Geophysical Research Abstracts
Vol. 16, EGU2014-9680-1, 2014
EGU General Assembly 2014

Developments of satellite radiance assimilation system of AMSU-A within KIAPS-LETKF framework

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Korea Institute of Atmospheric Prediction Systems (KIAPS) has successfully implemented Local Ensemble Transform Kalman Filter (LETKF; Hunt et al. 2007) data assimilation system to NCAR CAM-Spectral Element model. This model has the same grid structure on the cubed sphere as KIAPS-Global Model now developing without any singularity, and has a strong advantage on the flexibility and scalability in the future high performance computing environment.

The KIAPS-LETKF system (Kang et al. 2013) has also adopted most advanced data assimilation techniques such as an adaptive multiplicative inflation (Miyoshi 2012), an estimation of ensemble forecast sensitivity to observations (EFSO; Kalnay et al. 2012) and proactive quality control (PQC; Ota et al. 2013). With those promising tools in the KIAPS-LETKF system, we plan to assimilate conventional data as well as various remote sensing data such as AMSU-A, IASI, GPS RO, which an observation preprocessing team at KIAPS has processed. In this study, we will present our assimilation strategy of AMSU-A radiance data from NOAA and MetOp satellites and show preliminary results at the conference. As an observation operator for satellite radiance data, the Radiative Transfer Model for the TIROS Operational Vertical Sounder (RTTOV) version 10.2 (Saunders et al. 2012) has been installed.