Medium-Range Hydrological Ensemble Prediction and its verification in EFAS

J.Thielen, J. Bartholmes, M.H. Ramos

EC, DG Joint Research Centre, Institute for Environment and Sustainability, LMNH, TP 261, 21020 Ispra, Italy, jutta.thielen@jrc.it

In general, meteorological ensemble prediction is already well established among weather forecasters, whereas hydrological ensemble prediction is still in the development phase. Since July 2005, the European Flood Alert System (EFAS) features both deterministic and probabilistic flood forecasts at a pre-operational level. The aim of EFAS is to provide early warnings with lead times of 3-10 days to the Member States' national hydrological services. EFAS was initiated after the disastrous Elbe and Danube (2002) flood events. The EFAS prototype is developed and run at JRC-Ispra for the whole Europe, providing 3-10 day hydrological EFAS forecasts for 17 hydrological national services (covering about 70 % of the European area) that have signed a Memorandum of Understanding (MoU). Deterministic hydrological EFAS forecasts are based on DWD (7 day lead-time) and ECMWF (10 day lead-time) deterministic meteorological forecasts, while EFAS hydrological ensemble forecasts are based on the 51 meteorological members of the EPS forecast (10 day lead-time) provided by ECMWF. In this work, we present how we verify and assess the skill of the EFAS EPS flood forecast on European scale. New approaches had to be found, as the general meteorological skill assessment procedures are not directly transferable to hydrological EPS forecasts. Furthermore, attention is paid to the way forecast uncertainty is communicated to the end-user.