



Rocscience International Conference 2021 Schedule

All times are as per Eastern Daylight Time (GMT - 4:00)

01

APRIL 19

12:00–1:00 PM **LIFETIME ACHIEVEMENT SESSION**
Dr. Evert Hoek
Developments in Rock Engineering from 1958 to 2020
LIFETIME ACHIEVEMENT MEDAL RECIPIENT

02

APRIL 20

8:45–9:00 AM **OPENING CEREMONY**

9:00–9:45 AM **KEYNOTE**
Professor Will Bawden
Reflections on 40+ Years of Rock Engineering Practice in Mining

9:45–10:00 AM Break

10:00–11:00 AM **PAPER PRESENTATIONS**

SESSION 1 Rock Mass Characterization	SESSION 2 Tunnels & Caverns I	SESSION 3 Stability Analysis of Mining Slopes I	SESSION 4 Probabilistic Slope Stability Analysis I
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11:00–11:15 AM Break

11:15 AM–12:15 PM **PAPER PRESENTATIONS**

SESSION 5 New Technologies in Geotechnical Engineering	SESSION 6 Surface Excavations	SESSION 7 3D Slope Stability Analysis	SESSION 8 Numerical Slope Stability Analysis I
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12:15–1:00 PM Lunch Break

1:00–1:45 PM **KEYNOTE**
Professor Kemal Onder Cetin
Recent Advances in Seismic Soil Liquefaction Engineering

1:45–2:00 PM Break

2:00–3:00 PM **PAPER PRESENTATIONS**

SESSION 9 Liquefaction & Foundation Analysis	SESSION 10 Stability Analysis of Mining Slopes II	SESSION 11 Probabilistic Slope Stability Analysis II
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3:00–3:30 PM Break

3:30–5:00 PM **PANEL DISCUSSION**
From Monitoring and Calibration to Predictive Modelling

* Detailed Paper Presentation Schedule in Appendix 1



Rocscience International Conference 2021 Schedule

03

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APRIL 21

9:00–9:45 AM

KEYNOTE

Professor K.K. Phoon

Advances in Data-Driven Subsurface Mapping

9:45–10:00 AM

Break

10:00–11:00 AM

PAPER PRESENTATIONS

SESSION 12

Numerical Slope
Stability Analysis II

SESSION 13

Tunnels & Caverns II

SESSION 14

Stability Analysis of
Mining Slopes III

SESSION 15

Spatial Variability in
Probabilistic Slope
Stability Analysis

11:00–11:15 AM

Break

11:15 AM–12:30 PM

SPECIAL SESSION

OUTSTANDING CONTRIBUTIONS TO GEOMECHANICS NUMERICAL RESEARCH AND MODELLING AWARD
TO DR. JOHN H. CURRAN

12:30–1:00 PM

Lunch Break

1:00–1:45 PM

KEYNOTE

Professor Mark Diederichs

After Decades of Rock Engineering Modelling, Are We Asking the Right Questions?

1:45–2:00 PM

Break

2:00–3:00 PM

PAPER PRESENTATIONS

SESSION 16

Numerical Analysis
of Underground
Excavations

SESSION 17

Stability Analysis of
Jointed Rock Slopes

SESSION 18

Limit Equilibrium
Slope Stability
Analysis

3:00–3:30 PM

Break

3:30–5:00 PM

PANEL DISCUSSION

Is Numerical Modelling a Solution or a Problem?

5:00–5:30 PM

CLOSING CEREMONY

04

APRIL 22 & 23

APRIL 22

TECHNICAL COURSE

10:00 AM–2:00 PM

Finite Element Modelling of Civil and Mining Excavations – Part I

APRIL 23

TECHNICAL COURSE

10:00 AM–2:00 PM

Finite Element Modelling of Civil and Mining Excavations – Part II

* Detailed Paper Presentation Schedule in Appendix 1

**Rocscience International Conference 2021
Paper Presentation Schedule**

All times are as per Eastern Daylight Time (GMT - 4:00)

