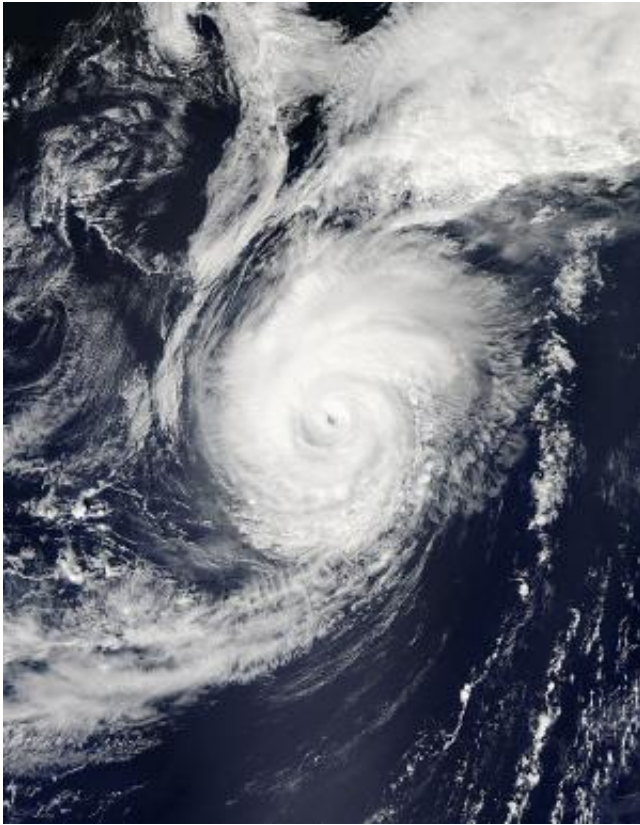


# NASA sees Hurricane Edouard enter cooler waters

September 18 2014

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This image shows Hurricane Edouard in the Atlantic Ocean on Sept. 17 at 12:40 p.m. EDT as seen by the MODIS instrument aboard NASA's Aqua satellite.  
Credit: NASA Goddard MODIS Rapid Response Team

NASA's Tropical Rainfall Measuring Mission or TRMM satellite and Aqua satellite gathered data on Hurricane Edouard's rainfall, clouds and

waning power is it continued moving northward in the Atlantic into cooler waters. On Sept. 18, NASA's Global Hawk #872 set out to investigate Edouard again as the storm is expected to weaken to a tropical storm

Edouard, which became the fifth named storm of the season after forming on the night of September 11th (EDT) west of the Cape Verde Islands, continued to strengthen as it made its way through the central Atlantic this past week, reaching hurricane intensity on the 14th before becoming the first major hurricane of the season when it peaked briefly as a category 3 storm on the 16th with sustained winds reported at 100 knots (~115 mph) by the National Hurricane Center (NHC). Fortunately, the storm has not posed a threat to the U.S. East Coast due to the presence of a deep-layer trough along the Eastern Seaboard, which has prevented Edouard from moving further westward and forced it to recurve over the central Atlantic.

### **TRMM Satellite Peers at Edouard's Eyewall Replacement**

This latest overpass of Edouard by the TRMM satellite was taken at 03:39 UTC on Sept. 17 (Sept. 16 at 11:39 p.m. EDT) soon after the storm began to recurve to the northeast well east of Bermuda. By this time Edouard had weakened to a category 1 storm with maximum sustained winds reported at 80 knots (~92 mph) by NHC.

However, the TRMM satellite saw that Edouard still had a very robust and mature circulation as evidenced by the presence of a well-defined eye and two concentric bands of rain surrounding the storm's center.

After tropical cyclones reach their peak intensity and continue to age, it's not uncommon for their wind field (i.e., circulation) to expand. That is the case with Edouard, this can happen as the result of an "eyewall replacement cycle" where a newer outer eyewall forms around the

original eyewall creating a double eye-wall structure (i.e., the two concentric rainbands) and another ring of stronger winds around the center but further out.

At that time, Edouard's minimum central pressure was 959 millibars and is nearly as low as it was when Edouard was a category 3 hurricane on the Saffir-Simpson scale, but the pressure gradient is now spread over a larger area, which reduces the storm's peak wind intensity but increase the extent of stronger winds over a larger area.

### **Getting a 3-D Look at the Storm**

At NASA's Goddard Space Flight Center in Greenbelt, Maryland the TRMM team created a 3-D image of Edouard using TRMM Precipitation Radar data. The 3-D image showed that there was little in the way of the tall convective (rising air that forms) thunderstorm towers that can energize the storm's circulation. That's because Edouard was beginning to move over cooler waters. TRMM is a joint mission between NASA and the Japanese space agency JAXA.

### **NASA's Aqua Satellite Passed Over Edouard**

On Sept. 17 at 12:40 p.m. EDT the Moderate Resolution Imaging Spectroradiometer or MODIS instrument aboard NASA's Aqua satellite took a visible picture of Hurricane Edouard in the Atlantic Ocean. Edouard's eye had become obscured by high clouds. The image revealed bands of thunderstorms spinning into the center from the northern and southern quadrants. The image was created by the NASA Goddard MODIS Rapid Response Team at NASA Goddard.

### **NASA's HS3 Mission Flying Over Edouard Sept. 18**

The remotely piloted Global Hawk aircraft is part of NASA's airborne

Hurricane and Severe Storm Sentinel, or HS3 mission that has been investigating tropical cyclones in the Atlantic this summer. The Global Hawk took off from NASA's Wallops Flight Facility, Wallops Island, Virginia, at 7:15 EDT to start Science Flight #8 to Hurricane Edouard

On Sept. 18 at 8 a.m. EDT, the National Hurricane Center noted the Edouard was still a hurricane despite moving over waters near 24 Celsius (75.2 Fahrenheit). Sea surface temperatures of at least 26.6C (80F) are needed for a hurricane to maintain strength, so it's only a matter of time until Edouard weakens below [hurricane](#) status.

### **Where is Edouard?**

At 5 a.m. EDT on Sept. 18, the center of Hurricane Edouard was located near latitude 39.6 north and longitude 45.3 west. Edouard was moving toward the east-northeast near 28 mph (44 kph) and is expected to slow down as it moves eastward. Maximum sustained winds remain near 85 mph (140 kph) and weakening is forecast during the next 48 hours.

Edouard continues to move to the northeast away from the U.S. and is expected to begin to weaken and become post tropical before winding up somewhere west of the Azores in the next few days.

Provided by NASA's Goddard Space Flight Center

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