Postdoctoral Research Associate
Wind turbine foundations in unsaturated soils

Job Title :	Postdoctoral research associate	**Company :**	University of Pretoria
Department :	Faculty of Engineering, Build Environment and Information Technology	**Position Type :**	Research

Outstanding applicants are sought for the post of Research Associate, in the Department of Civil Engineering in the Faculty of Engineering, Built Environment and Information Technology at the University of Pretoria to carry out high-quality research involving physical modelling of the foundations of wind turbines in unsaturated expansive soils. The post is funded by a major grant from the United Kingdom's Engineering and Physical Sciences Research Council (EPSRC) Global Challenges Research Fund, grant (EP/P029434/1), entitled "Performance-based design of foundations of wind turbines in Africa (WindAfrica)". The project is in collaboration with Durham University (UK), Cambridge University (UK), University of Dar es Salaam (Tanzania), University of Khartoum (Sudan) and several industrial partners.

The focus of the appointment is on the development and testing of physical models in the geotechnical centrifuge to investigate the behaviour of wind turbine foundations in unsaturated expansive soils. Model wind turbine foundations will be subjected to cyclic loading during which soil and structural deformations, stresses and pore water suctions will be monitored. The successful applicant will be responsible to explore the effect of a number of factors influencing the deformation and the bearing capacity of wind turbine foundations in unsaturated soil. These factors include: (a) the geometry of foundations, (b) the effect of the contact between the soil and the piled foundations, (c) the effect of seasonal shrinking/swelling cycles and (d) the effect of fluctuation of the groundwater table.

Close collaboration with the other project partners will be essential for validating the physical modelling and for formulating a set of design guidelines for wind turbine foundations on unsaturated expansive soils. The physical modelling component will complement field testing, numerical modelling and laboratory testing carried out by the other project partners.

The successful applicant should hold a PhD in Civil Engineering (preferably Geotechnical Engineering), should have experience of physical modelling (preferably centrifuge modelling) and have knowledge of unsaturated soil behaviour.

Closes midday on :
15 Jul 2017