

## Workshop on modeling hydraulic head time series with Pastas

Wednesday, 20.03.2024, 10:00-17:00

**Tutor:** Raoul Collenteur, PhD (Eawag, Dübendorf, Schweiz)

**Participants:** max. 20

**Venue:** Lehrstuhl für Ingenieur- und Hydrogeologie der RWTH, Lochnerstr. 4-20, Raum 507

Time series modeling has become an increasingly popular method to solve groundwater problems. This workshop provides a theoretical and practical introduction into time series modeling, with hands-on exercises using the open-source modeling software Pastas and Jupyter Notebooks. We focus on lumped-parameter models using impulse response functions to describe groundwater level fluctuations. This data-driven method can for example be used to investigate which hydrological forcings (e.g., precipitation, evaporation) influence the groundwater levels, but also to quantify groundwater recharge and the effect of groundwater pumping.

This workshop is aimed at groundwater researchers and practitioners interested in using methods of time series analysis in their hydrogeological studies. No previous experience with time series modeling is required, but some familiarity with Python is highly recommended to successfully complete the in-class exercises performed in Jupyter Notebooks. During the day there will be a number of example case studies and plenty of opportunities for discussions. After this course participants will be able to identify when the approach can be helpful and apply simple Pastas models to solve real-world groundwater problems.

**Prerequisites:** Basic familiarity with the Python syntax is recommended. Participants either need to bring their own laptops with Python installed or can use one of the available CIP-Pool computers. Instructions will be sent in advance.

