Slope Stability 2020 will provide a forum for open pit mining and civil engineering practitioners, consultants, researchers and suppliers worldwide to exchange views on best practice and state-of-the-art slope stability technologies.

Best practice with respect to pit slope investigations, design, implementation and performance monitoring will be discussed during the symposium.

The ACG is delighted to host this event in Perth again. It has been more than a decade since it was last held in Western Australia.

**REGISTRATION BROCHURE**

12–14 May 2020 | Grand Ballroom, Hyatt Regency Perth, Western Australia

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**KEYNOTE SPEAKERS**

**Carolina Ahumada**
Principal Water Management  
BHP

**Robert Sharon**
Director, Sharon Geotechnical LLC  
Principal Geotechnical Consultant, Piteau Associates USA  
Title: *Slope performance monitoring — system design, implementation and quality assurance*

**Dr John Simmons**
Principal  
Sherwood Geotechnical & Research Services  
Title: *More on open pit slope stability geomechanics for weak coal measures rocks*

**Tim Sullivan**
Principal  
Pells Sullivan Meynink

**SYMPOSIUM CHAIR**

**Professor Phil Dight**
Professor of Geotechnical Engineering  
Australian Centre for Geomechanics  
The University of Western Australia, Australia

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<td>Instrumentation and Slope Monitoring Workshop</td>
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### Accepted Papers*

#### Accepted Keynote Papers

- **Slope performance monitoring: system design, implementation and quality assurance** by R Sharon, Sharon Geotechnical LLC, USA
- **More on open pit slope stability geomechanics for weak coal measure rocks** by J Simmons, Sherwood Geotechnical and Research Services, Australia

#### Safety and Risk Management

- **Practical waste rock dump and stockpile management in high rainfall and seismic regions of Papua New Guinea** by N Bar, Geckoa Geotechnics, Australia; J Semi, M Koek, Ok Tedi Mining Ltd, Papua New Guinea; G Owusu-Bempah, A Day, Harmony Gold, Papua New Guinea; S Nicoll, J Bu, Newcrest Mining Limited, Papua New Guinea
- **Downhole monitoring with enhanced network smart markers in an open pit** by T Beigensser, R Yost, Tech Resources Ltd., Canada; S Steffen, D Whiteman, Elewon Mining, Australia; A Thomas, M Royle, SRK Consulting Inc., Canada; E Widyajanto-Capheart, University of Chile, Chile
- **Risk management in a large-scale slope instability with active pushbacks in an open pit** by C Cabrejo, GroundProbe North America, USA; Y Gunaris, Compañía Minera Doña Inés de Collahuasi, Chile; P Ballet, GroundProbe Pty Ltd, Australia; J Perez, Compañía Minera Doña Inés de Collahuasi, Chile
- **Risk management in a large-scale slope instability with active pushbacks in an open pit** by JA Calderón, JJ Muñoz, Minera Escondida Ltda., Chile
- **Trigger action response plan development and optimisation: case studies from the Bingham Canyon Mine** by G Kennedy, D Casagrande, Pells Sullivan Meynink, Australia
- **Geotechnical risk management for Victor Mine closure** by M Desjardins, De Beers Group, Canada; P de Graaf, De Beers Group, South Africa; G Beale, Piteau Associates, UK; M Rougier, Golder Associates Ltd, Canada
- **Implications of slope damage in engineered slopes and open pit mines** by D Donati, D Stead, Simon Fraser University, Canada; D Elmo, University of British Columbia, Canada; E Onsel, Simon Fraser University, Canada

