



## **Against all odds – Probabilistic forecasts and decision making**

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In the city of Zurich (Switzerland) the setting is such that the damage potential due to flooding of the river Sihl is estimated to about 5 billion US dollars. The flood forecasting system that is used by the administration for decision making runs continuously since 2007. It has a time horizon of max. five days and operates at hourly time steps. The flood forecasting system includes three different model chains. Two of those are run by the deterministic NWP models COSMO-2 and COSMO-7 and one is driven by the probabilistic NWP COSMO-Leps. The model chains are consistent since February 2010, so five full years are available for the evaluation for the system.

The system was evaluated continuously and is a very nice example to present the added value that lies in probabilistic forecasts. The forecasts are available on an online-platform to the decision makers. Several graphical representations of the forecasts and forecast-history are available to support decision making and to rate the current situation. The communication between forecasters and decision-makers is quite close. To put it short, an ideal situation.

However, an event or better put a non-event in summer 2014 showed that the knowledge about the general superiority of probabilistic forecasts doesn't necessarily mean that the decisions taken in a specific situation will be based on that probabilistic forecast.

Some years of experience allow gaining confidence in the system, both for the forecasters and for the decision-makers. Even if from the theoretical point of view the handling during crisis situation is well designed, a first event demonstrated that the dialog with the decision-makers still lacks of exercise during such situations. We argue, that a false alarm is a needed experience to consolidate real-time emergency procedures relying on ensemble predictions. A missed event would probably also fit, but, in our case, we are very happy not to report about this option.