



## **Uncertainty assessment of a distributed physically based model of snowmelt runoff**

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The results of numerical experiments to investigate the uncertainty of the snowmelt runoff model associated with different ways of averaging of the parameters and insufficient spatial representation of input data are presented. The model is based on the finite-element schematization of river basin and includes the description of the following hydrological processes: snow cover formation and snowmelt, freezing and thawing of soil, vertical soil moisture transfer and evapotranspiration, water retention in basin storage, overland and channel flow. Stochastic subgrid variations of snow cover and saturated hydraulic conductivity are taken into account. The meteorological inputs of the model are measurements of snow cover, liquid precipitation, air temperature, and air humidity. The case study was carried out for the Vyatka River basin (the catchment area is 124,000 km<sup>2</sup>). The basin area was presented by 477 finite elements. The hydrometeorological records obtained from 21 meteorological stations and 66 snow courses during 1971-1980 period were used. The statistical distributions of possible errors of calculation of runoff volumes and peak discharges under the different sources of uncertainty were assessed.