

# SYMPOSIUM-AT-A-GLANCE

## 8<sup>th</sup> Microseismic Symposium

Marriott Kingston Water's Edge, Kingston, Ontario



### SUNDAY, JUNE 9 • ROOM: WEST SEVENTY6 GRILL

4:30 PM - 6:30 PM

Icebreaker Reception

### MONDAY, JUNE 10 • ROOM: ST. LAWRENCE A

7:30 AM - 8:00 AM

Registration

8:00 AM - 8:05 AM

Welcoming Remarks

8:05 AM - 9:00 AM

Keynote Presentation

9:00 AM - 10:00 AM

Theme: Innovation and Technology: Meeting R&D Demands for Industry

10:00 AM - 10:30 AM

Coffee Break

10:30 AM - 12:00 PM

Theme: Seismic Analysis for the Characterization of Rock Mass Behaviour

12:00 PM - 1:00 PM

Lunch

1:00 PM - 2:30 PM

Theme: Numerical Modelling and Seismic Insights for Ground Support Assessment and Monitoring

2:30 PM - 3:00 PM

Coffee Break

3:00 PM - 4:45 PM

Theme: Better Design, Deeper Analysis

6:30 PM - 10:00 PM

Dinner Boat Cruise  
Crawford Wharf - 1 Brock St.

### TUESDAY, JUNE 11 • ROOM: ST. LAWRENCE A

8:00 AM - 10:30 AM

Theme: Seismic Hazard Case Studies (Part 1)

10:30 AM - 11:00 AM

Coffee Break

11:00 AM - 12:00 PM

Theme: Statistical Approach to Hazard

12:00 PM - 1:00 PM

Lunch

1:00 PM - 2:00 PM

Theme: Seismic Hazard Case Studies (Part 2)

2:00 PM - 3:00 PM

Breakout Session: Assessment and Mitigation of Hazards

3:00 PM - 3:15 PM

Coffee Break

3:15 PM - 4:00 PM

Theme: ESG Software Infrastructure

Hands-on Workshop  
Room: St. Lawrence B  
8:00 AM - 4:30 PM

# 8<sup>th</sup> MICROSEISMIC SYMPOSIUM SCHEDULE



## SYMPOSIUM SCHEDULE: MONDAY, JUNE 10 Room: St. Lawrence A

|   |   |
|---|---|
| 7:30 AM - 8:00 AM   | Registration  |
| 8:00 AM - 8:05 AM   | Welcoming Remarks   |
| 8:05 AM - 9:00 AM   | Keynote Presentation: Technology, in the Field of South African Mining Related Seismicity, Innovate, Adopt and Thrive, or Ignore and be Left Behind!<br><i>Andy Brown, Sibanye-Stillwater</i> |
| 9:00 AM - 9:30 AM   | Innovation and Technology: Meeting R&D Demands for Industry<br><i>Doug Angus, ESG Solutions</i>   |
| 9:30 AM - 10:00 AM  | Seismic Monitoring Applications at Glencore's Sudbury Operations<br><i>Brad Simser, Glencore. Tony Butler, ESG Solutions.</i>   |
| 10:00 AM - 10:30 AM   | Coffee Break - West Seventy6 Grill  |
| <b>Theme: Seismic Analysis for the Characterization of Rock Mass Behaviour</b>                      |   |
| 10:30 AM - 11:00 AM   | Focal Mechanisms Solution of Seismogenic Process of Large Landsliding Based on Moment Tensor Analysis<br><i>Mengjing Zhou, Xiamen University</i>  |
| 11:00 AM - 11:30 AM   | Seismic Analysis for the Characterization of Rock Mass Behaviour<br><i>Daryl Rebuli, Institute of Mine Seismology</i>   |
| 11:30 AM - 12:00 PM   | Resolving Changes in Stress Following a Large Event Using Seismic Moment Tensors<br><i>Lindsay Smith-Boughner, ESG Solutions</i>  |
| 12:00 PM - 1:00 PM  | Lunch - West Seventy6 Grill   |
| <b>Theme: Numerical Modelling and Seismic Insights for Ground Support Assessment and Monitoring</b> |   |
| 1:00 PM - 1:30 PM   | Numerical Model Calibration with Seismic Data at KLG Macassa<br><i>Oliver Carusone, KLGGold</i>   |
| 1:30 PM - 2:00 PM   | Towards Unifying MS/SGM Sensor Acquisition and Further Improving Source Parameter Accuracy<br><i>Dave Collins, ESG Solutions</i>  |
| 2:00 PM - 2:30 PM   | Next Generation Rock Bolt Sensor Technology For 3D Mapping of Ground Conditions<br><i>Zhigang Sun, National Research Council Canada</i>   |
| 2:30 PM - 3:00 PM   | Coffee Break - West Seventy6 Grill  |
| <b>Theme: Better Design, Deeper Analysis</b>  |   |
| 3:00 PM - 3:30 PM   | Investigating Seismicity Surrounding an Excavation Boundary in a Highly Stressed Dipping Underground Limestone Mine<br><i>Vasu Gangrade, NIOSH</i>  |
| 3:30 PM - 3:50 PM   | Locating with a 3DVM: Important Requirements and Examples of Best Use<br><i>Sebastian Braganza, ESG Solutions</i>   |
| 3:50 PM - 4:10 PM   | Latest in Array Design: Get the Most Out of Your Sensors<br><i>Erin Bailey, ESG Solutions</i>   |
| 4:10 PM - 4:40 PM   | Proactive Measures to Evaluate Geotechnical Risk in Development for Deep Mining – Onaping Depth Project Case Study<br><i>Alex Hall, Glencore. Tony Butler, ESG Solutions</i>                  |

