



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

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The extent and diversity of environmental data continuously increases due to new methods and sensors in remote sensing and the growth and automation of observational networks. These different data sources and the application of suitable tools form the basis for a better understanding of ecological systems and the development of models to describe and forecast changes within these systems. However, a considerable amount of this data, covering a wide range of spatial and temporal resolution, is difficult to access or even still stored on local data storage devices. Moreover, many datasets are insufficiently described, hence unusable for science. This results in very time consuming preprocessing of data when datasets from different sources are used, which slows down scientific work enormously.

V-FOR-WaTer wants to simplify data access for environmental sciences, foster data publications and facilitate preparation of data and their analyses with a comprehensive toolbox. Also, bringing data and tools together in one environment maximises the reproducibility of analyses and models. Up to now, the V-FOR-WaTer system includes a database with point and time series data, with an extensive metadata model customized for hydrological and environmental data that fulfils international standards (INSPIRE, ISO19115). The incorporated datasets originate from university projects and state offices. The V-FOR-WaTer web portal provides easy access to the datasets by a comprehensive search and filter menu. The toolbox already includes tools for pre-processing, common hydrologic applications and geostatistics, and is easily extendable due to the modular design of the system (e.g. various tools for data scaling are planned). In cooperation with the users, the further development of V-FOR-WaTer is expected to create a real benefit for scientific work with environmental data.