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V-FOR-WaTer – a virtual research environment to access and process environmental data

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V-FOR-WaTer, as a virtual research environment, wants to simplify data access for environmental sciences, foster data publications and facilitate preparation of data and their analyses with a comprehensive toolbox. A large number of datasets, covering a wide range of spatial and temporal resolution, is still hardly accessible for others than the original data collector. Frequently these datasets are stored on local storage devices. By giving scientists from universities and state offices open access to data, appropriate pre-processing and analysis tools and workflows, we accelerate scientific work and facilitate the reproducibility of analyses.

The prototype of the virtual research environment was developed during the last three years. Today it consists of a database with a detailed metadata scheme that is adapted to water and terrestrial environmental data and compliant with international standards (INSPIRE, ISO19115). Data in the web portal originate from university projects and state offices. The connection of V-FOR-WaTer to established repositories, like the GFZ Data Services, is work in progress. This will simplify both, the process of accessing publicly available datasets and publishing the portal users' data, which is increasingly demanded by journals and funding organisations.

The appearance of the web portal is designed to reproduce typical workflows in environmental sciences. A filter menu, based on the metadata, and a graphical selection on the map gives access to the data. A workspace area provides tools for data pre-processing, scaling, common hydrological applications and more specific tools, e.g. geostatistics. The toolbox is easily extendable due to the modular design of the system and will ultimately also include user-developed tools. The selection of the tools is based on current research topics and methodologies in the hydrology community. They are implemented as Web Processing Services (WPS); hence, the tool executions can be joined with one another and saved as workflows, enabling more complex analyses and reproducibility of the research.