



Post-processing and blending: Statistical tools for the provision of reliable seamless forecasts

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Post-processing techniques are statistical approaches to correct a posteriori deterministic or ensemble forecasts based on the performance of past forecasts. These tools aim at correcting the impact of structural deficiencies of the model and/or the wrong specification of the initial condition errors on the forecasts. These techniques are nowadays blooming and an overview of the different techniques is provided in Vannitsem et al (2018). On the other hand, the combination and blending of different forecasting sources is currently attracting a lot of interest in order to deliver seamless deterministic or ensemble forecasts from minutes to months. This requires specific developments to provide reliable forecasts, as the forecast products can be very different.

During this presentation, we will make an overview of the recent developments on post-processing, their current use for various applications at the Royal Meteorological Institute of Belgium (RMI) and the future prospects. The usefulness of the member-by-member approach developed at RMI is in particular demonstrated, and compared with more traditional distribution-based approaches. The applications that will be discussed range from the correction of wind fields for short-term forecasts of energy production, the correction of hydrological forecasts on daily time scales, the correction of precipitation and temperature at seasonal time scales over Europe and the correction of sea surface temperature on long time scales in the tropics. The prospects on blending will also be briefly addressed.

These activities will also be placed in the context of the new ongoing project of the European Meteorological Network (EUMETNET) on post-processing and blending.

Reference

Vannitsem S., D. Wilks, et J. Messner (Eds), Statistical Postprocessing of Ensemble Forecasts, Elsevier, 2018, 346 pp. ISBN: 978-0-12-812372-0.