

# Master thesis/Study Project – Environmental Engineering

Master Thesis Workload: 30 ECTS, 900 hours

Study Project Workload: 12 ECTS, 360 hours

## Time-series analysis of the hydrological conditions in the Adige Valley during the summer drought 2022

The summer 2022 was characterized by a severe drought in northern Italy. The aim of this work is to investigate how the drought period affected the Adige catchment. The study will focus on the Adige Valley near Trento. Here, the Adige River and its tributaries are not only impacted by the meteorological conditions but also by surface water management (i.e., hydropower production) upstream. The student will mainly analyze the groundwater level and hydrographs of the Adige River and its tributaries between Trento and Mezzolombardo using multitemporal timeseries analysis techniques. This research is within the framework of the Hydromix project, which consists of studying the impact on surface water management on groundwater in Alpine Catchments.

### Tasks:

- Literature review on the 2022 drought experienced in Europe
- Data collection from meteorological conditions in the Adige Valley (some websites are in Italian)
- Data collection about energy prices and water use for irrigation
- Multitemporal analysis of river hydrographs and groundwater level.

### Requirements:

- Basic knowledge in programming and timeseries analysis.
- Independent, conscientious and responsible way of working

### Start:

From February, 2023

### Contact:

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