#### Safety and Risk Management - More papers

- **The safest way to increase overall pitwall slope** by SP Durkin, BT Moore, Safescape, Australia
- **Development of an early warning system for shallow landslide hazard in the Tembagapura area, Indonesia** by P Farina, Geoapp s.r.l., Italy; F Catani, A Rosi, Geoapp s.r.l. and University of Florence, Italy; I Setiawan, A Junaidi, A Afrizal, A Wijayanto, PT Freeport Indonesia, Indonesia
- **Brumadinho Dam InSAR study: analysis of TerraSAR-X, COSMOSkyMed and Sentinel-1 SAR images preceding the collapse** by D Holden, S Donesan, A Pon, 3vGeomatics Inc., Canada
- **Evolution and management of large-scale instability: a case study from Ok Tedi** by G Kennedy, D Casagrande, Pells Sullivan Meynink, Australia
- **Use of laser scanner technology as part of the slope stability risk management strategy at Letšeng Diamond Mine** by N Lefu, Letšeng Diamonds, Lesotho; V Sokwe, Maple, South Africa
- **InSAR in the clouds: satellite-based monitoring at Grasberg Mine** by M Leighton, 3vGeomatics Inc., Canada; M Sullivan, Freeport McMoran, Indonesia
- **Regulation of open pit slope stability in Russia** by A Maksarov, I Livinsky, V Spirc, SRK Consulting (Russia) Ltd, Russia; A Pavlovich, Saint-Petersburg Mining University, Russia
- **Management of geotechnical hazards through embracing technology and innovative thinking** by KT Mandisoda, Evolution Mining, Australia
- **Slope monitoring at the Serra Sul Iron Ore Project, S11D: a case study** by S Moragas, F Friguetto, WJ Souza, AHR Castro, Vale S.A., Brazil
- **Waterproofing and slope protection in landfills and reservoirs** by D Romeo, Officine Maccaferri S.p.A., Italy; RM Ratnakar, Maccaferri S.p.A. Asia, India
- **Managing ice walls and other operational challenges while optimising Victor Mine late stage opportunities** by M Rougier, Golder Associates Ltd. (Canada), Canada; P de Graaf, De Beers Group, South Africa; M Desjardins, De Beers Group, Canada; M O’Leary, Mount Polley Mining Corporation, Canada; N Yogo, Independent Consultant, Canada
- **Characterisation of a rock slope showing three weather-dominated failure modes** by M Roustaie, R Macciotta, M Hendry, J Rodriguez, University of Alberta, Canada; C Gräpel, Klöhn Crippen Berger, Canada; R Skirrow, Alberta Transportation, Canada
- **Design of integrated dumps of three pits of an iron ore mine in hilly terrain** by SK Roy, JK Singh, A Kumar, A Rana, PK Singh, CSIR-Central Institute of Mining and Fuel Research, India

#### ASSESSMENT AND IMPLICATIONS FOR UNCERTAINTY IN DESIGN

- **Increasing the reliability of mining plans by predicting geotechnical instabilities with structural control: a case study at a BHP mine in northern Chile** by C Roa, J Calderón, BHP, Chile; R Castellón, M Vargas, TILMining, Chile
- **An overview of bench design for cut slopes: a methodology for assigning nominal and static shear strength parameters to attain dynamic factor of safety and probability of failure values for advanced dataset assessment** by S Coe, Teutech Mining, South Africa
- **Remote monitoring of tailings storage facilities using multi-sensor satellite data** by A Thomas, H Larkin, N Mogdoll, CGG Satellite Mapping, UK
- **Economic consequences of geotechnical instabilities in open cut coal mines** by K Young, A Robotham, G Virk, BHP, Australia

#### ASSESSMENT AND IMPLICATIONS FOR UNCERTAINTY IN DESIGN - More papers

- **Tuff bands and the stability of coal mine slopes** by K Koosmen, Pells Sullivan Meynink, Australia

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*Accepted papers list is subject to change and does not guarantee inclusion in the symposium programme. Please check www.slopestability2020.com for updates*
Accepted Papers*

Three-dimensional limit equilibrium method rock slope stability analysis using generalised anisotropic material model NS Kumar, MAM Ismail, Universiti Sains Malaysia, Malaysia

A method for analysis of rock blocks with complex arbitrary geometries J Santos, University of British Columbia, Canada

Epistemic uncertainty propagation in slope stability analysis and implications in safety margins CE Valderrama, M Cofré, E Hormazabal, R Álvarez, SRK Consulting (Chile) S.A., Chile

PROCESSING AND GEOTECHNICAL DATA AND LIMIT DESIGN

Influence of the hydrothermal alteration rocks on the stability of an open pit mine, south of Peru: a case study S Castro, C Huaman, Andides Associates, Peru

