

BGA Evening Meeting

Tuesday 3rd March at 18:00

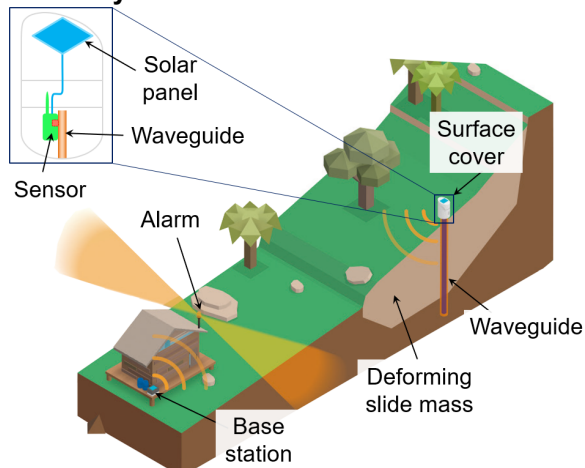
Institution of Civil Engineers, One Great George Street, London, SW1P 3AA

Listening to Infrastructure: Acoustic Emission Monitoring of Geotechnical Limit States

Professor Neil Dixon and Dr Alister Smith

School of Architecture, Building and Civil Engineering, Loughborough University

Summary:



There is an urgent need for improved and affordable approaches for health monitoring of geotechnical infrastructure systems to facilitate asset management (e.g. slopes, foundations, dams and buried pipes). A proportion of energy dissipated during deformation of soil, soil-structural interactions and seepage processes is converted to heat and sound. The high-frequency (>10kHz) component of this sound energy is called acoustic emission (AE).

It has been established that detected AE rates are proportional to rates of soil deformation and can be used to provide early information on both serviceability and ultimate limit states.

AE instrumentation is now available for continuous and real-time geotechnical monitoring. This presentation will introduce AE generation mechanisms and monitoring approaches in geotechnical engineering and describe the development and use of AE sensors for landslide early warning. It will also detail on-going research to deliver AE monitoring solutions for a range of applications (e.g. buried pipelines and earth dams).

Programme

17:30 Tea/coffee - Brasserie
18:00 Lecture followed by Q & A
19:15 Drinks reception

Registration

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t: +44 (0)20 7665 2007
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Drinks reception sponsor



Further information overleaf/

Acoustic Emission Monitoring of Geotechnical Limit States (Cont'd)

Biography

Professor Neil Dixon has over 35 years of experience in geotechnical engineering research and practice. He has studied slope failure mechanisms, in situ measurement of soil and waste properties, slope stability assessment, instrumentation development, slope process modelling, landfill barrier design and climate change impacts.

Dr Alister Smith is a Lecturer in Civil Engineering and is currently an EPSRC Fellow leading Listening to Infrastructure research, which is developing AE sensing technologies for a range of geotechnical domains.

Dixon and Smith co-invented the Slope ALARMS and Community Slope SAFE acoustic emission landslide early warning approaches and are members of the EPSRC ACHILLES Programme grant consortia investigating impacts of climate change on earthworks. They have received numerous prizes for publications and impact.



Please join us afterwards for drinks sponsored by



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