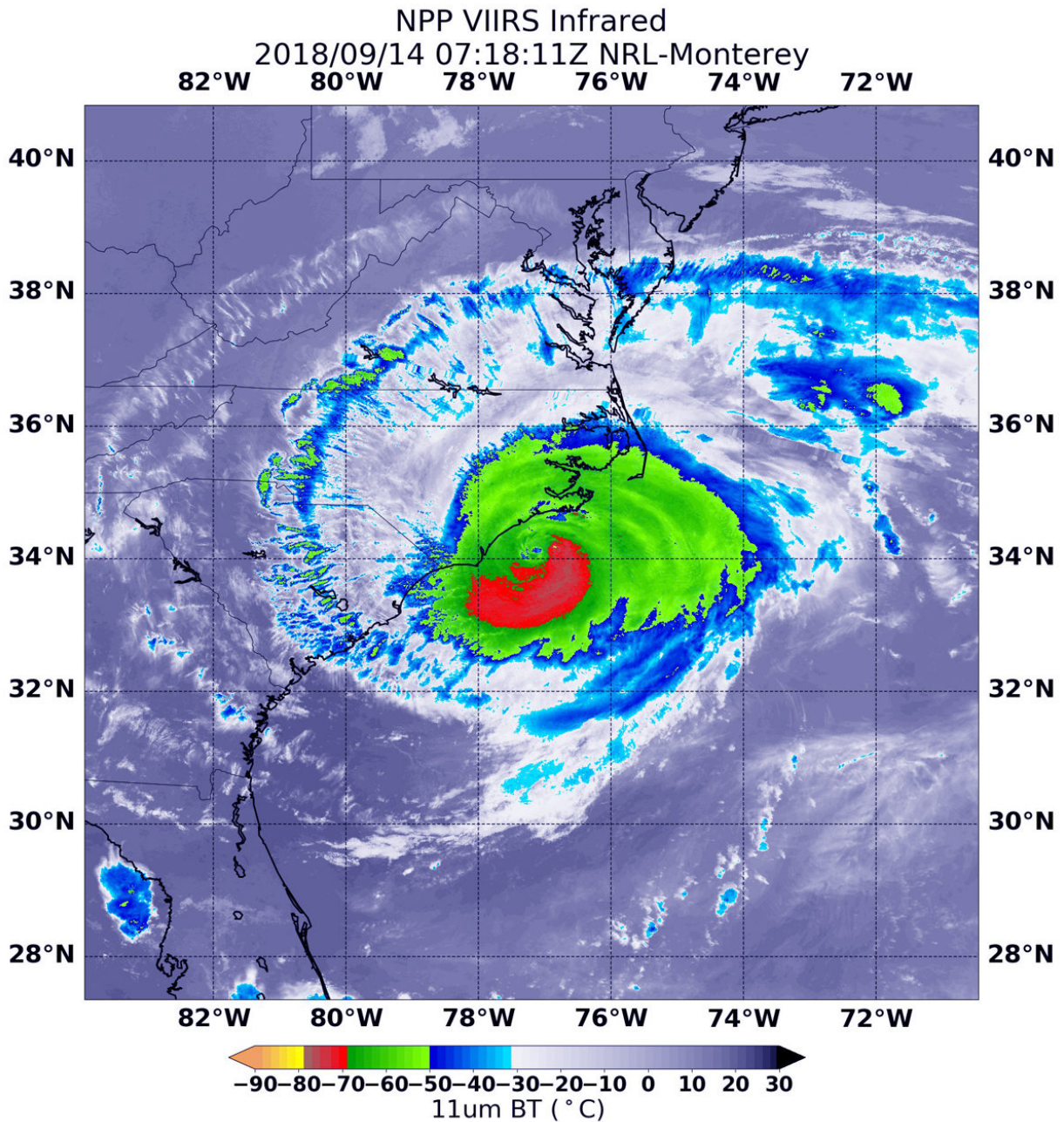


# NASA-NOAA satellite sees land-falling Hurricane Florence

September 14 2018



On Sept. 14, 2018 at 3:18 a.m. EDT (0718 UTC) the VIIRS instrument aboard NASA-NOAA's Suomi NPP satellite captured an infrared image of powerful Hurricane Florence with a ragged eye. Coldest cloud top temperatures (yellow) of strongest thunderstorms were in the eyewall, the area of thunderstorms surrounding the open eye. Those storms had cloud tops as cold as or colder than minus 80F/minus 62.2C. They were surrounded by powerful storms (red) with cloud tops as cold as minus 70F/minus 56.6C. Credit: NOAA/NASA/NRL

NASA-NOAA's Suomi NPP satellite passed over the eye of Hurricane Florence the morning of landfall. Infrared imagery showed the power and the extent of this massive storm.

