



Analysis of climate change effects on runoff conditions of two small catchments using climate-runoff models

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Nowadays global climate change is one of the most discussed scientific topic. According to prognosis (both optimistic and pessimistic) Hungarian economy will have to deal with serious difficulties in consequence of air temperature and precipitation changes.

Preparing for climate change inducing problems in this paper climate-runoff (Budyko type) models were employed for two small catchments (Béci- and Kürtös-creek) in South Western Hungary. There were trusty long term runoff and precipitation time series, as well as spatially-distributed precipitation and evapotranspiration maps (validated by locally measured precipitation and runoff data) available. The climate change dataset was calculated on the basis of the prognosis of twelve regional climate models.

Spatially-distributed calibration parameter of Budyko-model was calculated by using temperature, precipitation and areal ET maps. The parameter map aggregates all of the factors affecting ET. This map is used for evaluating future ET and runoff in spatially-distributed mode.

In spite of the fact results have some inaccuracy, in the order of magnitude they reliably show that annual runoff of analysed catchments will have strong recession (46% for Béci and 51% for Kürtös creek) to the end of the 21st century.

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