

## Satellite data assimilation using NICAM-LETKF

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Data assimilation plays an important role in increasing the accuracy of the numerical weather prediction (NWP). We applied the Local Ensemble Transformed Kalman Filter (LETKF) to the atmospheric general circulation model NICAM (Non-hydrostatic ICosahedral Atmospheric Model). In this study, the conventional observations, satellite microwave radiances from AMSU-A (Advanced Microwave Sounding Unit-A), and satellite-based global precipitation data GSMaP (Global Satellite Mapping of Precipitation) are assimilated. It is difficult to assimilate precipitation observations because of the non-Gaussian error distribution and highly nonlinear precipitation process. Methods are developed to get benefits from these three types of observations. The results indicate that adding more observations makes the analysis more accurate.

Keywords: data assimilation, AMSU-A, GSMaP