Offshore Geotechnical Design – Recent Advances and Trends for Deep Water Developments

Date: April 7, 2008  
Time: 5:45 pm (reception)  
6:15 - 7:15 pm (Lecture)  
Venue: T6, Meng Wah Complex, HKU, Pokfulam Rd  
Registration: http://engineering.hku.hk

Offshore foundation design has to evolve rapidly over the last two decades, as the focus for new oil and gas developments moves increasingly to deep water, with fixed platforms being replaced by floating production systems or entirely subsea developments. This has resulted in increasing focus on soft sediments, on anchoring systems and pipeline and riser design. The lecture gives a brief overview of some recent advances in traditional foundation design, for piles and shallow foundations, where the ideas are equally applicable onshore and offshore, and then focuses on problems associated with deep water, including site characterisation of soft sediments and application to pipeline and riser design. Recurrent themes throughout the examples discussed include: more direct use of in situ test data to evaluate key design parameters; quantifying the effects of pre-peak and large displacement cyclic deformations; and integrating geotechnical models of soil-structure interaction into global design software.

Professor Mark Randolph is a Federation Fellow in the Centre for Offshore Foundation Systems at the University of Western Australia. His personal research interests include many aspects of pile design, but are currently focused on offshore developments in deep water, especially soil characterisation and the estimation of limiting loads for foundation, pipeline and anchoring systems. He interacts closely with the offshore industry, particularly through his role as a Director of specialist geotechnical consultants, Advanced Geomechanics. He is a Fellow of the Australian Academy of Science, and of the UK Royal Academy of Engineering, and was the 2003 Rankine Lecturer for the British Geotechnical Association.