TUESDAY, APRIL 20TH	TIME	PAPER ID	LAST NAME	FIRST NAME	PAPER TITLE	MODERATOR
SESSION 1 ROCK MASS CHARACTERIZATION	10:00 AM	RICAB84	Carter	Trevor	Towards improved definition of the Hoek-Brown constant m_i for numerical modelling	Mark Diederichs
	10:15 AM	RICAB33	Chusna	Ifa	Study of the Effect on Stability of Slope Variations and Reserve Estimation in the Kaolin Mining Quarry Design	
	10:30 AM	RICAB38	Day	Jennifer	How to incorporate variability of rockmass structures into equivalent continuum numerical models using the Composite Geological Strength Index	
	10:45 AM	RICAB46	Zeremy	Lucky	Rock Mass Characterization of Molasse-like Deposit of Dahor Formation and Its Application To Rock Slope Stability From Bunati Area, South Kalimantan : A Preliminary Study	
SESSION 2 TUNNELS & CAVERNS I	10:00 AM	RICAB56	Ashraf Mohamad Ismail	Mohd	Brittle failure assessment for TBM tunneling under high overburden: A case study from Pahang-Selangor Raw Water Transfer Tunnel Project, Malaysia	Manoj Verman
	10:15 AM	RICAB78	Markus	Simone	Use of continuum and pseudo-discontinuum FEM models in stepwise verification of the FDEM for simulating damage around tunnels in brittle rock	
	10:30 AM	RICAB4	Shahbazi	Alireza	Numerical investigation of the relationship between the inflow rate to the tunnel, block volume and block surface area	
	10:45 AM	RICAB26	Russo	Giordano	Severe rockburst occurrence during construction of a complex hydroelectric plant	
SESSION 3 STABILITY ANALYSIS OF MINING SLOPES I	10:00 AM	RICAB36	Zevgolis	Ioannis	Analytical versus numerical analysis on slope stability of surface lignite mines	Neil Bar
	10:15 AM	RICAB62	Edmondson	Peter	Practicalities when adopting a gradational damage factor within a Hoek-Brown constitutive model	
	10:30 AM	RICAB45	Torrent Figueiredo	Lucas	Open pit 3D slope stability for anisotropic rock masses in soft iron ore deposits – A case study	
	10:45 AM	RICAB29	Bogoly	Gyula	Comparison of the probabilistic and deterministic slope stability analysis of a dolomite quarry in Hungary	



TUESDAY, APRIL 20TH	TIME	PAPER ID	LAST NAME	FIRST NAME	PAPER TITLE	MODERATOR
SESSION 4 PROBABILISTIC SLOPE STABILITY ANALYSIS I	10:00 AM	RICAB9	Cami	Brigid	Considering multiple failure modes: a comparison of probabilistic analysis and multi-modal optimization for a 3D slope stability case study	Tolga Bilge
	10:15 AM	RICAB15	Damilare Adeleke	Daniel	Assessment of asperities geometry influence on MSW landfill critical interface side-slope stability using probabilistic analysis	
	10:30 AM	RICAB34	Fomenko	Igor	Schematization of Soil Properties in Mathematical Modeling of Slope Stability	
	10:45 AM					
SESSION 5 NEW TECHNOLOGIES IN GEOTECHNICAL ENGINEERING	11:15 AM	RICAB23	Foria	Federico	Artificial intelligence and image processing in the MIRET approach for the water detection and integrated geotechnical management of existing mechanized tunnels: methodology, algorithm and case study	Ana Maria
	11:30 AM	RICAB104	Strydom	Jacques	An integrated geotechnical risk management approach using cloud-based risk assessments, artificial intelligence, satellite monitoring and drone technology	
	11:45 AM	RICAB50	Smesnik	Mathias	Remote sensing and mapping of geological rock-mass features employing advanced data analytics and artificial intelligence	
	12:00 PM	RICAB41	Morgenroth	Josephine	Tunnel liner yield forecasting at Cigar Lake Mine: an Input Omission approach to understanding machine learning processes	
SESSION 6 SURFACE EXCAVATIONS	11:15 AM	RICAB19	Oliveira Muguet	Eduardo	Evaluation of theoretical liquefaction of compacted tailings piles based on the state parameter approach: a case study	Denis Kalumba
	11:30 AM	RICAB3	Kwok Lun Kwong	Alan	Lessons Learnt from 3D Soil-Structure Modeling of a Peanut Shaped Cofferdam for Cut & Cover Tunnel	
	11:45 AM	RICAB5	Yunatci	Anil	Field instrumentation based performance verification of an improved soil site	
	12:00 PM					
SESSION 7 3D SLOPE STABILITY ANALYSIS	11:15 AM	RICAB52	Kitson	Maxwell	Finite element analysis of a deep excavation: A case study ground response due to deep excavations in Sydney Sandstone	Thiago Bretas
	11:30 AM	RICAB16	Dossymbek	Daulet	North wall stability analysis of Vasilkovskoye open pit Kazakhstan	
	11:45 AM	RICAB47	Peigas Pacheco	Marcus	3-D stability analyses in soft clays with strain-softening	
	12:00 PM	RICAB108	McQuillan	Alison	On the comparison of 2D and 3D stability analyses of an anisotropic slope	