The National Hurricane Center or NHC said on Sept. 14, "Life-threatening [storm](#) surges and hurricane-force winds continue and catastrophic freshwater flooding expected over portions of North and South Carolina."

Hurricane Florence made landfall near Wrightsville Beach, North Carolina at 7:15 AM EDT (1115 UTC) with estimated maximum winds of 90 mph (150 km/h), and a minimum central pressure estimate of 958 millibars.

Four hours before landfall NASA- NOAA's Suomi NPP satellite analyzed the large storm.

## **A NASA Satellite View of a Massive Rainmaker**

On Sept. 14 at 3:18 a.m. EDT (0718 UTC) the Visible Infrared Imaging Radiometer Suite (VIIRS) instrument aboard NASA-NOAA's Suomi

NPP satellite captured an infrared view of Florence. VIIRS infrared imagery showed that the eye of Florence appeared ragged.

Coldest cloud top temperatures of strongest thunderstorms were in the ragged eyewall, the area of thunderstorms surrounding the open eye. Those storms had [cloud tops](#) as cold as or colder than minus 80 degrees Fahrenheit (minus 62.2 Celsius). They were surrounded by powerful storms with cloud tops as cold as minus 70 degrees Fahrenheit (minus 56.6 degrees Celsius).

NASA research has shown that cloud top temperatures in excess of 63F/53C can produce [heavy rainfall](#). Florence has a very wide area of storms where cloud tops are colder than that threshold, indicating that the storm has the capability to generate very heavy rainfall over a large area.

## **How Large is Florence?**

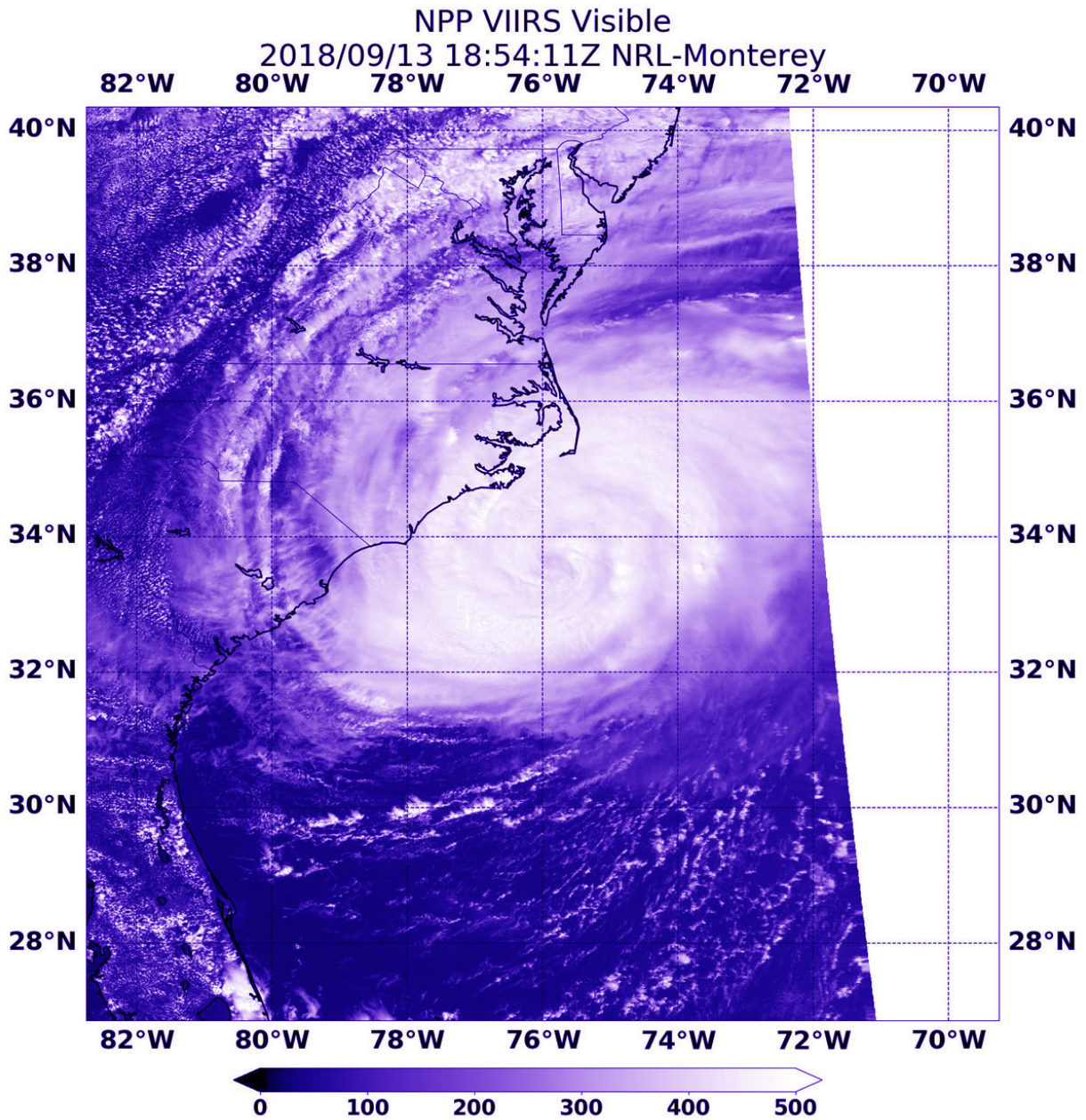
Hurricane-force winds extend outward up to 80 miles (130 km) from the center and tropical-storm-force winds extend outward up to 195 miles (315 km).

