

국내 1.5 km CAPPI 자료 보완을 위한 Gap Filler Radar의 효용성 평가

Evaluation of the Gap Filler Radar as an Implementation of the 1.5 km CAPPI Data in Korea

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Abstract

This study evaluated the gap filler radar as an implementation of the 1.5 km CAPPI data in Korea. The use of the 1.5 km CAPPI data was an inevitable choice, given the topography of the Korean Peninsula and the location of the radar. However, there still exists a significant portion of beam blockage, and thus there has been debate about the need to introduce the gap filler radar (or, the gap-filler). This study evaluated the possible benefits of introducing gap-fillers over the Korean Peninsula. As a first step, the error of the radar data was quantified by the G/R ratio and RMSE, and the radar data over the Korean Peninsula were evaluated. Then, the gap-fillers were located where the error was high, whose effect was then evaluated by the decrease in the G/R ratio and RMSE. The results show that the mean values of the G/R ratio and RMSE of the 1.5 m CAPPI data over the Korean Peninsula were estimated to be about 2.5 and 4.5 mm/hr, respectively. Even after the mean-field bias correction, the RMSE of the 1.5 km CAPPI data has not decreased much to be remained very high around 4.4 mm/hr. Unfortunately, the effect of the gap-filler on the 1.5 CAPPI data was also found very small, just 1 - 2%. However, the gap-filler could be beneficial, if the lowest elevation angle data were used instead of the 1.5 km CAPPI data. The effect of five gap-fillers could be up to 7% decrease in RMSE.

Keywords : radar, 1.5 km CAPPI data, G/R ratio, RMSE, gap filler radar

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