Case study: analysis of a highwall toppling failure and development of a successful mine re-entry plan using RS2, RocFall and Dan-W at a coal mine in Canada C Clayton, A Jackson, J Price, Tetra Tech Canada Inc., Canada; A Bidwell, Teck Coal Ltd., Canada; D Elmo, University of British Columbia, Canada

Bayesian approach for the assessment of sufficiency of geotechnical data L-F Contreras, The University of Queensland, Australia and SRK Consulting (South Africa) (Pty Ltd), South Africa; M Serati, D Williams, The University of Queensland, Australia

Tools for validating and creating reliable fault models J Danielson, D Kinakin, I Stilwell, BGC Engineering Inc., Canada

Improving televviewer data acquisition to optimise slope designs in the Pilbara S Dennett, H Donders, L Fisher, J Thomson, BHP, Australia

Waste rock characterisation and stability assessments for feasibility level studies J Dixon, D Dwumfour, Fortescue Metals Group, Australia; J Mylvaganam, SRK Consulting (Australasia) Pty Ltd, Australia

Geotechnical evaluation of east wall of Cerro Corona’s open pit J Dueñas, G Becerra, J Ordoñez, J Dueñas, Gold Fields, Peru; PG Andrews, Gold Field Australia Pty Ltd, Australia

Mechanical and physical properties of chalk and impacts on slope designs P Ebeling, Holcim Technology Ltd, Switzerland; A Iwanoff, BGW Geotechnik GmbH, Germany

Disrupting rock engineering concepts: is there such a thing as a rock mass digital twin and are machines capable of learning rock mechanics? D Elmo, University of British Columbia, Canada; D Stead, Simon Fraser University, Canada

Combining structural data with monitoring data in open pit mines to interpret the failure mechanism and calibrate radar alarms P Farina, F Bardi, Geoapp s.r.l., Italy; L Lombardi, G Gigli, University of Florence, Italy

The fracture model influence on rock slope stability assessment IK Fomenko, DN Gorobtsov, Russian State Geological Prospecting University, Russia

Structural data bias assessment at Jwaneng Mine K Gabanagagi, O Mogorosi, K Rametla, B Boitshope, OM Bae, Debswana Diamond Company, Botswana

The effect of anisotropy orientation on the uniaxial compressive strength and point load testing index of bedded iron formation, Pilbara, Australia X Gao, Rio Tinto Iron Ore, Australia

Utilising data science to test similarity of rock mass unit strength distributions in the Pilbara J Hayman, Rio Tinto Iron Ore, Australia

Influence of particle size-shape correlation on the shear strength of scaled samples of coarse mine waste S Linero, University of Newcastle and SRK Consulting (Australasia) Pty Ltd, Australia; S Fitzus, University of Newcastle, Australia; J Simmons, Sherwood Geotechnical and Research Services, Australia; E Azema, University of Montpellier, France; N Estrada, University of Los Andes, Colombia; J Dixon, Fortescue Metals Group, Australia

The intact rock strength of anisotropic rocks in the Pilbara: the use of field estimations, practical limitations of calibrations and statistical bias A Maldonado, PM Dight, Australian Centre for Geomechanics, The University of Western Australia, Australia; K Mercer, 3rd Rock Consulting, Australia

The shear strength of bedding partings in shales of the Pilbara: the similarity of non-dilatational angles and spectral mineralogy relationships A Maldonado, PM Dight, Australian Centre for Geomechanics, The University of Western Australia, Australia

Assisting better decision-making of geotechnical slope design using in-house technology software at BHP Iron Ore A Maldonado, A Haile, C Meegamaracchi, L Sasmita, BHP, Australia

Capturing/interpreting non-obvious slope controlling structures JI Mathis, Zoorith Geotechnical, USA

Determination of the parameters of pit walls with reverse steeply dipping stratification AA Pavlovich, NY Melnikov, Saint-Petersburg Mining University, Russia

Rock mass behaviour at great depth: a conceptual model and implications R Rimmelin, The University of Queensland and BHP, Australia

Post-blast slope stability monitoring with slope stability radar P Saunders, GroundProbe Pty Ltd, Australia; JM Kabuya, ArcelorMittal, Canada; A Torres, GroundProbe, USA; R Simon, Ecole Polytechnique de Montréal, Canada

