



24TH GLOSSOP LECTURE

LANDSLIDE RISK ASSESSMENT: RADICAL UNCERTAINTY AND ENGINEERING GEOMORPHOLOGY

Presented by Dr. Mark Lee, Ebor Geoscience Limited, York.

ABSTRACT

Assessment of landslide risks requires an understanding of how future landslide behaviour (the hazard) could have an adverse impact on people, property and the environment (the consequences). However, what will happen in the future cannot be known precisely, and often cannot be predicted with confidence. This 'radical uncertainty' results from incomplete knowledge about the slope systems and the response to energy inputs (e.g. waves, rainfall, earthquakes).

Probability is a measure of uncertainty. However, estimating landslide probability should not rely on 'geology-free' statistical models. The geology does matter. It will be necessary to make judgements based on an understanding of slope conditions and behaviour as well as historical data.

This lecture examines the way in which geomorphology and an understanding of slope behaviour are key to landslide risk assessment. The focus is on predictions of landslide probability made for economic risk assessments on the UK's Yorkshire coast. This coast is associated with rapid cliff recession rates (e.g. the Holderness coast) and major landslide events (e.g. the Holbeck Hall landslide, Scarborough). However, the lecture's central messages can apply to landslide risk studies everywhere, both at the coast and inland.



PRESENTER

MARK LEE

Mark Lee is an engineering geomorphologist working as an independent consultant in the civil engineering and energy sectors. He has been involved in landslide risk assessment and management since the mid-1980s. Early experiences

include the development of risk-based planning guidance for the Ventnor Undercliff on the Isle of Wight and the first UK quantitative risk assessment after the 1993 Holbeck Hall landslide in Scarborough. He was part of the team responsible for the development of probabilistic methods for economic evaluation of management options for eroding coastal cliffs and urban landslides. For the last 25 years he has been Subject Matter Expert for BP and other majors for the assessment and management of landslide risks to remote region pipelines in, for example, the Caucasus region, Turkey, Papua New Guinea and the Andes. He is the lead author of the book "Landslide Risk Assessment" (ICE Publishing), now in its 3rd edition (2023).

DATES AND VENUES

WELLINGTON

DATE Monday 17th Feb

TIME 17:00-18:00 refreshments

18:00-19:30 Glossop Medal Lecture

VENUE Engineering New Zealand, Level 6/40 Taranaki Street, Wellington

[REGISTER HERE](#)

AUCKLAND

DATE Tuesday 18th Feb

TIME 17:00-18:00 refreshments

18:00-19:30 Glossop Medal Lecture

VENUE University of Auckland, 20 Symonds Street

REFRESHMENTS Room 401-400L2 - 20 Symonds St - Engineering Foyer

LECTURE Room 401-401 - 20 Symonds St - Eng1401 Lecture Theatre

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