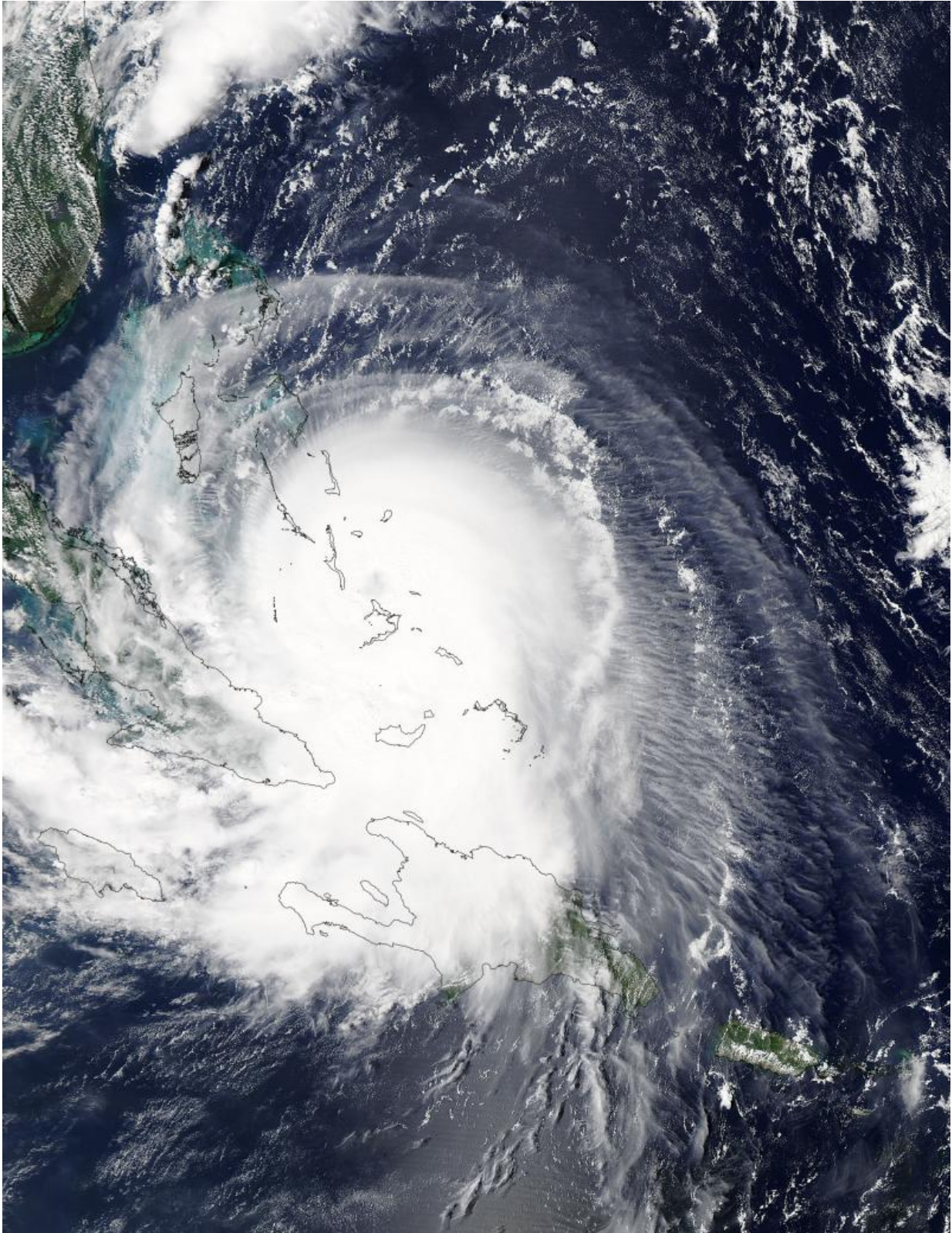


Hurricane Joaquin may be experiencing eyewall replacement in NASA imagery

October 2 2015



NASA's Aqua satellite captured this visible image of Hurricane Joaquin over

Bahamas on Oct. 1 at 17:55 UTC (1:55 p.m. EDT). Credit: NASA Goddard MODIS Rapid Response Team

The National Hurricane Center indicated on October 2 that powerful Hurricane Joaquin may be experiencing eyewall replacement. The eye was visible on NASA Aqua satellite imagery October 1, but obscured twelve hours later. In addition, NASA's RapidScat instrument helped determine what part of the storm had the strongest winds.

