AU Online Mine Seismology Workshop

19-21 May 2020, Zoom platform

Final programme

Tue 19 May 09h00 – 15h00 AEST Primer Course on the Basics of Mine Seismology

Wed 20 May 09h00 – 15h45 AEST Presentations on Mine Seismology

Thu 21 May 09h00 – 15h30 AEST Presentations on Methods of Seismological Analysis. Demonstration of IMS Software

Attendance is free, although registration will be required.

Tuesday 19 May

Primer Course on the Basics of Mine Seismology

The objective of the course is to explain the elementary principles of seismology and seismic monitoring in mines to non-seismologists.

The attendants can test the Zoom connection any time between 08h00 and 09h00 AEST.

09h00 - 11h00 AEST | Objectives of seismic monitoring. Seismic waves and seismic sources. Location of events. Source parameters and magnitude
Dr Frank Calixto, IMS

11h00 - 12h00 AEST | Seismic source mechanisms
Dr Martin Gal, IMS

12h00 - 13h00 AEST | Lunch break

13h00 - 14h15 AEST | Parameters of seismicity. Analysis and interpretation of seismic data
Denver Birch, IMS

14h15 - 15h00 AEST | Seismic monitoring system: sensors, data acquisition units, communication, central site
Stephen Meyer, IMS
Wednesday 20 May

Presentations on Mine Seismology

The workshop is aimed at promoting the presentation and discussion of recent developments and applications of seismic monitoring in mines. The duration of presentations is 25 minutes and 5 minutes are reserved for questions.

The attendants can test the Zoom connection any time between 08h00 and 09h00 AEST.

Section 1: Coal mines

09h00 - 09h30 AEST | Location error based seismic cluster and its application on burst damage assessment in underground coal mines  
Changbin Wang, University of New South Wales

09h30 - 10h00 AEST | Seismic source location using the shortest ray tracing in a 3D complex velocity model for coal burst monitoring  
Yi (Joey) Duan, University of New South Wales

10h00 - 10h30 AEST | Aspects of seismic monitoring in coal mines  
Dr Liliya Malovichko, IMS

10h30 - 11h00 AEST | Routine assessment of stability of coal pillars in South African mines using the rate of seismic activity  
Dr Cornel du Toit, IMS

11h00 - 11h30 AEST | Session closure, discussion + tea/coffee break

Section 2: Sub-level open stoping mines

11h30 - 12h00 AEST | Seismic monitoring and interpretation at Rosebery mine  
Rachael Thompson, MMG

12h00 - 12h30 AEST | Towards a calibrated numerical model for the assessment of the seismic response of a WA gold mine: challenges and opportunities  
Ronald Lachenicht, ITASCA

12h30 - 13h30 AEST | Session closure, discussion + lunch

Section 3: Block and sub-level caving mines

13h30 - 14h00 AEST | Observations and analysis of cave initiation at Carrapateena mine  
David Cox, OZ Minerals

14h00 - 14h30 AEST | Seismic monitoring at Northparkes mine  
Remeth Henry, CMOC-Northparkes Mines

14h30 - 15h00 AEST | Benefits of implementing a real-time seismic monitoring system at Cadia Valley Operations  
Arvic Osorio, Newcrest Mining Limited
15h00 - 15h30 AEST | Utility of microseismic data in monitoring the evolution of the yield zone associated with caving mines
Stephen Meyer, IMS

15h30 - 15h45 AEST | Session closure, discussion

Thursday 21 May

Presentation of the Methods of Seismological Analysis. Demonstration of IMS Software

There will be a combination of theoretical presentations and software demonstration explaining and illustrating the processing and interpretation of seismic monitoring data. The duration of presentations is 25 minutes and 5 minutes are reserved for questions.

The attendants can test the Zoom connection any time between 08h00 and 09h00 AEST.

Methods of seismological analysis

09h00 - 09h30 AEST | Dynamic analysis of seismic shakedown damage
Dr Dmitriy Malovichko, IMS

09h30 - 10h00 AEST | Associating seismicity with geological structures while accounting for uncertainties in location and source mechanism
Stephen Meyer, IMS

10h00 - 10h30 AEST | Using seismic source mechanisms to estimate parameters of in situ stress in mines
Gys Basson, IMS

10h30 - 11h00 AEST | Seismic rock mass response to hydraulic fracturing
Denver Birch, IMS

11h00 - 11h30 AEST | A method to establish exclusion times and zones after blasts in seismically active mines
Dr Cornel du Toit, IMS

11h30 - 12h00 AEST | Forensic analysis of damaging seismic events in underground mines
Dr Dmitriy Malovichko, IMS

12h00 - 13h00 AEST | Session closure, discussion + lunch

Software demonstration

13h00 - 14h00 AEST | Calculation and analysis of source mechanisms with IMS software
Dr Martin Gal, IMS

14h00 - 15h30 AEST | Numerical modelling for seismically active mines with IMS software
Gys Basson, IMS