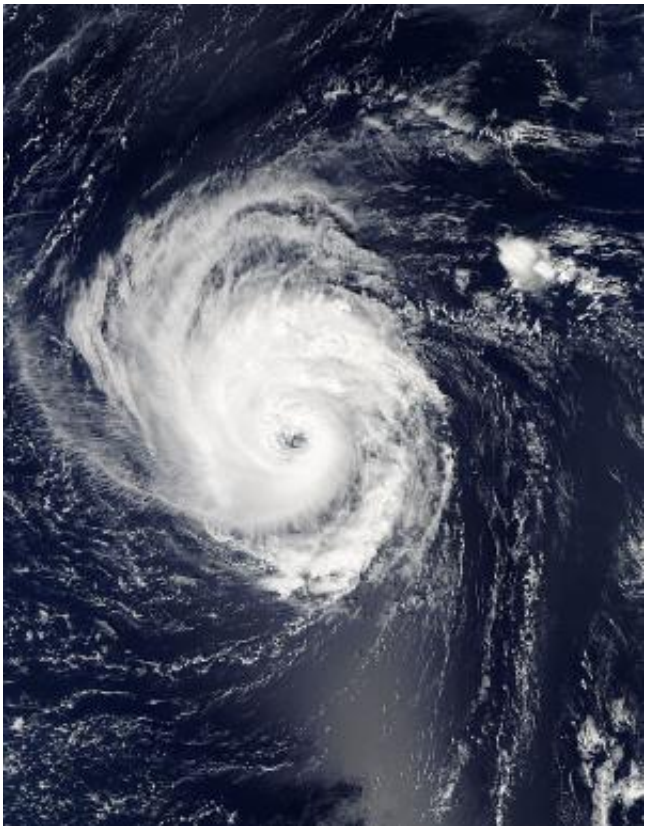
Global Hawk and satellites investigating Hurricane Edouard today

September 16 2014



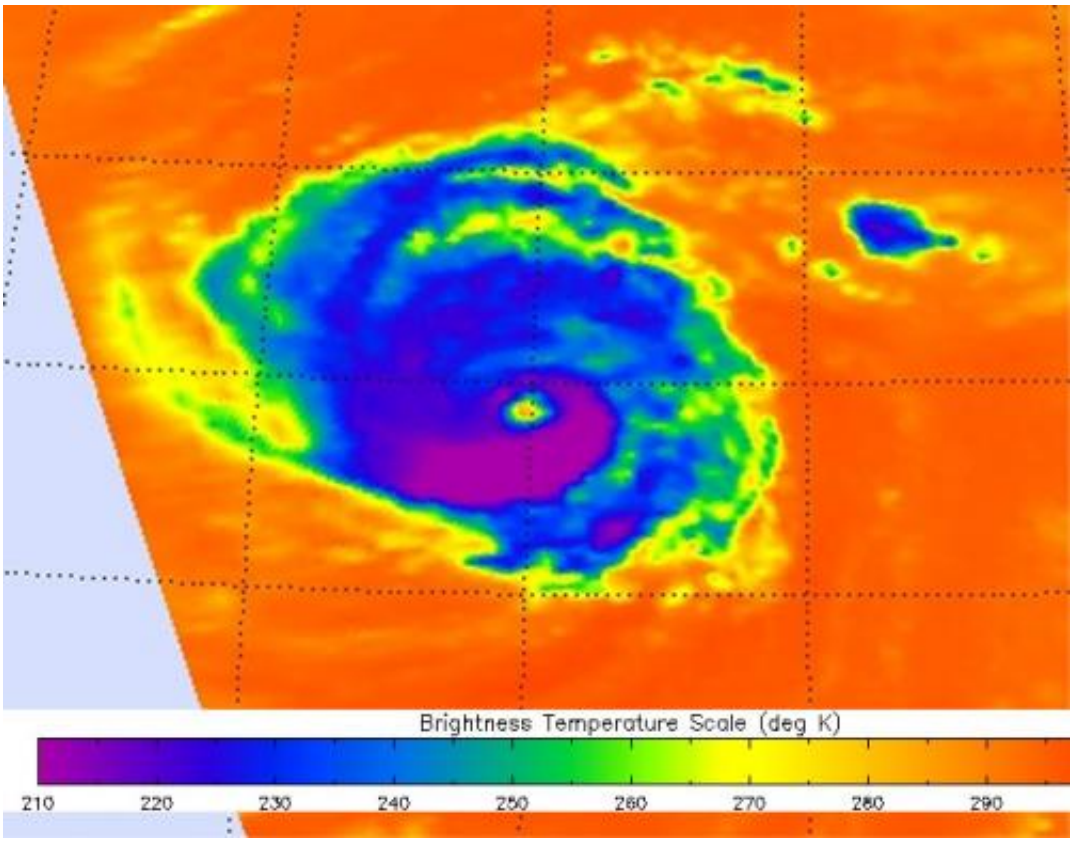
The MODIS instrument aboard NASA's Aqua satellite captured this visible image of Hurricane Edouard in the Atlantic Ocean on Sept. 15 at 12:50 p.m. EDT revealing a clear eye. Credit: NASA's Goddard MODIS Rapid Response Team

