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Play with hydrologic models in R

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The aim of this poster is to show the advantages of building hydrologic models using the R environment for educational purposes.

As an example we consider a conceptual rainfall-runoff model (HBV type) that was originally written in the fortran language and is used in many scientific studies and practical engineering applications in Austria. A simplified version of the model was built into a R package and compiled for different platforms and operating systems. The model runs on a daily time step and consists of a snow routine, a soil moisture routine and a flow routing routine. In this poster we present a set of examples that have been used in a graduate level course on engineering hydrology at the Vienna University of Technology. These include:
- Multi-objective calibration of the model;
- Manual vs. automatic calibration;
- Visualisation of model outputs and efficiency;
- Model application in ungauged catchments;
- Operational forecast.

The flexibility of R is ideal for education, since students can easily play with the extensive list of existing functionalities and define new functions and extensions.