Quality Control Algorithm of Rainfall Radar Image for uncertainty of rainfall

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Doppler weather radar is capable of observing a target only from a distance, if only the rainfall event exists within an observation radius, it is possible to acquire volume observation data with regard to heavy rains. This advantage drew attention of hydrologists and meteorologists, and it enabled radar data to be used as basis data and input data for a distributed hydrological model with regard to medium-scale convective weather phenomena. Non-meteorological factors that are not real are included in meteorological factors converted from I/Q data. In order to accurately observe weather, it is necessary to figure out how echo data occurring in radar scope take place as a result of a certain rainfall process and surrounding effects and review non-meteorological echo based on analysis. For this reason, several filters are being applied to radar I/Q data in order to remove clutter, one of non-meteorological echoes. The study is focused on analyzing the structure of I/Q data observed from radars and an estimation process of meteorological moment to confirm errors that could occur in the process. It also aims to quantify uncertainties of data by estimating more reliable rainfalls through quality control of I/Q data. Radar rainfall data have strong uncertainty due to various factors influencing quality. In order to reduce this uncertainty, previously enumerated errors in quality need to be eliminated. However, errors cannot be completely eliminated in some cases as seen in random errors, so uncertainty is necessarily involved in radar rainfall data. Multi-Lag Method, one of I/Q data quality control methods, was applied to estimate precipitation with regard to I/Q data of rainfall radar in Mt. Sobaek.