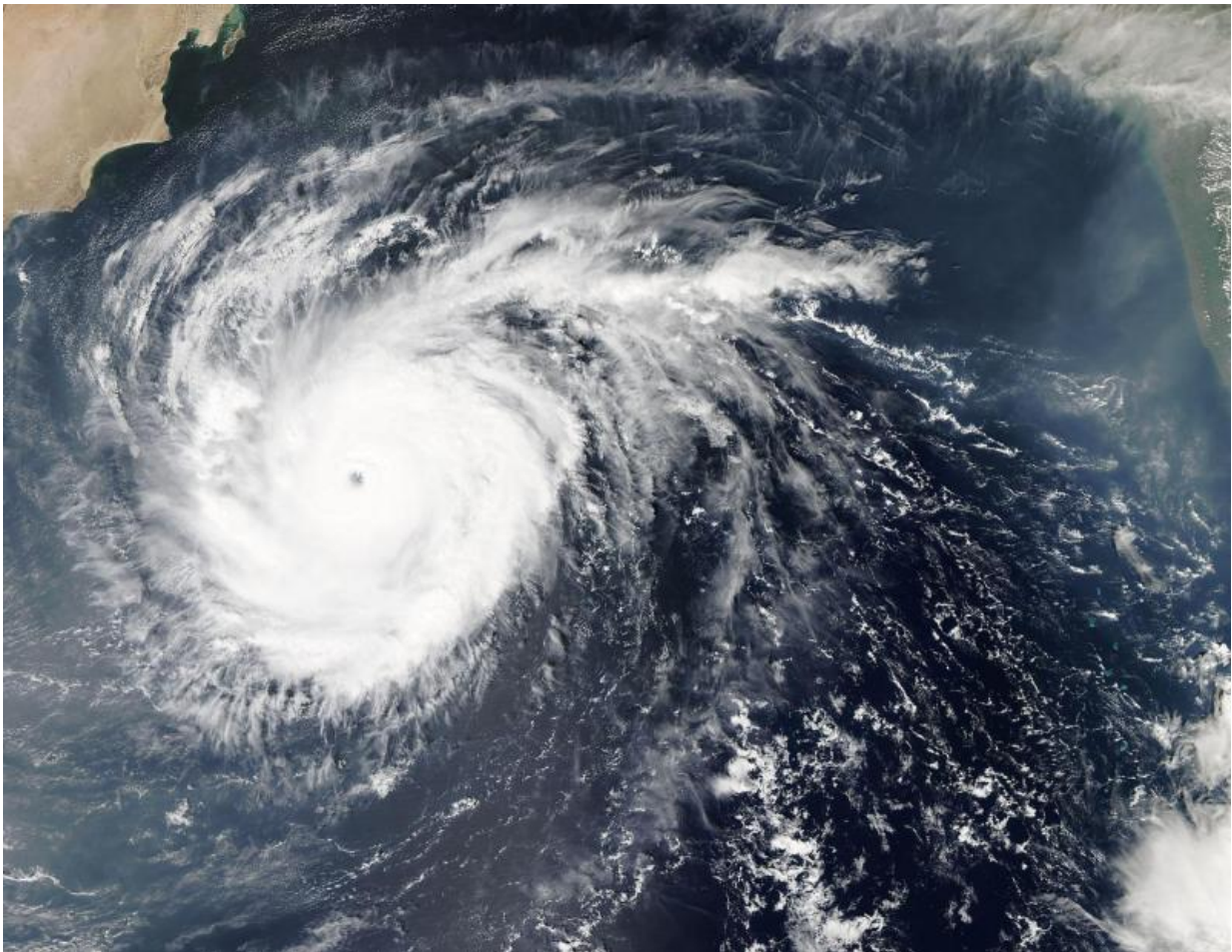


NASA analyzes powerful Cyclone Chapala's rainfall over the Arabian Sea

October 30 2015



The MODIS instrument aboard NASA's Aqua satellite got a good look at the eye of Tropical Cyclone Chapala in the Arabian Sea on Oct. 30 at 09:10 UTC (5:10 a.m. EDT). Credit: NASA Goddard MODIS Rapid Response Team

