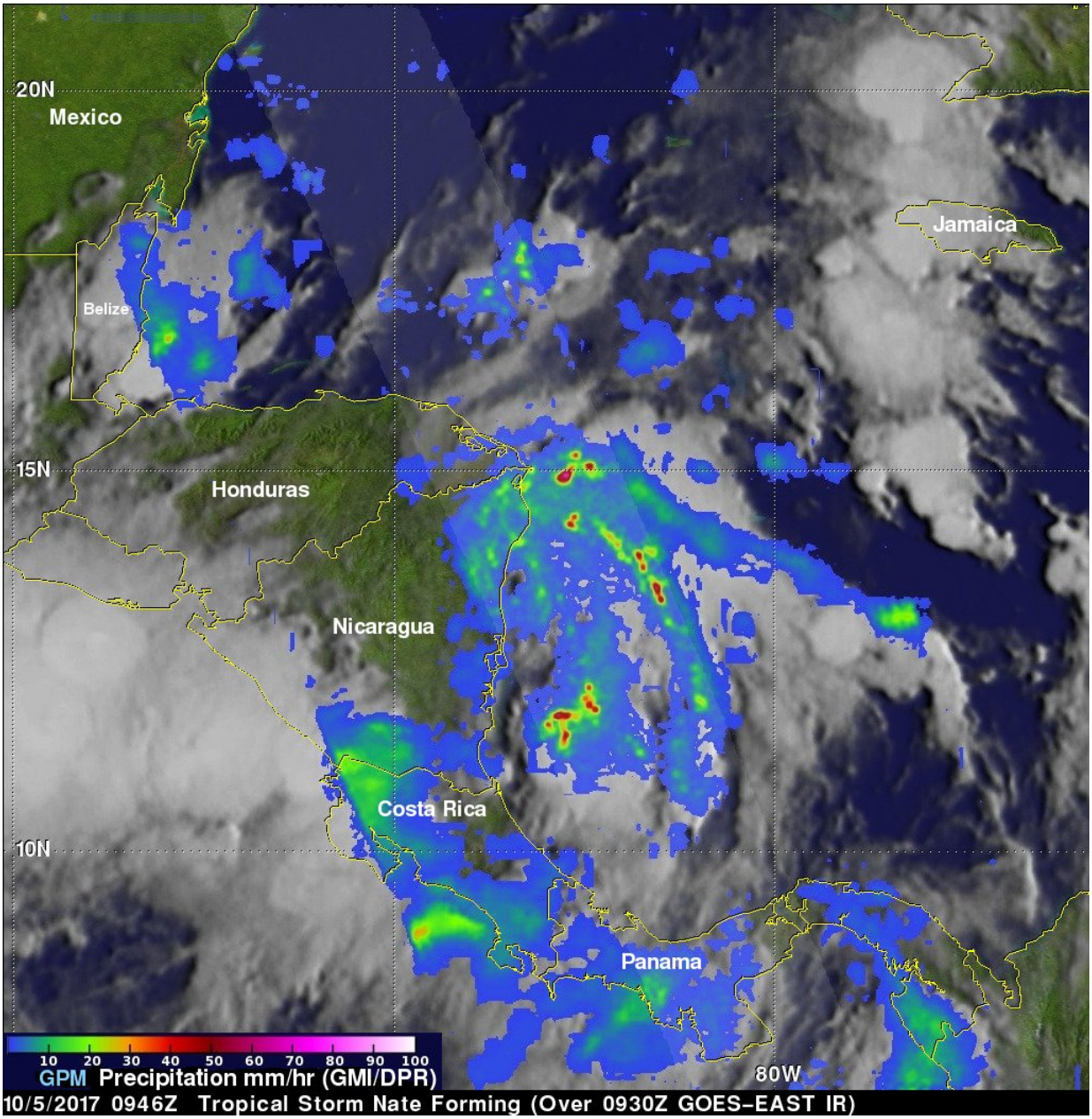
NASA finds heavy rainfall in developing Tropical Storm Nate

October 5 2017



On Oct. 5, the GPM core satellite showed storm tops within powerful convective storms located in rain bands in the northeastern semicircle of TD16 were reaching heights of 9.3 mile (15 km). Credit: NASA/JAXA, Hal Pierce

After tropical depression 16 formed in the southwestern Caribbean Sea it continued organizing and strengthening. The Global Precipitation Measurement mission or GPM core satellite flew over the depression and found heavy rainfall. As the depression strengthened into Tropical Storm Nate, that heavy rainfall is expected to occur over a wide area, including locations well away from the center along the Pacific coast of Central America through Friday night, Oct. 6.