An Inside Look at Joaquin's Strongest Winds

On September 30 at about 7:40 p.m. EDT, the International Space Station passed over Hurricane Joaquin in the Bahamas. The RapidScat instrument which flies aboard ISS measures sustained winds over open ocean and saw the hurricane's strongest sustained winds in the north and northwestern quadrants, stronger than 36 meters per second (80 mph/129.6 kph).

Visible Imagery

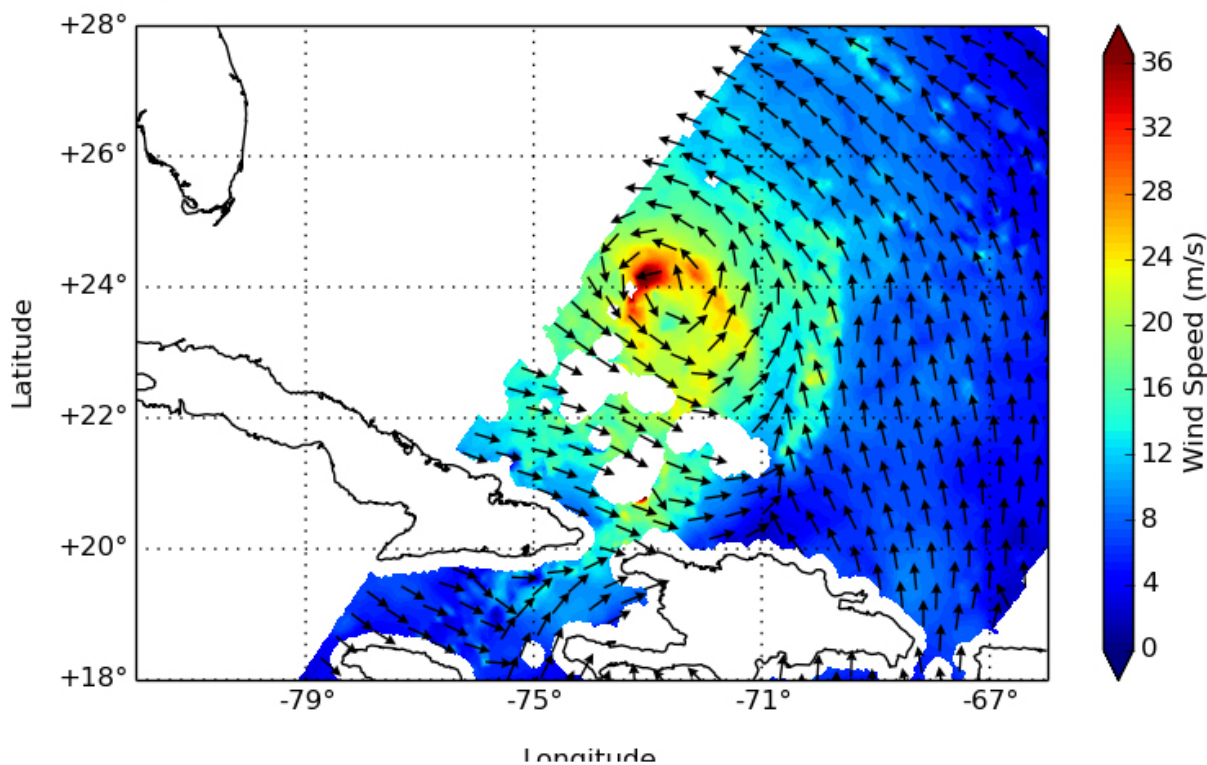
The Moderate Resolution Imaging Spectroradiometer or MODIS instrument that flies aboard NASA's Aqua satellite captured a visible image of Hurricane Joaquin over Bahamas on Oct. 1 at 17:55 UTC (1:55 p.m. EDT). In the image, the eye was still visible. However, twelve hours later, visible imagery from NOAA's GOES-East satellite showed an eye obscured by clouds which forecasters at NOAA said could indicate that the eyewall of the storm was undergoing a replacement.

