Post processing of ECMWF EPS outputs by using an analog and transference technique to improve the extreme rainfall predictability in Ebro basin (Spain).

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Hydrometeorological phenomena present a high spatial and temporal variability that increases the difficulty in producing skilful forecasts at the local scale. New meteorological models and probabilistic statistical post-processing systems have increased the accuracy of both the magnitude and spatial location of the prediction of extreme precipitation events in Europe, contributing to the aim of obtaining earlier and accurate flood forecasting, once a precipitation event is predicted. Under the framework of the IMDROFLOOD project, flood hazard are quantified by combining dynamical and statistical models. Particularly, a two-step analog and regression method is applied to each of 50+1 outputs provided by the ECMWF Ensemble Prediction System in order to estimate the precipitation amount for extreme rainfall events. This dynamical-statistical system is validated for the Ebro basin, a highly regulated basin in NE Spain. Results showed a significant improvement in the predictability of most extreme rainfall amounts, especially in the estimation of the maximum point precipitation.

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