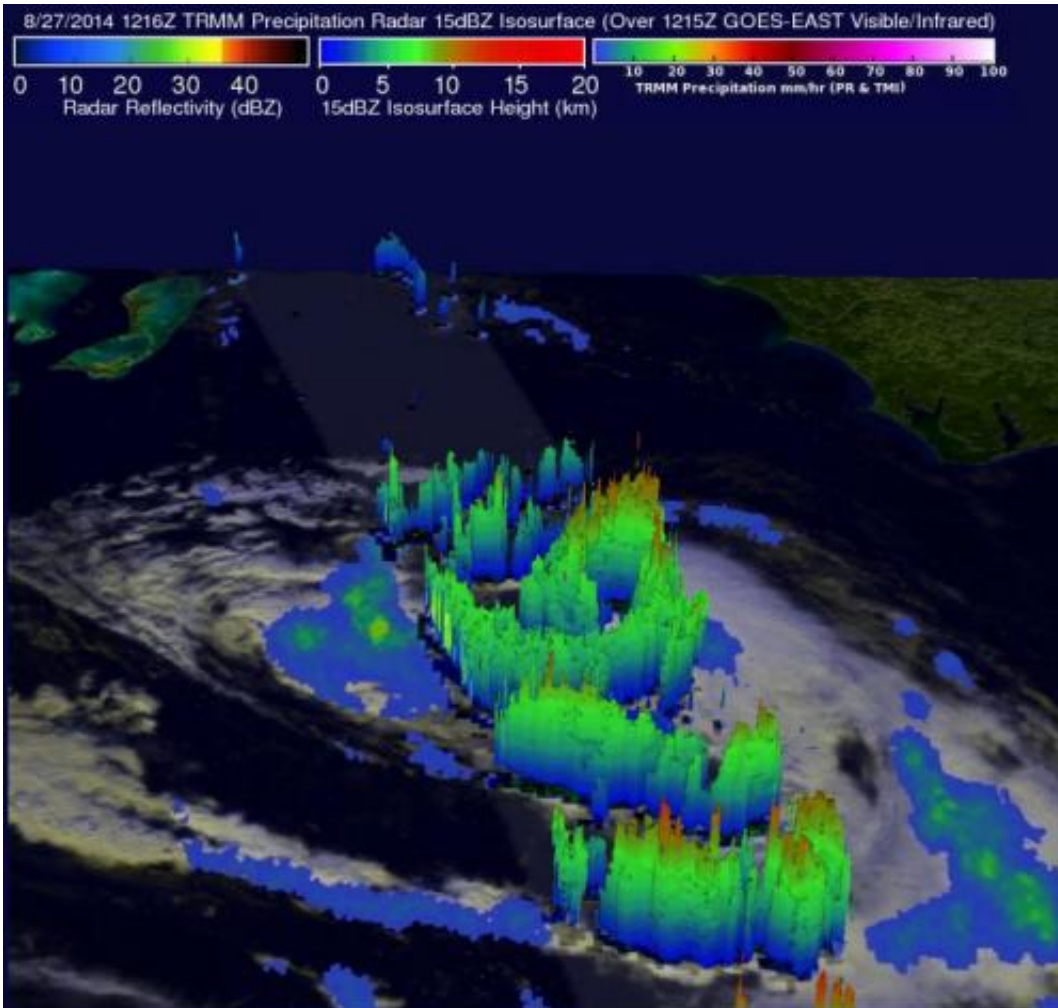


# TRMM analyzes Hurricane Cristobal

August 28 2014



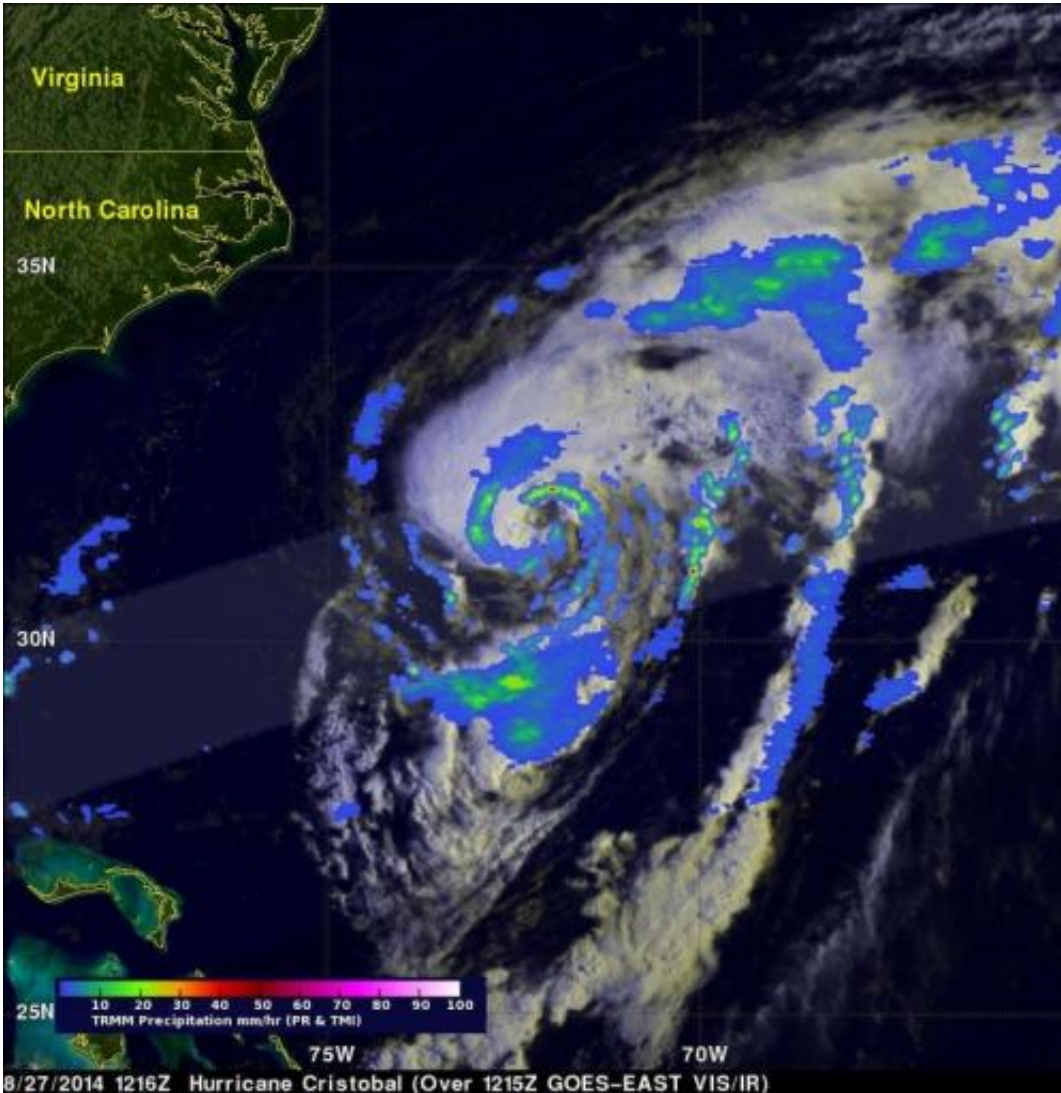
TRMM satellite passed over Cristobal on Aug. 27 at 8:16 a.m. EDT. Several long rainbands of mostly light (indicated in blue) to moderate rain wrap mainly around the eastern side of the storm and are evidence of the storm's large cyclonic circulation. Credit: SSAI/NASA, Hal Pierce

NASA's Tropical Rainfall Measuring Mission or TRMM Satellite provided a look under the hood of Hurricane Cristobal as it continues moving north and paralleling the U.S. East Coast. NASA's HS3 hurricane mission also investigated the storm. Cristobal is now close enough to the coast to trigger high surf advisories.

