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KEYNOTES
Rock engineering as a creator of value T.R. Stacey, University of the Witwatersrand, South Africa

Mythperceptions in rock engineering
N. van der Merwe, Stable Strata, South Africa

Lessons from large failures: geology, stress and support
N. Barton, Nick Barton & Associates, Norway

Stress measurements for underground powerhouse – three recent cases
L. Lamas, ISRM

The Grosvenor strata control journey: learning and adapting from new and challenging experiences
P.S. Buddery, Anglo American Met Coal, Australia

ABSTRACTS
Stability analysis on the layered surrounding rock mass of large underground powerhouse of Wudongde Hydropower Station
China Three Gorges Corporation, China

Rock anchoring beam excavation and shaping technology for the underground powerhouse of Hydropower Stations
China Three Gorges Corporation, China

Deformation and stability analysis for the large-scale tailwater surge chamber of the Baihetan Hydropower Station
China Three Gorges Corporation, China, Hydro China Itasca Research and Development Center, Powerchina Huadong Engineering Corporation Limited, China

Deformation and failure analysis of large underground hard-rock chambers under high geo-stress: A case study of the underground powerhouse on the right bank of Baihetan Hydropower Station
China Three Gorges Corporation, China

Research of deformation and failure characteristics, mechanism, and engineering countermeasures for surrounding rocks in underground chambers of Baihetan Hydropower Station
China Three Gorges Corporation, Hydro China Itasca Research and Development Center, Powerchina Huadong Engineering Corporation Limited, China

The dam foundation grouting engineering management based on 3D geological model and monitoring system
China Three Gorges Corporation, China

Research of countermeasures for excavation of medium- and high-stress basalt at Baihetan Hydropower Station
China Three Gorges Corporation, China

Research of excavation and shaping of medium-high-stress basalt underground chambers at Baihetan Hydropower Station
China Three Gorges Corporation, China

Research of excavation and support measures for columnar jointing sections in the diversion tunnel of Baihetan Hydropower Station
China Three Gorges Corporation, China

Discussion on the excavation and support technology of underground chambers in the steep, small-inclined-angle rock stratum at Wudongde Hydropower Station
China Three Gorges Corporation, China

Research of countermeasures for phyllite excavation in the water diversion tunnel of Nepal Upper Madi Hydropower Station
China Three Gorges Corporation, China

Research of key technology for excavation and shaping of large-scale granite chambers in the Three Gorges Underground Powerhouse
China Three Gorges Corporation, China

A case study on a risk based approach to stope design
SRK, South Africa

Conceptual design for an arched sub-level pillar at Lace Diamond Mine in Kroonstad South Africa
Brentley, Lucas and Associates, South Africa

Comparison between thin spray on liners and shotcrete as surface support mechanisms in tunnels
University of Cape Town, South Africa

Time dependent failure of open stopes at Target Mine
Brentley, Lucas and Associates, South Africa

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University of Pretoria, South Africa

Geomechanical evaluation enabled successful stimulation of apollonia tight chalk reservoir in Abu-Gharadig Basin, Egypt
Khalda Petroleum Company, Egypt

A review on rockburst risk assessment in tunnelling and mining
Institute of Rock Mechanics and Tunnelling, Graz University of Technology, Austria

Techniques for three-dimensional displacement vector using ground-based interferometric synthetic aperture radar
Hexagon Mining, South Africa, IDS GeoRadar, Italy

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South Africa

An investigation into the uncharacteristic in-stope support behaviour on the UG2 Reef horizon at Lonmin’s K3 shaft
Lonmin, South Africa

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University of Johannesburg, South Africa

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Bafokeng Rasimone Platinum Mine, South Africa

Back analysis of Merensky reef cube strength
Bafokeng Rasimone Platinum Mine, South Africa

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Advisian, South Africa

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Glencore, South Africa

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Glencore, South Africa

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Glencore, South Africa

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Bafokeng Rasimone Platinum Mine, South Africa

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Hemic, South Africa

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Bafokeng Rasimone Platinum Mine, South Africa

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Lesotho Letšeng Diamonds, University of KwaZulu Natal, South Africa
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Advanced information on rock mass properties in large open pits by analysing production drill rig parameters in real time
Groundwork Consulting, South Africa

