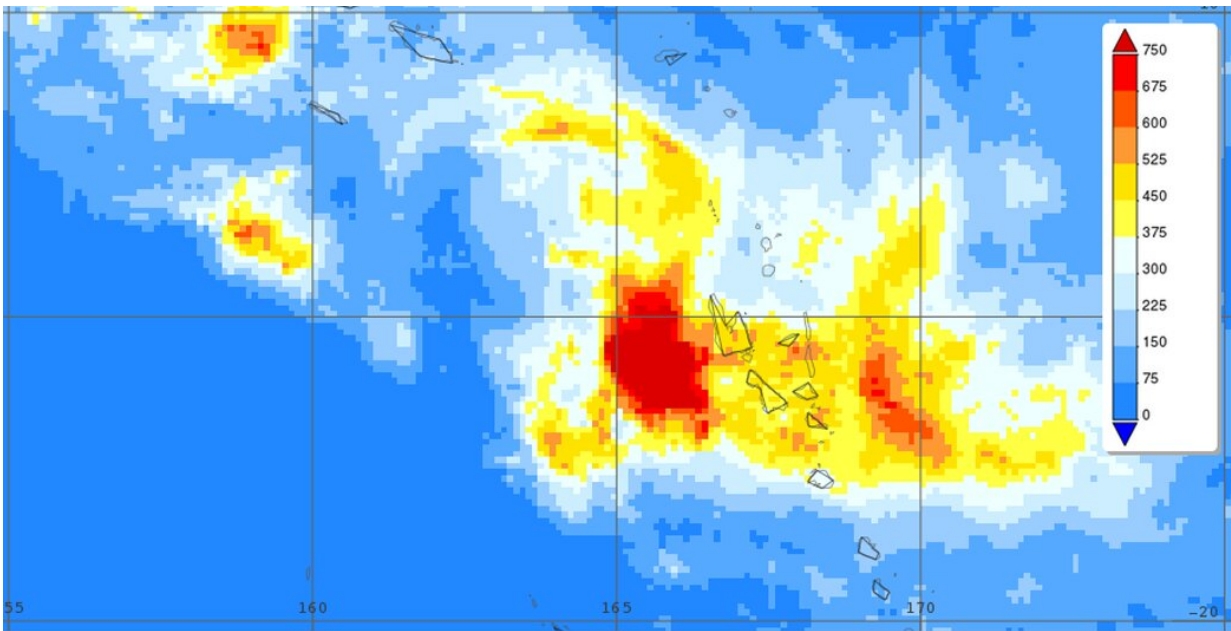


NASA finds very heavy rainfall in major tropical cyclone Harold

April 9 2020, by Rob Gutro



This IMERG image estimates rainfall from March 30 to April 7 just west of Vanuatu in the South Pacific. The deeper red areas indicated rainfall totals up to almost 750 mm (30 inches) west and east of Vanuatu. Credit: NASA/JAXA, Steve Lang

On April 8, Tropical Cyclone Harold is a major hurricane, a Category 4 on the Saffir-Simpson Hurricane Wind Scale, as it exits Fiji and heads toward the island of Tonga. NASA used satellite data to calculate the rainfall generated by this powerful and destructive storm in the Southern

Pacific Ocean.

Harold brought flooding rains and strong hurricane-force winds to the South Pacific island nation of Fiji on Wednesday, April 8. The Fiji Meteorological Service noted that Harold's strength ranked in the highest category of five, when passed over Fiji's south at about midday (local time). Earlier in the week, Harold caused damages and communications outages when it passed over Vanuatu on April 7, and killed dozens of people in the Solomon Islands.

Visualizing Harold's Heavy Rainfall

At NASA's Goddard Space Flight Center in Greenbelt, Maryland, the heavy rain generated from Harold from April 2 to 8 was calculated and mapped in an animation.

"This animation shows the [heavy precipitation](#) associated with Tropical Cyclone Harold as it progresses from the Solomon Islands on April 2, 2020, explosively intensifies on April 3, reaches Vanuatu as a Category 4 storm on April 5 before briefly attaining Category 5 status on April 6 and passing just south of Fiji on April 7 as a Category 4 storm," said B. Jason West, Science Data Analyst for the Precipitation Processing System (PPS) at NASA Goddard.

The data showed that periodically, Harold's core region produced precipitation rates were in excess of 30 millimeters per hour (mm/h), which is equivalent to a 7-inch-deep rain accumulation if the core region were to remain over a given location for 6 hours. The precipitation estimates in this animation come from the IMERG multi-satellite algorithm developed by NASA and run in near [real-time](#).

What is NASA's IMERG?

NASA's Integrated Multi-satellite Retrievals for GPM or IMERG, is a NASA satellite rainfall product. The near-real time rain estimates come from the NASA's IMERG, which combines observations from a fleet of satellites, in near-real time, to provide near-global estimates of precipitation every 30 minutes. By combining NASA precipitation estimates with other data sources, we can gain a greater understanding of major storms that affect our planet.

Instead, what the IMERG does is "morph" high-quality satellite observations along the direction of the steering winds to deliver information about rain at times and places where such satellite overflights did not occur. Information morphing is particularly important over the majority of the world's surface that lacks ground-radar coverage. Basically, IMERG fills in the blanks between weather observation stations.

Harold's Status on April 8, 2020

The Joint Typhoon Warning Center or JTWC noted that Harold had maximum sustained winds near 120 knots (138 mph/222 kph) on April 8 at 10 a.m. EDT (1500 UTC). That makes it a Category 4 hurricane and a major storm. Harold was located near latitude 21.2 degrees south and longitude 176.9 degrees west, approximately 248 nautical miles southeast of Suva, Fiji, and has tracked east-southeastward at 23 knots (26 mph/43 kph).

What is Ahead for Harold

JTWC forecasters said what lies ahead for Harold is a hostile environment as [vertical wind shear](#) (winds that blow at different levels of the atmosphere that can tear a storm apart) will increase, and Harold will track through cooler waters (that will not help maintain thunderstorm

development which a tropical cyclone needs to maintain structure and strength). On April 9, Harold is expected to begin interacting with the mid-latitude westerlies (winds) and start extratropical transition.

Tropical cyclones/hurricanes are the most powerful weather events on Earth. NASA's expertise in space and scientific exploration using a fleet of satellites contributes to essential services provided to the American people by other federal agencies, such as hurricane weather forecasting.

Provided by NASA's Goddard Space Flight Center

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