UNIVERSITÉ DE NEUCHÂTEL

CHYN
Centre d'hydrogéologie et de géothermie

PhD Position in numerical modelling at the interface of ecology and hydrology

Physically-based hydrogeological models are key tools for anticipating changes in water-related ecosystem services. However, they often lack several spatially distributed input data, both biotic (vegetation) and environmental. Meeting this challenge requires the integration of field surveys and advanced remote sensing technologies (e.g. drone-based measurements, satellite images). This can be achieved by bringing research approaches from different scientific disciplines together in the same geographic area.

In this interdisciplinary project financed by the Swiss National Foundation we will advance our capacity to obtain and understand the spatial distributions of key biotic and abiotic environmental factors for predicting the response of ecosystems and their hydrogeological conditions to climate change. The field site is in the Swiss Western Alps (Canton Vaud). The PhD candidate will be supervised by Prof. P. Brunner (UniNe) and co-supervised by Prof. G Mariethoz, UniL).

Required qualifications

The project is ideally suited for a candidate that has a keen interest in integrating methods and data of different disciplines (Mathematics, Geology, Remote Sensing, Ecology) in state of the art numerical models simulating the interactions and feedback mechanisms between hydrological and ecological processes. The candidate must have a strong quantitative background and preferably knowledge in physically based numerical modelling, inverse approaches and image processing. He/She has a talent and passion to develop experimental setups for the field. The successful candidate is expected to have a MSc in physics, mathematics, computer sciences, earth system sciences or related disciplines. Fluency in English is required.

Duration

Beginning: 1. January 2016 (or upon agreement) for 3 years

Additional information

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

Application

Applications should include a concise statement describing the motivation to work on this research project, copies of your academic qualifications and names of two referees. The application should be submitted as a single pdf file to both Prof. P. Brunner (philip.brunner@unine.ch) and Prof. G. Mariethoz (gregoire.mariethoz@unil.ch). Please use the term “INTEGRALP” in the subject of your email. Deadline for the application: 1. December 2015.