

Stormscale Hydrometeorology Group

CIMMS researchers at the Stormscale Hydrometeorology group at the National Severe Storms Laboratory (NSSL) work on the advancement of radar data quality control and the estimation of precipitation. Most of the work conducted by CIMMS researchers in this group is applied to the Multi-Radar Multi-Sensor (MRMS) system. The MRMS system is a fully automated system that rapidly and intelligently integrates data from multiple radars and radar networks, surface and satellite observations, numerical weather prediction (NWP) models, and climatology to generate seamless, high resolution mosaics.

CIMMS researchers contribute to every aspect of radar data generation and precipitation estimation within the MRMS system. This includes cutting-edge methodologies to remove non-precipitation artifacts and clutter from radar data, removing the influences of the melting layer, and seamlessly mosaicking radar data together to optimize coverage. CIMMS researchers are also harnessing the latest research from dual-polarization to improve the estimation of precipitation while using model data to assess the atmospheric environment in which weather systems form and the impacts on falling precipitation. CIMMS researchers then combine radar data with other observational sources to correct for any biases in the radar data and filling in gaps within the radar coverage. This includes one the most advanced gauge quality control techniques in the field.

The work conducted by CIMMS researchers and applied to MRMS are used to improve precipitation estimation going into hydrologic models, to improve the studies for water resourcing needs, and to help validate other observational platforms and NWP models.

More information on this group and the work that they do for the FLASH project (including real-time data) can be found here:

<https://mrms.nssl.noaa.gov/>

<https://blog.nssl.noaa.gov/mrms/>

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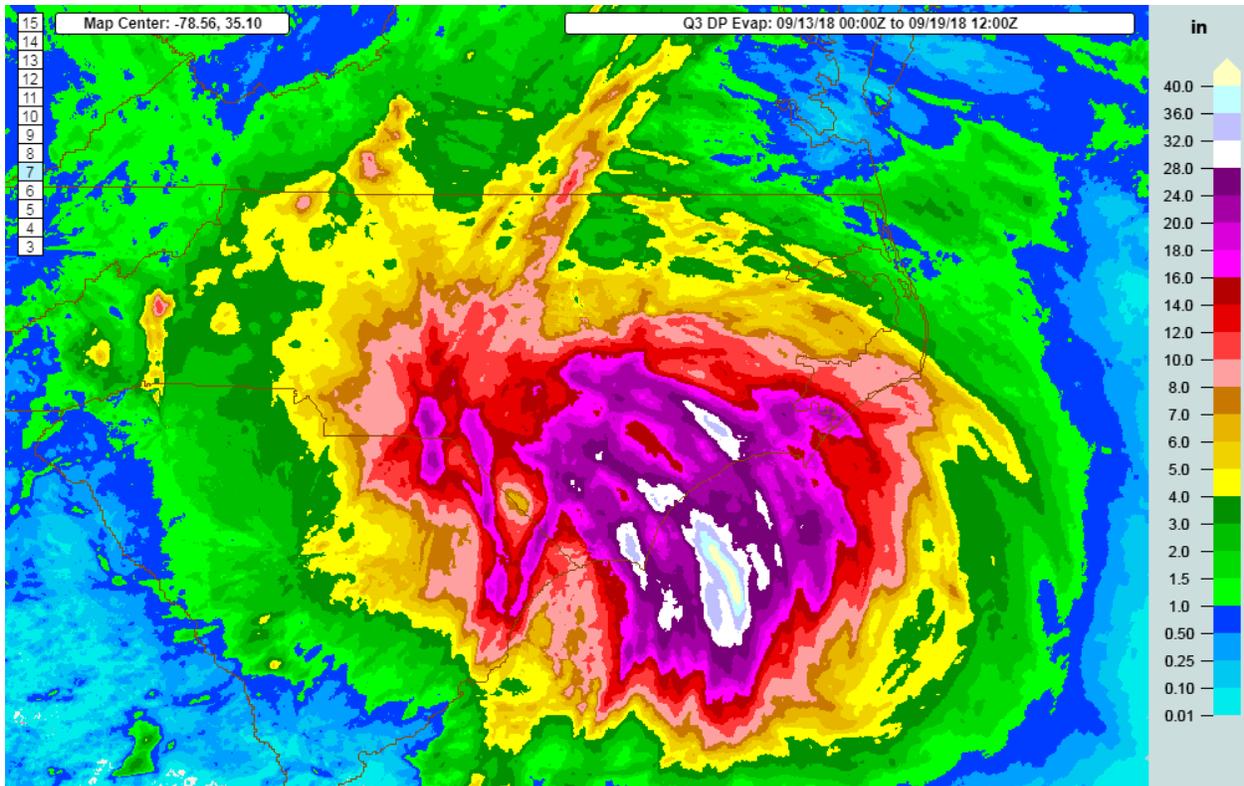
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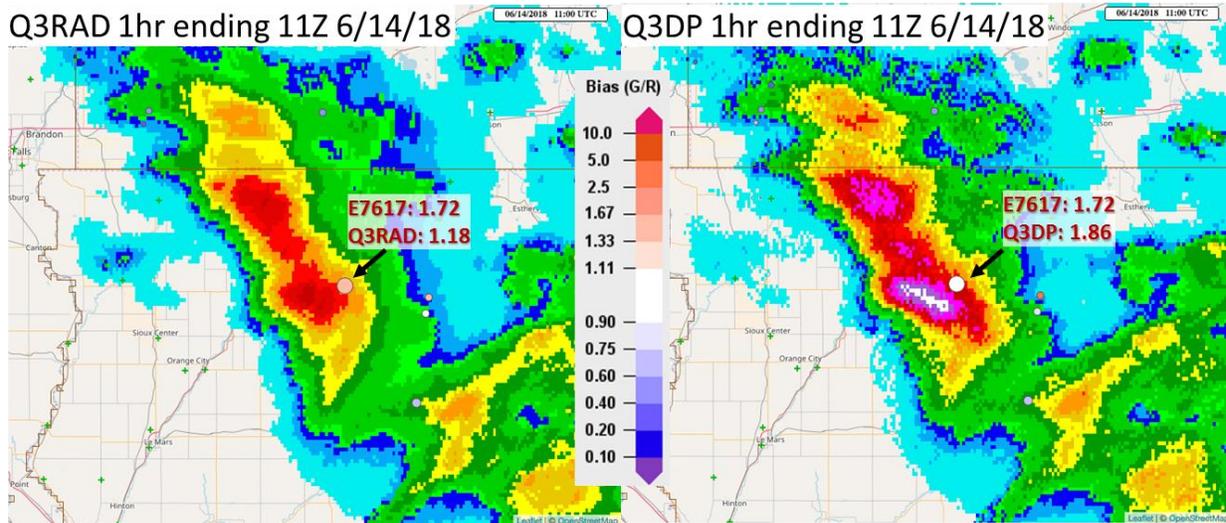
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Storm-total estimation of precipitation during Hurricane Florence ending at 1200 UTC 19 September 2018 using experimental products from the MRMS system.



New dual-polarization product and techniques are improving precipitation estimation in regions where hail is present. This case here shows how the experimental MRMS data on the right is much closer to the rain gauge total.