



• THE BRITISH •  
GEOTECHNICAL  
ASSOCIATION



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**Joint meeting of the British Geotechnical Association  
and the Engineering Group of the Geological Society**

**INFORMAL DISCUSSION  
WEDNESDAY 11<sup>TH</sup> FEBRUARY 2009 AT 6.00PM**

at  
The Institution of Civil Engineers,  
One Great George St, Westminster London SW1P 3AA

# **“Ground Storage Energy Systems - where are we?”**

*Duncan Nicholson*  
Arup

*Robin Curtis*  
EarthEnergy

*Christopher Wood*  
University of Nottingham

*Barry Clarke*  
University of Leeds

*Synopsis Overleaf*

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**Tea and biscuits will be available from 5.30 – 6.00.**

In case of any query please contact the Coordinator BGA on 020 7665 2233 or email: [bga@britishgeotech.org.uk](mailto:bga@britishgeotech.org.uk)  
<http://www.britishgeotech.org.uk>

**Duncan Nicholson** is a director of Arup Geotechnics and treasurer of the Ground Source Heat Pump Association. Duncan will introduce the role of GSPHA and his own experiences, including a DTI funded Partners in Innovation research project and some recent case histories.

**Robin Curtis** is Technical Director of EarthEnergy Ltd, long established designers and installers of closed loop ground source heat pump systems of a wide range of types and sizes throughout the UK. Robin will try to address some of the current UK issues that may lead to non-performing systems, and will also address pertinent geotechnical issues regarding the use of closed loop systems.

**Christopher Wood** is a PhD candidate from the Institute of Sustainable Energy Technology at the University of Nottingham. Chris has been working in collaboration with Roger Bullivant Ltd on research projects involving methods of ground heat extraction. Areas of research have included deep (100m) direct exchange ground loops and energy piles for residential homes. Details will be given on the research work performed including an overview of the first year results. A short description of a real case study involving residential energy piles will also be given.

**Barry Clarke** of the University of Leeds is a Vice President of the Institution of Civil Engineers and former Chairman of the British Geotechnical Association. His interests in thermal characteristics evolved from the development of equipment to characterise soils to pilot field tests studying the dissipation of heat from model piles. He is the editor of the Geotechnique Symposium in Print in May 2009, which focuses on the thermal characteristics of soils. It is an opportunity to bring together best practice from a range of disciplines to look at characterisation, modelling, full scale testing and applications. Topics include laboratory testing of soils and rocks in saturated and unsaturated states which provide data for thermo-mechanical flow constitutive models. Much of this work has been driven by the nuclear industry which has funded full scale tests to validate the models. This knowledge is now being applied to the emerging ground energy industry in the UK. Barry's presentation will focus on highlights of the Symposium demonstrating the expertise that currently exists in a field that is rapidly becoming mainstream in geotechnical engineering.

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