



Data Assimilation of Ice-Water Mixing Ratios Estimated from Polarimetric Radar Observation

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Data assimilation provides high-quality initial condition in an atmospheric model. The polarimetric radar data is expected to be assimilated into the forecast model, because the radar has a possibility of measurements of the types, the shapes, and the size distributions of the precipitation particles. Its information is useful for the estimation of the cloud microphysical state by the data assimilation. It is expected that the assimilation of polarimetric radar observations can form ice water clouds directly in the model. In this study, an impact on rainfall prediction by the data assimilation of ice-water mixing ratios estimated from polarimetric radar observation is evaluated. As an implementation, our developed cloud-scale data assimilation system, CReSS-LETKF (Yamaguchi and Nakakita 2008), is employed. As the results, a strong rain-band is formed which is similar to observation in assimilation case. This is because assimilation of Doppler radar forms updrafts at Mt. Rokko and assimilation of graupel mixing ratios improves mechanisms of cloud development. These results will have effective influence on the short lead time rainfall prediction.