The National Hurricane Center forecast on Oct. 5 calls for Nicaragua to receive from 15 to 20 inches, isolated 30 inches; Costa Rica and Panama is forecast to receive 5 to 10 inches, isolated 20 inches; Honduras and Eastern portions of the Yucatan Peninsula from 4 to 8 inches, isolated 12 inches; and Belize between 2 to 5 inches, with isolated totals of 8 inches.

The GPM core observatory satellite passed above Tropical Depression 16 (forming tropical storm Nate) on Oct. 5, 2017 at 5:46 a.m. EDT (0946 UTC). At that time, Tropical Depression 16 (TD16) was located in the western Caribbean near the coast of Nicaragua with winds of about 34.5 mph (30 knots). Data received by GPM's Microwave Imager (GMI) and Dual-Frequency Precipitation Radar (DPR) showed bands of rain producing heavy rainfall East of TD16's center of circulation. Downpours in the Caribbean Sea East of Nicaragua were measured by GPM's Radar (DPR Ku Band) dropping rain at a rate of over 6.4 inches (162 mm) per hour.

At NASA's Goddard Space Flight Center in Greenbelt, Maryland a close-

up 3-D cross section view (looking toward the southeast) was created that showed rainfall structure near TD16's center. It was created using data that was captured when the GPM satellite's radar (DPR Ku band) scanned precipitation in the center of the tropical cyclone. Storm tops within powerful convective storms located in rain bands in the northeastern semicircle of TD16 were shown by DPR reaching heights of 9.3 mile (15 km). GPM is co-managed by NASA and the Japan Aerospace Exploration Agency.

At 11 a.m. EDT on Oct. 5, the Government of Mexico issued a Tropical Storm Warning for the coast of the Yucatan Peninsula and the adjacent islands from Punta Herrero to Rio Lagartos. A Tropical Storm Warning is in effect for Sandy Bay Sirpi Nicaragua to Punta Castilla Honduras and from Punta Herrero to Rio Lagartos Mexico. A Hurricane Watch is in effect for Punta Herrero to Rio Lagartos Mexico.

At 11 a.m. EDT (1500 UTC), the center of Tropical Storm Nate was located inland over northeastern Nicaragua near 14.3 degrees north latitude and 83.7 degrees west longitude. That's about 30 miles (45 km) northwest of Puerto Cabezas, Nicaragua and about 65 miles (105 km south of Puerto Lempira, Honduras.

Nate was moving toward the northwest near 9 mph (15 kph). NHC said a turn toward the north-northwest at a faster forward speed is expected later today, with that motion continuing through Friday night. On the forecast track, the center of Nate should move across northeastern Nicaragua and eastern Honduras today and then over the northwestern Caribbean Sea tonight and Friday. The center is expected to approach the coast of the Yucatan Peninsula late Friday.

Maximum sustained winds are near 40 mph (65 kph) with higher gusts. Little change in strength is expected today while the center is over land. Strengthening is likely once the center moves over the northwestern

Caribbean Sea tonight and Friday, Oct. 6.

The estimated minimum central pressure is 999 millibars. The National Hurricane Center (NHC) indicates that the tropical cyclone's future intensity is uncertain over the next couple days due to interaction with the coasts of Nicaragua, Honduras and then the Yucatan Peninsula.

The tropical cyclone is forecast to strengthen as it moves over the Gulf of Mexico and could threaten the northern Gulf Coast as a category one hurricane this weekend. A recent NHC forecast track indicated that the possible hurricane would most affect coastal areas from Louisiana through the Florida panhandle.

Provided by NASA's Goddard Space Flight Center