



TERRE

Training Engineers and Researchers to Rethink
geotechnical Engineering for a low carbon future

36-month “Marie Skłodowska-Curie” Early Stage Research Fellowship

including registration for a PhD degree at the University of Glasgow, UK

Suction-enhanced geotechnical design through interface properties (ESR2)

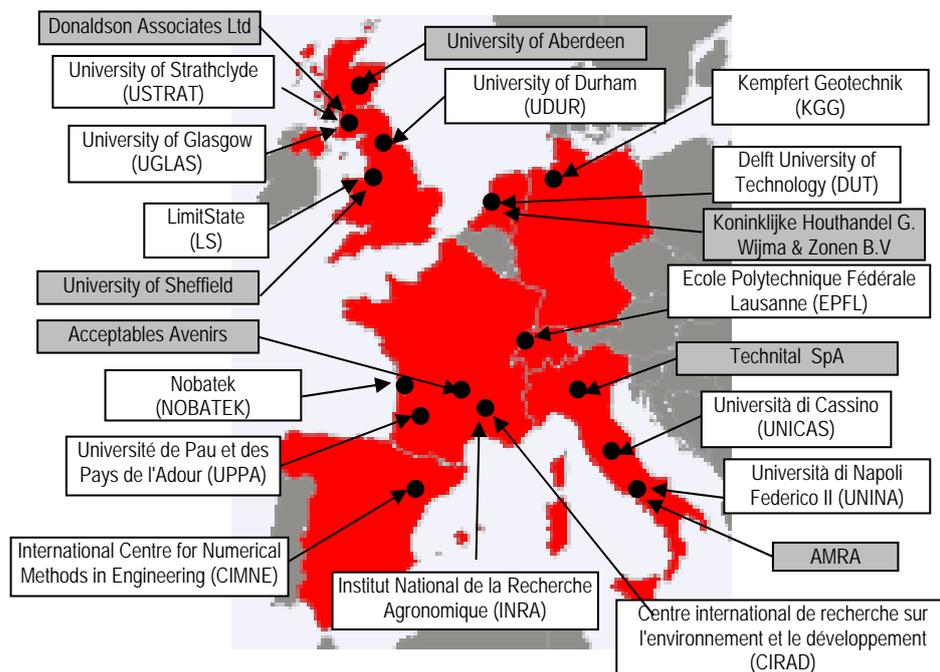
Unsaturated soils feature significantly in geotechnical construction and yet most geotechnical design assumes either fully dry or fully saturated conditions. Harnessing soil suction as an engineering tool can lead to potentially significant design gains since suction can impart substantial strength gains to soils. This project aims to investigate the use of physical interfaces or surface layers that inhibit liquid transfer but allow vapour transfer (analogous to breathable waterproof fabrics) thereby increasing suction in the ground in the long-term and reducing the risk of full saturation.

The project is a fully funded ‘industrial’ PhD based at the University of Glasgow (24 months) and industrial partner LimitState Ltd. (12 months). One-dimensional experimental tests and numerical modelling will be carried out at Glasgow to investigate the performance of different sandwiched interfaces to enhance evaporation and hamper rainwater infiltration while work at LimitState Ltd will seek to examine the practical implications of suction-enhanced design on the design of a range of geotechnical constructions through modelling suction and control interfaces in the commercial geotechnical analysis package LimitState:GEO. The project will also involve interaction with industrial mentor Donaldson Associates through investigation of the potential application of suction control to specific case studies including stabilisation of cut slopes and excavations.

This project is funded through the European Training Network TERRE.

TERRE Network

TERRE involves 11 academic partners, 3 industrial partners and 7 Partner Organisations (grey boxes) from seven different European countries.



TERRE Project Overview

The project position is part of the European TERRE Marie Skłodowska-Curie Innovative Training Network (H2020 Marie Curie Action grant number 675762). The project “Training Engineers and Researchers to Rethink geotechnical Engineering for a low carbon future” (TERRE) is led by the Department of Civil & Environmental Engineering at the University of Strathclyde and includes participants from UK, France, Italy, Netherlands, Spain, Germany and Switzerland. The TERRE network aims to develop novel geo-technologies to address the competitiveness challenge of the European construction industry in a low carbon agenda. Industry and Research in the construction sector have been investing significantly in recent years to produce innovative low-carbon technologies. However, little innovation has been created in the geo-infrastructure industry, which is lagging behind other construction industry sectors. TERRE aims to close this gap through a network-wide training programme carried out by a close collaboration of eleven Universities and Research Centres and three SMEs.

The Marie Curie Early-Stage Research (ESR) fellows will be involved in inter-sectoral and intra-European PhD projects via enrolment in 8 ‘Joint-Awards’ and 7 ‘Industrial’ PhDs focusing on carbon-efficient design of geotechnical infrastructure. In addition to ‘Training through Research’, TERRE will offer ‘Training through Courses’ designed at Network level to develop ESRs’ technical and complementary skills.

Eligibility criteria:

- i) Early-Stage Researchers (ESRs) shall, at the time of recruitment by the first host organisation, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. Full-Time Equivalent Research Experience is measured from the date when a researcher obtained the degree which would formally entitle him/her to embark on a doctorate
- ii) At the time of recruitment by the first host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in the countries of their host organisations (i.e. the UK) for more than 12 months in the 3 years immediately prior to the reference date. Compulsory national service and/or short stays such as holidays are not taken into account.

In addition to the above, applicants should have a good MSc or MEng degree or equivalent in a relevant field such as Geotechnical Engineering or Civil Engineering. Applicants should have the ability to undertake research (both experimental and computational) and disseminate results and should be creative, with the ability to apply initiative and solve problems. Candidates should have excellent communication and technical presentation skills and be able to work well both independently and as part of a team. Willingness for significant mobility throughout Europe to engage with academic and industrial partners is required. The project is based at the University of Glasgow, UK (24 months) and at industrial partner LimitState Ltd. in Sheffield, UK (12 months).

Living, mobility, and family allowance

The ESR will be recruited with an employment contract consisting of a Living Allowance of €3110/month (adjusted with the country coefficient), a Mobility Allowance of €600/month, and a Family Allowance €500/month (if eligible). Allowances are subjected to employer and employee’s compulsory deductions.

PhD registration and the University of Glasgow

The ESR will register for PhD study at the University of Glasgow. The University of Glasgow was founded in 1451 (the 4th oldest in the UK) and now has more than 25,000 undergraduate and postgraduate students from more than 140 countries worldwide. In 1840 we became the first university in the UK to appoint a Professor of Engineering and the School of Engineering now has 109 academic staff, 110 postdoctoral researchers and more than 1600 students, including 240 PhD students. The ESR (PhD student) will be based in the Infrastructure & Environment Research Division within the School of Engineering. Supervision will be provided by Prof Simon Wheeler (University of Glasgow) and Dr Colin Smith (LimitState Ltd. and University of Sheffield).

How to Apply

Apply online at <http://www.gla.ac.uk/about/jobs/vacancies/> . The Reference for the post is 013826.

Closing Date

24th July 2016

Who to Contact

Further details can be obtained from Prof. Simon Wheeler (Simon.Wheeler@glasgow.ac.uk) or Dr Colin Smith (c.csmith@sheffield.ac.uk).