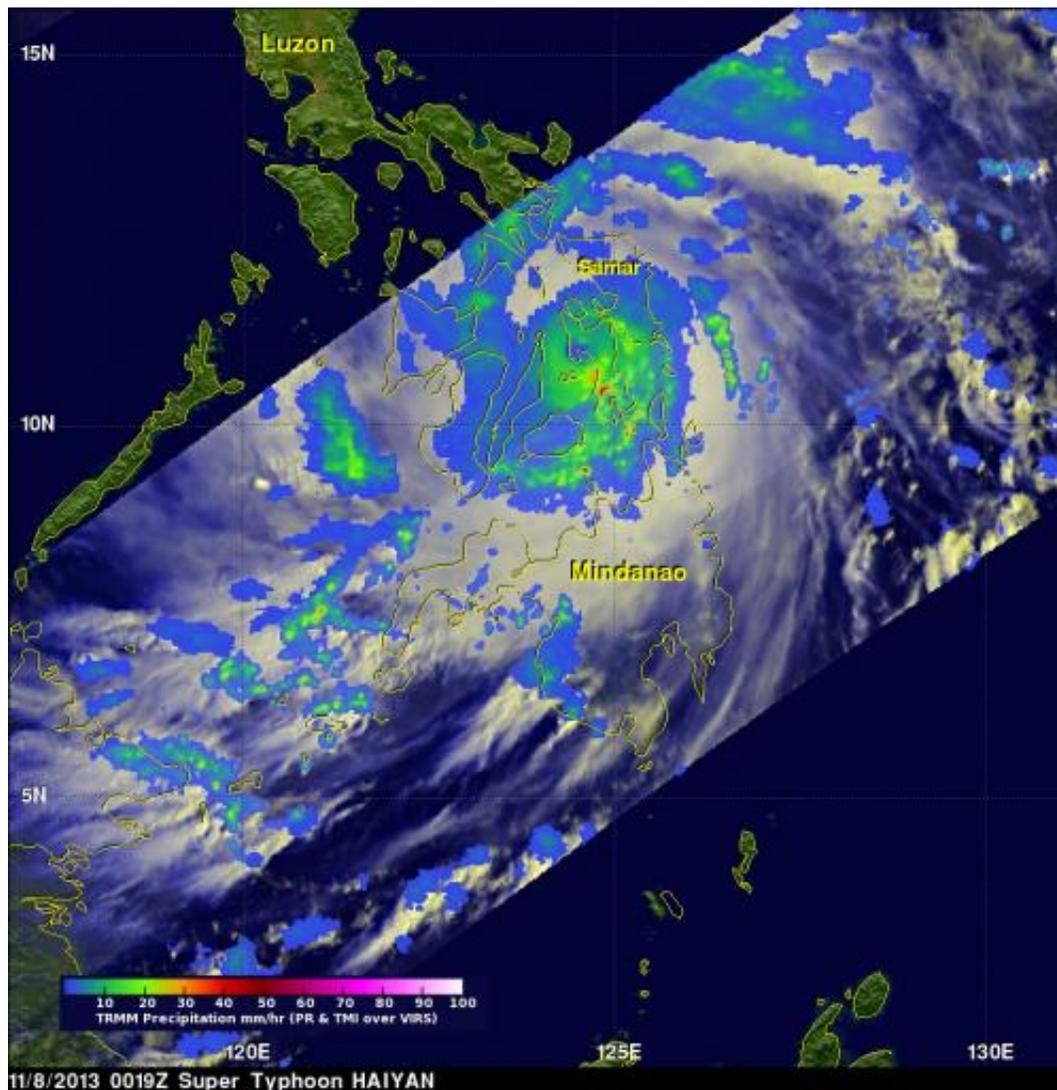


# NASA's TRMM satellite sees Super-typhoon Haiyan strike Philippines

November 8 2013



NASA's TRMM satellite data on Nov. 8 at 00:19 UTC showed Haiyan had a well-defined eye surrounded by a symmetric area of moderate rain (green ring with a blue center) with several rainbands wrapping in from the south (green arcs) while

