

GOES-13 sees a weaker Hurricane Julia in the 'tropical trio'

September 16 2010



The GOES-13 satellite captured an amazing visible image of the 3 tropical cyclones at 7:45 a.m. EDT on Sept. 16. Karl is a tightly wound tropical storm (far left) over the Bay of Campeche. In the open waters of the central Atlantic, the massive and powerful Hurricane Igor (center) spins toward Bermuda. Igor's 550 mile cloud cover dwarfs Karl and Hurricane Julia (far right). Julia's eye is no longer visible. To Julia's east is a plume of dust blowing off the African coast (far right). Credit: NOAA/NASA GOES Project

GOES-13 satellite imagery this morning showed the "tropical trio": Tropical Storm Karl over the Gulf of Mexico, Hurricane Igor in the central Atlantic, and a waning Hurricane Julia in the eastern Atlantic Ocean. Hurricane Julia has now lost her Category 4 Hurricane status, and is currently a Category 2 hurricane in the eastern Atlantic and weakening. Wind shear, cooler sea surface temperatures and warmer cloud top temperatures all spell a weaker Julia.

The [Geostationary Operational Environmental Satellite](#) known as GOES-13 that monitors weather over the U.S. East Coast and the Atlantic Ocean basin captured an amazing visible image of the three [tropical cyclones](#) at 1145 UTC (7:45 a.m. EDT).

GOES satellites are operated by NOAA. The NASA GOES Project at NASA's Goddard Space Flight Center in Greenbelt, Md. uses the data from GOES satellites and creates images and animations.

In this morning's GOES-13 image, Karl is a tightly wound tropical storm that appears to be strengthening today over the Bay of Campeche. Farther to the east and in the open waters of the central Atlantic, the massive and powerful Hurricane Igor spins toward Bermuda. Igor is twice as large as Hurricane Julia today as is evident in the GOES-13 image.

Igor's 550 mile cloud cover dwarfs Karl (in the Gulf of Mexico) and Hurricane Julia (which is about 280 miles in diameter) located in the eastern Atlantic Ocean. In the GOES-13 visible image, Julia's eye is no longer visible indicating that the storm has weakened considerably over the last day.

At 5 a.m. EDT today, Sept. 16, Hurricane Julia's maximum sustained winds were near 105 mph. She is centered about 875 miles west-northwest of the Cape Verde Islands, near 21.2 North and 36.2 West. She's moving northwest near 18 mph and her minimum central pressure is 970 millibars.

What is Weakening Hurricane Julia?

Wind shear and cooler [sea surface temperatures](#) are responsible for Julia's weakening overnight. Wind shear, created by the mid-to-upper level trough (elongated area of low pressure) between Julia and Igor has

generated a 20 to 30 knot wind shear over Julia. Those winds, blowing from the southwest are acting to push the main convection (rapidly rising air that creates the thunderstorms that power a tropical cyclone) to the north of Julia's center causing her to weaken.

Whenever the main convection is pushed away from the center of a tropical cyclone, it weakens. Imagine the center of a storm looking like a haystack, and [wind shear](#) or strong winds blow the top of the haystack away. That's what's happening with Julia.

Infrared imagery from the Atmospheric Infrared Sounder (AIRS) instrument that flies on NASA's Aqua satellite revealed that Julia's cloud top temperatures are warming today. Yesterday, those cloud top temperatures were colder than -65 degrees Fahrenheit. Today, they are less cold indicating that they're not as high, i.e., the thunderstorms are not as strong. The rule for thunderstorms is that the higher they are, the more powerful they are. When the cloud top heights fall, so does the storm's punch.

In addition, the sea surface temperatures where Julia is now located are between 78 and 80 degrees Fahrenheit (26-27 Celsius). A tropical cyclone needs sea surface temperatures of at least 80F to maintain intensity. As Julia continues to track to the north, the sea surface temperatures will continue to cool, taking away her fuel. That's why the National [Hurricane](#) Center has forecast additional weakening of Julia over the next 48 hours.

Provided by NASA's Goddard Space Flight Center

Citation: GOES-13 sees a weaker Hurricane Julia in the 'tropical trio' (2010, September 16) retrieved 25 April 2024 from

<https://phys.org/news/2010-09-goes-weaker-hurricane-julia-tropical.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.