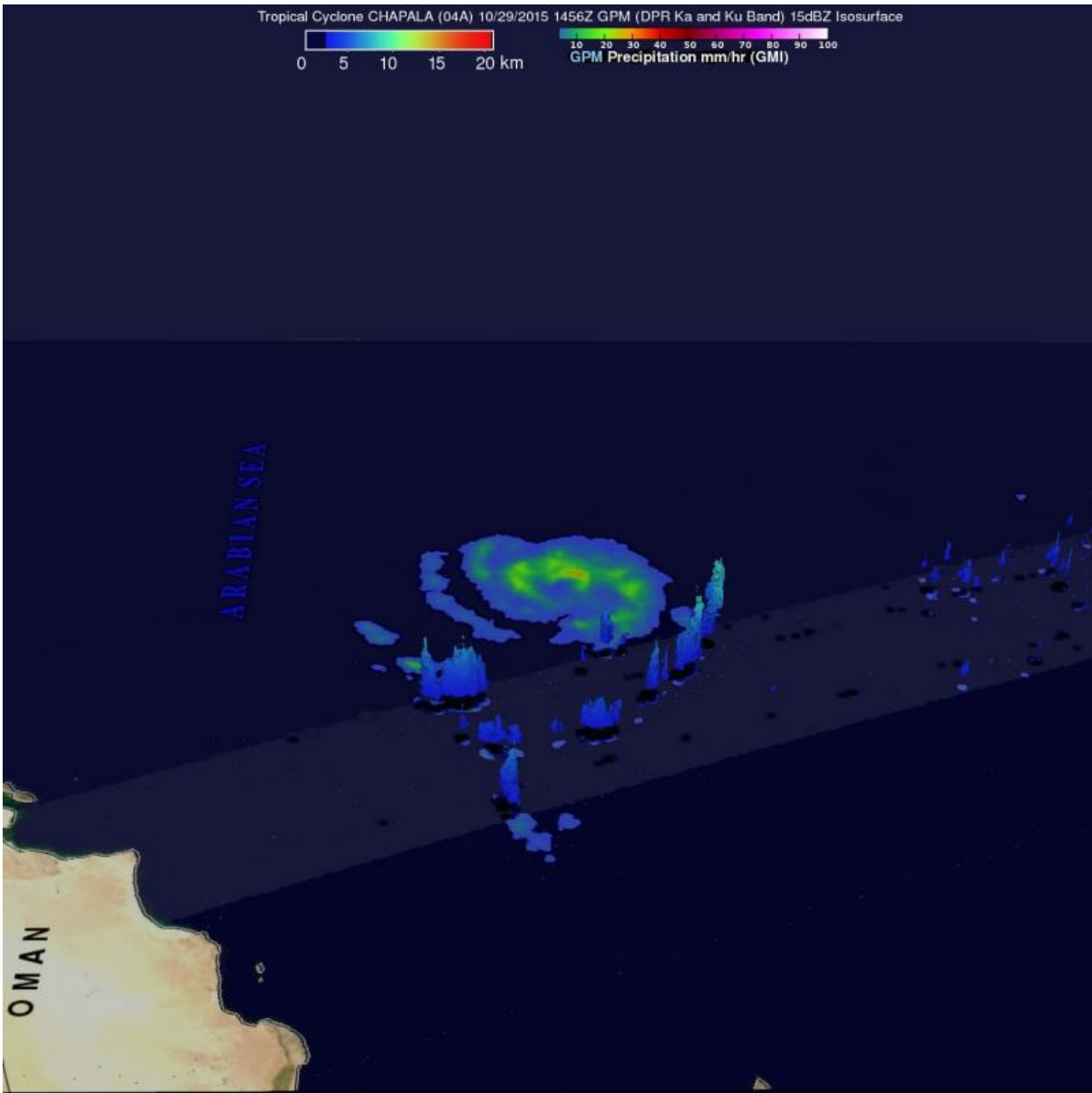
NASA satellites have been providing data on powerful Tropical Cyclone Chapala as it continued strengthening in the Arabian Sea. The Global Precipitation Measurement Mission or GPM core satellite provided a look at strengthening Tropical Cyclone Chapala in the Arabian Sea. Additionally, NASA's Aqua satellite got a good look at the storm's small eye.

