



Rocscience International Conference 2023 Schedule

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

APRIL 24

8:00–10:00 AM	COURSES – SESSION I
10:00–10:15 AM	Coffee Break
10:15AM–12:30 PM	COURSES – SESSION II
12:30–1:15 PM	Lunch
1:15–3:45 PM	COURSES – SESSION III
	LIFETIME ACHIEVEMENT AWARD SESSION
5:00–5:10 PM	Welcome/Introductory Remarks
5:10–5:40 PM	Award Lecture – Dr. Norbert Morgenstern
5:40–6:00 PM	Question and Answers
6:15–7:15 PM	Networking Session

APRIL 25

8:45–9:00 AM	OPENING MESSAGE
9:00–9:45 AM	KEYNOTE Dr. Derek Martin Performance-based design in rock engineering
9:45–10:00 AM	Coffee Break
10:00–11:00 AM	PAPER PRESENTATIONS

SESSION 1: ANALYSIS OF UNDERGROUND EXCAVATIONS

CIVIC

Session Chair - John Hadjigeorgio

10:00 AM	RIC2023-TP106 – William Bawden Geotechnical risk and risk mitigation in deep underground mines in hard, brittle rock
10:15 AM	RIC2023-TP46 – Ian Williams Analysis of Cave System in Weak Sandstone using RS2
10:30 AM	RIC2023-TP85 – David Saiang Back analysis of narrow vein open stope stability and verification using kinematic and empirical methods
10:45 AM	RIC2023-TP117 – Sandin Phillipson Assessment of Pillar and Interburden Stability in Ultra-Close Multiple-Seam Mining Using Finite Element Modeling

SESSION 2: GROUNDWATER ANALYSIS

SIMCOE & DUFFERIN

Session Chair - Rashid Bashir

10:00 AM	RIC2023-TP112 – Ahmed Al-Muftly Zoning of Soil Media by Raster Scan Algorithms for Two-Dimensional Steady State Flow
10:15 AM	RIC2023-TP155 – Ulf Köhler Add water and get problems, to solve: Geotechnical problems with steep rock faces in soft sandstone and limestone varieties, including the effects of water
10:30 AM	RIC2023-TP13 – Leila Baninajarian Probabilistic analysis of an embankment under extreme rainfall events considering spatial variability of soil strength parameters



Rocscience International Conference 2023 Schedule

APRIL 25

10:00–11:00 AM PAPER PRESENTATIONS

SESSION 3: SLOPE STABILITY IN NATURAL SLOPES

KENT

Session Chair - Scott Cylwik

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|----------|--|
| 10:00 AM | RIC2023-TP13 – Ali Saeidi
Regional-scale landslide hazard analysis in sensitive clays using an integrated approach |
| 10:15 AM | RIC2023-TP100 – Carlos Chávez-Negrete
2013 Landslide Failure Mechanism and Back Analysis of Tijuana-Ensenada Scenic Highway |
| 10:30 AM | RIC2023-TP62 – Sravan Kumar Gara
Slope Stability Analysis for Optimisation of Overburden Dump Capacity in Opencast Coal Mines |
| 10:45 AM | RIC2023-TP121 – Alex Cuellar Diaz
Infrastructure Management Based on Vulnerability to Landslides |

11:10 AM–12:10 PM PAPER PRESENTATIONS

SESSION 4: TUNNELLING IN CHALLENGING ENVIRONMENTS

CIVIC

Session Chair - Manoj Verman

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|----------|---|
| 11:10 AM | RIC2023-TP197 – John Hadjigeorgiou
Rock Reinforcement Data for Analysis and Design |
| 11:25 AM | RIC2023-TP30 – Fatemeh Amiri
Continuum-based Voronoi Tessellated Models for Capturing Unloading-Induced Brittle Damage in Hard Rocks |
| 11:40 AM | RIC2023-TP23 – Amichai Mitelman
Utilizing the Monte-Carlo Capability in RS2 for Machine-Learning Applications |

