



## **Probabilistic precipitation forecast obtained with Multimodel Dressing and its hydrological applications**

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Precipitation forecast in North-Western Italy has to cope with the complex orography of the Alps and the Apennines. Due to the difficulty in representing this complex system, the deterministic forecasts of the global and limited-area models, even in the short range, show significant errors in precipitation evaluation and give a poor contribution to the discharge calculation released by the hydrological models.

The authors in a previous work have already proposed a new Multimodel SuperEnsemble Dressing technique combining forecast-conditioned PDFs of each model with the use of weights calculated in a training period. The drawback is that the evaluated probabilistic precipitation forecasts over Piemonte warning areas, had a resolution not useful for the hydrological modelling. Therefore the application of the same technique on station basis is here proposed. This way the forecasts could be used as an input of the Arpa Piemonte distributed hydrological model.

We show here the statistics of the Multimodel SuperEnsemble Dressing probabilistic forecasts over a whole year; we also propose some test case evaluated with the full meteo-hydrological chain in order to produce probabilistic discharge calculations. We compare the discharges obtained with the Multimodel SuperEnsemble Dressing probabilistic precipitation forecasts with those obtained with a Bayesian Model Averaging technique