EMS Annual Meeting Abstracts Vol. 10, EMS2013-159, 2013 13th EMS / 11th ECAM © Author(s) 2013



Objective Optimization of Local Weather Forecasting

F. Ebach, M. Rohn, L. Wenke, and B. K. Reichert

Deutscher Wetterdienst (DWD), Research & Development, Offenbach, Germany (friedemann.ebach@dwd.de)

At German Weather Service (DWD) several site specific forecasts of surface weather elements exist obtained from direct model output (DMO) and statistical post processing (MOS) derived from grid-based results of deterministic numerical weather prediction (NWP) models. Additionally, different types of nowcasting products and a huge amount of observations are available. In order to create a single-voice, seamless product, an automated merging process has been developed. The resulting product is called "Objectively Optimized Guidance" (OOG).

The challenge is to combine different model results and to perform a continuous, optimized adaptation to current nowcasting and observational data using a set of robust and objective rules. For every model and element weights are separately defined with parameters that can be configured individually to determine their influence. Finally, output-data of the OOG is examined for inconsistencies between co-dependent elements such as temperature and dew point.

To maintain flexibility for controlling the product's output, manual modification of the output is allowed, resulting in a new product called "Modified Model Output" (MMO). As a consequence it was necessary to develop a new process whose only task is to merge OOG with MMO to obtain an optimized and latest forecast guidance "approved by the forecaster". The resulting product produced by this process is called "Optimized Model Guidance" (OMG).

Both processes for OOG and OMG are discussed in detail. This talk will also focus on the improvements by the newly integrated convection-permitting very short-range model COSMO-DE developed at DWD, and the nowcasting products RadarWeather and Radar based precipitation forecasting (RadVorOP).