Development of an operational postprocessing suite at MeteoSwiss

Christoph Spirig, Stephan Hemri, Jonas Bhend, Jan Rajczak, and Mark Liniger
MeteoSwiss, Analysis and Forecasting, Zurich Airport, Switzerland (christoph.spirig@meteoswiss.ch)

Weather forecasts for arbitrary locations in space are becoming increasingly important. Likewise, the need for an adequate quantification of the forecast uncertainty makes ensemble approaches indispensable. Even though numerical weather prediction models (NWPs) are run at increasingly high resolutions, raw ensemble forecasts still tend to be biased and underdispersed. Hence, statistical postprocessing is expected to improve forecast skill and may help to condense the forecast information. At MeteoSwiss a project on postprocessing of the most relevant weather variables for public weather forecasts, i.e. near surface temperature, precipitation, 10 meters wind speed, and cloud cover, has recently been launched. The project's goal is the introduction of an operational suite that providesproviding spatial fields of postprocessed predictions based on most of the observation data available and on raw ensemble forecasts provided by COSMO-E and the IFS-ENS of ECMWF. While the project does not focus on the development of novel methods, the optimal use of existing statistical postprocessing approaches is at the core of the project.

This presentation will first summarize the project and then focus on the example of cloud cover. As for the other variables, we are developing a method routine to obtain postprocessed predictions of cloud cover for arbitrary locations in Switzerland. As ground based cloud cover observations are rather scarce, the training of the statistical model is based on EUMETSAT CM SAF satellite data, which will potentially be augmented by ground based observations. Methodologically, we start from ensemble model output statistics like and models that are suitable for the bounded variable of cloud cover. In a first step spatial consistency is ensured by ensemble copula coupling, but other approaches are to be tested as well.