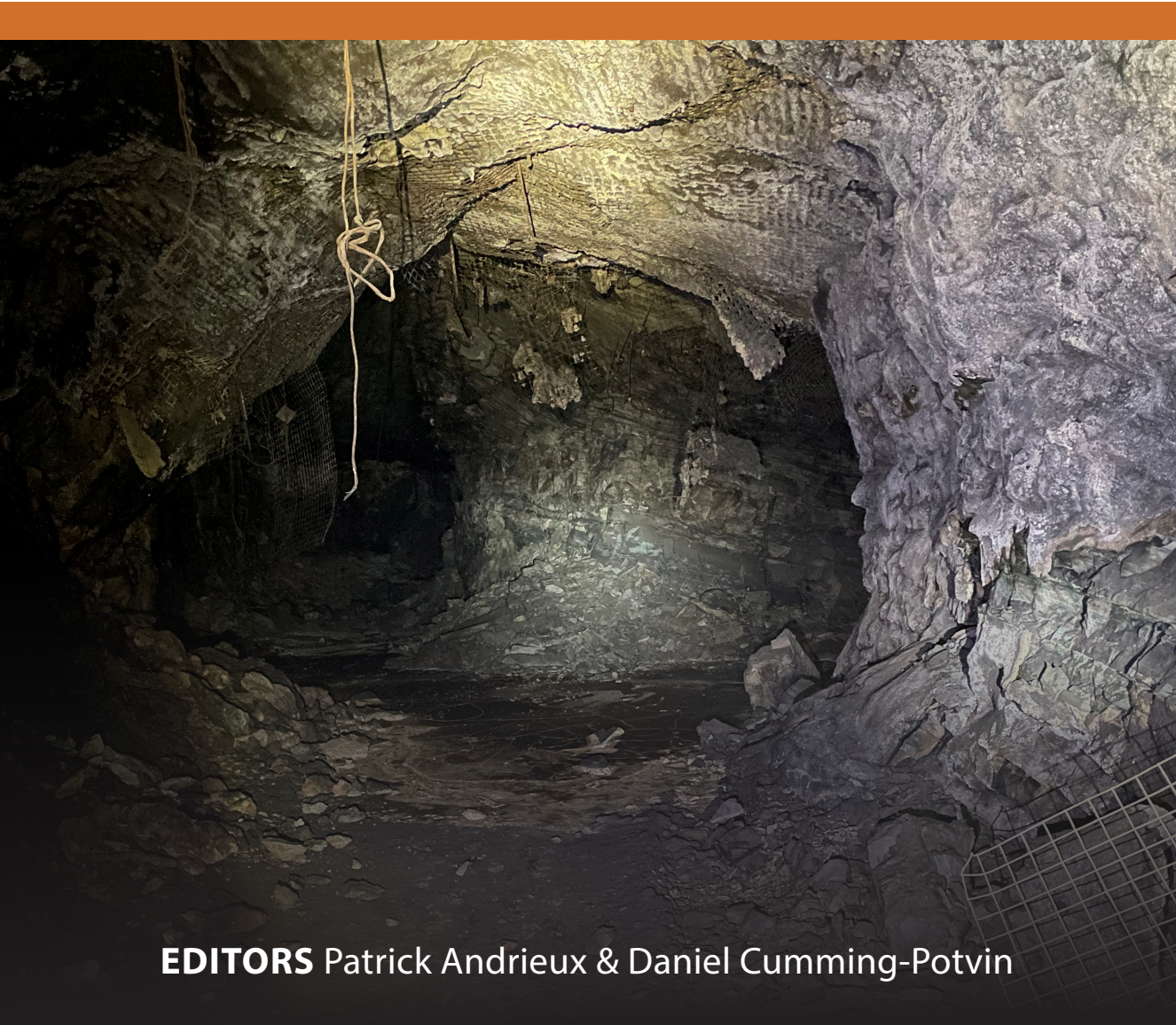


# Deep Mining 2024

Proceedings of the 10th International  
Conference on Deep and High Stress Mining

24–26 September 2024 | Montreal, Canada

**Volume One**



**EDITORS** Patrick Andrieux & Daniel Cumming-Potvin

# Deep Mining 2024

## 10th International Conference on Deep and High Stress Mining

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Volume One

*Editors*

**Patrick Andrieux**

A2GC, Canada

**Daniel Cumming-Potvin**

Australian Centre for Geomechanics, The University of Western Australia, Australia



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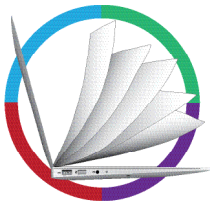
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# Preface

The international conference series on Deep and High Stress Mining (Deep Mining) commenced in Perth in 2002 and was preceded with conferences in Johannesburg (2004), Quebec (2006), Perth (2007), Santiago (2010), Perth (2012), Sudbury (2014), Perth (2017), and Cape Town (2019).

The organisers of the 10th International Conference on Deep and High Stress Mining (Deep Mining 2024) are excited to welcome attendees interested in deep mining from around the world for our first conference held in Montreal, Canada.

As shallow ore deposits around the world are increasingly depleted, the worldwide mining industry is increasingly having to push the boundaries of viable mining depths, with mines now operating below 4,000 m. Recent investment in green technologies is likely to further fuel the need for minerals, increasing the production needed to meet the world's demand.

Many issues faced by deep mines are driven by stress and in many mining jurisdictions, stress and seismicity can become serious problems at relatively shallower depths, with many Australian mines experiencing challenges well before depths of 1,000 m.

The challenges faced by these deep and high-stress mines are numerous and significant. They vary from squeezing ground conditions; when underground excavations close up due to mining-induced stress, to rockbursting; where underground personnel and equipment are put at risk due to the extreme brittle failure of the rock mass around excavations. Management of water and the corrosion associated with it, along with ventilation of hot underground conditions, are further considerations that need to be addressed by mines operating under challenging conditions.

Mitigation strategies for these problems often include monitoring the response of the rock mass (to better understand the problem), installing specialised ground support (to try to tackle the rock mass response to mining), together with implementing planning strategies to minimise negative impacts on production.

The Deep Mining conference series has always been a showcase for the exciting new work that has gone into managing these challenges, including analysis of seismic data, numerical modelling, design of ground support, creation of new technologies for monitoring the rock mass, and development of risk-management strategies. Deep Mining 2024 is no exception, with a large volume of high-quality papers across a range of topics applicable to deep and high-stress mining. Given that the nature of these problems is among the most challenging in the mining industry, it is likely that the learnings will be valuable for a broad spectrum of mines and mining professionals.

The Deep Mining 2024 proceedings can be found online, free of charge at the ACG Online Repository. They can be accessed using the following QR code or from [papers.acg.uwa.edu.au/deepmining2024](https://papers.acg.uwa.edu.au/deepmining2024).

Dr Patrick Andrieux and Dr Daniel Cumming-Potvin  
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