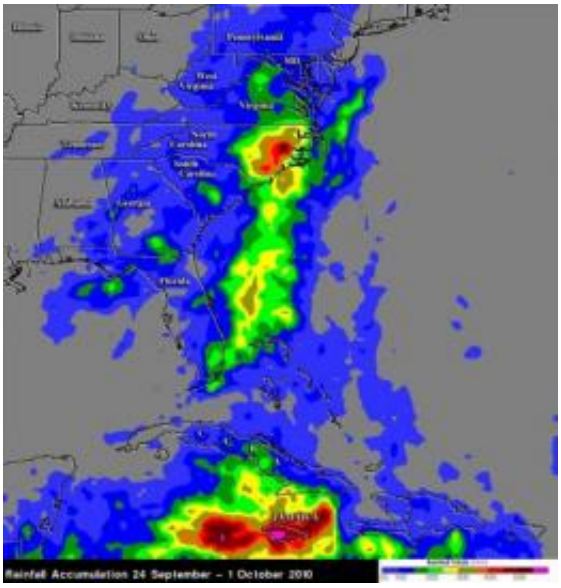
TRMM satellite sees tropical moisture bring heavy rain, flooding to US East Coast

October 4 2010



The Tropical Rainfall Measuring Mission (TRMM) Satellite measured rainfall totals from last week's storm over Jamaica where upwards of 550 mm of rain fell (~22 inches, shown in pink). In the US, highest rainfall occurred over coastal North Carolina where up to 500 mm of rain (~20 inches, shown in dark brown) fell. Almost all of eastern N.C. received at least 200 to 250 mm of rain (~8 to 10 inches, shown in bright green and yellow). From northern Fla. to central Penn. at least 100 mm (~4 inches, shown in darker blue) of rain fell with several areas in excess of 150 to 200 mm (~6 to 8 inches, shown in dark and bright green, respectively). Locally, upwards of 9 inches of rain were reported around the Chesapeake Bay in Md. and just over 20 inches in parts of N.C. Credit: NASA/SSAI, Hal Pierce

A deep, stationary trough of low pressure parked over the Ohio and Tennessee valleys west of the Appalachians drew a steady stream of tropical moisture, including the remnants of Tropical Storm Nicole, up the East Coast. The results were heavy rain and flooding from Florida to the coastal Carolinas up into the Chesapeake Bay region and NASA's TRMM satellite captured rainfall from the event.

Rain first broke out across the U.S. Southeast as a slow moving front approached from the northwest. The front then became stationary along the eastern seaboard, providing a focus for ongoing showers and thunderstorms. In the meantime, an area of low pressure in the northwestern Caribbean began to organize and eventually formed into Tropical Storm Nicole. After passing over Cuba, Nicole weakened and lost its identity off the east coast of Florida, but the moisture from the storm was absorbed into the frontal system, which was already producing heavy rain along the East Coast.

The Tropical Rainfall Measuring Mission (or TRMM) satellite was launched back in November of 1997 with the primary mission of measuring rainfall from space using a combination of passive microwave and active radar sensors. TRMM can also be used to calibrate rainfall estimates from other satellites for expanded coverage.

The TRMM-based, near-real time Multi-satellite Precipitation Analysis (TMPA) at the NASA Goddard Space Flight Center provides estimates of rainfall over the global Tropics. TMPA rainfall totals are shown here for the East Coast of the United States down to the northwest Caribbean for the period from September 24 to October 1, 2010.

The highest rainfall totals for the period are over Jamaica where upwards of 550 mm of rain fell (~22 inches) as a result of Nicole's interaction with the island's terrain. The highest totals along the East Coast occurred over coastal North Carolina where up to 500 mm of rain (~20 inches)

fell. Almost all of eastern North Carolina received at least 200 to 250 mm of rain (~8 to 10 inches).

Numerous areas from northern Florida all the way up into central Pennsylvania received at least 100 mm (~4 inches) of rain with several areas in excess of 150 to 200 mm of rain (~6 to 8 inches). Locally, upwards of 9 inches of rain were reported around the Chesapeake Bay in Maryland and just over 20 inches in parts of North Carolina.

Although the rain ended a dry spell for the region, 4 deaths are being blamed on the storm in North Carolina. In Jamaica, 12 people are reported to have died as a result of Tropical Storm Nicole.

More information: www.nasa.gov/hurricane

Provided by NASA's Goddard Space Flight Center

Citation: TRMM satellite sees tropical moisture bring heavy rain, flooding to US East Coast (2010, October 4) retrieved 27 April 2024 from https://phys.org/news/2010-10-trmm-satellite-tropical-moisture-heavy.html