Geophysical Research Abstracts
Vol. 15, EGU2013-10527, 2013
EGU General Assembly 2013

The New Operational Hydro-meteorological Ensemble Prediction System at Meteo-France and its representation interface for the French Service for Flood Prediction (SCHAPI)

Fabienne Rousset-Regimbeau (1), Mathieu Coustau (1,2), Eric Martin (2), Guillaume Thirel (3), Florence Habets (4), Céline De Saint Aubin (5), and Constantin Ardilouze (5)

(1) Météo-France, DP/DCLIM/AVH, Toulouse Cedex, France (fabienne.regimbeau@meteo.fr), (2) Météo-France, CNRM, Toulouse, France, (3) IRSTEA, Anthony, France, (4) MinesParistech, Fontainebleau, France, (5) SCHAPI, Toulouse, France

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 an operationnal real-time mode since 2005 for producing mid-range ensemble streamflow forecasts based on the 51-member 10-day ECMWF EPS. New improvements have been recently implemented in this forecasting chain. First, the new version of the forecasting chain includes new atmopheric products from the ECWMF (EPS at the resolution of 0,25° over France). Then an improvement of the physics of the ISBA model (a new physical representation of the soil hydraulic conductivity) is now used. And finally, a past discharges assimilation system has been implemented in order to improve the initial states of the ensemble streamflow forecasts.
These developpement were first tested in the framework of a Phd thesis, and are now evaluated in real-time conditions. This study aims to assess the improvements obtained by the new version of the forecasting chain. Several experiments were performed ton assess the effects of i) the high resolution atmospheric forcing ii) the new representation of the hydraulic conductivity iii) the data assimilation method and iv) the real-time framework. Tested on a 18-month period of reforecasts, the new chain presents significantly improved ensemble streamflow forecasts compared to the previous version.
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.