Variability and ground hazards: how does the ground get to be “unexpected”?

ABSTRACT
When something goes wrong in a civil engineering project, ‘unexpected ground conditions’ are often blamed. Natural variability of the ground can indeed be the cause of engineering hazards - but what are the causes of this variability? The systems in which sediments are laid down, weathered, eroded, faulted, frozen, transported, all make soils (and their behaviour) more complex. Engineering itself represents a type of assault on the ground, and variable sediments respond variably - leading to a wide range of potential hazards.

Understanding why the ground is variable therefore leads to a better understanding of this response, allowing improved prediction and management of risks. Using case histories from the UK and Australia, this lecture will explore the relationship between ground variability and engineering risk, and how training can increase the level of understanding of the ground at every level of a project.

SPEAKER BIOGRAPHY
Dr Jacqueline Skipper is a Senior Consultant and Senior Geologist at the Geotechnical Consulting Group, London, where she has worked since 2007. She received a First Class Honours degree in Geology from the University of Greenwich in 1993, and her PhD (on Paleocene sediments of SE England) from Imperial College, London in 2000. She is, and has been, very active as a consulting geologist on the ground investigation and construction for many major tunnel projects around London such as the Thames Water Tideway Project, Lee Tunnel, the Northern Line Extension, Lower Thames Crossing, High Speed 2 and Crossrail 2, and she is also on both Geotechnical Review and Formation Expert Panels for High Speed 2. Other recent projects include investigations of very large Quaternary Hollow features, landslip projects throughout the UK, and major construction projects throughout the UK, Europe and the Middle East.

In 2010 she was awarded the Geological Society Engineering Group Award and in 2017 was elected to receive the 18th Glossop Medal and deliver the prestigious 18th Glossop Lecture. Jackie has lectured in a number of countries around the world and has appeared on radio and television programmes as a geological authority. Jackie is widely known for her enthusiasm, energy and communication skills in engineering and geology and is a strong advocate of Project Specific Geological Training as a tool in project ground risk identification and reduction. She teaches a wide range of courses on aspects of engineering geology and stratigraphy, and is passionate about the communication of science to the next generations of engineers and geologists.