

Tropical Storm Don analyzed in 3 NASA satellite images

July 30 2011

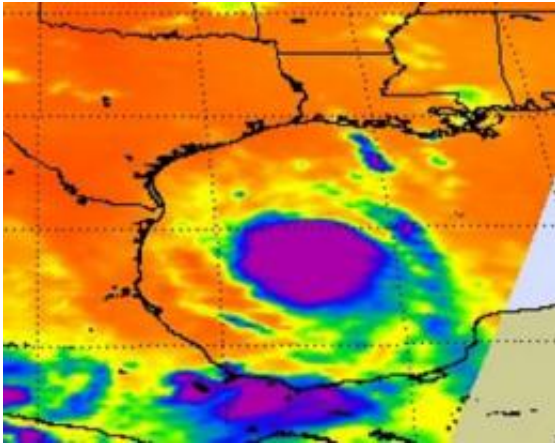


This visible image from the GOES-13 satellite, captured at 1402 UTC (10:02 a.m. EDT) shows the fringes of Tropical Storm Don's western edge just brushing coastal Texas. Credit: NASA/NOAA GOES Project

NASA is analyzing Tropical Storm Don from all angles, inside and out, using three different satellites. Don is expected to make landfall in southeastern Texas tonight or early Saturday.

NASA's Aqua satellite passed over Tropical Storm Don at 8:17 UTC (4:17 a.m. EDT) on July 29. The instrument called the Atmospheric Infrared Sounder (AIRS) took the temperature of Don's clouds in an [infrared image](#). AIRS data revealed a large area of powerful, high thunderstorms with cold cloud tops surrounding Don's center where

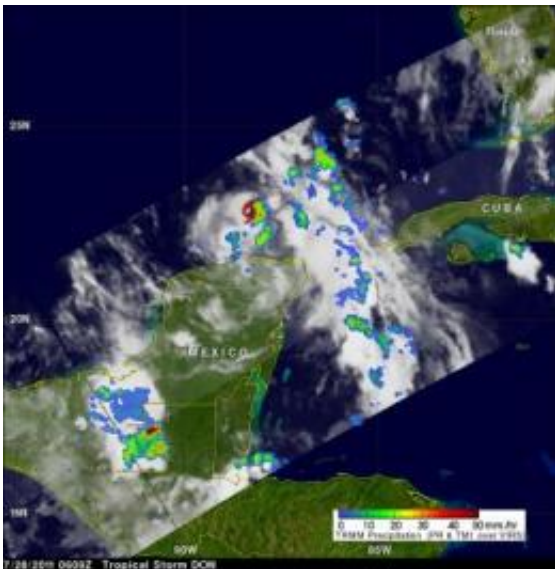
cloud temperatures were colder than -63 Fahrenheit (-52 Celsius). The higher the thunderstorm cloud-top, the colder it is, and the more powerful they are.



NASA's Aqua satellite passed over Tropical Storm Don at 8:17 UTC (4:17 a.m. EDT) on July 29. The infrared image revealed a large area of powerful, high thunderstorms with cold cloud tops (purple) surrounding the center where cloud temperatures were colder than -63 Fahrenheit (-52 Celsius). Credit: Credit: NASA JPL, Ed Olsen

When the GOES-13 satellite passed over Don at 1402 UTC (10:02 a.m. EDT) this morning, July 29, it captured a picture that showed the fringe of the tropical storm's western edge was just brushing coastal Texas on its approach to landfall. The GOES-13 satellite is managed by NOAA and keeps an eye on all weather in the eastern half of the U.S. The NASA/NOAA GOES Project at NASA's Goddard Space Flight Center in Greenbelt, Md. created the image that showed the strongest thunderstorms around the center of circulation. In the image, the highest thunderstorms around the storm's center cast small shadows on the lower clouds.

Those high thunderstorms around the center have been dropping heavy rainfall since July 28, when the [Tropical Rainfall](#) Measuring Mission satellite (TRMM) passed overhead. TRMM can measure rainfall from its orbit in space and passed over Don at 0609 UTC (1:09 a.m. CDT). At that time, Don's center was north of Mexico's Yucatan peninsula, where Don was located at that time. A TRMM [rainfall analysis](#) showed Don was dropping moderate to heavy rainfall of up to 2 inches/50 mm per hour in the eastern side of the small storm. Most of the other rainfall was moderate, falling between .78 to 1.57 inches (20 to 40 mm) per hour.



The TRMM satellite had a fairly good view of tropical Storm Don when it passed over on July 28, 2011 at 0609 UTC (1:09 a.m. CDT). A red tropical storm symbol shows the position, north of Mexico's Yucatan peninsula, where Don was located at that time. A TRMM rainfall analysis showed Don was dropping moderate to heavy rainfall (red) of up to 2 inches/50 mm per hour in the eastern side of the small storm. The yellow and green areas indicate moderate rainfall between .78 to 1.57 inches (20 to 40 mm) per hour. Credit: NASA/SSAI, Hal Pierce

With NASA and NOAA satellites confirming that Don is bringing heavy rainfall and gusty winds, a tropical storm warning is in effect for the Texas coast from the mouth of the Rio Grande to Matagorda as tropical storm-force conditions are expected within the warning area by late today.

According to NOAA's National Hurricane Center, at 11 a.m. EDT (1500 UTC) on July 29, 2011, Tropical Storm Don's maximum sustained winds were near 50 mph (85 km/h) with higher gusts. Tropical storm force winds extend outward up to 105 miles (165 km) from the center, so Don has expanded to 210 miles, since yesterday when the storm was 180 miles in diameter.

The center of [Tropical Storm](#) Don was located near latitude 26.2 North and longitude 94.9 West. Don is moving toward the west-northwest near 14 mph (22 km/h) and is expected to continue moving on that track for the next day or two. The estimated minimum central pressure is 1002 millibars.

So what can residents of southern Texas and northern Mexico expect from Don? According to the National Hurricane Center (NHC), storm surge will make water levels rise as much as 2 feet above ground level, mostly along the immediate coast and to the northeast of where Don's center makes landfall. Regardless, all residents in the warning area can expect rough surf and damaging waves.

The [heavy rainfall](#) that NASA's TRMM satellite saw on July 28 within Don will bring 3 to 5 inches in south Texas and extreme northeastern Mexico. The NHC noted that isolated totals to 7 inches are even possible. Residents should also be prepared for the tropical storm-force winds and the possibility of isolated tornadoes over south Texas today and tonight as Don begins making landfall.

Provided by NASA's Goddard Space Flight Center

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