## **The Forecast Rainfall from NHC**

Florence is expected to produce heavy and excessive rainfall in the following areas:

Southeastern coastal North Carolina into far northeastern South Carolina...an additional 20 to 25 inches, with isolated storm totals of 30 to 40 inches. This rainfall will produce catastrophic flash flooding and prolonged significant river flooding. The remainder of South Carolina and North Carolina into southwest Virginia...5 to 10 inches, isolated 15

inches. This rainfall will produce life-threatening flash flooding.



On Sept. 13, 2018 at 2:54 p.m. EDT (1854 UTC) the VIIRS instrument aboard NASA-NOAA's Suomi NPP satellite captured a visible image of powerful Hurricane Florence as it approached the North Carolina coast. Credit: NASA/NOAA/NRL

## **Warnings and Watches**

On Sept. 14, NHC posted the following warnings and watches: A Storm Surge Warning is in effect for South Santee River, South Carolina to Duck, North Carolina, the Albemarle and Pamlico Sounds, including the Neuse and Pamlico Rivers. A Storm Surge Watch is in effect for Edisto Beach, South Carolina to South Santee River, South Carolina. A Hurricane Warning is in effect for South Santee River, South Carolina to Duck, North Carolina and the Albemarle and Pamlico Sounds. A Hurricane Watch is in effect for Edisto Beach, South Carolina to South Santee River, South Carolina. A Tropical Storm Warning is in effect from north of Duck, North Carolina to Cape Charles Light, Virginia for the Chesapeake Bay south of New Point Comfort, and from Edisto Beach South Carolina to South Santee River, South Carolina.

## **Status of Hurricane Florence at 8 a.m. EDT**

NHC stated at 8 a.m. EDT (1200 UTC), the center of the eye of Hurricane Florence was located by NOAA Doppler weather radars and surface observations to be just inland near latitude 34.1 degrees north and longitude 77.9 degrees west.

NHC said, "The center of Florence will be moving inland very soon, but is expected to slow down even more today and tonight. As a result, it will remain fairly close to the coast today, with much of the circulation still over water."

Florence is moving toward the west near 6 mph (9 kph). A slow westward to west-southwestward motion is expected today through Saturday, Sept. 15. Maximum sustained winds remain near 90 mph (150 kph) with higher gusts. Gradual weakening is forecast later today and

tonight. Significant weakening is expected over the weekend and into early next week while Florence moves farther inland.

## **Florence's Forecast Track**

On the forecast track, the center of Florence will move further inland across extreme southeastern North Carolina and extreme eastern South Carolina today and Saturday. Florence will then move generally northward across the western Carolinas and the central Appalachian Mountains early next week.

## **Storm Surge, Ocean Swells, Strong Winds, Isolated Tornadoes, Flooding**

Whenever a tropical cyclone makes landfall, it comes with powerful storm surge, hurricane and tropical-storm force winds, isolated tornadoes and very heavy rainfall.

At 8 a.m. EDT, NHC noted "A life-threatening storm surge is already occurring along portions of the North Carolina coast and will continue through today and tonight. This surge is also likely along portions of the South Carolina coast."

Surge-related flooding can vary greatly over short distances. For information specific to your area, please see products issued by your local National Weather Service forecast office at <http://www.weather.gov>. Swells generated by Florence are affecting Bermuda, portions of the U.S. East Coast, and the northwestern and central Bahamas. A few tornadoes are possible in eastern North Carolina today.

Once a tropical system moves inland, flooding and flash flooding

becomes the biggest threat for days. NHC noted "Life-threatening, catastrophic flash flooding and prolonged significant river flooding are likely over portions of the Carolinas and the southern and central Appalachians through early next week, as Florence is expected to slow down while it moves inland."

Provided by NASA's Goddard Space Flight Center

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