Application of the WRF – LETKF System over Argentina: a Case Study.

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Improving the initial conditions of the short–range numerical weather prediction models is one of the main goals of the meteorological community. Different data assimilation methods have been developed and are used operationally at the most important prediction centers of the world.

The Weather and Research Forecasting Model (WRF-ARW) was implemented experimentally at the National Meteorological Service of Argentina in 2010, and has been run on daily basis in a quasi – operational form. The coupling of data assimilation, particularly using the Local Ensemble Transform Kalman Filter (LETKF) method created at the University of Maryland, with this forecasting system started at the end of 2012.

In this study we show that the WRF-LETKF Data Assimilation System was successfully implemented over the Argentina region and run for 35 days, using the National Centers for Environmental Prediction (NCEP) prepbufr observations with boundary conditions from GFS forecasts. We also present a mesoscale convective system case study that occurred over the central part of Argentina on December 6th of 2012, which produced several damages in various cities. The impact of the data assimilation on the forecast was found to be positive in this severe weather event.

These preliminary results encourage our efforts in the development of a consistent data assimilation system that will be implemented in real time at the National Weather Service of Argentina.