Characterisation of foliated rock masses using implicit modelling to guide geotechnical domaining and slope design E Saunders, A LaRiche, J Price, Tetra Tech Canada Inc., Canada; A Bidwell, Teck Coal Ltd., Canada; D Elmo, University of British Columbia, Canada

Slope design assessment, mining strategy, and development of geotechnical setback criteria for excavation ofsteep, natural escarpments in rugged mountainous terrain MF Scholz, BW Gilmore, MNT King, PM Hawley, Piteau Associates, Canada; C Aguirre-Freyre Compañía Minera Antamina S.A., Peru

Introducing G.R.E.T.A.: the new Geo RESistivimeter for time-lapse analysis G Tresoldi, Politecnico di Milano, Italy

The fracture model influence on rock slope stability assessment JU Valderrama, M Cofré, E Hormazabal, R Álvarez, SRK Consulting (Chile) S.A., Chile

Epistemic uncertainty propagation in slope stability analysis and implications in safety margins CE Valderrama, M Cofré, E Hormazabal, R Álvarez, SRK Consulting (Chile) S.A., Chile

Directional Hoek-Brown rock mass strength: GSI adjustment NR P Baczynski, Prime Geotechnics Pty Ltd, Australia

Computational tools for the estimation of factor of safety and location of the critical failure surface for slopes in rock masses that satisfy the Hoek-Brown failure criterion C Carranza-Torres, University of Minnesota, USA; E Hormazabal, SRK Consulting (Chile) S.A., Chile

Case study: back-analysis of a historical open pit highwall failure at a coal mine in Canada C Clayton, R Barnett, Tetra Tech Canada Inc., Canada; M Slater, Teck Coal Ltd., Canada

Automated geo-localised identification of polyhedral blocks and their safety factor calculation in open pit mining F Gonzalez, A Calderon, Antofagasta Minerals, Chile; R Castellon, M Vargas, C Meno, L Orellana, S Wiche, C Calderon, TIN Mining, Chile

Validation of the improved unified constitutive model for open pit applications A Ford, D Lucas, A Vakili, Mining One Pty Ltd, Australia

Hybrid design approaches for anchored wire meshes: a simplified two block method for steep slopes A Galli, Politecnico di Milano, Italy; M Deana, Officine Maccaferri S.p.A., Italy; N Mazzon, Maccaferri Innovation Centre, Italy

