

## APPLIED RESEARCH PROJECT: VALIDATING SPATIOTEMPORAL SEISMIC CLUSTERS METHOD

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### Overview

The methodology to map discrete seismically active planes (seismic clusters that have preferred spatial orientation) was developed for the deepest mine in the Sudbury Basin (fig (a)). The methodology was adapted to generate seismic excavation hazard maps that change with the evolution of mining (fig (b)). Although successfully implemented at an active burst-prone mine, additional work to validate, calibrate and improve the methodology at a separate mine site is required to formalize and develop the technology for the mining industry. An industry partner with a good quality seismic and microseismic records over a longer-term period help facilitate the research and development of the methodology and its implementation in industry.

**Keywords:** seismicity, mining, structures, hazard, rock bursts

### Deliverable

Systematic seismic data analysis using the new methodology to track the initiation, migration and changes to damage processes, including fault-slip, at the mine site. Some of these may have led to rockbursts and association to mine stresses, stope extraction and geological structures will provide insight into how the rock mass reacts to mining. A custom processing and display tool can also be developed if required.

