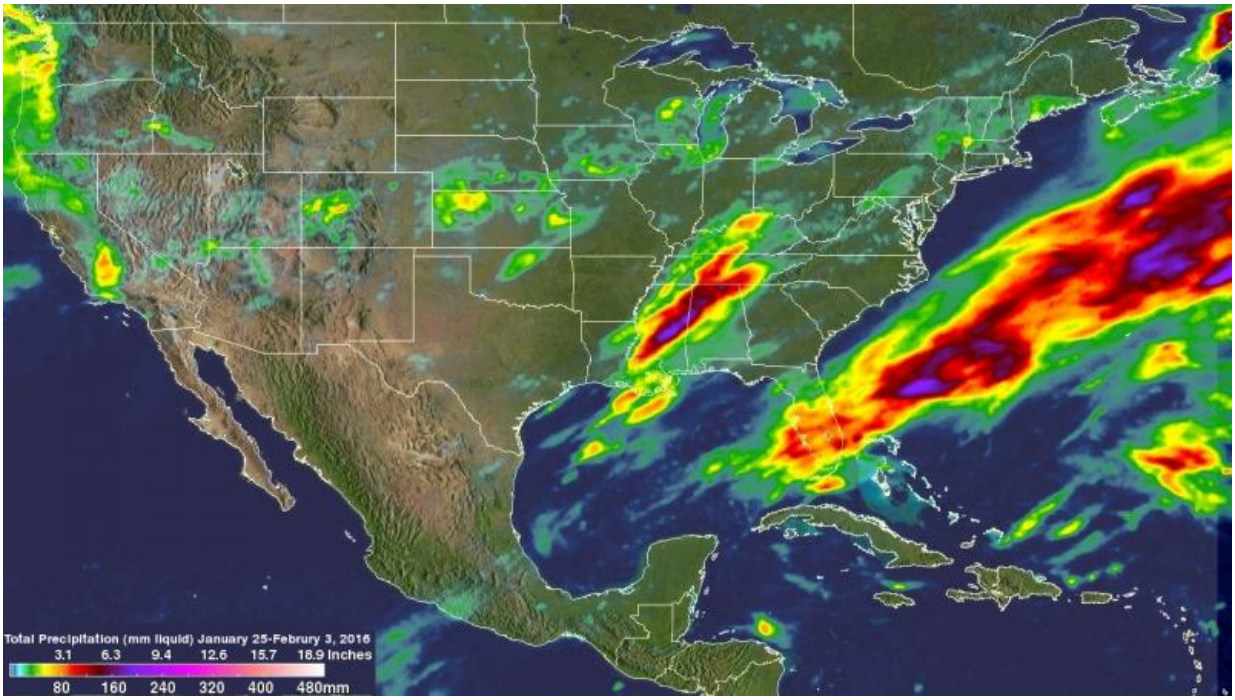
NASA measures ten days of US extreme precipitation from space

February 4 2016, by Harold F. Pierce



From Jan. 25 through Feb. 3, IMERG data estimated that the most extreme precipitation over the United States during this period was over 200mm (7.9 inches) in an area where stormy weather frequently hit Mississippi and Alabama. Credit: NASA/JAXA/SSAI, Hal Pierce

For more than a week the weather over the continental United States has been punctuated by extreme events. NASA analyzed satellite data that measured the heavy precipitation over ten days from late January to

early February.

Tornadoes that hit southern Florida tossed automobiles on January 27, 2016. On January 31 a winter storm with heavy rain, strong winds and isolated thunderstorms hit southern California killing at least one person. There were numerous reports of hail with these storms ranging from pea-sized to up to an inch in diameter. Powerful winds with these storms also brought down trees and power lines. A blizzard that followed the Democratic and Republican caucuses in Iowa dropped over 18 inches of snow in the Great Plains. Eleven tornadoes, spawned from a supercell thunderstorm, were reported On Tuesday February 2, 2016 in Mississippi and Alabama.

Precipitation that occurred during the period from January 25 through the early hours of February 3, 2016 was estimated by NASA's Integrated Multi-satellite Retrievals for the Global Precipitation Measurement mission (IMERG).

IMERG calculated precipitation estimates as liquid water although snowfall depths can be up to ten times greater. IMERG data estimated that the most extreme precipitation over the United States during this period was over 200mm (7.9 inches) in an area where stormy weather frequently hit Mississippi and Alabama.

The Integrated Multi-satellitE Retrievals for GPM (IMERG) creates a merged precipitation product from the GPM constellation of satellites. These satellites include DMSPs from the U.S. Department of Defense, GCOM-W from the Japan Aerospace Exploration Agency (JAXA), Megha-Tropiques from the Centre National D'etudies Spatiales (CNES) and Indian Space Research Organization (ISRO), NOAA series from the National Oceanic and Atmospheric Administration (NOAA), Suomi-NPP from NOAA-NASA, and MetOps from the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT). All of

the instruments (radiometers) onboard the constellation partners are intercalibrated with information from the GPM Core Observatory's GPM Microwave Imager (GMI) and Dual-frequency Precipitation Radar (DPR).

On Thursday, February 4, 2016 at 1200 UTC (7 a.m. EST), NOAA's National Weather Service Weather Prediction Center (NWS WPC) in College Park, Maryland said that heavy precipitation continued to affect the U.S. NWS WPC's Short Range Forecast Discussion said "Heavy rain possible from the Southern Mid-Atlantic Coast to the

Southeast Coast and along parts of New England Coast; Heavy snow over parts of the Cascades; and Heavy rain possible over parts of the Olympic Peninsula."

An image from NOAA's GOES-East satellite that combined visible and infrared data on Feb. 4 at 1445 UTC (9:45 a.m. EST) showed a powerful cold front moving off the East Coast, a low pressure area over the Great Lakes and another front in the Pacific Northwest.

Due to the current strong El Nino, extreme precipitation events are expected to continue through the winter.

Provided by NASA's Goddard Space Flight Center