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<td><strong>Numerical modelling of underground and open pit interaction in a gold mine</strong> K He, G Swarbrick, T Sullivan, Pells Sullivan Meynink, Australia</td>
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<td><strong>Geotechnical design considerations for nose geometries in pit design</strong> A Huaman, SRK Consulting (South Africa) (Pty) Ltd, South Africa</td>
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<td><strong>Steep wall mining: engineered structures used in the management of rockfall hazards at Kannamoo Copper Mine</strong> BJ Hutchison, Hillgrove Resources Ltd, Australia; AT Morrison, Geobrugg Australia Pty Ltd, Australia; OS Lucas, Mining One Pty Ltd, Australia</td>
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<td><strong>Numerical back-analysis of highwall instability in an open pit: a case study</strong> JM Kabuya, R Simon, École Polytechnique de Montréal, Canada; J Carvalho, D Haviland, Golder Associates Ltd, Canada</td>
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<td><strong>Quantifying excavation-induced rock mass damage in large open pits</strong> L Lorig, D Potyondy, Varun, Itasca Consulting Group Inc., USA</td>
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<td><strong>Use of discrete fracture networks in three-dimensional numerical modelling for stability analysis in open pit mining</strong> E Montiel, P Varona, Geocontrol Minería, Chile; C Fernandez, Z Espinoza, Antofagasta Minerals, Chile</td>
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<td><strong>A case study: assessing the impacts of open cut coal mining on the Maryvale Field (Yallourn) open cut and Morwell River diversion through the use of finite element modelling</strong> S Narendranathan, J Šticevich, GHD Pty Ltd, Australia; S Ristogi, EnergyAustralia, Australia</td>
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<td><strong>Back-analysis of in-pit dump slope failure and remediation results at Bara Anugrah Sejahtera open pit coal mine, Indonesia</strong> L Rachmad, D Aryanda, GEOMINE, Indonesia; M Daroji, Titan Group, Indonesia</td>
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<td><strong>Numerical modelling of quarry slopes for construction of a dam in difficult and fragile Himalayan terrain</strong> A Rana, GP Jadaun, C Sawmliana, A Singh, RK Singh, SK Roy, PK Singh, CSR-Central Institute of Mining and Fuel Research, India</td>
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<td><strong>Engineering geology investigation and numerical modelling of the Ramp 12 Highwall</strong> B Roache, Mining One Consultants Pty Ltd, Australia; AR Johnstone, BHP, Australia</td>
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<td><strong>Benefits of combined radar and geodetic monitoring in open pit mines</strong> L Spiranc, Leica Geosystems AG, Switzerland; F Coppí, N Coli, IDS GeoRadar, Italy</td>
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<td><strong>A new approach to simulate the dynamic response of chain-link drapery systems</strong> S Tahmasbi, A Giacomini, University of Newcastle, Australia; R Bucher, Geobrugg Australia Pty Ltd, Australia; O Buzzi, University of Newcastle, Australia</td>
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<td><strong>Modelled versus observed open cut performance in weak transition rock: the Dubbo Quarry case study</strong> D Trani, GHD Pty Ltd, Australia and University of Wollongong, Australia; J Hellmuth, J Thompson, GHD Pty Ltd, Australia</td>
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<td><strong>SlopeX: a plug-in to simplify and fast-track advanced numerical modelling for open pit applications</strong> A Vakili, Cervox Pty Ltd, Australia; J Watson, Cervox Pty Ltd, Canada; B Abedian, Cervox Pty Ltd, Australia; T Styles, Cervox Pty Ltd, UK</td>
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<td><strong>Discrete fracture network based approaches to assessing inter-ramp design</strong> M Valerio, S Rogers, Golder Associates Ltd, Canada; KP Lawrence, KM Moffitt, Golder Associates Inc., USA; B Rydsahl, M Gaidai, Rio Tinto Kennecott Copper, USA</td>
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<td><strong>Slope performance monitoring and management of a pit wall experiencing large-scale deformations near Kalgoorlie, WA</strong> JW Watton, MJ Fowler, Pells Sullivan Meynink, Australia</td>
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<td><strong>Understanding the sensitivity of numerical slope stability analyses to geotechnical and other input parameters</strong> DR Wines, Itasca Australia Pty Ltd, Australia</td>
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<td><strong>OPEN PIT—UNDERGROUND INTERACTION</strong></td>
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<td><strong>Investigating the influence of the construction of a tunnel on the stability of its adjacent slope: a case study — Haji Abad tunnel, Iran</strong> M Rezvani, A Golshani, Tarbiat Modares University, Iran</td>
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<td><strong>Assessment of depressurisation approaches at Debswana’s Orapa Mine, Botswana</strong> M Anderson, B Maswabi, Debswana Diamond Company, Botswana; H Liu, Itasca Denver, Inc., USA</td>
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<td><strong>A methodology for assessing rain-induced pore pressure changes in open pit slopes</strong> J Bellin, M Raynor, R Kettle, SRK Consulting UK Ltd, UK; K Tasoren, IAMGOLD Corporation, Suriname</td>
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<td><strong>Anglo American framework for strategic dewatering plans</strong> C Cintolesi, Anglo American, Chile; G Beale, Piteau Associates, UK; J Dowling, Piteau Associates, USA; J Kotze, Anglo American, South Africa; A Rowland, Piteau Associates, South Africa; S Mansell, Piteau Associates, Chile</td>
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<td><strong>Advanced three-dimensional geomechanical and hydrogeological modelling for a deep open pit</strong> L Cotesta, Vale, Canada; J Xiang, Itasca Denver Inc., USA; B Paudel, Vale, Canada; R Sterrett, Itasca Denver Inc., USA; J Sjöberg, Itasca Consultants AB, Sweden; T Dílov, I Vasilev, Z Yalovam, Ellatzite-Med AD, Bulgaria</td>
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<td><strong>Fast assessment of pore pressures and inflows in open pit slopes using smart models</strong> ER De Sousa, DHI Water &amp; Environment, Australia</td>
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<td><strong>Uncertainty analysis techniques in pore pressure modelling for slope stability: state-of-the-art and future directions</strong> ER De Sousa, DHI Water &amp; Environment, Australia; J Doherty, Watermark Numerical Computing, Australia</td>
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<td><strong>Monitoring and managing large deformation pit slope instabilities at a British Columbia open pit copper mine</strong> G Dick, BGC Engineering Inc., Canada; S Nuno, S Smith, Gibraltar Mines Ltd., Canada; D Kinakin, I Stillwell, W Newcomen, J Danielson, BGC Engineering Inc., Canada</td>
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<td><strong>Development of an integrated workflow for pit slope pore pressure reconciliation</strong> J Dowling, G Beale, P Haas, B Kaya, Piteau Associates, USA; LC Tejada, K Cramer, J Johnson, RE Zea, C Palmer, Freeport McMoRan, USA</td>
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<td><strong>Pit dewatering optimisation of a 3D FEFLOW unstructured groundwater model at geologically complex Antamina mine site in Peru</strong> RM DuFour, DHI Peru SAC and University of Neuchâtel, Peru; CF Aguirre, M Sanchez, Antamina, Peru; A Maqueda, University of Neuchâtel, Switzerland; JM Zwinger, A Renz, DHI, Germany; J Cho, Independent Consultant, Canada</td>
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<td><strong>Simulating fracture network permeability in brown coal slopes</strong> R Hu, SDC Welsh, Monash University, Australia</td>
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<td><strong>Elimination of structural controlled highwall failures at an open cut coal mine</strong> J Li, BHP, Australia</td>
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<td><strong>Between a rock and a hard place</strong> PJ Lombard, GHD Pty Ltd, Australia</td>
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<td><strong>Design and implementation of cost-effective depressurisation systems at Debswana’s Jwaneng Mine, Botswana</strong> O Buzzi, University of Newcastle, Australia; N Bar, Gecko Geotechnics, Australia; N Coli, IDS GeoRadar, Italy; S Rea, J Bu, Newcrest Mining Limited, Papua New Guinea</td>
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<td><strong>Cockatoo Island: pit dewatering and wall depressurisation behind critical seawall infrastructure</strong> C Powell, Geomech Consulting Services, Australia; J Hall, AQ2 Pty Ltd, Australia</td>
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<td><strong>Impact of pore water pressure on pit slope stability of a coal mine</strong> K Rana, IL Mutreha, Visvesvaraya National Institute of Technology, India</td>
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Accepted Papers*