TUESDAY, APRIL 20TH	TIME	PAPER ID	LAST NAME	FIRST NAME	PAPER TITLE	MODERATOR
SESSION 8 NUMERICAL SLOPE STABILITY ANALYSIS I	11:15 AM	RICAB70	Sapachev	Roman	Numerical profile modeling for transient groundwater flow at pit slope	Ian Williams
	11:30 AM	RICAB44	Leighton Clemente	Lance	Soil-Structure Interaction of Mechanically Stabilized Earth (MSE) Retaining Walls Subjected to Construction Sequencing and Seismic Loading	
	11:45 AM	RICAB18	Lizeth Ardila Montilla	Edna	2D and 3D Numerical Study of Geosynthetic Mechanically Stabilized Earth GMSE Walls	
	12:00 PM	RICAB79	Javankhoshdel	Sina	2D and 3D FEM modeling of the initiation of progressive landslides	
SESSION 9 LIQUEFACTION & FOUNDATION ANALYSIS	02:00 PM	RICAB27	P Ventura	Giancarlo	Bearing capacity and settlement analysis of closely spaced shallow foundations with various footing geometry on multi-layered soils	Mason Ghafgazi
	02:15 PM	RICAB86	Jagodnik	Vedran	Behaviour of Rigid Block on Uniform Sand Under Horizontal Base Acceleration	
	02:30 PM	RICAB 106	Muftu	Ahmed	Skin Friction Displacement Relations for Load Settlement Behaviour of Bored Piles in Dubai	
	02:45 PM	RICAB12	Rosario Guanzon	Clarence	Implementation of Constrained Differential Evolution in Reliability-based Evaluation of Soil-Structure Interactioninfluenced Liquefaction Potential	
SESSION 10 STABILITY ANALYSIS OF MINING SLOPES II	02:00 PM	RICAB37	Zevgolis	Ioannis	The effect of water filling on slope stability of open pits: a numerical investigation	Niccolo Coli
	02:15 PM	RICAB61	Handanawarih	Pancamanto	Geotechnical Analysis of Cut and Fill Mining Sequence on Dumping Materials Re-handling XPit by Using Slide3	
	02:30 PM	RICAB7	Serpa Freire	Antonio	3D Slope Stability Analysis of a Filtered Iron Ore Tailings Dry Stacking	
	02:45 PM	RICAB48	Costa Medeiros	Marina	Slope Angle Optimization Applied for Geometry Design Of An Open Pit Iron Ore Mine	
SESSION 11 PROBABILISTIC SLOPE STABILITY ANALYSIS II	02:00 PM	RICAB28	Firmanda	Gilang	Back Analysis For Landslide In Mine Waste Dump Slope Using Probabilistic Analysis	Sina Javankhoshdel
	02:15 PM	RICAB76	Masoud Asadollahi	Seyed	Reliability analysis of soil nail walls using SRV and RLEM approaches	
	02:30 PM	RICAB82	Ma	Terence	Probabilistic slope stability analysis of a case study using Random Limit Equilibrium Method and Surface Altering Optimization	
	02:45 PM	RICAB68	Asnida Abdullah	Rini	Simulating the topography induced stresses using 3D numerical modeling	



