



Quantification of the error in polarimetric variables of dual-polarization rain radar and improving the radar rainfall

Jungsoo Yoon (1), Seokhwan Hwang (1), Narae Kang (1), Hwiseong Noh (1), Byunghwa Oh (2), and Jeongha Lee (2)

(1) Hydro Science and Engineering Research Institute, Korea Institute of Civil Engineering and Building Technology, Gyeonggi-Do 10223, Korea, (2) Smart City and Construction Engineering, University of Science and Technology, Gyeonggi-Do 10223, Korea

Ministry of Land, Infrastructure and Transport (MOLIT) in Korea introduced six rain radars for a flood forecasting and warning system in a basin. Bislsan radar (BSL Radar) is first introduced as the rain radar of S-band dual-polarization radar in 2009. Dual-polarization radar provide various polarimetric variables, differential reflectivity (ZDR), differential phase (Φ DP), specific differential phase (KDP), etc. as well as reflectivity (Z). Among them, Z, ZDR and KDP are variables to use for estimating the radar rainfall. If the error is in the variables, the error propagate to the radar rainfall. Therefore it is important to quantify and remove the error in the variables. In this study, total 351 rain events observed by BSL Radar were analyzed to quantify the error in variables and assess the accuracy of the radar rainfall after removing the error. As a result, while the range of the accuracy before removing the error was 40 ~ 80 %, the range of the accuracy after removing the error was 60 ~ 80 %.

Acknowledgements : This research was supported by a grant (17AWMP-B079625-04) from Water Management Research Program funded by Ministry of Land, Infrastructure and Transport of Korean government.