Case studies demonstrating advances in geotechnical instrumentation and monitoring and the decision making implications for mine rock engineers
Groundwork Consulting, South Africa

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GeoSindile (Pty) Ltd, South Africa

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South Africa University of KwaZulu-Natal, Buffalo Coal, South Africa

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University of KwaZulu-Natal, South Africa

Full scale dynamic tests of a ground support system using high-tensile strength chain link mesh in El Teniente Mine, Chile
Chile University / Codexco El Teniente, University of Applied sciences Zurich, Geobrug AG, Santa Maria University, Geobrug Andina Group T University / Geobrug Southern Africa (Pty) Ltd, Chile, South Africa

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Brentley, Lucas & Associates (Pty) Ltd, South Africa

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Institute of Geonics of the Czech Academy of Sciences, Czech Republic

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Impala Platinum, South Africa

Pillar scaling and pillar fracturing in deep level gold mines in South Africa 1Deep level gold mine
The University of the Witwatersrand, South Africa

Remediation of abandoned mines for residential development
Oweis Engineering Inc, The Falcon Group, USA

A model-oriented, remote sensing approach for the derivation of numerical modelling input data: Insights from the Hope Slide, Canada
Simon Fraser University, Canada

A study of multi-reef pillar extraction in the Carletonville area
SibanyeGold, The University of the Witwatersrand, South Africa

Parameters required for the design of rock support in highly stressed rock masses
Norwegian University of Science and Technology, Norway

A tool for the evaluation of departmental effectiveness
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CSIR-Central Institute of Mining & Fuel Research, India

Preliminary investigation to areal shape effect of pillar strength
University of Pretoria, South Africa

Towards a formal Rock Engineering Qualification in the South African Mining setup
University of Pretoria, South Africa

Development of a site specific floor deformation index to assess floor heave risks
Anglo American Met Coal, Anglo American Grosvenor Mine, Australia

Characterization and numerical modelling of standard and cabled strapped pillars in a hematite mine
University of Vigo, Spain

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The University of the Witwatersrand, South Africa

Comparison of observational, empirical and 3D discrete numerical methods to estimate subsidence over longwall coal faces
University of Vigo, Itasca Consultores SL, Spain

A multi-objective hybrid prediction model of slope deformation based on fuzzy optimization algorithm
Yangtze River Scientific Research Institute, China

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Nanyang Technological University, Singapore

Otijkoto gold mine – a case study on the pit slope design
SRK, South Africa

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SRK, South Africa

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Australian Centre for Geomechanics, Australia

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Chinese Academy of Sciences, China

A holistic open-pit mine slope stability index using Artificial Neural Networks
University of Johannesburg, South Africa

An investigation on the relationships between the petrographic, physical and mechanical characteristics of sandstones from Newspaper Member of the Natal Group
University of KwaZulu University of Johannesburg, South Africa

The significance of identifying potential failure mechanisms from conceptual to design level for open pit rock slopes
University of KwaZulu, University of Johannesburg, South Africa

Stability of large cavern in anisotropic rock
Kajima Corporation, Japan

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Kajima Corporation, JGMEC Japan Oil Gas and Metals National Corporation, Japan

Support method of hard rock in underground engineering with high geo-stress: A case study of the Baihetan underground cavern, China
Chinese Academy of Sciences, China

A critical review of the findings from in situ stress measurements conducted in Southern Africa during the past ten years
Hands on Mining cc, Groundwork Consulting, South Africa

Study of innovative technologies for underground excavations monitoring during construction and operation phases
University of Parma, Italy

Fundamentals of underground pillar design
Middindi Consulting (Pty) Ltd, University of Pretoria, South Africa
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An empirical and numerical approach to quantifying raise-bore hole stability
Middindii Consulting (Pty) Ltd, South Africa

Slope stability of soft material benches in open pit mining
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CSIRO Energy, Australia

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Chinese Academy of Sciences, China

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Lommin Platinum, University of Pretoria, South Africa

Unravelling the structural mysteries of the Bermuda Triangle at Lommin’s Saffy Shaft Lommin Plc
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Understanding the influence of geological structures – an often overlooked important aspect in the stability of operating mines
Independent Consultant, Lommin Platinum, Canada, South Africa

The effectiveness of a coupled large annulus resin bolting system installed in a conventional narrow tabular orebody utilizing conventional equipment
Lommin Plc, South Africa

