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Spatial uncertainty assessment in modelling refe evapotranspiration at regional scale

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Abstract. Evapotranspiration is one of the major components of th balance and has been identified as a key factor in hydrological moc For this reason, several methods have been developed to calculat reference evapotranspiration (ET_0). In modelling reference evapotranspiration it is inevitable that both model and data input present some uncertainty. Whatever model is used, the errors in t will propagate towards the output of the calculated ET_0. Neglectin information about estimation uncertainty, however, may lead to im decision-making and water resources management. One geostatis approach to spatial analysis is stochastic simulation, which draws alternative and equally probable, realizations of a regionalized var Differences between the realizations provide a measure of spatial uncertainty and allows to carry out an error propagation analysis.

The aim of this paper is to assess spatial uncertainty of a monthly reference evapotranspiration model resulting from the uncertaintie input attributes (mainly temperature) at a regional scale. A case s presented for the Calabria region (southern Italy). Temperature d jointly simulated by a conditional turning bands simulation with ele as external drift and 500 realizations were generated. Among the evapotranspiration models, the Hargreaves-Samani model was us

The ET_0 was then estimated for each set of the 500 realizations of input variables, and the ensemble of the model outputs was used the reference evapotranspiration probability distribution function. approach allowed for the delineation of the areas characterised by uncertainty, to improve supplementary sampling strategies and ET predictions.

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