



The Operational Hydro-meteorological Ensemble Prediction System at Meteo-France and its representation interface for the French Service for Flood Prediction (SCHAPI) : description and undergoing developments.

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The coupled physically-based hydro-meteorological model SAFRAN-ISBA-MODCOU (SIM) is developed at Meteo-France for many years. This fully distributed catchment model is used in a pre-operational mode since 2005 for producing mid-range ensemble streamflow forecasts based on the 51-member 10-day ECMWF EPS. Improvements have been made during the past few years.. First, a statistical adaptation has been performed to improve the meteorological ensemble predictions from the ECMWF. It has been developed over a 3-year archive, and assessed over a 1-year period. Its impact on the performance of the streamflow forecasts has been calculated over 8 months of predictions. Then, a past discharges assimilation system has been implemented in order to improve the initial states of these ensemble streamflow forecasts. It has been developed in the framework of a Phd thesis, and it is now evaluated in real-time conditions. Moreover, an improvement of the physics of the ISBA model (the exponential profile of the hydraulic conductivity in the soil) was implemented.

Finally, this system provides ensemble 10-day streamflow prediction to the French National Service for Flood Prediction (SCHAPI). A collaboration between Meteo-France and SCHAPI led to the development of a new website. This website shows the streamflow predictions for about 200 selected river stations over France (selected regarding their interest for flood warning) , as well as alerts for high flows (two levels of high flows corresponding to the levels of risk of the French flood warning system). It aims at providing to the French hydrological forecaters a real-time tool for mid-range flood awareness.