# 8<sup>th</sup> MICROSEISMIC SYMPOSIUM SCHEDULE



## SYMPOSIUM SCHEDULE: TUESDAY, JUNE 11 - TECHNICAL PRESENTATIONS STREAM Room: St. Lawrence A

### Theme: Seismic Hazard Case Studies (Part 1)

|                     |  |
|---------------------|--|
| 8:00 AM - 8:30 AM   | Reflections From the Early Years – Stevenson Report and Its Impact on Microseismic Monitoring and Rock Burst Prevention<br><i>Vic Pakalnis, Mirarco</i>                                      |
| 8:30 AM - 9:00 AM   | Introduction to RockMap Live™<br><i>Zara Anderson, Fouad Habib and Lindsay Smith-Boughner, ESG Solutions</i>   |
| 9:00 AM - 9:30 AM   | Changes to Global Mine Extraction Sequence and other Methods to Modify Seismic Risk – Findings From the Last 10 Years at Kidd Creek<br><i>Dave Counter, Glencore</i>                         |
| 9:30 AM - 10:00 AM  | Tracking Stress Changes Before and After a Rockburst in a Mine Using Seismic Moment Tensor Inversion, Seismic Source Parameters and Tomography<br><i>Yousef Abolfazlzadeh, ESG Solutions</i> |
| 10:00 AM - 10:30 AM | The Hunt for the Seismogenic Fault That Caused the ML 5.5 Orkney Earthquake, South Africa<br><i>Lindsay Linzer, SRK Consulting, South Africa</i>   |
| 10:30 AM - 11:00 AM | Coffee Break - West Seventy6 Grill   |

### Theme: Statistical Approach to Hazard

|                     |  |
|---------------------|--|
| 11:00 AM - 11:30 AM | Application of Artificial Intelligence in Microseismic Monitoring and Prediction of Rockburst<br><i>C. Tang, Dalian University of Technology</i> |
| 11:30 AM - 12:00 PM | Ground Motion Hazard in Space and Time, a Probabilistic Approach<br><i>Ernest Lotter, Institute of Mine Seismology</i>                           |
| 12:00 PM - 1:00 PM  | Lunch - West Seventy6 Grill  |

### Theme: Seismic Hazard Case Studies (Part 2)

|                   |   |
|-------------------|---|
| 1:00 PM - 1:30 PM | Microseismic Monitoring at Vale's Coleman Mine<br><i>Dave Landry, Vale</i>                                  |
| 1:30 PM - 2:00 PM | Rockburst Investigation: Confidence in Post-Event Mechanism Analysis<br><i>Lindsay Moreau-Verlaan, Vale</i> |
| 2:00 PM - 3:00 PM | Breakout Session: Assessment and Mitigation of Hazards  |
| 3:00 PM - 3:15 PM | Coffee Break - West Seventy6 Grill  |

### Theme: ESG Software Infrastructure

|                   |  |
|-------------------|--|
| 3:15 PM - 3:35 PM | A Peek Under the Hood: A Look at the State-of-the-Art in ESG's Data Infrastructure<br><i>Dan Hook, ESG Solutions</i> |
| 3:35 PM - 4:00 PM | Developing and Testing New Features in the Hyperion Software Suite<br><i>Steve Falls, ESG Solutions</i>              |

# 8<sup>th</sup> MICROSEISMIC SYMPOSIUM SCHEDULE



**SYMPOSIUM SCHEDULE: TUESDAY, JUNE 11 - HANDS-ON WORKSHOP STREAM**  
Room: St. Lawrence B

## Theme: Seismology and Acquisition Basics

|                     |   |
|---------------------|---|
| 8:00 AM - 8:05 AM   | Welcoming Remarks   |
| 8:05 AM - 8:20 AM   | Seismology Refresher - General Review of Seismology Topics  |
| 8:20 AM - 8:40 AM   | Seismic Hardware and Network/Timing Infrastructure Overview |
| 8:40 AM - 9:30 AM   | Microseismic Acquisition Basics                             |
| 9:30 AM - 10:30 AM  | Hands-On: Seismic Hardware/Acquisition                      |
| 10:30 AM - 11:00 AM | Coffee Break - West Seventy6 Grill                          |

## Theme: System Diagnostics and Troubleshooting

|                     |  |
|---------------------|--|
| 11:00 AM - 11:15 AM | Using Diagnostics Tools                |
| 11:15 AM - 11:30 AM | System Health Analysis - What's New?   |
| 11:30 AM - 12:00 PM | Hands-On: Seismic Hardware/Acquisition |
| 12:00 PM - 1:00 PM  | Lunch - West Seventy6 Grill            |

## Theme: Installation & Processing Software

|                   |  |
|-------------------|--|
| 1:00 PM - 1:30 PM | Practical Considerations for Installing Seismic Systems      |
| 1:30 PM - 1:40 PM | Seismic Data Processing: Challenges and Solutions            |
| 1:40 PM - 2:30 PM | Seismic Software Part 1 - Basic Tools and Practical 'HOW-TO' |
| 2:30 PM - 3:00 PM | Hands-On: Seismic Software Part 1                            |
| 3:00 PM - 3:15 PM | Coffee Break - West Seventy6 Grill                           |

## Theme: Advanced Software

|                   |  |
|-------------------|--|
| 3:15 PM - 3:45 PM | Seismic Software Part 2 - Basic Tools and Practical 'HOW-TO' |
| 3:45 PM - 4:25 PM | Hands-On: Seismic Software Part 2                            |
| 4:25 PM - 4:30 PM | Survey, End of Workshop                                      |