Abstract

The accuracy of numerical weather forecasts depends on the quality of the initial conditions, which can be achieved by intensive data assimilation. Meteorological data assimilation produces an analysis by combining observations and a priori estimates of the state of the atmosphere, which is usually provided by previous forecast models, called background. In this paper, statistical data assimilation schemes have been compared for different atmospheric situations.

Results of the test on single AMSU-A observation

The single AMSU-A observation experiments with the Met Office Unified Model (UM) and global (UM) and regional (HERALD), and HARMONIE/NAE model assimilation systems. Statistical objective analysis requires the specification of the observation and background error covariances. In this exercise, we tested the use of background error statistics derived using different approaches: (i) the locally optimal NMC method, (ii) global ensemble and (iii) projected forward to the short-range forecast time by the Limited Area Model itself. The different ensemble methods were tested with the HARMONIE/NAE model.