

## **Comparison of two rainfall estimation algorithms using S-band dual-polarization radar in Korea**

Hye-Young Ko

Dept. Astronomy and Atmospheric Sciences, Research and Training Team for Future Creative  
Astrophysicists and Cosmologists, Kyungpook National University, Daegu, Korea

Lee, Gyuwon (Dept. Astronomy and Atmospheric Sciences, Research and Training Team for Future Creative  
Astrophysicists and Cosmologists, Kyungpook National University, Daegu, Korea (ROK); Center for  
Atmospheric Remote sensing, Kyungpook National University, Korea (ROK))

*E-mail: kkoyang2@gmail.com*

Weather radar provided rainfall information with high spatial and temporal resolution over large areas including rain gage sparse areas. Both radar QPE and gage observations are blended to produce more accurate rainfall by eliminating plausible biases in radar QPE. Dual-polarimetric radar can provide more accurate rainfall information and dual-polarimetric radar QPE may still require additional adjustment with gages to produce unbiased estimation. In this study, we evaluate radar rainfall products in different steps of QPE: single polarimetric estimation with/without gage adjustment and dual-polarimetric estimations with/without gage adjustment.

The Sobaek S-band dual-polarization radar has been operated by Ministry of Land, Infrastructure and Transport (MOLIT) since November 2011. This radar is operated with clear and rain modes. The latter is composed of a volume scan with 6 elevation angles every 2.5 minutes. The radar reflectivity and differential reflectivity have been calibrated by the self-consistency method and vertically pointing observation. Radar QPE is generated by the three estimators.  $R(Zh)$ ,  $R(Zh, Zdr)$  and is adjusted with dense gage networks. We will investigate the dependence of these rainfall estimations on ranges and precipitation types.