1.39 FIELD OBSERVATION FOR INVESTIGATING THE MICROPHYSICAL CHARACTERISTICS OF PRECIPITATION SYSTEM IN KOREA

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In order to examine the microphysical characteristics of precipitation system and improve the accuracy of radar rainfall estimation in Korea, the field observation equipped with three PARSIVEL (PARticle SIze and VELocity) disdrometers, two S-band polarimetric radars, and rain gages has been done at the southern part of Korea since 2015. The three disdrometers and rain gages were installed along the line connecting two radars with same distance. The remote surveillance system was also deployed to monitor the status of instruments and collect data. For analyzing snowfall system, a routine observation network composed of 2 DVD, PARSIVEL, rain gage, and test-bed radar of KMA was used because there was no chance to catch snow in southern part of Korea.

First, the PARSIVEL data were processed for data quality control using the 60% terminal velocity threshold of each drop diameter. The truncated gamma model was employed to calculate DSD variables like as normalized intercept parameter (N_w) and mass-weighted diameter (D_m). To investigate the microphysical characteristics with respect to rainfall types, convective and stratiform, 1.5 mmh^{-1} of standard deviation of rainrate for 5 minutes were adopted. For snowfall case, the classification of dry and wet snow was examined by using terminal velocity observed by 2DVD and QVP (Quasi Vertical Profile) method was firstly applied to the snowfall system observed by Korean polarimetric radar to understand the dendrite growth zone. The microphysical properties of snowfall obtained from 2DVD and the vertical microphysical characteristics using dual polarization radar parameters were compared and analyzed. The fall velocity was determined by the classified types of snow particles based on their shapes and densities in this work. Application of density parameter to hydrometeor classification for snow particles were suggested and evaluated.