WEDNESDAY, APRIL 21ST	TIME	PAPER ID	LAST NAME	FIRST NAME	PAPER TITLE	MODERATOR
SESSION 12 NUMERICAL SLOPE STABILITY ANALYSIS II	10:00 AM	RICAB40	Clausen	Johan	Consistent evaluation of slope safety factors between different strength criteria	Azadeh Riyahi
	10:15 AM	RICAB39	Goodale	Jennifer	Global Stability Assessment of Open Pit Slopes Using LEM and FEM: A Comparison between the Factor of Safety and Strength Reduction Factor	
	10:30 AM	RICAB59	Vlachopoulos	Nicholas	Interaction of Twin Tunnels within Weak Rock Masses and Slopes	
	10:45 AM	RICAB71	Ridl	Romy	A simple method to model buckling slope instability using continuum numerical models	
SESSION 13 TUNNELS & CAVERNS II	10:00 AM	RICAB1	Torok	Akos	The probabilistic analysis of steep lakeside slopes; geotechnical-geological-hydrogeological constraints and numerical analysis, an example from Hungary	Mohd Ashraf
	10:15 AM	RICAB35	Norshira Yusoff	Intan	Weathered Rock and Crack Detection of Tunnel Excavation using Image Analysis	
	10:30 AM	RICAB17	Georgiou	Dimitrios	Numerical investigation of the stability of tunnel excavation faces in deep tunnels	
	10:45 AM	RICAB21	Jason Dressel	Evan	A numerical investigation on the influence of rockmass parameters and yield mechanics in pillar design	
SESSION 14 NEW TOOLS FOR SLOPE AND EXCAVATION ANALYSIS	10:00 AM	RICAB88	Carswell	Wystan	Continuous Wall Stabilization of Impoundment Slopes	Trevor Carter
	10:15 AM	RICAB73	Kaafarani	Rouba	Landslide Hazard and Risk Level Assessment of Quarried Slopes in Lebanon using Drone Imagery	
	10:30 AM	RICAB58	Bar	Neil	Back-analysis of ductile slope failure mechanisms and validation with aerial photogrammetry, InSAR and GbRAR to proactively manage economic risks to protect the mine plan	
	10:45 AM	RICAB10	Fischer	Caitlin	Comparison between GSI-based implicit and explicit structure models	
SESSION 15 SPATIAL VARIABILITY IN PROBABILISTIC SLOPE STABILITY ANALYSIS	10:00 AM	RICAB63	Dastpak	Pooya	Probabilistic analysis of geosynthetic reinforced slopes using 2D and 3D models	Anil Yunatci
	10:15 AM	RICAB42	Esmaeili	Kamran	A stochastic spatial modeling approach for pit slope stability analysis using 3D Limit Equilibrium Analysis	
	10:30 AM	RICAB43	Esmaeili	Kamran	Developing spatially constrained Discrete Fracture Network (DFN) models for a stochastic pit slope stability analysis	
	10:45 AM	RICAB75	Cylwik	Scott	Probabilistic Analysis of an Open Pit Mine Slope in the Central African Copperbelt with Spatially Variable Strengths	



WEDNESDAY, APRIL 21ST	TIME	PAPER ID	LAST NAME	FIRST NAME	PAPER TITLE	MODERATOR
SESSION 16 NUMERICAL ANALYSIS OF UNDERGROUND EXCAVATIONS	02:00 PM	RICAB72	Seedsman	Ross	Options for designing a hold-retain strategy for excavations in stratified rock	Will Bawden
	02:15 PM	RICAB99	Wahanik	Helmut	The fast multipole method for the computation of large-scale three-dimensional elastostatics boundary-element problems in underground excavations.	
	02:30 PM	RICAB98	Kaleba	Gaby	Life-of-mine deformation and stability assessment for Kibali conditions in Western 9000 series lodes	
	02:45 PM	RICAB51	Falanesca	Matteo	Numerical models for the design and construction of new underground structures at CERN (HL-LHC), Point 5	
SESSION 17 STABILITY ANALYSIS OF JOINTED ROCK SLOPES	02:00 PM	RICAB107	Bateman	Vanessa	Modelling the effectiveness of a grout curtain for construction groundwater control in Karst for a lock excavation	Joe Carvalho
	02:15 PM	RICAB85	Kuppusamy	Valencia	Application of discrete fracture networks (DFN`s) to the design of benches in an open pit mine in South Africa	
	02:30 PM	RICAB89	Umur Dogan	Yalin	Comparison of 2D-3D limit equilibrium and finite element methods for the analysis of bi-planar rock slope failures	
	02:45 PM	RICAB100	Moallemi	Sina	On the use of Extended Finite Element Method (XFEM) for jointed rock slope problems	
SESSION 18 LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS	02:00 PM	RICAB24	Foria	Federico	Mitigation measures for the protection of working railway lines from landslides: the case study of Altare and Santuario	Sebastian Lobo-Guerrero
	02:15 PM	RICAB11	MacRobert	Charles	Can 2D cross sections be safely extrapolated?	
	02:30 PM	RICAB74	Oguzhan Akbas	Sami	Characterization and stabilization of a mine waste dump-landslide	
	02:45 PM	RICAB105	Egan	Derek	Case study – Development of a practical design for a landslip site using advanced geotechnical software.	