The unmanned Global Hawk aircraft that's part of NASA's airborne Hurricane and Severe Storm Sentinel, or HS3 mission was winging its

way to Hurricane Edouard on September 16. In addition to the Global Hawk, various NASA satellites are continually providing data on the Atlantic hurricane.

Scientific instruments aboard NASA's remotely piloted Global Hawk aircraft have been studying the hurricane over the last couple of days, and the Global Hawk returned to Edouard again today, September 16. Two of the instruments aboard the Global Hawk that will study Edouard are the S-HIS and CPL. The S-HIS or Scanning High-resolution Interferometer Sounder will provide continuous sampling of temperature and relative humidity in the clear-air environment, while the CPL or Cloud Physics Lidar will study the aerosols (tiny particles) and the vertical structure of the cloud layers of the hurricane.

"Hopefully Edouard will maintain a clear eye so that S-HIS and CPL can get a good look down into it," said Scott Braun, Principal Investigator of the HS3 mission of NASA's Goddard Space Flight Center in Greenbelt, Maryland. In addition to the S-HIS and CPL, the Advanced Vertical Atmospheric Profiling System (AVAPS) will drop sondes into the hurricane that will measure temperature, humidity and full tropospheric wind (winds in every level of the troposphere from top to bottom as the sonde falls).



This infrared image from NASA's AIRS instrument that aboard the Aqua satellite captured a clear eye in Hurricane Edouard on Sept. 15 at 12:47 p.m. EDT. Strongest storms have coldest (in kelvin temperatures) cloud tops (purple). Credit: NASA JPL, Ed Olsen

On September 15 at 12:47 p.m. EDT when NASA's Aqua satellite passed over the Central Atlantic, several instruments that fly aboard captured information about the storm in visible and infrared light. The Moderate Resolution Imaging Spectroradiometer or MODIS instrument aboard captured a visible image of Hurricane Edouard revealing thick bands of thunderstorms spiraling into a clear eye.

At the same time, The Atmospheric Infrared Sounder or AIRS instrument aboard analyzed those bands of thunderstorms in infrared

light. Infrared light tells temperature of the cloud tops and surrounding sea surface. AIRS revealed that some of the cloud top temperatures in the band of tightly wound thunderstorms around Edouard's center were near 220 kelvin (-63F/-53C) indicating that they were high in the troposphere, and powerful. NASA research has shown that storms with cloud tops that high and cold have the potential to drop heavy rainfall. Forecaster Berg at the National Hurricane Center noted at 5 a.m. EDT on September 16 that "Convective (thunderstorm) cloud tops within Edouard's eyewall have occasionally been as cold as about -75C, but the eye has actually cooled during the past few hours."

On September 16 at 0614 UTC (2:14 a.m. EDT) NASA's Tropical Rainfall Measuring Mission or TRMM satellite also flew over Edouard and showed that the hurricane's eyewall is partially open on the north side, which means it is exposed to outside winds that can weaken it.

At 5 a.m. EDT Hurricane Edouard's maximum sustained winds were near 110 mph (175 kph)and some slight strengthening is possible over the next day, according to the National Hurricane Center. The hurricane is about 465 miles (765 km) east-southeast of Bermuda, and is moving to the north-northwest at 13 mph (20 kph), however it is expected to turn to the north followed by a turn northeast on September 17.

Edouard is expected to strengthen over the next day before weaken quickly due to colder water and increasing vertical wind shear.

Provided by NASA's Goddard Space Flight Center