

ali tokay

Spatial variability of raindrop size distribution in a footprint of a spaceborne radar

tokay@umbc.edu

Authors

Ali Tokay, umbc/nasa-gsfc,
Leo Pio D'Adderio, University of Ferrara,
Federico, University of Bologna,
Walter A. Petersen, NASA Marshall Space Flight Center,

Non-uniform beam filling (NUBF) is one of the key uncertainties of the precipitation estimates from remote sensing measurements. The NASA's Global Precipitation Measurement Mission Dual-Frequency precipitation radar (DPR) utilizes its Ka- and Ku-band reflectivity measurements to retrieve the parameters of raindrop size distribution (DSD). The Path integrated attenuation plays a role in determining the DSD parameters. For convective rain where size of the cell is less than the footprint of the DPR (approximately 5 km), the return signal is weaker than what it is expected in the presence of fully covered footprint. This issue also exists in stratiform rain where rainfall exhibits intermittence. This study utilize dense disdrometer network from Mid-latitude Convective Clouds Experiment to characterize the NUBF through observed and interpolated observations within an area of 5 km diameter.