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Hydrol. Earth Syst. Sci., 11, 1267-1277, 2007
www.hydrol-earth-syst-sci.net/11/1267/2007/
doi: 10.5194/hess-11-1267-2007

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Verification tools for probabilistic forecasts of continuous hydrological variables

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Abstract. In the present paper we describe some methods for verifying and evaluating probabilistic forecasts of hydrological variables. We propose an extension to continuous-valued variables of a verification method originated in the meteorological literature for the analysis of binary variables, and based on the use of a suitable cost-loss function to evaluate the quality of the forecasts. We find that this procedure is useful and reliable when it is complemented with other verification tools, borrowed from the economic literature, which are addressed to verify the statistical correctness of the probabilistic forecast. We illustrate our findings with a detailed application to the evaluation of probabilistic and deterministic forecasts of hourly discharge values.

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Citation: Laio, F. and Tamea, S.: Verification tools for probabilistic forecasts of continuous hydrological variables, Hydrol. Earth Syst. Sci., 11, 1267-1277, doi: 10.5194/hess-11-1267-2007, 2007. [Bibtex](#) [EndNote](#) [Reference Manager](#) [XML](#)



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