



## **The total probabilities from high-resolution ensemble forecasting of floods**

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Ensemble forecasting has for a long time been used in meteorological modelling, to give an indication of the uncertainty of the forecasts. As meteorological ensemble forecasts often show some bias and dispersion errors, there is a need for calibration and post-processing of the ensembles. Typical methods for this are Bayesian Model Averaging (Raftery et al., 2005) and Ensemble Model Output Statistics (EMOS) (Gneiting et al., 2005). There are also methods for regionalizing these methods (Berrocal et al., 2007) and for incorporating the correlation between lead times (Hemri et al., 2013).

To make optimal predictions of floods along the stream network in hydrology, we can easily use the ensemble members as input to the hydrological models. However, some of the post-processing methods will need modifications when regionalizing the forecasts outside the calibration locations, as done by Hemri et al. (2013). We present a method for spatial regionalization of the post-processed forecasts based on EMOS and top-kriging (Skøien et al., 2006). We will also look into different methods for handling the non-normality of runoff and the effect on forecasts skills in general and for floods in particular.

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