Crack propagation energy determination for rock materials under static and impact loading
Karadeniz Technical University, Turkey

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Middle East Technical University, Turkey

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Evaluation of crack displacement in underground excavations using wireless technology crack meters
University of the Witwatersrand, South Africa

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Unki mines (Pvt) Ltd, Zimbabwe

Excavation-induced seismicity: mechanism and implications
Nanyang Technological University, Tsinghua University, China

The impacts of plastic deformation on productivity in low-permeability reservoirs during hydraulic fracturing
Petro-Geotech Inc., Canada

Two phase flow coupled to geomechanics by dual porosity model: simulating fractured reservoirs by finite element method
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Induced Stresses and SRV Calculation near a Hydraulic Fracture in the Naturally Fractured Reservoir
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Relating source mechanisms to damage phenomena in platinum mines of the western Bushveld complex, Yuba, South Africa
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A numerical study of the influence of pre-existing discontinuities on the hydraulic fracturing process
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Chirano Gold Mines Ltd, Ghana

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SRK, South Africa

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‘Early Access’ Microseismic Monitoring using Sensors Installed in Long Boreholes

Optimizing presplit performance in highly jointed rock formations
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Revised pillar design for a Zimbabwe bord and pillar operation using a combination of empirical, linear elastic and non-linear analysis
SRK Consulting (Pty) Ltd, South Africa

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Tractebel France, Genneviéliers, Independent Consultant, France, Belgium

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University of Mons, Belgium

Controlled damage - unfolding the design, risk and cost
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China Earthquake Administration, China

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Use of plastic composites as friction rock bolt materials
Karadeniz Technical University, Turkey

Use of plastic composites as friction rock bolt materials
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Mechanism of the Taihongcun landslide triggered by the 2008 Wenchuan earthquake in Beichuan County
Chinese Academy of Sciences, China

The evaluation of rock bolt as rock support in underground gold mine Pongkor, west Java, Indonesia
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University of the Witwatersrand, South Africa

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University of the Witwatersrand, South Africa

Geotechnical data for Ivanplats
Platreef project Ivanplats (Pty) Ltd, SRK Consulting (Pty) Ltd, South Africa

Geological- and hydrogeological settings for rock engineering an example for grouting design at Aşpö Hard Rock Laboratory, Sweden
Chalmers University of Technology, Notconsult AB, Sweden

Acoustic approach to estimation of rock mass state and prediction of induced seismicity parameters: theory, laboratory experiment and case study
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Issues related to the long-term stability of unlined water tunnels – a case review
Norwegian University of Science and Technology (NTNU), Norway

The Sub Surface Profiler: A Giant Leap for Ground Penetrating Radar - REUTECH Mining, South Africa

Borehole stability and sand production in gas reservoirs
Aristotle University of Thessalonik, SINTEF, Petroleum Research, Greece, Norway

Application of digital photogrammetry in QA/QC of drill core measured structural data
SRK Consulting (South Africa) (Pty) Ltd, South Africa

Design of weathered slopes to improve stability and economics
Kansanshi Mine, Zambia

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Indian Institute of Technology Kharagpur, India

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University of Pretoria, 2GaGE Consulting, South Africa

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National Taipei University of Technology, Taiwan

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BGTech Soil and Rock Engineering, Votorantim Metals, Brazil

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University of Turin, Imperial College of London, Italy, London

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First Quantum Minerals Limited, Zambia

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Norwegian University of Science and Technology (NTNU), Norway

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Eleonore Mine Goldcorp, Laval University, Canada

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Tongji University, China University of Mining & Technology, China

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Tongji University, China University of Mining & Technology, China

Microseismic monitoring and stability analysis of deep underground powerhouse at the Lianghekou hydropower station, Southwest China
Powerchina Chengdu Engineering Corporation Limited, Sichuan University, China

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National Taipei University of Technology, China

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CSIRO, Australia

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Sichuan University, Powerchina, Chengdu Engineering Corporation Limited, China

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University of Leeds, SRK Pty (Ltd), Australian Centre for Geomechanics, United Kingdom, South Africa, Australia

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SRK Consulting, South Africa

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University of Pretoria, Middindi Consulting (Pty) Ltd, South Africa

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Graz University of Technology,

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Bulent Ecevit University, Turkey

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Queen’s University, Canada