BGA Evening Meeting

TELFORD THEATRE, INSTITUTION OF CIVIL ENGINEERS,
ONE GREAT GEORGE STREET, WESTMINSTER, LONDON SW1P 3AA

Wednesday 26th September 2018 at 18:00

Mike Jefferies of Golder Associates

on

Critical State Soil Mechanics: 125 years of developments

(a story of many dam failures)

Summary:

Any soil can exist over a range of void ratio (or its alternate identity, density). Critical state soil mechanics (CSSM) developed from practical concerns of avoiding liquefaction failures into a theory linking a soil's void ratio to all aspects of its mechanical behaviour. However, there is a widely held perception that CSSM is an 'over idealized' construct put forward by Cambridge University which has no relevance to real engineering.

Continued overleaf

Programme

17:30 Refreshments - Brasserie
18:00 Lecture begins followed by Q&A
19:15 Drinks reception in ICE Café Bar

Registration

Book online: https://www.ice.org.uk/events/critial-state-soil-mechanics-london

t: +44 (0)20 7665 2007; e: bga@britishgeotech.org.uk

Drinks Reception Sponsor

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Critical State Soil Mechanics: 125 years of developments (a story of many dam failures) – *cont'd*

This Lecture considers the development of CSSM from an historical perspective, illustrating the simplicity of the underlying ideas, the wide range of contributors, and which leads to a proper representation of soil behaviour in a formally generalized framework using the *state parameter*.

This generalization works, with considerable detail, for real soils ranging from clays to sands. There is particular application to liquefaction, the cause of many dam failures (from Calaveros a century ago through to the recent failures of Fundao and Cadia).

Mike Jefferies, PEng

A Senior Consultant of Golder Associates, Mike is a registered Canadian professional engineer with some 40 years' experience in offshore platforms, dams, and ground improvement. Strongly influenced in his early years by Professors Bob Gibson, Alan Bishop, and Peter Wroth, Mike has pursued an interest in theoretical soil mechanics despite working as a consulting engineer.

A keynote speaker/author at international conferences on liquefaction, hydraulic fill construction, engineering mechanics, and offshore construction, Mike has published some eighty papers (approaching 5000 citations) and is co-author of the influential book *Soil Liquefaction: A Critical State Approach.* Mike is the originator of NorSand, an invited contributor to *Géotechnique*, the Canadian Geotechnical Society's Fall/2012 Cross-Canada Lecturer, presented the 2014 Šuklje Lecture, and was the 2018 Jennings' Lecturer; he was awarded a Telford Premium for geotechnical research in 2017.