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A Quick Evaluation of GPM/DPR Reflectivity over Korea

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The Global Precipitation Measurement (GPM) mission is an international network of satellites that provides the next-generation global observations of rain and snow. Since 2009, the Korea Meteorological Administration (KMA) has participated in the ground validation (GV) projects through international partnerships within the framework of the GPM Mission. In this study, quick assessment of GPM/DPR (Dual-frequency Precipitation Radar) using the ground radar (GR) over the Korean Peninsula was performed. Data were collected from March 8th to August 17th in 2014 (163 days). In order to validate the GPM/DPR with GR, time series of GR data were also collected separately from above, within, and below the bright band (BB) in the stratiform and convective rains. Jindo, Gosan, Seongsan, and Oseong sites show a high correlation such as 0.80, 0.82, 0.81, and 0.83 respectively. However, the rest sites show relatively low correlation ranging from 0.58 to 0.75, because they have only a few rain cases of matching dataset for the GV. We also observed that DPR reflectivity at all the GR sites except Jindo was systematically overestimated. Thus the further investigation is needed along with collecting enough rain cases for GV. The mean reflectivity differences between DPR and GR demonstrate unstable at this stage due to the lack of match-up data, but it is expected to improve the accuracy as increasing cases.