Evaluation and Monitoring of Data Quality of Ka-Band Cloud Radar

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The Ka-band cloud radar (KCR) has been operated by the national institute of meteorological research of Korea Metorological Administration since April 2013. Evaluation of data quality is an essential process to further analyze cloud information. In this study, we estimate the measurement error and the sampling uncertainty to evaluate data quality. The reflectivity calibration is also performed using vertical pointing radar (VPR) and disdrometer.

When KCR is vertically pointing and rotating, its measurement should be identical. By using this property, the statistical uncertainty is obtained by calculating the azimuthal and radial standard deviation of each radar parameter. To absolutely calibrate KCR, we conduct observations from three different instruments in the Bosung global site during summer 2013 and 2014. First, the VPR is calibrated by the surface disdrometer for rain events. The KCR data are then calibrated with VPR data from light rain or/and cloud. The variation of calibration is monitored for a long term. Finally, the statistical characteristics of cloud properties have been investigated.