KEYNOTE SPEAKERS

Cave mining – 16 years after
G. Chitombo, Sustainable Minerals Institute, The University of Queensland, Australia

Some comments regarding development drifting practices with special emphasis on caving applications
W. Hustrulid, Hustrulid Mining Services; and Spokane Research Laboratory, National Institute for Occupational Safety and Health, USA

DRAW CONTROL/MATERIAL FLOW

Modelling fines movement at the Ridgeway sublevel caving operation
I. Brunton, Newcrest Mining Ltd, Australia; M. Pierce, Itasca Consulting Group, USA

Full-scale sublevel caving optimisation marker trials at Newcrest’s Telfer Mine
N.A. Clark, M. Karlsson, Newcrest Mining Ltd, Australia

Numerical modelling material flow model in sublevel caving
W. Gibson, J. Albrecht, A. Vakili, M. Sandy, AMC Consultants Pty Ltd, Australia; D. VanDoorelaere, Chirano Gold Mines, Ghana

Quantifying the effect of concurrent and non concurrent draw on extraction zone in block caving mines using a large-scale 3D physical model
A. Halim, Barrick Australia Pacific, and Western Australian School of Mines, Curtin University, Australia (formerly University of Queensland, Australia); R. Truenman, Strata Engineering, Australia (formerly University of Queensland); R. Castro, Universidad of Chile, Chile (formerly University of Queensland)

Large-scale simulations of gravity flow in block caving
W.R. Hancock, D.K. Weatherley, G.P. Chitombo, The University of Queensland, Australia

Shear-strain assessments in block caving mines
M.H.M. Hashim, G.B. Sharrock, The University of New South Wales, Australia

Understanding the flow of caved ore and its influence on ore recoveries and dilution in a block cave
T.G. Heslop, Mine Geotechnics (WA) Pty Ltd, Australia

Considerations for drawpoint closure at the deep ore zone block cave mine
C. Kurniawan, Hizfuz, W. Yudanto, PT. Freeport Indonesia, Indonesia

Installing of smart markers to monitor Lift 2 North extension ore flow behaviour
M. Pierce, Itasca Consulting Group, USA; D.K. Weatherley, The University of Queensland, Australia; T. Kojovic, SimSAGE Pty Ltd, Australia

A hybrid methodology for secondary fragmentation prediction in cave mines
S. Talu, Rio Tinto, Australia; A. Van As, Rio Tinto, Australia; J. Hilton, D. Whiteman, Elekon Electronics, Australia; R. Henry, Rio Tinto, Australia

Modelling secondary fragmentation in cave mines using the discrete element method
D.K. Weatherley, The University of Queensland, Australia; S. Abe, RWTH Aachen Geologie-Endogene Dynamik, Germany

The smart marker system — a new tool for flow investigation in mass mines
D. Whiteman, Elekon Electronics, Australia

GEOMECHANICS OF CAVING MINES

Mechanisms of extraction level and undercut collapse in deep caves
D. Beck, M. Pfiltzner, Beck Arndt Engineering Pty Ltd, Australia

Strategic considerations in block caving
R.J. Butcher, G. Smith, Barrick Gold of Australia Ltd, Australia

Rock mass and ground support response through different geotechnical domains on the undercut level at Newcrest’s Ridgeway Deeps block cave mine
G. Capes, T. Thornhill, Newcrest Mining Ltd, Australia

Rock mass geotechnical and structural characterisation at Cadia East underground project, New South Wales, Australia
A. Catalan, Newcrest Mining Ltd, Australia; C. Suarez, Suarez and Associates, Chile

The role of geotechnical engineering during the prefeasibility studies and early works of Cadia East project, the largest and deepest panel caving in Australia
A. Catalan, F. Sinaga, M.H.M. Hashim, G.B. Sharrock, The University of New South Wales, Australia

Interaction between a propagating cave and an active pit at Telfer Mine — Part II: monitoring the interaction
R. Dixon, U. Singh, C. McArthur, Newcrest Mining Ltd, Australia

Design and implementation of a practical damage assessment in Argyle Diamond’s block cave project
F. Fernandez, P. Evans, R. Gelson, Argyle Diamonds Pty Ltd, Australia

Shotcrete thickness measuring using modern technology
A. Loomes, Underground Survey Services Pty Ltd, Australia; A. Loncaric, Stratacrete Pty Ltd, Australia

Rock mass response and long-term monitoring plan for the extraction level at Newcrest’s Ridgeway Deeps block cave mine
R. Lowther, The University of New South Wales; and Newcrest Mining Ltd, Australia; G. Capes, Newcrest Mining Ltd, Australia; G.B. Sharrock, The University of New South Wales; and Newcrest Mining Ltd, Australia

Block 4 geotechnics, past present and future — the geotechnical history of a mechanised block cave
C.A. Preece, De Beers Finsch Mine, South Africa

Interaction between a propagating cave and an active pit at Telfer Mine — Part I: interaction management
U. Singh, R. Dixon, C. McArthur, Newcrest Mining Ltd, Australia

Lift 2 North extension cave performance
S. Talu, W. Seloka, Rio Tinto, Australia; A. Van As, Rio Tinto, Australia; R. Gillinder, Helimetrex Pty Ltd, Australia
**NUMERICAL MODELLING**

