life-threatening storm surge along portions of the Florida east coast late this weekend or early next week, although it is too soon to determine where the highest storm surge will occur. 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. The risk of devastating hurricane-force winds along the Florida east coast and peninsula late this weekend and early next week continues to increase, although it is too soon to determine where the strongest winds will occur.
4. Regardless of the exact track of Dorian, heavy rains are expected to occur over portions of the Bahamas, Florida, and elsewhere in the southeastern United States this weekend and into the middle of next week.

## Watches and Warnings

There are no coastal watches or warnings in effect.

Interests in the northwestern and central Bahamas should monitor the progress of Dorian.

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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

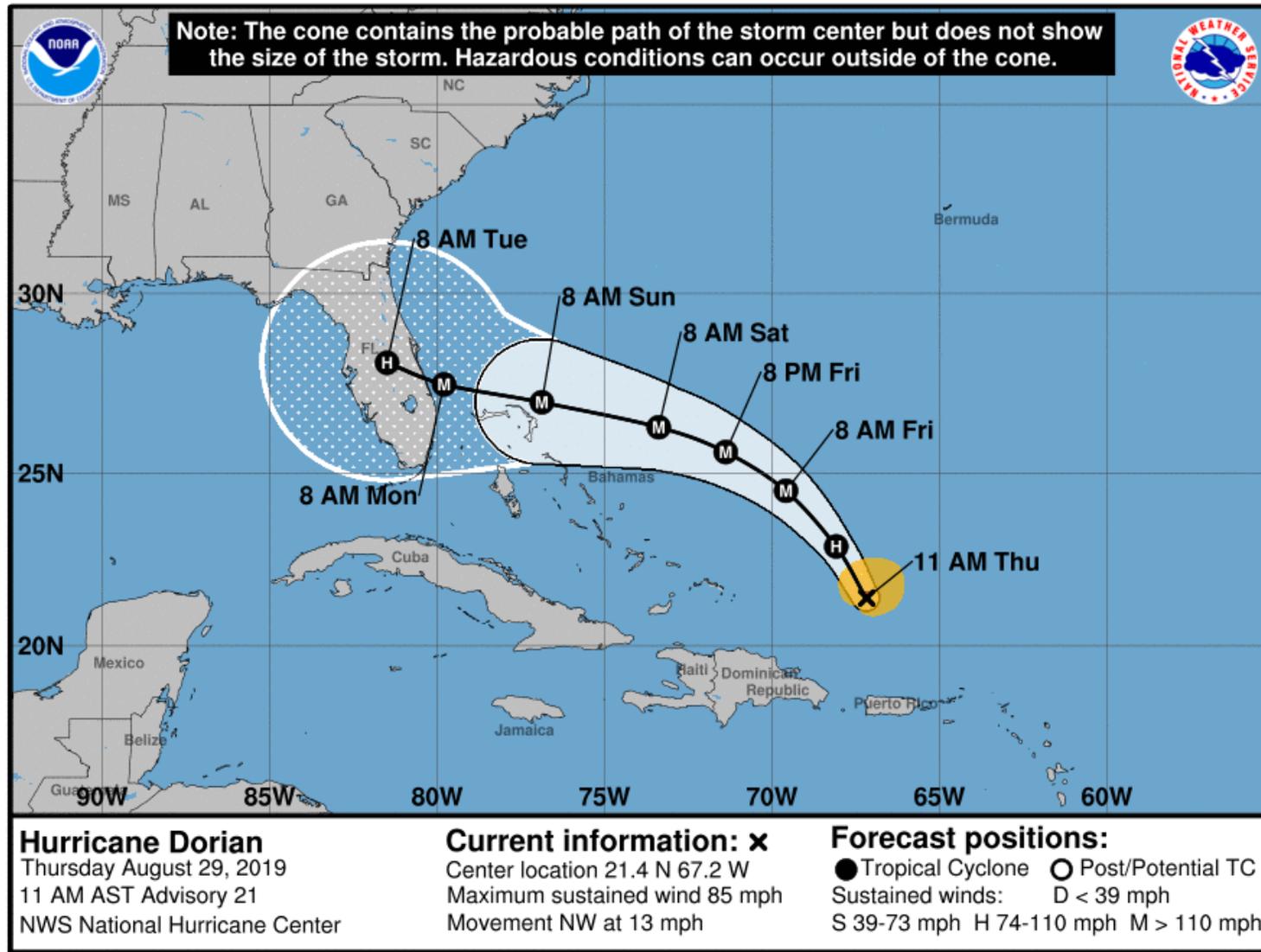
**RAINFALL:** Dorian is expected to produce the following rainfall accumulations this weekend into early next week:

- Central Bahamas: 1 to 2 inches, isolated 4 inches
- Northwestern Bahamas: 3 to 6 inches, isolated 8 inches.
- Coastal sections of the Southeast United States: 4 to 8 inches, isolated 12 inches

This rainfall may cause life-threatening flash floods.

**SURF:** Swells around the U.S. and British Virgin Islands and Puerto Rico should gradually diminish today. Swells are likely to begin affecting the east-facing shores of the Bahamas and the southeastern United States coast during the next few days. These swells are likely to cause life-threatening surf and rip current conditions. Please consult products from your local weather office.