On August 28, the National Weather Service issued an advisory for high surf of 6 to 12 feet and rip currents on the southern coasts of Rhode Island and Massachusetts, including Cape Cod and the nearby islands of Martha's Vineyard and Nantucket.

Cristobal, still a minimal Category 1 [hurricane](#) on the U.S. Saffir-Simpson scale, has been slowly making its way northward up from the southeastern Bahamas on a track generally parallel to the eastern seaboard. The storm now appears poised to recurve away from the U.S. East Coast and head for the central Atlantic as it begins to feel the effects of an approaching shortwave trough (elongated area of low pressure) embedded in the westerlies (winds) that are moving eastward out of the Great Lakes Region.

NASA's airborne Hurricane and Severe Storm Sentinel, or HS3, mission kicked off on August 27 when one of the remotely piloted Global Hawk aircraft flew a "lawnmower" or back and forth pattern over Hurricane Cristobal while gathering data using dropsondes and two other instruments. The Global Hawk dropped 81 dropsondes over Cristobal. A dropsonde is a device that measures winds, temperature, pressure and humidity as it falls from the aircraft to the surface.



TRMM satellite passed over Cristobal on Aug. 27 at 8:16 a.m. EDT. Several long rainbands of mostly light (indicated in blue) to moderate rain wrap mainly around the eastern side of the storm and are evidence of the storm's large cyclonic circulation. Credit: SSAI/NASA, Hal Pierce

The TRMM satellite passed over Hurricane Cristobal on August 27 at 12:16 UTC (8:16 a.m. EDT). TRMM is a joint mission between NASA and the Japanese space agency JAXA.

At the time TRMM flew overhead, Cristobal's center was located about

330 miles (531 km) southeast of Cape Hatteras, North Carolina and approximately 420 miles (675.9 km) west-southwest of Bermuda. At this time, an eye was still apparent in TRMM's infrared imagery, but the rain intensities from TRMM showed that there is only a partial eyewall, which is indicated by the band of moderate intensity rain along the northern edge of the storm's center. Several long rainbands of mostly light to moderate rain wrapped mainly around the eastern side of the storm and are evidence of the storm's large cyclonic circulation.

Those rainbands are very well defined in a 3-D image of Cristobal (taken at the same time) that was created at NASA's Goddard Space Flight Center in Greenbelt, Maryland. The 3-D image showed the height of precipitation echoes within the storm courtesy of the TRMM Precipitation Radar instrument. Cristobal didn't appear round and symmetric in either clouds or rainfall which suggests that the hurricane is being battered by southwesterly wind shear ahead of the approaching shortwave trough (elongated area) of low pressure. The National Hurricane Center (NHC) expects that the trough should begin to steer the storm in a more northeasterly direction. At the time of this image, Cristobal's sustained winds were reported at 70 knots (80.5 mph/129.6 kph) and the storm was still moving north at 12 mph (19.3 kph).

By August 28 at 8 a.m. EDT (1200 UTC) the center of Hurricane Cristobal was located near latitude 36.3 north and longitude 67.0 west. Maximum sustained winds remain near 75 mph (120 kph) and no significant change in strength is forecast during the next two days.

Cristobal was moving toward the northeast near 26 mph (43 kph) and that general motion with an increase in forward speed is expected over the next 48 hours. On the forecast track, the NHC noted that the center of Cristobal will rapidly move toward the North Atlantic well northwest of Bermuda and pass well south of Nova Scotia later in the day today, August 28.

With the system now devoid of heavy rain and approaching cooler waters, Cristobal should start to lose its tropical characteristics and transition into an extra-tropical [storm](#) over the next few days. The NHC expects Cristobal to become a powerful extra-tropical cyclone over the North Atlantic by Friday night, August 29.

Provided by NASA's Goddard Space Flight Center

Citation: TRMM analyzes Hurricane Cristobal (2014, August 28) retrieved 2 April 2023 from <https://phys.org/news/2014-08-trmm-hurricane-cristobal.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.