

### **13.43 EVALUATION OF PRECIPITATION TYPE CLASSIFICATION METHODS FOR GROUND-BASED AND GPM DPR SATELLITE RADAR DATA**

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Dual-frequency precipitation radar (DPR) onboard the Global Precipitation Measurement (GPM) core satellite has promise for the measurement of the vertical profile of precipitation rate with accuracy. The precipitation type classification between rain and solid particles, however, is still a challenge. We have explore a method for discriminating between rain and dry snow for DPR data, using a numerical radar data simulator based on the scattering theory. The ratio of dual frequency ratio (DFR) to the reflectivity from Ku-band radar is a key parameter for discrimination. We have also proposed a new index using the reflectivity and the specific differential phase Kdp for polarimetric radar data using simulation-based findings.

We will evaluate these two methods by a cross-validation using real observation data. First, the performance of our method for ground-based polarimetric radar data is evaluated using data from videosonde observations and a two-dimensional video disdrometer (2DVD). A videosonde is a ballon-borne instrument system, and a movie recorded by a camera onboard the system can sample the number concentration of each precipitation type. The precipitation type of a particle can be also identified from the shape of a shadow and the vertical fallspeed from 2DVD data. Next, our method for dual-frequency satellite radar data is evaluated with reference to the precipitation type identified by the above method using ground-based radar data. The applicability of two methods will be discussed in this communication.