



An interactive modelling tool for understanding hydrological processes in lowland catchments

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Recently, we developed the Wageningen Lowland Runoff Simulator (WALRUS), a rainfall-runoff model for catchments with shallow groundwater (Brauer et al., 2014ab). WALRUS explicitly simulates processes which are important in lowland catchments, such as feedbacks between saturated and unsaturated zone and between groundwater and surface water. WALRUS has a simple model structure and few parameters with physical connotations. Some default functions (which can be changed easily for research purposes) are implemented to facilitate application by practitioners and students. The effect of water management on hydrological variables can be simulated explicitly.

The model description and applications are published in open access journals (Brauer et al, 2014). The open source code (provided as R package) and manual can be downloaded freely (www.github.com/ClaudiaBrauer/WALRUS). We organised a short course for Dutch water managers and consultants to become acquainted with WALRUS. We are now adapting this course as a stand-alone tutorial suitable for a varied, international audience. In addition, simple models can aid teachers to explain hydrological principles effectively. We used WALRUS to generate examples for simple interactive tools, which we will present at the EGU General Assembly.

C.C. Brauer, A.J. Teuling, P.J.J.F. Torfs, R. Uijlenhoet (2014a): The Wageningen Lowland Runoff Simulator (WALRUS): a lumped rainfall-runoff model for catchments with shallow groundwater, *Geosci. Model Dev.*, 7, 2313-2332.

C.C. Brauer, P.J.J.F. Torfs, A.J. Teuling, R. Uijlenhoet (2014b): The Wageningen Lowland Runoff Simulator (WALRUS): application to the Hupsel Brook catchment and Cabauw polder, *Hydrol. Earth Syst. Sci.*, 18, 4007-4028.