Tropical Cyclone Chapala developed in the very warm waters of the Arabian Sea west of India on October 28, 2015. Tropical Cyclone Chapala is a Category 4 Hurricane on the Saffir-Simpson Scale and is forecast to become a Category 5 later on October 30, 2015.

The GPM core observatory satellite had good views of the tropical cyclone on October 29, 2015 at 0332 (11:32 p.m. EDT on Oct. 28) and 1456 UTC (10:56 a.m. EDT). GPM's rainfall data from the first pass showed that Chapala was close to hurricane intensity as the GMI instrument clearly showed the location of a developing eye. By the second pass Chapala's maximum sustained winds were estimated at 65 knots (75 mph) making it a category one on the Saffir-Simpson hurricane wind scale.

Rainfall rates were derived from data collected by GPM's Microwave Imager (GMI) and Dual-Frequency Precipitation Radar (DPR) instruments.

GPM's GMI instrument found precipitation around the small tropical cyclone to be only light to moderate. Rain near the center was measured falling at a rate of slightly more than 28 mm (1.1 inches) per hour with the first pass and 31.9 mm (1.3 inches) per hour in the second examination. GPM is a joint mission between NASA and the Japan Aerospace Exploration Agency.

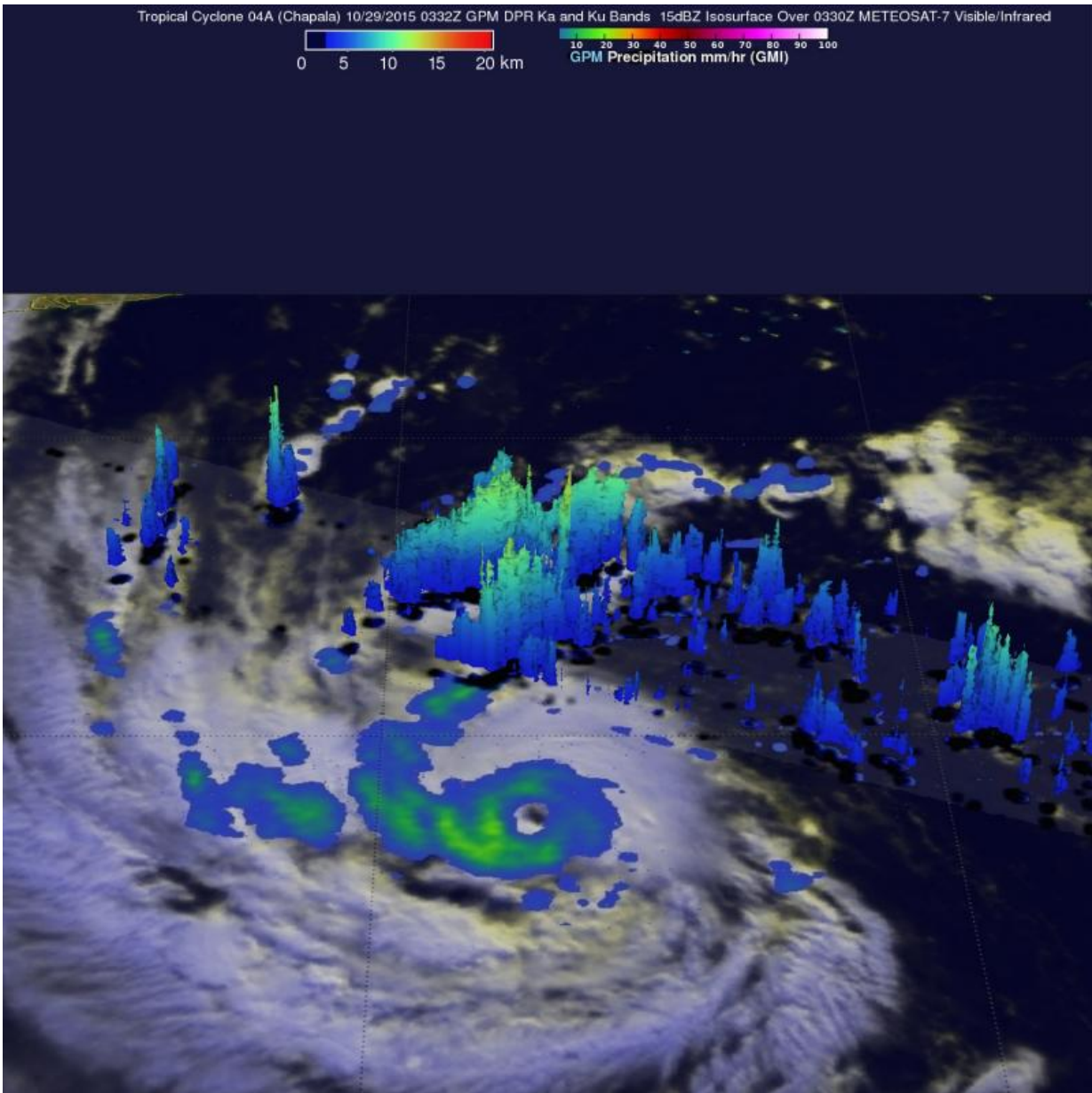


This GPM 3-D image of rainfall and cloud heights of Chapala on Oct. 29 at 10:56 a.m. EDT found rainfall at 31.9 mm (1.3 inches) per hour. Cloud tops reached up to 15 km (9.3 miles) in the feeder band but most storm top heights were much lower. Credit: NASA/JAXA/SSAI, Hal Pierce

At NASA's Goddard Space Flight Center GPM data was used to create a