Eyewall Replacement

In powerful hurricanes, a new eye begins to develop around the old eye. The new eye gradually decreases in diameter and replaces the old eye. When that happens, the intensity of the hurricane usually decreases. Despite the fact that eyewall replacement can mean a weakening in a [powerful hurricane](#), it can also spread the hurricane [force winds](#) out over a larger area.

National Hurricane Center (NHC) Forecaster Brennan noted in the 5 a.m. EDT NHC discussion on October 2, "The [eye](#) of Joaquin has not been apparent in recent infrared imagery. The last pass of the Hurricane Hunter aircraft through the center around 04Z [midnight] showed indications of a double wind maximum at flight level, which could indicate that an eyewall replacement cycle is underway. The last report from the aircraft indicated that the central pressure still around 935 millibars. The initial intensity remains 115 knots pending the arrival of the next aircraft before 12Z [8 a.m. EDT]. Some fluctuations in intensity are possible during the next 12 to 24 hours due to eyewall replacement."

RapidScat subset from 2015-09-30 23:08:00Z to 2015-10-01 00:41:00Z



On Sept. 30 at 7:40 p.m. EDT, RapidScat saw strongest sustained winds in Joaquin's north and northwestern quadrants, stronger than 36 meters per second (80 mph/129.6 kph). Credit: NASA/JPL, Doug Tyler

Warnings and Watches

On October 2, a Hurricane Warning was in effect for the central Bahamas, northwestern Bahamas including the Abacos, Berry Islands, Eleuthera, Grand Bahama Island, and New Providence, and The Acklins, Crooked Island, and Mayaguana in the southeastern Bahamas. A Hurricane Watch was in effect for Bimini and Andros Island.

In addition, a Tropical Storm Warning was in effect for the remainder of the southeastern Bahamas including the Turks and Caicos Islands, Andros Island, Cuban provinces of Camaguey, Los Tunas, Holguin, and

Guantanamo.

Latest Update on Joaquin from the National Hurricane Center

At 8 a.m. EDT (1200 UTC), the center of Hurricane Joaquin was located near latitude 23.4 North, longitude 74.8 West. Joaquin was drifting toward the northwest near 3 mph (6 kph). The NHC expects a faster northward motion to begin later today (Oct. 2), followed by a turn toward the northeast and an increase in forward speed tonight and Saturday. On the forecast track, the core of the strongest winds of Joaquin will continue moving over portions of the central and northwestern Bahamas today. Joaquin will begin to move away from the Bahamas tonight and Saturday.

Maximum sustained winds are near 130 mph (215 kph) with higher gusts. Joaquin is a dangerous category 4 hurricane on the Saffir-Simpson Hurricane Wind Scale. Some fluctuations in intensity are possible during the next 24 hours. Slow weakening is expected to begin on Saturday.

Hurricane force winds extend outward up to 50 miles (85 km) from the center and tropical storm force winds extend outward up to 205 miles (335 km). The minimum central pressure just reported by an Air Force Reserve Hurricane Hunter aircraft is 937 millibars.

For the latest forecasts, visit the NHC website: <http://www.nhc.noaa.gov>.

The NHC noted that gradual weakening is forecast after October 3 as the cyclone encounters increasing southwesterly wind shear, but Joaquin is expected to remain a powerful [hurricane](#) for the next several days.

Provided by NASA's Goddard Space Flight Center

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