A review of vibrating wire piezometer usage in ultra-low permeability and heterogeneous fractured rock environments M Raynor, L Sultanov, H El Idrysy, SRK Consulting (UK) Ltd, UK

Development of a mine dewatering and pit slope depressurisation review process E Reano, Piteau Associates, Peru; G Beale, Piteau Associates, UK; J Dowling, Piteau Associates, USA; LC Tejada, Freeport McMoRan, USA

Outcomes of an aquifer assessment on the M1B aquifer ahead of Loy Yang Mine, and considerations for future dewatering/depressurisation R Turnbull, G Foley, GHQ Pty Ltd, Australia; J Missen, AGL, Australia

Slope depressurisation at Sishen Mine, Northern Cape, South Africa TH White, M Bester, Kumba Iron Ore, South Africa

ROCKFALL ANALYSIS AND CONTROL

Scaling the heights: developing a remote highwall scaling machine for use at the Savage River Mine MS Anderson, Grange Resources, Australia; C Johnson, Jayben, Australia

Risk analysis affectation to people and/or equipment due to rockfall EG Bermeno, MM Schellman, DC Diaz, Anglo American, Chile

Blue water ramp access recovery affected by rockfall DC Diaz, EG Bermeno, MM Schellman, Anglo American, Chile

Reinforced soil bund as passive protection structures: the New Zealand experience E Ewe, Geofabrics NZ Ltd, New Zealand

