

NASA adds up heavy rainfall from Hurricane Norbert

September 6 2014



This image shows estimated rainfall for Tropical Storms Norbert and Dolly from Aug. 28 to Sept. 4 from NASA's TRMM satellite. More than 11.8 inches (300 mm) fell over the Eastern Pacific. Credit: NASA, SSAI/Hal Pierce



As Hurricane Norbert continued dropping heavy amounts of rainfall on Mexico's Baja California on September 5, NASA's TRMM satellite calculated the rain that had already fallen.

From its orbit in space, the Tropical Rainfall Measuring Mission or TRMM satellite has the capability of determining how much <u>rainfall</u> has occurred over given areas. Data from TRMM was compiled into a <u>rainfall map</u> that showed the rainfall generated from Tropical Storm Dolly and Hurricane Norbert from August 28 through September 4, 2014.

Tropical storm Dolly dissipated quickly after coming ashore on September 3 in eastern Mexico but dropped heavy rain in some areas near the Gulf coast. At the same time Norbert, then a <u>tropical storm</u> was approaching from the west and contributing to rainfall near Mexico's Pacific coast. TRMM-based, near-real time Multi-satellite Precipitation Analysis (MPA) data for the period from August 28 to September 4, 2014 were used to create an analysis.

The TRMM MPA showed that the heaviest rainfall totals were greater than 300 mm (~11.8 inches) and fell over the open waters of the Pacific Ocean and near Mexico's western and Gulf coasts. Rainfall was also enhanced near inland mountainous terrain when moisture from the tropical cyclones moved over Mexico.

Although Dolly has since dissipated and its moisture moved into the Rio Grande Valley of Texas, Norbert has become a <u>hurricane</u> paralleling the coast of Mexico's Baja California, dropping more heavy rainfall.





This visible image of Hurricane Norbert was taken from NOAA's GOES-West satellite at 7:45 a.m. PDT on Sept. 5. Credit: NASA/NOAA GOES Project

When NASA's Aqua satellite passed over Hurricane Norbert on September 4 at 4:17 p.m. EDT, the Atmospheric Infrared Sounder or AIRS instrument captured infrared data that showed cloud top and <u>sea</u> <u>surface temperatures</u>. Sea surface temperatures were warm enough to support Norbert, but cool off farther north, which will help weaken the hurricane. The AIRS image also showed that the coldest cloud top temperatures were colder than -63F/-52C shows the strongest storms and coldest cloud top temperatures in purple. Those strong storms surrounded the center of Norbert and stretched over the southern tip of Baja California in a band of thunderstorms.



A Hurricane Warning is in effect from Santa Fe to Cabo San Lazaro and a Tropical Storm Warning is in effect from San Evaristo to south of Santa Fe and north of Cabo San Lazaro to Punta Eugenia. A Tropical Storm Watch is in effect for north of San Evaristo to Loreto.

The warning area can expect hurricane-force winds and rainfall amounts between 3 to 6 inches over the southern part of the Baja California Peninsula with isolated amounts near 10 inches through Saturday, September 6, according to the National Hurricane Center (NHC). Norbert is also generating very rough seas and large swells affecting the coast of the southern Baja California Peninsula will spread northward along the west coast of the peninsula through the weekend. These swells will produce dangerous surf conditions and rip currents.

Hurricane Norbert's maximum sustained winds were near 90 mph (150 kph) at 8 a.m. EDT (1200 UTC) on Friday, September 5. The NHC expects Norbert to weaken slowly over the next two days.

Norbert's center was located near latitude 23.0 north and longitude 111.9 west, about 125 miles (205 km) west of Cabo San Luca, Mexico. Norbert was moving toward the north-northwest near 8 mph (13 kph) and the NHC expects a turn toward the northwest. On the forecast track the center of the hurricane will continue to move nearly parallel to and just offshore of the pacific coast of the southern Baja California Peninsula through September 6.

As Norbert continues to move in a northerly direction and parallel the Baja California coast, western Mexico, the Gulf of California and southern California will see large swells, rough surf and rip tides.

Provided by NASA's Goddard Space Flight Center



Citation: NASA adds up heavy rainfall from Hurricane Norbert (2014, September 6) retrieved 2 May 2024 from <u>https://phys.org/news/2014-09-nasa-heavy-rainfall-hurricane-norbert.html</u>

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