



## AGS SYDNEY TECHNICAL PRESENTATION

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### INFLUENCE OF WETTING AND DRYING CYCLES ON THE BEHAVIOR OF COMPACTED MATERIALS

Presented by Dr Ana Heitor

#### Abstract

Compacted soils are often used as construction materials for earth structures such as retaining walls, dams, and road and railway embankments, and as such are usually placed and often remain on site under partially saturated condition. However, during their service life these earth structures are likely to experience changes in hydraulic behaviour owing to climatic changes (e.g. wetting due to rainfall and drying during the drought season). These seasonal fluctuations and associated variations in moisture can have a substantial influence on the geomechanical performance of compacted materials during service.

In this presentation, aspects related to the influence of wetting and drying cycles on the behaviour of compacted materials are highlighted. Particular emphasis is placed on the effect of compaction energy on the hysteric behaviour (i.e. amplitude of the hysteresis loop) of a relatively low plasticity soil. The results not only confirmed the importance of the current suction in governing the elastic properties and associated moduli, but they also suggested that subsequent drying-wetting cycles or suction history can further induce hysteretic changes, particularly along the wetting paths.

#### About Dr Ana Heitor

Dr Ana Heitor, a senior lecturer at the University of Wollongong, received a Licentiate degree (New University of Lisbon) in 2004, a master's (Kyoto University) and doctoral (University of Wollongong) degrees in Geotechnical Engineering in 2009 and 2013, respectively. Prior to joining the Centre for Geomechanics and Railway Engineering at University of Wollongong she also worked in the geotechnical division of two consultancy and construction companies in Portugal (Lena Construções and COBA). She has received a number of awards for her innovative research work on the investigation of cost effective and non-destructive testing methods for evaluating the compaction efficiency of reclamation fills at Penrith Lakes. Her research work is predominantly focussed on the behaviour of compacted materials and has been showcased in a number of scholarly academic publications, including journals and international conference proceedings. She is currently a member of the Institution of Engineers Australia, Australian Geomechanics Society, Australasian Association for Engineering Education. Her research interests are mainly in the areas of non-destructive laboratory testing, soil improvement and stabilization, small and large strain behaviour of compacted soil and granular wastes.



8 FEB



NSW-SYD



**WHEN**  
WEDNESDAY 8 FEBRUARY 2017  
5.30pm Light Refreshments  
6.00pm Presentation



**WHERE**  
ENGINEERS AUSTRALIA,  
SYDNEY  
Auditorium (Ground Floor),  
8 Thomas Street, Chatswood.



**RSVP**  
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