

NEW DEVELOPMENTS IN MAPS/RUC 3DVAR ANALYSIS

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A filter-based 3-dimensional variational analysis was developed for the Mesoscale Analysis and Prediction System (MAPS) and is intended for operational application in the the operational counterpart of MAPS, the Rapid Update Cycle (RUC), at the National Centers for Enviromental Prediction.

The variational method performs analysis of virtual potential temperature, wind field, height and condensation pressure. Stream function and velocity potential are applied as control variables for the wind field. A large variety of input data are assimilated including RAOBs, surface data, aircraft reports, wind profiler data, and satellite precipitable water. Observational data are submitted to a quality control check which is unified with the analysis scheme. The background error covariances are modeled by linear combination of digital Gaussian filters. The minimization method is based on the Polak-Ribiere version of the conjugate gradient method. In the presentation a short description of the analysis method will be given, and results will be presented from the 60km and 40km real time forecasting systems.