

## **Application of a modified rainfall–runoff model in a small sandy soil catchment**

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**Abstract** A conceptual and continuous catchment-scale rainfall–runoff module, RAM, that has the potential to be ultimately used for non-point source pollution simulation, is described. In this study, the simulation of runoff from rainfall for the unpaved soil surface was modified by using the elements of the Wageningen rainfall–runoff model (WAGMOD). Moreover, the manual optimization procedure was adapted to an automatic optimization method. To evaluate the applicability of the proposed model, field measurements of runoff from one Dutch catchment were used to validate the model. Model results show that the modified model generated results are in good agreement with the measurements. Comparison confirms that the proposed model greatly improves the model efficiency, especially in the simulation of low flows. Model results also indicate that the modified model is robust and useful. Thus the modified model can be used for predicting the water quality components.

**Key words** calibration; concept model; rainfall–runoff model; RAM; verification

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