

## Effect of surface water-groundwater interactions on PFAS distribution

### Context and objectives

The presence of PFAS, often denoted as “forever chemicals”, in groundwater and surface water is a growing environmental concern worldwide, potentially with far-reaching consequences for water supply. Due to their high stability, PFAS can migrate over extensive distances in groundwater, exfiltrate to surface water bodies and enter into the food chain via irrigation or uptake by aquatic organisms. There is limited knowledge on the processes that control the migration of different PFAS through aquatic systems. The main objective of the project is to investigate how groundwater-surface water interactions influences the distribution of PFAS in aquifers and surface water bodies.

### Methodology

The project will be carried out downgradient of an industrial site with a known PFAS source and plume. PFAS are also present in a pond and canal downgradient of the site. A broad range of field methods will be applied. A groundwater monitoring network will be installed upgradient and downgradient of the pond and canal. Tracers tests, hydrochemical and isotope methods will be used to investigate surface water – groundwater interactions. Concentrations of PFAS in groundwater, the pond and the canal will be determined. Based on the results from the field campaigns, a conceptual model of how the interactions among groundwater, pond and canal influences the type, spatial distribution and concentrations of PFAS in these water bodies. Depending on the interest of the study, a numerical model could be established as well.

### Supervision and collaboration

The project will be carried out in close collaboration with the cantonal environmental agency in charge of contaminated sites and the federal office of the environment that supports the project. In addition, the student might interact with the site owner, a consulting company supporting the installation of the monitoring network, the drilling company and cantonal agencies managing the surface water bodies. The project will be supervised by Daniel Hunkeler and a PhD student, Francesco Scattolini, working at the site.

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