



The  
Geological  
Society

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**Glossop Medal:**

**D. Jean  
Hutchinson**

Professor, Geological  
Sciences and  
Geological  
Engineering, Queen's  
University, Kingston,  
Ontario, Canada

**Glossop Award:**

**Thomas St. John**  
Mott MacDonald

**Date:**

**13<sup>th</sup> November  
2019**

Free attendance to  
both Glossop  
Medal and Award  
lectures.

**Glossop  
Reception:**

**Delegate Fee  
Fellows £30 / Non  
Fellows £35**

**Venue:**

**Royal Institution,  
Theatre  
21 Albemarle  
Street, London  
W1S 4BS**

# The 20<sup>th</sup> Glossop Medal

**13<sup>th</sup> November 2019**

**presented by the Engineering Group of the Geological Society  
at the premises of the Royal Institution, London.**

## D. Jean Hutchinson

(Ph.D., P.Eng., FEIC, Professor, Geological Sciences and Geological Engineering,  
Queen's University, Kingston, Ontario, Canada.)

**'Building slope process models considering engineering geology:  
Extending our understanding, interpretation and communication of  
instability using remotely sensed data.'**

*Preceded by the 23<sup>rd</sup> Glossop Award presentation:*

**Thomas St. John – "Communication of Risk and Opportunity in Engineering Geology"**

**Programme:**

Pre-lecture Tea/Coffee in the ground floor Atrium/Café (Royal Institution) from **17:45**;

Prompt start for Glossop Award/Glossop Lecture in the Faraday Theatre (Royal Institution) at **18:30**;

Glossop Reception Meal in the Lower Library (Geological Society, Burlington House) at **20:40**.

**Synopsis**

Remote sensing techniques permit the engineering geologist to make detailed observations about the behaviour of slopes, including early detection of small-scale changes and instability indicators such as deformation and scarps. The range of techniques available include LiDAR and photogrammetry which will be discussed in this lecture, as well as InSAR, each of which has distinct advantages and limitations. Providing unprecedented levels of data from otherwise difficult or impossible to access sites, on a temporal frequency that is effectively only limited by budget, these techniques provide valuable information that can be used to monitor slope instability, including deformation rates and patterns, as well as material loss and gain, and provide input for numerical simulation of possible failure scenarios. However, the effective use of this data relies on developing and integrating an understanding of the engineering geology model and of the expected failure mechanisms, generally without the benefit of subsurface site investigation, in order to define the magnitude and immediacy of the hazard. Therefore, sufficient knowledge of various geological settings, slope instability mechanisms, earth material mechanics and the use of the detected information as input parameters into models, is required to make informed decisions about the hazard posed by slope instability. Case histories demonstrating the integration of engineering geological knowledge with remotely sensed data will be presented to illustrate these points. With the recent rapid development of data collection techniques and availability of remotely sensed data, supporting machine learning and AI techniques, experiential field-based engineering geology education and practice becomes an even more important foundation block. The practitioner of the future must continue to develop an understanding of the inherent variability and representation of geological settings in assessing slope instability, which will be overprinted by the effects of anthropogenic activities and extreme climate conditions, and the need to clearly communicate hazard, risk and uncertainty to decision makers and the public.

For further information and registration, please contact:

Event Convenor: Thomas D Hall

email: [tom.hall@mottmac.com](mailto:tom.hall@mottmac.com)





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## The 20<sup>th</sup> Glossop Lecture

**D. Jean Hutchinson Ph.D., P.Eng., FEIC**



D. Jean Hutchinson is a Professor of Geological Engineering at Queen's University, Kingston, Canada, and served as the Head of Department between 2009 and 2017. A registered Professional Engineer in Ontario, Jean conducts research on the assessment and mitigation of geomechanics risks related to rock slopes and ground surface subsidence, with a view to developing decision support systems founded on data collected from a variety of collection and monitoring techniques, always considering geological models and mechanics. Jean advocates for and participates in experiential learning including field-based education, and the promotion of inclusivity and diversity in STEM subjects.

Dr Hutchinson is the Vice President for North America for the IAEG (2019 to 2023), is the Chair of the Women in Mining Trailblazer Award Committee, is a member of the Board for the Canadian Foundation for Geotechnique and is a member of the Robert L. Schuster Medal selection committee.

Jean has had the great pleasure to supervise over 30 graduate students, and to teach a wide variety of courses to several 1000s of undergraduate students. Dr Hutchinson in collaboration with her students, as well as research partners including Dr Mark Diederichs and mentor Dr Evert Hoek, has published 1 book, 9 book chapters, 50 refereed journal papers, 90 full length refereed conference papers and 80 extended abstracts / non-refereed conference papers.

Dr Hutchinson has been very fortunate to receive a number of awards, including most recently the Canadian Pacific Railway Medal from the Engineering Institute of Canada (2017), the T. Geoffrey Flynn Advancement Champion Award from Queen's University (2017), the inaugural Excellence in Engineering Education award, from the Faculty of Engineering and Applied Science at Queen's University (2016) and the Robert L. Schuster Medal, jointly awarded by the American Association of Environmental & Engineering Geologists and the Canadian Geotechnical Society (2016). Jean was also pleased to be named as one of 12 "First Women in Canadian Geotechnique", by the Canadian Geotechnical Heritage Committee in 2018. Jean is also most honoured to have been named the 2019 Glossop Medalist and Lecturer by the Geological Society of London.

20<sup>th</sup> Glossop Lecture 2019 Sponsors:



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