

## SNOWFALL OBSERVATIONS AT NASA WALLOPS FLIGHT FACILITY

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The National Aeronautics and Space Administration (NASA) Global Precipitation Measurement (GPM) Mission ground validation program has been conducting a field study of precipitation observations at the NASA Wallops Flight Facility (WFF) during the past year. The purpose of the study is to provide a better parameterization of the microphysics of precipitation including falling snow for the GPM algorithm developers. Under the umbrella of physical validation, GPM algorithm developers use the disdrometer based hydrometeor size distributions to test parametric form of the size distribution from dual frequency radar measurements on board GPM core satellite. In the presence of snow, GPM algorithm developers seek additional information on fall velocity and snow density. Additionally, there is need to quantify the partial beam filling within the satellite footprint.

The main objective of this study is to investigate the microphysical characteristics of falling snow and its spatial variability within the GPM core satellite footprint. To accomplish this goal, eight snow events that occurred at WFF were analyzed. The network comprises of six sites encompassing a variety of instruments: automated parsivel units (APU's), two-dimensional video disdrometers (2DVD's), a precipitation imaging probe (PIP) and pluviometer weighing bucket rain gauges. These respective instruments have the ability to detect particle size and velocity of both solid and liquid precipitation with the pluviometer measuring the melted equivalent of snow accumulation. The distances between sites ranged from 0.5-2.3 kilometers. The following steps are taken to accomplish this objective: 1) Comparison of the event snowfall and snowrates between different instruments, 2) Parameterization of the snow size distribution and snowfall velocity, 3) Determination of snow density and spatial variability of falling snow and its microphysical characteristics, 4) Comparison of disdrometer derived and radar observed reflectivity and derivation of reflectivity and snowrate relationships. Preliminary results will be provided with the poster presentation.

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