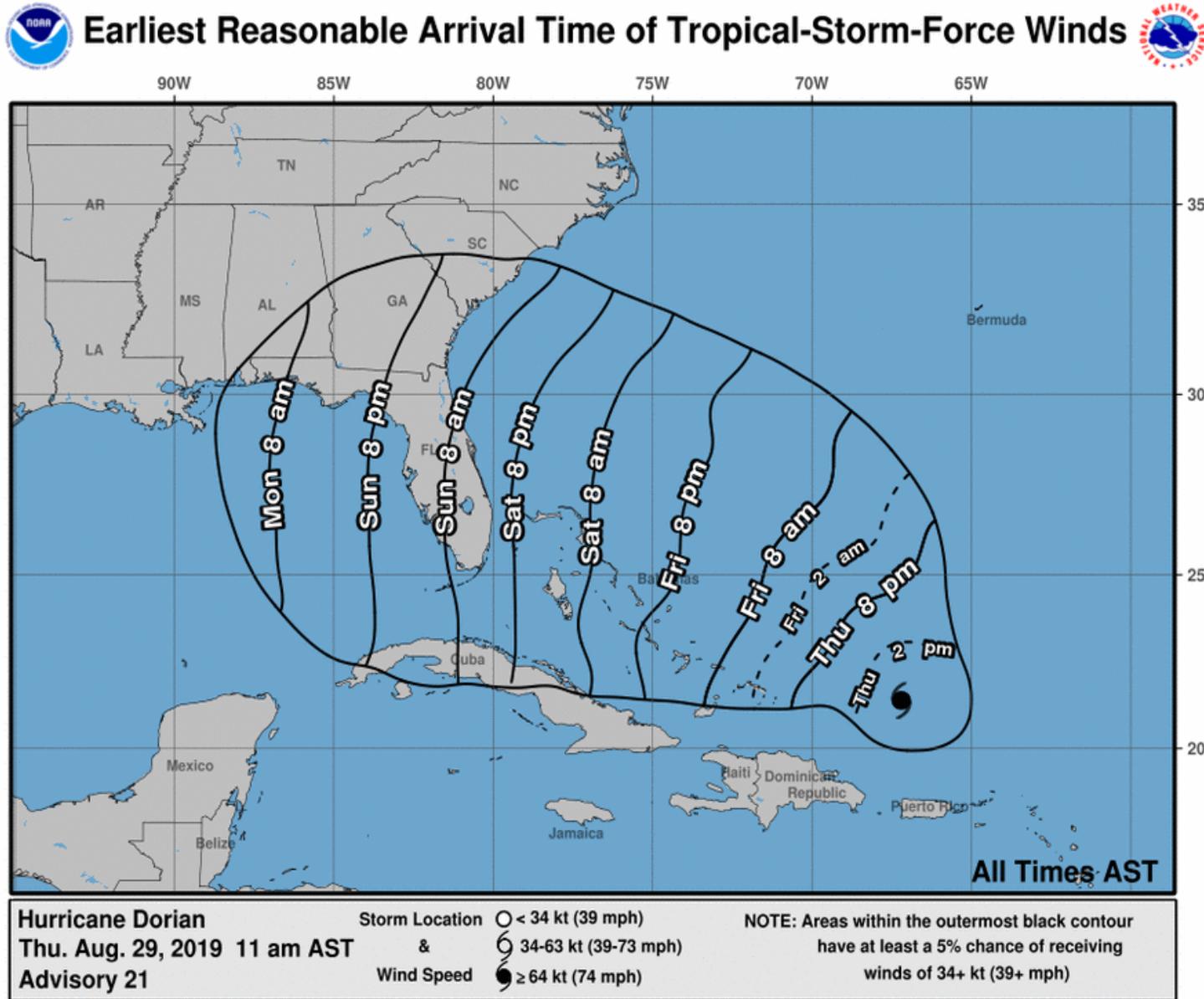
Current Predicted Path



Tropical-Storm-Force Wind Speed Probabilities



Most Likely Arrival Time of Tropical-Storm-Force Winds



## 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	<b>Very dangerous winds will produce some damage:</b> 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	<b>Extremely dangerous winds will cause extensive damage:</b> 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	<b>Devastating damage will occur:</b> 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	<b>Catastrophic damage will occur:</b> 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	<b>Catastrophic damage will occur:</b> 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	<a href="http://www.redcross.org/">http://www.redcross.org/</a>
US Coast Guard Storm Center	<a href="https://www.uscg.mil/news/stormcenter/">https://www.uscg.mil/news/stormcenter/</a>
US National Hurricane Center	<a href="http://www.nhc.noaa.gov">www.nhc.noaa.gov</a>
US Federal Emergency Management Agency	<a href="http://www.ready.gov/hurricanes">http://www.ready.gov/hurricanes</a>
FEMA – Mobile App	<a href="https://www.fema.gov/mobile-app">https://www.fema.gov/mobile-app</a>
FEMA – Flooding	<a href="https://www.fema.gov/media-library-data/1522342356506-54bd8d92d0d0d07bca4c1250ebde2b21/Flood_508.pdf">https://www.fema.gov/media-library-data/1522342356506-54bd8d92d0d0d07bca4c1250ebde2b21/Flood_508.pdf</a>
Ready Gov	<a href="http://www.ready.gov">www.ready.gov</a>
Listo Gov (Spanish)	<a href="http://www.listo.gov">www.listo.gov</a>
Emergency Management Agencies	<a href="https://www.fema.gov/emergency-management-agencies">https://www.fema.gov/emergency-management-agencies</a>
Caribbean Disaster Emergency Management Agency	<a href="http://www.cdema.org/index.php?option=com_wrapper&amp;view=wrapper&amp;Itemid=417">http://www.cdema.org/index.php?option=com_wrapper&amp;view=wrapper&amp;Itemid=417</a>
Smart Traveler Enrollment Program	<a href="https://step.state.gov/">https://step.state.gov/</a>