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The eWaterCycle platform for FAIR and Open Hydrological Modeling

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The eWaterCycle platform is a fully Open-Source platform built specifically to advance the state of FAIR and Open Science in Hydrological Modeling.

eWaterCycle builds on web technology, notebooks and containers to offer an integrated modelling experimentation environment for scientists. It allows scientists to run any supported hydrological model with ease, including setup and preprocessing of all data required.

eWaterCycle comes with an easy to use explorer, so the user can get started with the system in minutes, and uniquely lets the user generate a hydrological model notebook based on their preferences.

The eWaterCycle platform uses Jupyter as the main interface for scientific work to ensure maximum flexibility. Common datasets such as ERA-Interim and ERA-5 forcing data and observations for verification of model output quality are available for usage by the models.

To make the system capable of running any hydrological model we use docker containers coupled through gRPC. This allows us to support models in a multitude of languages, and provide fully reproducible model experiments.

Based on experiences during a FAIR Hydrological Modeling workshop in Leiden in April 2019 we have created a common pre-processing system for Hydrological modeling, based on technology from the climate sciences, in particular ESMValTool and Iris. This pre-processing pipeline can create input for a number of Hydrological models directly from the source dataset such as ERA-Interim in a fully transparent and reproducible manner.

During this pico presentation, we will explain how this platform supports creating reproducible results in an easy to use fashion.