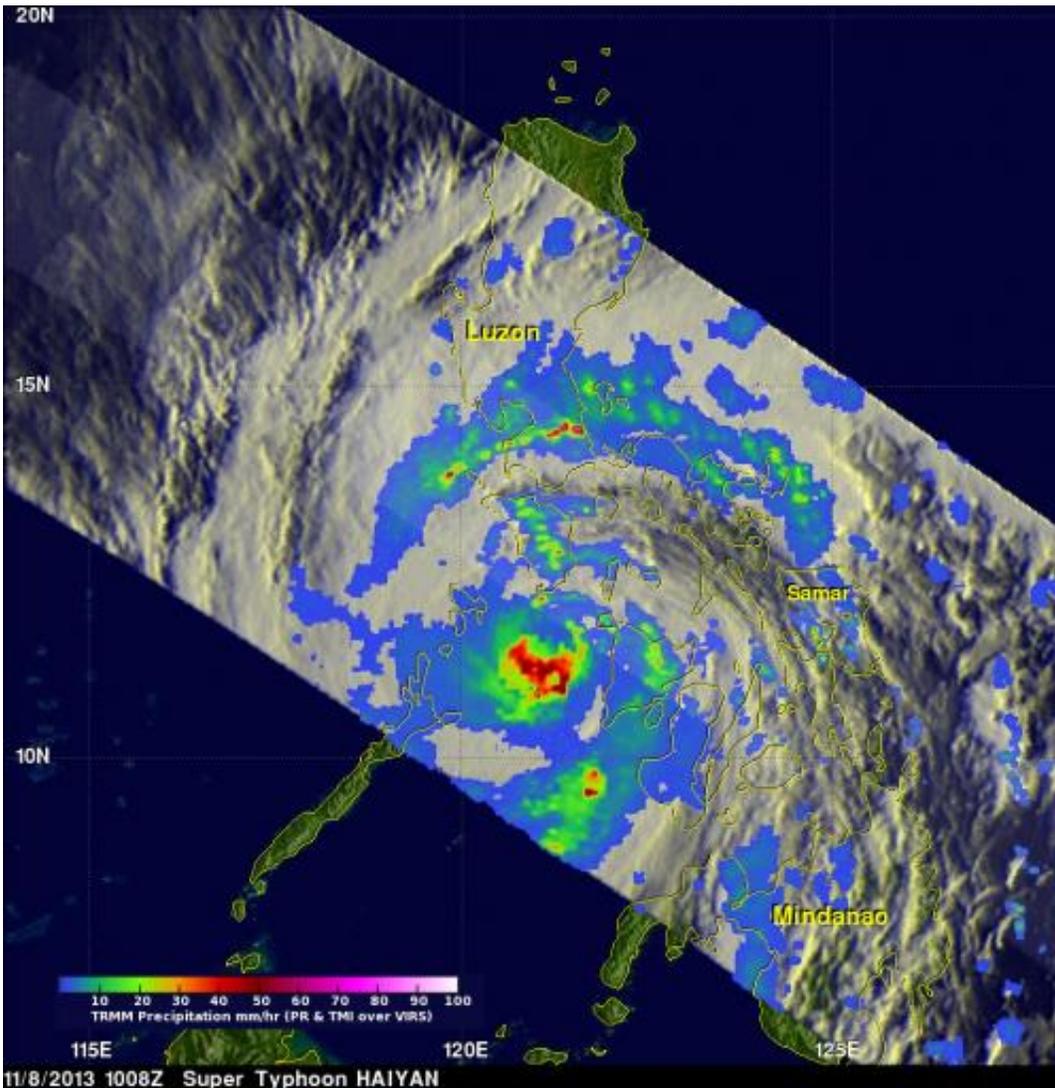
crossing the island of Leyte in the central Philippines. Credit: NASA/SSAI, Hal Pierce

Super-typhoon Haiyan, equivalent to a Category 5 hurricane on the U.S. Saffir-Simpson scale, struck the central Philippines municipality of Guiuan at the southern tip of the province of Eastern Samar early Friday morning at 20:45 UTC (4:45 am local time). NASA's TRMM satellite captured visible, microwave and infrared data on the storm.

Haiyan made landfall as an extremely powerful super typhoon, perhaps the strongest ever recorded at landfall, with sustained winds estimated at 195 mph (315 kph) by the Joint Typhoon Warning Center. Previously, Hurricane Camille, which struck the northern Gulf Coast in 1969, held the record with 190 mph sustained winds at landfall. After striking Samar, Haiyan quickly crossed Leyte Gulf and the island of Leyte as it cut through the central Philippines.

NASA's Tropical Rainfall Measuring Mission or TRMM satellite captured an image of Haiyan just as it was crossing the island of Leyte in the central Philippines. Data was taken at 00:19 UTC (8:19 a.m. local) November 8, 2013 and showed the horizontal distribution of rain intensity within the Haiyan. Rain rates in the center of the swath were generated from the TRMM Precipitation Radar (PR), and those in the outer swath were from the TRMM Microwave Imager (TMI). The data was put together at NASA's Goddard Space Flight Center in Greenbelt, Md. where rain rates were overlaid on infrared (IR) data from the TRMM Visible Infrared Scanner (VIRS). It showed that Haiyan still had a well-defined eye surrounded by a symmetric area of moderate rain with several rainbands wrapping in from the south. The symmetric rain area around the eye is a testament to the storm's intensity—the stronger the storm, the more the features are smeared uniformly around the

center. At the time of the image, Haiyan's sustained winds were estimated to have dropped slightly to 160 knots/~185 mph from crossing Leyte.



TRMM saw Haiyan's center was less organized after having passed over the larger Philippines island of Panay, although a large area of heavy rain (shown in red) is now located just south of the center. Haiyan was estimated to be 145 knots (~167 mph), still equivalent to a Category 5 hurricane. Credit: NASA/SSAI, Hal Pierce

TRMM passed over Haiyan about 10 hours later on Nov. 8 at 10:08 UTC/5:08 a.m. EDT/6:08 p.m. Philippines local time. Haiyan was passing south of Mindoro as it was beginning to exit the Philippines. The center was less organized after having passed over the larger Philippines island of Panay, although a large area of heavy rain (shown in red) is now located just south of the center. At the time of this image, Haiyan's intensity was estimated to be 145 knots/~167 mph, still equivalent to a Category 5 hurricane. TRMM is a joint mission between NASA and the Japanese space agency JAXA.

On Nov. 8 at 1500 UTC/11 a.m. EDT/12 a.m. Nov. 9 Philippines local time, Haiyan's maximum sustained winds had dropped to 135 knots/155.4 mph/250 kph. It slowed a bit, moving to the west at 20 knots/23.0 mph/37.0 kph. Although Haiyan was centered near 11.8 north and 120.6 east, about 170 miles south of Manila, its extent covered most of the Philippines.

So far, four fatalities have been reported as a result of the storm, but these are preliminary as communication to many areas was knocked out. Haiyan is expected to continue moving in a general westward direction over the next 1 to 2 days before likely striking central Vietnam.

Provided by NASA's Goddard Space Flight Center

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