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<td>Application of advanced numerical modelling techniques for assessment of cavability, subsidence and airblast hazard in a sublevel caving mine</td>
<td>J. Albrecht, W. Gibson, A. Vakili, M. Sandy, AMC Consultants Pty Ltd, Australia; K. Ross, Redback Mining Inc., Canada</td>
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<td>An analytical process for estimating primary fragmentation for complete cave columns using discontinuum Finite Element models</td>
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<td>Multi-scale simulation of ground support designs for extreme tunnel closure</td>
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<td>A finite element approach to caving in stratified, jointed rock masses</td>
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<td>A discrete fracture network based approach to defining in situ, primary and secondary fragmentation distributions for the Cadia East panel cave</td>
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<td>Advances in numerical simulation of caving</td>
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<td>3D numerical modelling of surface subsidence caused by open pit block cave interactions</td>
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<td>Use of InSAR to constrain 3D numerical models of block caving induced surface subsidence</td>
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**PLANNING AND DESIGN OF CAVING MINES**

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<td>New approach for rapid preparation on block caving mines</td>
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<td>Geomechanical assessment of macroblocks options using 3D numerical modelling at Chuquicamata underground project</td>
<td>E. Hormazabal, SRK Consulting, Chile; F. Villegas, Codelco, Chile; F. Rovira, SRK Consulting, Chile; C. Carranza-Torres, University of Minnesota Duluth, USA</td>
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<td>C. Stewart, A. Allman, B. Hall, AMC Consultants Pty Ltd, Australia</td>
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<td>Northparkes E48 block cave project — geotechnical update</td>
<td>A. Van As, Rio Tinto, Australia; S. Talu, Rio Tinto, Australia</td>
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<td>A new mine planning tool for sublevel caving mines</td>
<td>D. Villa, Gemcom Software International, Canada</td>
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**PRECONDITIONING**

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<td>Microseismic monitoring of hydraulic fractures in block cave mining</td>
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<td>Mapping of hydraulic fracture planes — Ridgeway Deepes block cave</td>
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<td>Simulating the impacts of hydro fracture preconditioning on cavability and fragmentation at the planned Cadia East panel cave</td>
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**Double difference passive tomography to estimate rock mass changes induced by hydraulic fracturing and cave mining**  
D. Beck, Beck Arndt Engineering Pty Ltd, Australia; E. Westman, Mining and Minerals Engineering, Virginia Tech, USA; M. Morgan, D. Finn, Newcrest Mining Ltd, Australia  

**Instrumentation and monitoring of cave initiation at Telfer Mine**  
M. Di Giovinazzo, U. Singh, Newcrest Mining Ltd, Australia  

**Bulk caving technology for deep level ore mining**  
A. Eremenko, V. Eremenko, Institute of Mining, Siberian Branch, Russian Academy of Sciences, Russia; Ya. Balbordov, Evrazruda Joint-Stock Co., Russia  

**Monitoring open stope caving at Goldex Mine**  
P. Frenette, Agnico-Eagle Mines Ltd, Canada; M. Hudyma, Laurentian University, Canada  

**Initial and east cave breakthroughs at Palabora Mining Company**  
S.N. Glazer, South Africa; P. Townsend, Palabora Mining Company Ltd, South Africa  

**Seismic monitoring system design for caving mines**  
M. Hudyma, Laurentian University, Canada  

**Establishing confidence in the interpretation of seismic data to quantify cave propagation on a routine basis**  
R. Lachenicht, M. Di Giovinazzo, U. Singh, Newcrest Mining Ltd, Australia  

**Automated cave tracking using seismic monitoring**  
M. Marina, The University of Western Australia, Australia; J. Wesseloo, Australian Centre for Geomechanics, Australia  

**Interpretation of seismic data and numerical modelling of fault reactivation at El Teniente, Reserva Norte Sector (Reno)**  
Y. Potvin, Australian Centre for Geomechanics, Australia; J. Jarufe, Codelco, Chile; J. Wesseloo, Australian Centre for Geomechanics, Australia  

**Microseismic tools for the analysis of the interaction between open pit and underground developments**  
J.M. Reyes-Montes, Applied Seismology Consultants, UK; B. Sainsbury, Itasca Australia Pty Ltd; and The University of New South Wales, Australia; W.S. Pettitt, Applied Seismology Consultants, UK; R.P. Young, University of Toronto, Canada  

**Microseismic monitoring of caving at Goldex Mine**  
A. Ringeri, ESG Canada Inc., Canada; P. Frenette, Agnico-Eagle Mines Ltd, Canada; D. Collins, I. Leslie, ESG Canada Inc., Canada  

**The critical earthquake concept applied to block caving — evidence for cooperative behaviour during failure**  
H. White, Coffey Geotechnics (NZ) Ltd, New Zealand; A. van As, Rio Tinto, Australia; B. O’Keefe, Coffey Geotechnics (NZ) Ltd, New Zealand

## SUBSIDENCE

**An integrated FEM/DEM — discrete fracture network synthetic rock mass approach for the modelling of surface subsidence associated with panel cave mining at the Cadia East underground project**  
D. Elmo, S. Rogers, R. Beddoes, Golder Associates Ltd, Canada; A. Catalan, Newcrest Mining Ltd, Australia  

**Investigation of caving-induced subsidence at the abandoned Grace Mine**  
D. Sainsbury, Itasca Australia Pty Ltd, Australia; L. Lorig, Itasca Consulting Group, Inc., USA  

**Investigation of surface subsidence due to sublevel caving**  
T. Villegas, Luleå University of Technology, Sweden; and Universidad de Sonora, Mexico; E. Nordlund, Luleå University of Technology, Sweden

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