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A Comparative Study on Radar-Driven Rainfall Correction Methods

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There has been significant damage around the world from severe weather. Korea is also no exception from the disaster. The use of weather radar data having high temporal and spatial resolution will be helpful for preventing flood disaster from severe weather. To use radar data, observed radar reflectivity should be transformed to precipitation by Z-R relationship. However, there is no unique relationship between Z and R and the rainfall estimates from pre-determined Z-R relationship will lead to errors. This radar error sources are a) measuring radar reflectivity factor b) variations in the Z-R relationship, c) gauge-radar sampling differences, and d) errors in raingauge measurements. The objective of this study is to analyze the applicability of radar-driven rainfall correction methods for accuracy improvement of radar rainfall estimates. Especially, this study is to analyze two bias calibration methods which focused on the error factor of gauge-radar sampling differences. The first method is the mean field bias adjustment method, while the other is operational calibration of gauge-radar method. For this analysis, Jungrang watershed located passing through the Seoul metropolitan city was selected to compare each method. We will provide the calibrated radar rainfall estimates using the two methods and compare the results for obtaining the applicability of these two methods.