Analysis of the effect of backbreak on rockfall trajectories I Garcia, SRK Consulting (UK) Pty Ltd, UK; S Pastine, SRK Consulting (Argentina) S.A., Argentina

Slope design and control of rockfall hazards in a challenging structural setting at the Kanmantoo copper mine, South Australia DS Lucas, A Vakili, Mining One Consultants Pty Ltd, Australia; BJ Hutchison, Hillgrove Resources Ltd, Australia

Calibration of a rockfall simulator with a fragmentation model in a real scale test G Matos, N Lantada, J Corominas, R Ruiz-Carulla, A Prades, J Gil, Universitat Politècnica de Catalunya, Spain

RockFall risk management: a case study from Morenci Mine, Arizona A Moore, RE Zea, LC Tejada, C Palmer, Freeport McMoRan, Inc., USA; D Morrison, J Connolly, Call & S Ramasamy, F Rosiello, D Ghoshal, Maccaferri Asia, Malaysia

Testing the berm effectiveness through rockfall trials and its calibration A Quilodran, JJ Calderon, JJ Muñoz, Minera Escondida Ltda., Chile

On the use of acoustic records for the automatic detection and early warning of rockfalls G Ulivieri, S Vezzosi, Geco s.r.l., Italy; P Farina, Geoapp s.r.l., Italy; L Meier, Geopraevent AG, Switzerland

A practical rockfall risk model for open pit mines using the space-time concept J Venter, ECF Hamman, AngloGold Ashanti, Australia

Runout of open pit slope failures: an update J Whitto1, BGC Engineering Inc., Canada; A Mitchell, S McDougall, University of British Columbia, Canada

SLOPE STABILITY IN UNSATURATED MATERIALS

Slope stabilisation of steep overburden dumps with significant height in Singrauli coal mines of India: a case study MR Madhav, JNT University, India; M Korulla, RR Mahajan, Maccaferri Environmental Solutions Pvt. Ltd., India

Pit wall optimisation and effective wall management strategies at Invincible Open Pit, St Ives Gold Mine M Abdulai, PG Andrews, D McMahon, E Bona, J Walker, Gold Fields Australia Pty Ltd, Australia

New approach to detect imminent failure by utilising coherence attribute measurement on slope stability radar FA Cahyo, R Dwiyya, RH Musa, GroundProbe, Indonesia

Machine learning applied to ground motion prediction equation on an open pit mine in Brazil AQ de Paula, Federal University of Ouro Preto and Tetra Tech, Brazil; CT Rodrigues, CAS Braga, Tetra Tech, Brazil; GG Magalhães, Federal University of Ouro Preto and Tetra Tech, Brazil; LA Oliveira, Federal University of Rio de Janeiro and Tetra Tech, Brazil; SBF Cembraneli, LAP Almeida, MOSAI, Brazil; LS Dias, Federal University of Rio de Janeiro and Tetra Tech, Brazil

Exploitation of InSAR techniques combined with situ sensors to improve safety and productivity in mining operations J Duro, R Iglesias, D Monells, R Calvo, DARES Technology, Spain

Monitoring applications for safe mining practices: case studies of sub-bench scale failures in hard rock and open cut coal mines S Gale, L Farrington, Thiess Pty Ltd, Australia; P Bergström, Bolden Mineral AB, Finland; M Suikkanen, YARA Suomi Oy, Finland; N Boldrini, M Rubino, N Coli, IDS GeoRadar, Italy; S Naude, IDS GeoRadar, Australia; C Stopka, C Preston, IDS GeoRadar, USA

Back-analysis of a major spoil failure at an open pit lignite mine JD Greenwood, MB Haggerty, JL Workman, Barr Engineering Co., USA

Evaluation and management of topping failures at the McArthur River Mine, Northern Territory CEV Heaven, DBM Bran, WA Norrie, Glencore, Australia

Structural controlled deformations at the Kanmantoo Copper Mine BJ Hutchinson, Hillgrove Resources Ltd, Australia; J Chambers, Maptek, Australia

Utilising satellite based techniques to identify and monitor slope instabilities: the Fagaraskögarfjall and Límnes landslides H Larkin, N Magnanl, A Thomas, R Holley, H McCormack, CGG NPA Satellite Mapping, UK

