LTDS
Laboratoire de Tribologie et Dynamique des Systèmes

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Post-doctoral position

Location: LTDS-Ecole Centrale de Lyon

Duration: 12 months from 1st September 2011

Cyclic modelling of soil and pile-soil interface

The work that will be undertaken is part of the national project **SOLCYP** (Behaviour and design of pile foundations for cyclic loadings) financially supported by the French Agency of Research (ANR) and RGCU.

A constitutive model for soil, previously developed in LTDS was adapted to better consider the great evolution of the internal state of soil during cyclic loadings. This model is an elasto plastic model involving two plastic mechanisms: an isotropic mechanism and a deviatoric mechanism. An effort was made to analyse the model internal variables able to reflect the evolution of the internal state of soil. This model was validated using conventional laboratory tests under different stress paths. A model for the pile-soil interface was deduced from the constitutive model for soil. This work is to be defended by a PhD student in November 2011.

The aim of the Post-Doctoral study will be to:

- implement the constitutive model for soil in the codes FLAC and FLAC^{3D} (ITASCA) using the core language (C^{++}).
- implement the pile soil interface model in beforementioned codes.
- solve boundary problems involving both the soil, the soil interface and piles on the basis of laboratory or site experiments performed during SOLCYP project.

Candidate must have completed a PhD, with a strong background in Soil Mechanics. Good programming skills are expected, particularly in relation with the language C^{++}. Good communication in English and ability to write articles in English are also required.

Applications involving CV, research skills and interests, diploma, can be sent by email to: eric.vincens@ec-lyon.fr.

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