SESSION 5: COMPUTATIONAL GEOMECHANICS

SIMCOE & DUFFERIN

Session Chair - Joe Carvalho

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|----------|---|
| 11:10 AM | RIC2023-TP167 – Mohammadhossein Afsharipour
Thermal Design of Small Modular Reactors in Northern Regions |
| 11:25 AM | RIC2023-TP129 – A S M Fahad Hossain
Impacts of shear wave velocity and thickness on 1D soil dynamic response - A case study of the Saguenay region, Quebec |
| 11:40 AM | RIC2023-TP163 – Athena Pirayehgar
A Conceptual Assessment for Dynamic Analysis in RS3 |



Rocscience International Conference 2023 Schedule

APRIL 25

11:10–12:10 PM PAPER PRESENTATIONS

SESSION 6: FOUNDATION ENGINEERING

KENT

Session Chair - Sebastien Logo-Guerrero

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|----------|---|
| 11:10 AM | RIC2023-TP146 – Lysandros Pantelidis
An analytical method for designing embedded retaining walls |
| 11:25 AM | RIC2023-TP23 – Ali Shafiee
Active and Passive Lateral Earth Pressure on Retaining Walls with Broken Sloped Backfill Using Finite Element Limit Analysis |
| 11:40 AM | RIC2023-TP147 – Lysandros Pantelidis
An analytical method for the calculation of the shaft resistance of axially loaded piles in cohesive-frictional soils |
| 11:55 AM | RIC2023-TP123 – Alex Cuéllar Díaz
Foundation Design Alternatives for Residential Building Near Natural Slope |

12:10–1:10 PM Lunch

1:10–1:30 PM

SPECIAL SESSION

The Synergy of Rocscience: Innovation & Experience

1:30–2:15 PM

KEYNOTE

Dr. Ellen Rathje

The Role of Data, Simulation, and Cyberinfrastructure in Geotechnical Engineering

2:15–2:30 PM Coffee Break

2:30–3:30 PM

PAPER PRESENTATIONS

SESSION 7: SUPPORT SYSTEMS AND GEOSYNTHETICS

CIVIC

Session Chair - Ali Shafiee

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| 2:30 PM | Huesker – Company Profile |
| 2:45 PM | RIC2023-TP181 – Edna Lizeth Ardila Montilla
Applications and Modelling of Geosynthetics in Highway Infrastructure |
| 3:00 PM | RIC2023-TP176 – Carlos Rodriguez
Slope stability analysis using 2 and 3-dimensional methods of basal reinforced slopes located in Northern Virginia |
| 3:15 PM | RIC2023-TP192 – Pooya Dastpak
Numerical Investigation of Reinforced Soil Segmental Walls using Two-Dimensional Finite Element Analysis in RS2 |



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APRIL 25

2:30–3:30 PM PAPER PRESENTATIONS

SESSION 8: APPLICATION OF AI IN GEOTECHNICAL ENGINEERING

SIMCOE & DUFFERIN

Session Chair - Navid Jafari

- 2:30 PM RIC2023-TP173 – Pooneh Maghoul
Detection and attribution of climate non-stationarity in cold regions geotechnical design
- 2:45 PM RIC2023-TP51 – Amirhossein Medghalchi
Shear behavior of 3D printed stochastic rock discontinuities
- 3:00 PM RIC2023-TP193 – Steve Chai
Applying Logistic Regression Analysis in Modeling Settlement Analysis with Ground Improvement

SESSION 9: ANALYSIS OF ROCK SLOPE STABILITY

KENT

Session Chair - Kamran Esmaeili

- 2:30 PM RIC2023-TP31 – Ajay Kumar Naithani
Analysis of Slope Failure: A Case Study from the Pump House Cut Slope Wall of Lift Irrigation Scheme, Telangana State, India
- 2:45 PM RIC2023-TP109 – Brigid Cami
The Conversion of Anisotropic Materials from 3D to 2D in Limit Equilibrium
- 3:00 PM RIC2023-TP207 – Amir Arsalan Jameei
On the Creep analysis of rock masses by using a viscoelastoplastic model

