PhD Position in remote sensing for arid zone hydrogeology

Groundwater constitutes an important and reliable water resource in arid- and semi-arid regions. Groundwater resources in these dry climates are particularly vulnerable to abstraction and changing precipitation patterns. Observing and modelling hydrogeological processes in arid and semi-arid regions remains a challenge in hydrogeology. For example, precipitation dynamics feature a high spatial and temporal variability. This leads to complex infiltration, evaporation and recharge dynamics and spatial patterns. Emerging remote sensing technologies provide new means to observe hydrological fluxes across a wide range of spatial and temporal scales.

This project aims at developing new hydrogeological methods based on remote sensing to quantify how large-scale changes to water consumption and atmospheric forcing affect hydrogeological systems. The focus area is the Orontes (Asi) catchment which extends across parts of Syria, Lebanon, and Turkey. While fieldwork in this area is not possible, we will closely collaborate with Geo Expertise, a local NGO.

The PhD position is based at the Centre for Hydrogeology and Geothermics (CHYN) at the University of Neuchâtel under the supervision of Prof. P. Brunner, Prof. F. Zwahlen and Dr. Landon Halloran. This project is in close collaboration with Geo Experise. The CHYN offers a stimulating research environment with about 50 collaborators. The candidate will benefit from a comprehensive pool of field/laboratory equipment, technical support staff and a dynamic PhD school.

Required qualifications

The project is ideally suited for a candidate who has a keen interest in employing state-of-the-art remote sensing technologies to arid-zone hydrogeology. The candidate must have strong quantitative skills and preferably a background in remote sensing, quantitative hydrogeology, or related disciplines. Experience with GRACE data and/or Google Earth Engine is of particular interest, as is experience with programming in python or similar languages. Fluency and excellent writing skills in English are required. French is an important asset.

Duration

From 1. April 2021 (or upon agreement) for 3 years, with option to extend 1 year.

Additional information

Additional information about the position can be obtained from Prof. P. Brunner (philip.brunner@unine.ch)

Application

Applications should include a CV, a concise statement describing the motivation to work on this research project, copies of academic qualifications, and the names of three referees. The application should be submitted as one single pdf file to Application.CHYN@unine.ch. Please use the term "Orontes" in the subject of your email. Deadline for the application: 15. March 2021.