



Assessment of precipitation forecasts from GEFS, WRF and GFS atmospheric models at River Ave basin, Portugal

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Flood forecasting and warning systems have experienced significant developments in recent years. These developments resulted from the availability of real-time meteorological information, in particular from satellite-based weather radar, meteorological radar and from several atmospheric models forecasts for different time horizons. It is well known that all environmental forecasts models are uncertain and their uncertainty is highly spatial variable. This work aims to present results of forecasts bias evolution assessment recurring to observed data and short-term forecast data.

Delft-FEWS (Flood Early Warning System) platform was selected to import and process available forecasts for the river Ave basin, located in the north of Portugal. Measured meteorological data was obtained from SNIRH (National water resources information system), four additional rain gauges installed at four locations within the basin and radar reflectivity data from Meteogalicia (Spanish water resources databases). Precipitation forecast from atmospheric models developed by NOAA (National Oceanic and Atmospheric Administration) and Meteogalicia were also integrated in this platform, namely GFS (Global Forecast System from NOAA), GEFS (Global Ensemble Forecast System from NOAA) and WRF (Weather Research and Forecasting from Meteogalicia). The observed bias between predicted precipitations and measured ones was evaluated through specific mathematical formulations, considering up to four days of forecast. Results for twenty-five rain events registered between January 2016 and December 2018 are presented and discussed.