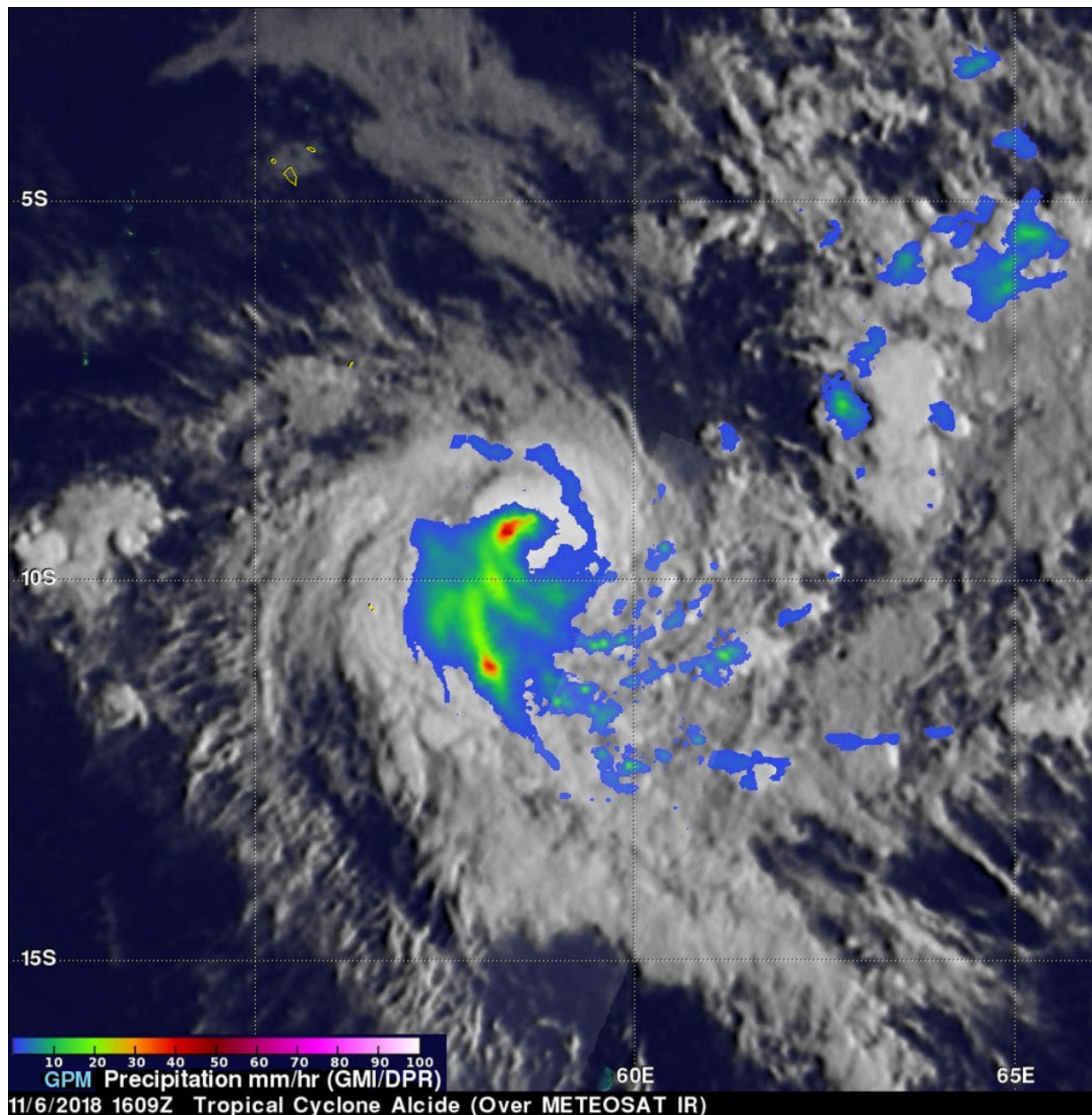


Tropical Cyclone Alcide's rainfall observed by GPM Satellite

November 8 2018



On Nov. 6, 2018, the GPM core satellite showed strong convective storms northwest of Alcide's center of circulation were dropping rain at a rate of more than 44 mm (1.73 inches) per hour. Credit: NASA/JAXA, Hal Pierce

The Global Precipitation Measurement mission or GPM core satellite passed over the Southern Indian Ocean and analyzed the rainfall occurring in pre-season Tropical Cyclone Alcide.

Tropical [cyclone](#) Alcide (03S), the first tropical cyclone of the 2018-2019 South-West Indian Ocean tropical cyclone season, has formed in the South Indian Ocean northeast of Madagascar. The Joint Typhoon Warning Center (JTWC) issued its first warning for 03S on Nov. 6, 2018 at 0000 UTC (Nov. 5 at 7 p.m. EST) when the tropical cyclone was located about 1,313 km (709 nautical miles) west of Diego Garcia. This is a little early for a tropical cyclone to develop in that part of the world. The South-West Indian Ocean tropical cyclone season doesn't officially begin until November 15, 2018.

The GPM core observatory satellite had a good view of tropical cyclone Alcide on November 6, 2018 at 11:09 a.m. EST (1609 UTC). At that time Alcide had maximum sustained winds of about 35 knots (40.3 mph). GPM's Microwave Imager (GMI) and GPM's Dual-Frequency Precipitation Radar (DPR) instruments collected data that showed the location and intensity of [precipitation](#) within Alcide. GPM's GMI indicated that strong convective storms northwest of Alcide's center of circulation were dropping rain at a rate of more than 44 mm (1.73 inches) per hour. GPM's radar (DPR Ku Band) probed Alcide in a swath through the eastern side of the tropical cyclone. Those data revealed the locations of precipitation within feeder bands spiraling into the southeastern side of the intensifying tropical cyclone.

At NASA's Goddard Space Flight Center in Greenbelt, Maryland, a 3-D animation was created from the data that showed a simulated flyby above Tropical Cyclone Alcide. Measurements of the relative heights of precipitation within tropical cyclone Alcide were made possible using GPM's radar data (DPR Ku Band). DPR's Ku Band radar enables three dimensional measurements of precipitation within a 152 mile (245 km) wide swath. The heights of precipitation over a larger area were estimated by blending measurements from GPM's radar (DPR Ku band) with heights based on the Meteosat satellite's infrared temperatures. GPM is a joint mission between NASA and the Japan Aerospace Exploration Agency, JAXA.

On Nov. 8 at 10 a.m. EST (1500 UTC), Alcide had achieved peak wind speed when maximum sustained winds were near 95 knots (110 mph/178 kph). A weakening trend is now expected, according to the JTWC. Alcide was centered near 12.1 degrees south latitude and 53.6 degrees east longitude, about 528 nautical miles north-northwest of Port Louis, Mauritius. Alcide was moving to the southwest.

Satellite data on Nov. 8 showed that the eye had become ragged and cloud-filled.

The JTWC forecast calls for Alcide to loop. Alcide is expected to remain well northeast of Madagascar. Alcide is then expected to move into an area of increasing vertical wind shear and lower sea surface temperatures causing the tropical cyclone to gradually weaken.

Provided by NASA's Goddard Space Flight Center

Citation: Tropical Cyclone Alcide's rainfall observed by GPM Satellite (2018, November 8) retrieved 25 April 2024 from

<https://phys.org/news/2018-11-tropical-cyclone-alcide-rainfall-gpm.html>

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