Australian Geomechanics Society

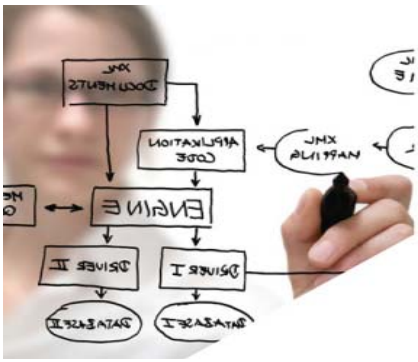
Sydney Chapter

Auditorium: Ground Floor, 8 Thomas Street, Chatswood

TECHNICAL PRESENTATION

Wednesday 10 Feb 2010

Light refreshments at 5.30 PM prior to 6.00 PM meeting



The 2010 Poulos Lecture

Modelling of Erosion

Speaker: ***Professor David Muir Wood***

University of Dundee, Scotland

SYNOPSIS

Following the discovery of sinkholes in the WAC Bennett Dam, British Columbia, in 1996, investigations showed that there had apparently been movement of fine material out of the core of the dam. The internal erosion (suffusion) is caused by continuing slow seepage but the concern is for the long term mechanical consequences. In order to be able to predict the result of such movement of material, a class of soil model is required which is able to accommodate changes in both density and grading of the soil. An outline of features of the Severn-Trent sand model---which incorporates effects of density variation---is presented and a suggestion is made for ways in which this model might be extended to include effects of changing particle size distribution. The modelling of erosion (narrowing grading) is complementary to the modelling of effects of particle breakage (broadening grading): simulations for both are shown and remaining uncertainties identified.

Attendance may be credited (1 point) towards Continuing Professional Development requirements. Members are responsible for recording CPD for audit purposes.

Booking is not required.
For further information contact Mark Adams (mark.adams@arup.com.au)

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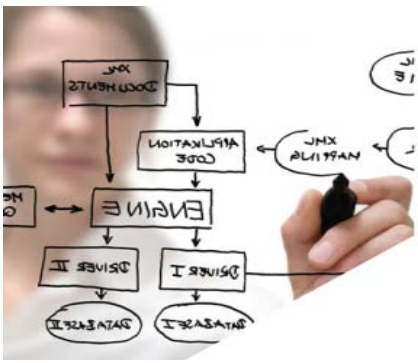

Brief CV

David Muir Wood read Mechanical Sciences at Peterhouse, Cambridge University, graduating in 1970. He received his PhD there in 1974 for research on the true triaxial behaviour of clays. He was a lecturer and Fellow of Emmanuel College, Cambridge from 1975-1987. In 1987 he moved to Glasgow University where he held the Cormack Chair of Civil Engineering.

In 1995 he was appointed to the Chair of Civil Engineering at Bristol University, becoming Dean of the Faculty of Engineering in 2003. He was elected a Fellow of the Royal Academy of Engineering in 1998. He joined the University of Dundee in 2009.

David Muir Wood's current research explores themes concerned with the particle-continuum duality of soils. He is developing constitutive models for soils with breakable particles, for soils whose finer particles are being transported away by internal flow of water, and for soils whose mechanical response is improved by the addition of short flexible fibres. The ongoing challenge for each of these is to obtain appropriate experimental data to support the modelling hypotheses.

He has written three books: Soil behaviour and critical state soil mechanics (1990), Geotechnical modelling (2004), Soil mechanics: a one-dimensional introduction (2009).

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