

The NZGS 2022 Geomechanics Lecture - The Question of Risk

Presented by Ann Williams

The NZ Geomechanics Lecture is the premier award of the New Zealand Geotechnical Society. It is presented by a person prominent in Geomechanics who can, in the presentation, contribute a statement of significance and value relevant to New Zealand.

In 2022, this award is presented to Ann Williams as a recognition of her long-standing contribution to the geotechnical profession in New Zealand, especially to understanding the geotechnical hazard and risk issues. The Committee would like to specifically mention the exceptional professional work Ann has carried out through the years, the mentorship to younger generations, the role model for diversity and the leadership she has demonstrated for our industry.

As geo-professionals, the essence of what we do is to recognise and respond to the uncertainty in the natural environment – an uncertainty which translates to risk for stakeholders.

As we know, the ground is formed by natural processes and is therefore made up of soils and rocks that are variable in form, properties and distribution. Risk arises from the interaction of ourselves and the built environment (our projects, our infrastructure) with the natural environment. Our task is to draw reasonable conclusions about risk from observations, investigations and analyses.

While the ground and the principles for going about making those observations and investigations remains unchanged, the tools and methods we have to undertake analyses and draw conclusions are changing rapidly. And the expectations on delivery from the practitioner of "broader outcomes", sustainable and circular design, visual experience, and efficiency, mean that it is increasingly difficult to trace the path from observation and factual data to the conclusion.

Coupled with development on and in increasingly marginal ground (steeper, less stable slopes, larger cuts, longer tunnels) and the impacts of climate change, the nature of the risks is also evolving. This paper examines, through examples, different ways of responding to the question of risk and how that advice and the way in which we deliver it, is also changing, with consideration of the benefits and pitfalls of those changes.



Ann is a Past Chair and Life Member of the New Zealand Geotechnical Society Inc., and past Vice President (Australasia) of the International Association for Engineering Geology and the Environment (IAEG). She is a member of the editorial boards of a number of international journals. She was recently elected to the Board of Engineering New Zealand. Ann is the recipient of the 2022 NZGS Geomechanics Lecture Award.

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