

# NASA's GPM looks at John's rainfall rates in eastern Pacific Ocean

August 7 2018, by Hal Pierce

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The Global Precipitation Measurement mission or GPM core observatory satellite had an extremely good view of strengthening Tropical Storm John on August 6, 2018 and measured its rainfall rates.

On Aug.6 at 3:08 a.m. EDT (0708 UTC) the satellite passed right over John's center of circulation. GPM's Microwave Imager (GMI) and Dual-Frequency Precipitation Radar (DPR) instruments provided excellent coverage of precipitation associated with tropical [storm](#) John. GPM showed that the large tropical cyclone was becoming well organized and had intense rainfall within feeder bands that were spiraling toward John's center. GPM's [radar](#) (DPR Ku Band) revealed that a band of powerful storms northeast of John's center were dropping rain at a rate of close to 160 mm (6.3 inches) per hour.

The GPM satellite's radar data (DPR Ku Band) were used to show the 3-D structure of rainfall in tropical storm John. The Dual-Frequency Precipitation Radar (DPR) is one of the main instruments on the GPM Core Observatory satellite. The DPR Ku Band(13.6 GHz) radar is an updated version of the radar that flew on the TRMM satellite from 1997 to 2015.

GPM's radar showed that storm tops were tall in a feeder band on JOHN's eastern side but the tallest tower was measured in storms just north of JOHN's center of circulation. GPM's DPR found that the tall storms north of JOHN's center were reaching heights above 13.7 km (8.5 miles). GPM is a joint mission between NASA and the Japan Aerospace

Exploration Agency, JAXA.

On Aug. 6, the National Hurricane Center (NHC) said, "The GPM pass helped set the initial motion at 300/7 kt, somewhat to the left of the previous estimate." Tropical storm John is in a favorable environment for intensification into a hurricane. The water is warm and wind shear is low."

On August 7, Hurricane John continues to strengthen while moving near weakening Tropical Storm Ileana along the west coast of Mexico. Infrared data from NASA's Aqua satellite provided forecasters with temperature data that showed the cloud top temperatures in John had cooled as the storm intensified into a hurricane. At 5 a.m. EDT (0900 UTC), the National Hurricane Center (NHC) said the eye of Hurricane John was located near latitude 17.3 North and longitude 109.1 West. John is moving toward the northwest near 9 mph (15 km/h), and a faster northwestward motion is forecast for the next few days. On the forecast track, John should pass to the southwest of Baja California Sur late Wednesday into Thursday.

Maximum sustained winds are near 90 mph (150 kph) with higher gusts. Some strengthening is forecast during the next 48 hours, and John is forecast to become a major [hurricane](#) tonight or early Wednesday, Aug. 8.

NHC noted that swells generated by John are expected to begin affecting the coasts of southwestern Mexico and the southern portion of the Baja California peninsula during the next day or so.

Provided by NASA's Goddard Space Flight Center

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