Integrating unmanned aerial vehicle photogrammetry in design compliance audits and structural modelling of pit walls F Medinac, K Esmaieli, University of Toronto, Canada

Satellite radar monitoring with InSAR sensor: indication of areas with potential failure — a case study of Carajás, Brazil FS Moragas, Vale S.A., Brazil

Inverse velocity technic as mine slope collapse forecast: a case study FS Moragas, A Silva, PMS Lopes, MHA Pires, DO Sousa, Vale S.A., Brazil

Addressing pit wall instabilities in Africa’s largest open pit copper mine GC More O’Ferrall, First Quantum Minerals Ltd, Zambia; NS Simbile, Kansanshi Mining Plc, Zambia

New satellite sensors for monitoring mining areas: a look at the future J Morgan, A Boudreau, TRE ALTAMIRA, Canada; MA Verdugo, TRE ALTAMIRA S.L., Spain; F Meloni, D Colombo, TRE ALTAMIRA s.r.l., Italy

Optimisation of crest blasting and excavation techniques for controlling spillover at Bingham Canyon Mine J Movreke, J Cefalo, K Robertson, Rio Tinto Kennecott Copper, USA

Geord reinforced soil walls in Myanmar: an overview S Ramasamy, F Rossiello, D Ghoshal, Maccaferri Asia, Malta

Factors to be considered when applying atmospheric corrections to distance measurements: a case study of the Leica GeoMoS installation at Orapa, Letlhakane and Damthsha mines O Randall, Debswana, Botswana; H Thomas, University of the Witwatersrand, South Africa

www.slopestability2020.com
INSTRUMENTATION AND SLOPE MONITORING WORKSHOP

Monday 11 May 2020 | South Ballroom, Hyatt Regency Perth, Western Australia

This ACG workshop will focus on new developments relating to conventional terrestrial monitoring systems such as open pit radars, prisms, laser scanning, and photogrammetry, as well as the integration of the different types of these monitoring systems and their interpretation. Application examples of many companies providing these new technologies include land cover determination, feature extraction, persistent change detection and monitoring, terrain slope characterisation, soils modelling and saturated ground detection.

Workshop Facilitator

Professor Phil Dight
Australian Centre for Geomechanics

*Risk-based design and management of open pit slopes workshop

Friday 15 May 2020 | Freshwater Bay Room, Hyatt Regency Perth, Western Australia

Within the mining community, geotechnical risk is often underappreciated, sometimes ignored and seldom properly quantified. The uncertainty and variability that engineers need to deal with necessitate a rigorous process of quantification or, in the very least, robustly qualifying likelihoods and consequences. There appears also to be a large gap between the state-of-the-art and the state of general practice when it comes to the qualification and quantification of geotechnical risk. The aim of this workshop is to provide a forum to discuss the methods used to design for geotechnical risk and those used to manage these risks; to identify shortcomings; and to close the gap between the state-of-the-art and the state-of-practice.

Workshop Facilitator

Professor Phil Dight
Australian Centre for Geomechanics

**Preliminary programme is subject to change. View received abstracts at www.slopestability2020.com/risk-workshop/
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Online registrations are available at slopestability2020.com/registrations

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The registration form for the Newmont Goldcorp Boddington Site Visit is available at slopestability2020.com/site-visit

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How to register: Australian Centre for Geomechanics
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Crawley WA 6009

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DELEGATE CANCELLATIONS

Up to 8 days before event commencement: an administration fee of AUD 150 will be charged. 7 or less days before: no refund. Non-attendance: no refund. Substitutions will be accepted at any time. The ACG reserves the right to cancel the symposium and associated events if insufficient registrations are received.

Delegate Terms and Conditions are available at acg.uwa.edu.au/disclaimer

Slope Stability 2020 (2025) | 12–14 May 2020

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* Students are required to provide proof of full-time enrolment. All full registrations will receive luncheons and refreshments. Please notify us below of any special dietary requirements.

SS 2020 Symposium Dinner
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Instrumentation and Slope Monitoring Workshop (2024)
11 May 2020

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Risk-Based Design and Management of Open Pit Slopes Workshop (2026)
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