R-HYPE – an open R-package for management and evaluation of HYPE-data

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The Hydrological Predictions for the Environment (HYPE) model is a dynamic, semi-distributed, process-based, integrated catchment model. It uses well-known hydrological and nutrient transport concepts and can be applied for both small and large scale assessments of water resources and status. The model uses a sub-catchment approach to discretize the model domain. Within sub-catchments, a hydrological response unit (HRU) approach is used to calculate the model response. HYPE source code and tools are available through the HYPE Open Source Community (OSC) website (hype.sourceforge.net). HYPE code is released by the SMHI under the Lesser GNU Public to strengthen international collaboration in hydrological modelling and hydrological data production. New versions of the main code are delivered frequently as new versions of the HYPE model are developed. HYPE OSC is open to everyone interested in hydrology, hydrological modelling and code development – e.g. scientists, authorities, and consultancies. To support users, HYPE OSC contains manuals, wiki-pages, sample models and tools. One such tool is R-HYPE.

R-HYPE is an R add-on package, providing a continuously growing set of functions to support and simplify processing files and analyzing results of the HYPE model. HYPE is typically used in large scale model set-ups which involves large data sets. Analysing such data requires recurring data handling operations and analysis steps. RHYPE strives to simplify these frequently needed analysis steps in order to support users in their specific research tasks. The current version of the package contains functionality for:

- Importing HYPE model set-up and data files as well as model result files into an R workspace
- Analyzing and manipulating a HYPE model set-up
- Identifying and analyzing model sub-sets or specific sub-catchments
- Analysing and manipulating forcing data sets
- Plotting results
- Exporting data from R into HYPE files

R-HYPE is currently hosted on GitHub (https://github.com/rcapell/RHYPE). Latest development versions of the package can be installed using the 'devtools' package (http://cran.r-project.org/web/packages/devtools), which allows direct package installation from GitHub repositories. As package development is continuously ongoing, we encourage users to request functionalities through the GitHub issue tracker.