

PhD Student Position in Hydrogeophysics / Application to catchment and landslide hydrology

The Experimental Geophysics (GE) and Active Deformation (DA) Groups at School and Observatory of Earth Sciences (EOST) / Institute of the Physics of the Earth (IPGS) – University of Strasbourg / CNRS (France) has an opening for a fully funded doctoral fellowship in the field of hydrogeophysics.

Description: The objective of the research project is to propose a comprehensive aquifer characterization of complex objects such as mountainous watersheds and deep landslides. The approach will be based on the development of interpretation methods of electromagnetic (CS-AMT) and electric (DC and IP) measurements in order to estimate the subsurface properties of the aquifer and identify the main structures controlling the location and fluxes of waters. To interpret the resistivity and chargeability observations, additional techniques may be used such as borehole geophysics and Ground Penetrating Radar. Time-lapse observations will be considered on relevant temporal frequency (yearly, monthly or at the scale of large rainfall events).

The research project includes the creation of comprehensive images of hydrological properties (permeability, soil humidity) of the aquifer that can be integrated in slope-scale hydrological models. To this end particular emphasis will also be given to the assessment of the uncertainty of the inferred geophysical models.

The targeted study sites are the Strengbach catchment (hydrological watershed located in the Vosges mountains, ca. 80 km from Strasbourg) and the Lodève landslide (unstable slope located at Pégairolles at the foot of the Cévennes mountain, ca. 80 km from Montpellier) where detailed hydrological databases and on-going geophysical and hydrological monitoring are set up. These studies are supported by the infrastructure project CRITEX and by the research projects ANR HYDROCRISZTO and ANR HYDROSLIDE all targeting the understanding of the critical zone of the earth.

Location: The work will be carried out at the School and Observatory of Earth Sciences (EOST) / Institute of the Physics of the Earth (IPGS) at University of Strasbourg (France). Collaborations are scheduled with Geoscience Laboratory (GEOPS) at Paris-Saclay (France), the Geosciences Montpellier (GM, France), the Department of Applied Geophysics of Technical University Vienna (TUW, Austria), and the Geological Survey of Austria (GSA).

Supervision: The Ph.D will be formally supervised by Dr. Pascal Sailhac and Dr. Jean-Philippe Malet at EOST / IPGS. The Ph.D will be enrolled in the doctoral school in Earth and Environmental Sciences of the University of Strasbourg. The Ph.D. thesis may be submitted in English. The position is a research-only post, with no teaching obligations. CNRS/Unistra will provide substantial support in a stimulating environment, and we expect the successful candidate to undertake high quality original research in his/her specific field.

Conditions of employment: The position is funded for three years and the appointment will start in the fall of 2016 (or upon agreement, but no later than 1st December 2016). The appointment will be given in accordance with the French labour laws. Salary will be based on the French grid for PhD positions, corresponding to about 1750 € per month. The applicant will benefit from additional resources to cover fieldwork expenses and participation to conferences and workshops.

Requirements: At the time of appointment, the successful candidate must have the equivalent of an MSc degree in geophysics or in a closely related field, such as physics, mathematics, or engineering. We are looking for a highly motivated, mature individual with strong quantitative background. Interest in hydrological processes and for mountain environments are also recommended. Candidates with experience in hydrogeophysics and in process-based/stochastic modelling are strongly encouraged to apply. Experience in programming language (e.g. C++, C, Python, Matlab), and use of Linux OS are requested. A basic knowledge of French is an advantage, but not a requirement. Holding a driving license is compulsory for the application.

Application: Send a cover letter clarifying your overall motivation for entering a PhD program together with your curriculum vitae and the names, telephone numbers, and e-mail addresses of three referees to Dr. Jean-Philippe Malet (jeanphilippe.malet@unistra.fr) and to Dr. Pascal Sailhac (pascal.sailhac@unistra.fr). Selection of the applicant will be performed on a competitive basis including interviews.

Please note that the **application deadline is 15 July 2016**, so interested applicants should establish contact as soon as possible.

Website:

University of Strasbourg: <https://www.unistra.fr/>

School and Observatory of Earth Sciences: <https://eost.unistra.fr>

Institute of the Physics of the Earth: <http://eost.unistra.fr/recherche/ipgs/>