



Announcement for post-doc position for 2016 (12 months)

Experimental methodology for internal erosion characterization and its consequences on soil mechanical behaviour: definition and validation. Application to hydraulic earth structures

Location: GeM Laboratory (UMR CNRS 6183, IEG research team), University of Nantes, Saint-Nazaire, France

Job description: This research project is financed and co-supervised by the EDF-CIH company. The salary will be based on the contract grid of the employer, *Capacités society* (a subsidiary of the University of Nantes) with gross income estimated around 40,000 € for 12 months.

Objectives and Scientific Strategy:

The main objective of this post-doc position is to contribute to the definition of the following complete experimental methodology:

(1) Triaxial test on undisturbed cohesionless soils and coupling with tests of characterization of the internal erosion susceptibility of these soils (mainly suffusion and regressive erosion); Triaxial tests will be realized thanks to a large triaxial cell (specimen diameter: 200mm) which has been specially developed in the GeM laboratory.

(2) Interpretation of tests both on the internal erosion susceptibility and on the influence of the erosion on this mechanical behavior.

Further publications in international peer-reviewed journals and presentations at conferences are expected.

Prerequisites:

- PhD in geomechanics, geotechnics and/or hydraulic engineering,
- Good knowledge and skills in mechanical, hydraulic and geotechnical engineering
- Applicants with one or several of the following research experience are preferred: geomechanical experiment, hydraulic experiment, good skills in triaxial test,
- Proficiency in written and spoken English. French skills an advantage for general communication and daily life.
- Ability to work in a team and motivation to publish internationally.

Applications:

Interested applicants may contact Pr. Didier Marot, through email: didier.marot@univ-nantes.fr. The application should include a CV and a cover letter. In the cover letter, the applicant should include a short research statement explaining how he/she understands the issues related to the project.

Closing date: **February 19, 2016**

Employer presentation : Capacités SAS (<http://www.capacites.fr/>)

Capacités SAS is a French subsidiary of Nantes University, it was founded in 2005 and is located in Nantes. It counts more than 50 employees. *Capacités SAS* optimizes the link between Nantes University, companies and research partners throughout expertise, advice, assessment, engineering, R&D, sales and marketing services with the aims to optimize results of the latest research developments and to widen its portfolio.

Contact: Laurence Guihéneuf, laurence.guiheneuf@capacites.fr

Partner 1 - GeM laboratory presentation (<http://gem.ec-nantes.fr/>)

The GeM is an UMR of the CNRS linked to two establishments, on one hand the *École Centrale of Nantes* and on the other hand the *University of Nantes* represented by the *Faculty of Science and Techniques of Nantes* and the Technological college *I.U.T. of Saint-Nazaire*. The IEG research team of GeM Laboratory is recognized for its knowledge, experience and skills on soil behaviour under hydraulic load linked to internal erosion processes in hydraulic earth structures.

Contacts: Didier Marot, didier.marot@univ-nantes.fr, Fateh Bendahmane, fateh.bendahmane@univ-nantes.fr

Partner 2 - EDF-CIH presentation (<https://www.edf.fr/groupe-edf/producteur-industriel/hydraulique>)

Present for more than 25 years on *Savoie Technolac*, the *Center of Engineering Hydraulics (CIH)* of EDF designs and realizes hydraulic arrangements in France and abroad, rehabilitates and modernizes the existing structures and contributes to assure the maintenance of the current French hydraulic park. CIH employs 942 people.