3-D look at the storm. The 3-D vertical structure of feeder bands and other scattered storms around Chapala's center was created using data from GPM's Ka and Ku bands radar (DPR) reflectivity data. The first pass GPM radar measured rain in the storms in the feeder band on Chapala's eastern side dropping rain at a rate of over almost 64 mm (2.5 inches) per hour. Storm top heights were measured by GPM's radar reaching altitudes up to 15 km (9.3 miles) in the feeder band but most storm top heights were much lower.

The Moderate Resolution Imaging Spectroradiometer or MODIS instrument aboard NASA's Aqua satellite got a good look at the eye of Tropical Cyclone Chapala in the Arabian Sea on Oct. 30 at 09:10 UTC (5:10 a.m. EDT). The MODIS image showed the eye was about 12 nautical miles (13.8 miles/22.2 km) wide. The image was created by the MODIS Rapid Response Team at NASA Goddard. The storm was small, about 120 nautical miles (138.2 miles/222.4 km) in with a spiral band of thunderstorms over the eastern semi-circle.



This GPM 3-D image of rainfall and cloud heights of Chapala at (11:32 p.m. EDT on Oct. 29 found rain near the center near 28 mm (1.1 inches) per hour and up to 64 mm (2.5 inches) per hour east of center. Credit: NASA/JAXA/SSAI, Hal Pierce

On October 30 at 1500 UTC (11 a.m. EDT), Tropical Cyclone Chapala

had maximum sustained winds near 130 knots (149.6 mph/240.8 kph) and is expected to strengthen to 140 knots (161.1 mph/ 259.3 kph) later in the day. It was centered near 14.0 degrees north latitude and 60.2 degrees east longitude, about 396 nautical miles (456 miles/733.9 km) south-southeast of Masirah Island. Chapala was moving to the west-southwest at 6 knots (6.9 mph/11.1 kph).

By October 31, the tropical cyclone is predicted to weaken slightly but may still have hurricane force winds before making landfall in northeast Yemen on November 2, 2015.

Provided by NASA's Goddard Space Flight Center

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