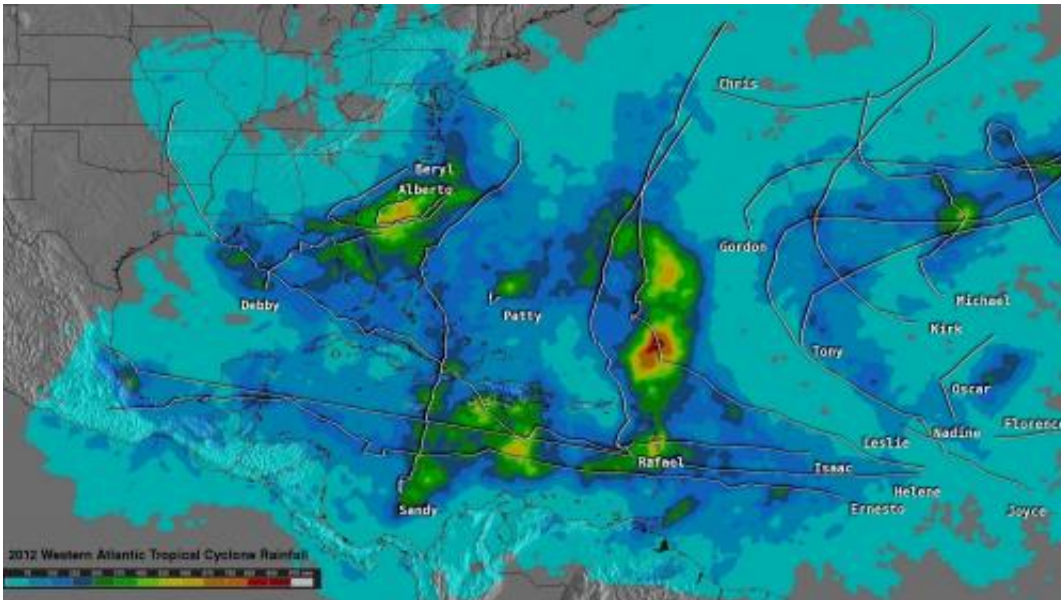


NASA's TRMM satellite video reveals 2012 hurricane season rainfall

November 30 2012



This image shows rainfall totals calculated by NASA's TRMM satellite from tropical cyclones that affected the western Atlantic Ocean area during the 2012 hurricane season. The highest rainfall total measured 975 millimeters (38.39 inches) from Hurricanes Leslie and Rafael (in pink) over Atlantic open waters. Credit: Credit: SSAI/NASA, Hal Pierce

The 2012 Atlantic Hurricane season was a busy one as there were 19 tropical cyclones. A new NASA animation using data from the Tropical Rainfall Measuring Mission satellite known as TRMM shows rainfall from tropical cyclones in the western Atlantic, as measured from space.

The TRMM satellite has now been making highly [accurate measurements](#) of rainfall from space for fifteen years since it launched in Nov. 1997. TRMM is a joint mission between NASA and the [Japanese space agency](#), JAXA.

TRMM can be used to calibrate rainfall estimates from other satellites. Those [rainfall data](#) are routinely created and stored at NASA's Goddard Space Flight Center in Greenbelt, Md. The TRMM-based, near-real time Multi-satellite Precipitation Analysis (TMPA) created at NASA Goddard can be used to analyze rainfall over a wide portion of the globe.

Using the TMPA data, Hal Pierce of the TRMM team at NASA Goddard created an animation that shows the estimated amount of rain contributed by named [tropical cyclones](#) over the western Atlantic in 2012. The animation begins on May 19, 2012, with the formation of Tropical Storm Alberto off the coast of South Carolina and progresses through [Hurricane](#) Sandy on Oct. 29.

According to NOAA's National Hurricane Center, out of the 19 Atlantic tropical cyclones, 10 became hurricanes and one became a major hurricane. The number of named storms is well above the average of 12. The number of hurricanes is also above the average of six, but the number of major hurricanes is below the average of three.

Several areas of the western Atlantic suffered from the destructive winds and deadly flooding that accompanied tropical cyclones during the 2012 [Atlantic hurricane season](#). The season started with [tropical storms](#) Alberto, Beryl, and Debby, forming near southeastern states. Alberto and Beryl develop in May before the season even officially began (it starts on June 1). The only major hurricane this season was Hurricane Michael, a Category 3 storm that stayed over the open Atlantic.

By the end of the season much of the eastern United States from the

Louisiana coast through New York had received some rainfall from tropical cyclones. Beryl and Debby both affected Florida. Hurricane Isaac caused deadly flooding along the Gulf coast but also resulted in some drought relief in the Midwest. Hurricane Sandy, was only a category two hurricane but caused numerous deaths and record breaking destruction extending from the Caribbean to the Mid-Atlantic and northeastern United States.

The highest amounts of rainfall in this analysis appeared over the Atlantic Ocean, northeast of Puerto Rico in an area called "Hurricane Alley." The highest [rainfall](#) total seen on this animation was about 975 millimeters (38.39 inches) from hurricanes Leslie and Rafael that tracked over that area. Of that total, Leslie only produced about 675 mm. Warm ocean waters in this area supply the energy to form and sustain hurricanes.

Hurricane Nadine,, the fifth longest-lived Atlantic hurricane on record, occurred in the eastern Atlantic Ocean and isn't shown in this analysis. The [TRMM satellite](#) frequently flew above when Nadine was active from Sept. 11, 2012 to Oct. 4, 2012.

According to NOAA, a well-established climate pattern has indicated that the Atlantic Ocean is in an ongoing era of high activity for hurricanes that began in 1995. Since that time, more than 70 percent of seasons have been above normal, including 2012.

Provided by NASA's Goddard Space Flight Center

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