



# GEOTECHNICAL SEMINAR

JOINTLY ORGANIZED<sup>1</sup> BETWEEN  
GEOTECHNICAL SOCIETY OF SINGAPORE (GEOSS)  
& CENTRE FOR SOFT GROUND ENGINEERING



## Clays in Radio-active Waste Deep Disposal

by **Professor Pierre Delage**



**Professor of Geotechnical Engineering  
Ecole des Ponts (ENPC), Paris, FRANCE  
Visiting Professor, Nanyang Technological University**

<b>Date:</b>	Thursday, 19 May 2011
<b>Time:</b>	6:30pm Reception 7:00~8:00pm Seminar
<b>Venue:</b>	<b>EA-02-11</b> Faculty of Engineering National University of Singapore

### SYNOPSIS

With the recent Japan disaster, the topic on clays in radio-active waste deep disposal is indeed timely. Clays and claystones are considered in some countries as possible host rocks for high activity radioactive waste disposal at great depth. The use of compacted swelling clays as engineered barriers is also considered in the framework of the multi-barriers concept. In relation with these concepts, various research programs have been conducted to assess the thermo-hydro-mechanical response of radioactive waste disposal at great depth. After a brief introduction to the disposal concepts developed in various countries, the presentation deals with some aspects of the thermo-hydro mechanical behaviour of engineered barriers and of the geological clays considered in Belgium, France and Switzerland, namely Boom clay, Callovo-oxfordian and Opalinus claystones. Particular attention is focused on the effect of temperature on the behaviour of clays and claystones and to the phenomenon of thermal pressurization.

### THE SPEAKERS

Pierre Delage is Professor of Geotechnical Engineering at Ecole des Ponts, Paris (ENPC). He got his PhD from Ecole des Mines de Paris in 1979. He started contributing to the development of CERMES (ENPC Geotechnical Lab founded in 1979 by F. Schlosser) in 1983 up to now. He has been Vice-Chairman of the French Geotechnical Society (2001 to 2010) and Editor in chief of the Revue Française de Géotechnique from 2000 to 2004. He is Vice-Chairman of the TC 106 on Unsaturated Soils and a member of the Innovation and Development Committee (IDC) of ISSMGE. He was member of the Géotechnique Advisory Panel (2000 to 2003) and participated to the Panels of various special issues of Géotechnique. He is member of the Editorial Boards of the Geotechnical Testing Journal (ASTM), Computers and Geotechnics (Elsevier), Geomechanics and Geoengineering (Taylor and Francis) and Rivista Italiana de Geotecnia. He authored more than 220 Journal and International Conferences papers including 13 Keynotes/General reports and edited 9 books and Conference proceedings. He has been the head of CERMES from 2003 to August 2010 and is presently on sabbatical leave at NTU. Pierre Delage developed researches based on innovative experimental procedures applied to the microstructure of clays (sensitive clays, deep marine sediments), the mechanics of unsaturated soils (applications to earth dams, embankments, radioactive waste storage, effects of drought on buildings, behaviour of loess), the thermo-mechanics of clays and claystones (radioactive waste disposal), the mechanical behaviour of multiphase chalk (oil reservoirs, chalk mine stability), soil reinforcement (nailing, fibres) and soil pollution by NAPL.

<sup>1</sup>**Geotechnical Seminar supported by the School of Civil and Environmental Engineering, NTU**

For catering purpose, please confirm your attendance by reply e-mail by 16 May 2011 to: [geoss@nus.edu.sg](mailto:geoss@nus.edu.sg)

\*\*\*\*\* Admission is free for members of Geoss. Non-members can register as members (S\$60 per annum) on the spot \*\*\*\*\*