MINING INDUCED SEISMICITY

Instructors: Daryl Rebuli and Stepehn Meyer, Institute of Mine Seismology, Canada

Date and time: Saturday, 22 June 2024, 8:00 am – 5:00 pm

Cost: $250; includes lunch.

Overview: This course aims at providing an introduction to seismic monitoring in mines to those new to the field, as well as discussing considerations for seismic monitoring system design and case studies of mine seismicity for those with more experience.

1. Introduction to mine seismology
   i. What are seismic waves
   ii. What are typical sources of seismic events in mines
   iii. What information can we get out of the waveforms

2. Micro-seismic system design
   i. Sensor types
   ii. Sensor locations for
      • Sensitivity
      • Location accuracy
      • Moment tensor inversion
   iii. Dataloggers
   iv. Timing - why this is important
   v. Other considerations

3. Advanced analysis
   i. Identifying crush type failure vs shear failure
   ii. Back analysis of complex seismic events including finite source inversion
   iii. Using seismicity to understand the local stress conditions in the rockmass
   iv. How seismicity can inform numerical modeling inputs