

## **PhD Position for the project “Understanding the dynamics of flowing stream networks”**

For the Laboratory of ecohydrology (ECHO) at EPFL, Switzerland, we invite applications for a PhD Position for the project “Understanding the dynamics of flowing stream networks”.

The networks of headwater streams dynamically expand in response to rainfall events or snowmelt, and they contract during extended dry periods. Understanding these stream network dynamics can help us to gain important insights into water storage variations and streamflow generating processes. This PhD project aims to identify physiographic and hydro-climatic factors that control stream network expansion and contraction in headwater catchments. The project will combine traditional hydrological field work with cutting-edge technologies such as wireless sensor networks for real-time hydrological monitoring and on-site water sample analysis for high-frequency water quality monitoring. A coherent theoretical framework will be developed which translates spatial information about the flowing stream network into hydrologic process understanding.

### **Your Responsibilities**

Extensive fieldwork and lab work during the snow-free seasons of the first two years of the project  
Perform statistical analyses of GPS, hydrological and hydrochemical data  
Use environmental tracers (stable water isotopes, solutes) to quantify flow pathways and source contributions to the flowing stream network  
Report regularly to the collaborators and present research results at scientific meetings  
Publish in international peer-reviewed journals

### **Your Qualifications**

A Masters' degree in Hydrology, Hydrogeology, Earth System Science, Environmental Engineering, Geography, Environmental Physics or related relevant disciplines  
Experience with field and lab work, good sense of direction  
Programming skills (using e.g., Matlab, Python or R)  
Ability to demonstrate excellent oral and written communication skills in English; knowledge of German or French is an advantage  
Ability to work both independently and in a team, keep to deadlines and engage in interdisciplinary work  
A driver's license is required

### **What We Offer**

We offer a stimulating and exciting work environment that provides plenty of opportunities to develop an academic career and to learn high-end techniques. The PhD candidate will greatly benefit from being affiliated with two Swiss research institutes: the L'Ecole Polytechnique Fédérale (EPFL) in Lausanne and the Swiss Federal Research Institute for Forest, Snow and Landscape research (WSL) in Birmensdorf, located near Zurich.

### **Employment**

The position is for four years and you are encouraged to spend time at both research institutes (EPFL in Lausanne and WSL in Birmensdorf) during the duration of the project. The salary is commensurate with the regulations of EPFL. Starting date is as agreed upon, latest April 1st 2020. The application deadline is November 1st 2019, interviews will be conducted in December 2019.

If you are interested, please send a cover letter describing why you are interested in the position, your CV, copies of relevant diplomas, two names of possible referees, and a writing sample in one single pdf file to [jana.vonfreyberg19@usys.ethz.ch](mailto:jana.vonfreyberg19@usys.ethz.ch).

For further information, please contact Dr. Jana von Freyberg via e-mail.