RHydro – Hydrological models and tools to represent and analyze hydrological data in R

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In hydrology, basic equations and procedures keep being implemented from scratch by scientist, with the potential for errors and inefficiency. The use of libraries can overcome these problems. As an example, hydrological libraries could contain: 1. Major representations of hydrological processes such as infiltration, sub-surface runoff and routing algorithms. 2. Scaling functions, for instance to combine remote sensing precipitation fields with rain gauge data 3. Data consistency checks 4. Performance measures.

Here we present a beginning for such a library implemented in the high level data programming language R. Currently, Top-model, the abc-Model, HBV, a multi-model ensamble called FUSE, data import routines for WaSiM-ETH as well basic visualization and evaluation tools are implemented. Care is taken to make functions and models compatible with other existing frameworks in hydrology, such as for example Hydromad.