BIAS CORRECTION OF PRECIPITATION AND TEMPERATURE FROM REGIONAL CLIMATE MODELS — THE IMPACT ON RUNOFF MODELLING

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Hydrological modelling is often used for assessment of climate change impacts on water resources. Inputs into the hydrological model are represented by precipitation and temperature based on simulations of climate models. These models are biased and therefore some of the available bias-correction methods have to be applied on before using the simulated data in hydrological model. However, it is shown that identity of distributions of corrected and observed inputs (precipitation and temperature) does not guarantee identity of distributions of outputs (runoff). This is especially due to the fact, that generally used methods for correction of systematical biases of climate models do not eliminate errors in temporal structure of precipitation. Another issue is, that the corrections are usually focused only on time scale in which the hydrological model is operated, e.g. 1 day. Despite the satisfactory correction of variables in daily time step, monthly, seasonal and annual aggregations of precipitation appear to be biased, which consequently results in errors in long-term hydrological balance and variablity of simulated runoff.