

# Research

## Hydrology and Water Quality

Processes studies and assessment of water quality, flow and solute transport modeling in different environmental compartments. Tracers, hydrochemical and compartmental modeling, and other models of environmental flow dynamics are derived from hydrochemical and isotope data.

## Enhanced Monitoring

The research addresses new monitoring and modeling approaches, improved monitoring devices and techniques as well as their efficient operation, methods for data analysis and programming including AI.

## Hydrological Modeling

Modeling and design of ecohydrological systems for remediation, flood control, retention and recharge management.

## Hydrological Engineering

We work continuously on developing new aspects of hydrological engineering.

- Water Engineering Solutions - Enhanced Nutrient Recycling in Hydrological Basins
- Water Engineering Solutions - Adaptive Drainage Systems for a Changing Environment
- Water Engineering Solutions - Adaptive Management of Alluvial Aquifers

## Secure and Sustainable Access to Water

The objective is to quantify environmental and socio-economic factors and derive indicators for access to water.

## Bachelor and Master Theses in Water Engineering

### Master Theses in Environmental Engineering

Several master theses can be realized in ongoing projects.

- Salinization of groundwater in coastal areas of northern Germany: History, Status, measures
- Groundwater modeling of seawater intrusion
- Isotopic fingerprints of seawater intrusion

### Bachelor Theses for Civil and Environmental Engineers

Please contact the laboratory of hydrology for further information. These bachelor theses start on **15.2., 1.3. or 15.3. 2022.**

- Salinization by Serpentinization – Processes, Detection and Geochemical Fingerprint
- Serpentinization – Potential for Carbon Dioxide Sequestration
- Serpentinization – A potential source of Hydrogen
- Biogeochemistry of Methanogenesis by Serpentinization

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