3:35–3:50 PM SPONSOR PRESENTATION
Maccaferri

4:00–5:00 PM PAPER PRESENTATIONS

SESSION 10: ADVANCES IN 3D SLOPE STABILITY ANALYSIS

CIVIC

Session Chair - Thiago Bretas

- 4:00 PM RIC2023-TP139 – Babak Khadivi
Experimental and Numerical Investigation of Shear-Tensile Cracking in Granite under Indirect Tensile Loading
- 4:15 PM RIC2023-TP200 – Rajib Dey
2D and 3D FEM modeling of the initiation of progressive landslide
- 4:30 PM RIC2023-TP34 – Terence Ma
Searching for the 3D critical slip surface in an open pit mine using spline surfaces



Rocscience International Conference 2023 Schedule

APRIL 25

4:00–5:00 PM

PAPER PRESENTATIONS

SESSION 11: SETTLEMENT ANALYSIS AND GROUND IMPROVEMENT

SIMCOE & DUFFERIN

Session Chair - Jason Crowder

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|---------|--|
| 4:00 PM | RIC2023-TP36 – Giancarlo Ventura
Investigation of Geometric and Smear Parameters in the Design of Prefabricated Vertical Drains in Manila Bay |
| 4:15 PM | RIC2023-TP56 – Yared Sholla
Design and Modeling of the Geopier Ground Improvement System to Improving Global Stability |
| 4:30 PM | RIC2023-TP214 – Joe Carvalho
Evaluation of Full-Scale Pile Load Testing using Oster-berg Cell® in Till and Georgian Bay Shale in Southern Toronto |
| 4:45 PM | RIC2023-TP107 – Francisco Alonso Flores Lopez
Predictions of Settlements of Pond Berms Over Mexico City Clays |
| 5:00 PM | RIC2023-TP199 – Luis Gonzalez
A ground improvement case study using soil replacement or stone columns using Settle3 and RS3 |

SESSION 12: NUMERICAL MODELLING OF EXCAVATIONS

KENT

Session Chair - Mark Diederichs

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|---------|--|
| 4:00 PM | RIC2023-TP122 – Gordon Sweby
Forecasting the Depth of Failure in Underground Development |
| 4:15 PM | RIC2023-TP138 – Nicolás Ignacio Ramírez Zúñiga
Influence of geotechnical parameters and in-situ stresses on strainburst potential |
| 4:30 PM | RIC2023-TP194 – Asad Askari
Metaheuristic optimization model selection for forecasting surface settling caused by tunneling. |

APRIL 26

8:30 AM

MORNING MESSAGE

9:00–9:45 AM

KEYNOTE

Dr. Youssef Hashash

Geotechnical Engineering in the Age of AI and Machine Learning

9:45–10:00 AM

Coffee Break



Rocscience International Conference 2023 Schedule

APRIL 26

10:00–11:00 AM PAPER PRESENTATIONS

SESSION 13: STABILITY ANALYSIS OF OPEN PIT SLOPES

CIVIC

Session Chair - Davide Elmo

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|----------|---|
| 10:00 AM | RIC2023-TP169 – Trevor Carter
Approaches for Estimating Slope Breakback and Stability Longevity for Closure of Large Open Pits |
| 10:15 AM | RIC2023-TP202 - Sina Moallemi
Stability analysis of a temperature dependent jointed rock mass |
| 10:30 AM | RIC2023-TP217 – Nyandano Netshivhazwaulu
Value creation in an open cast strip mine through geotechnical processes |
| 10:45 AM | RIC2023-TP186 – Fredy Diaz-Duran
Slope Stability in Open Pits with Thin Weak Layers |

SESSION 14: BEST STUDENT PAPER COMPETITION

SIMCOE & DUFFERIN

Session Chair - Reginald Hammah

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|----------|---|
| 10:00 AM | RIC2023-TP153 – Maxzender Trzop
RS3 feasibility modelling of a semi-circular notched sample spalling experiment |
| 10:15 AM | RIC2023-TP185 – Eliza Rios
Assessment of the critical state locus in reconstituted samples and calibration of NorSand model |
| 10:30 AM | RIC2023-TP138 – Nicolás Ignacio Ramírez Zúñiga
Influence of Geotechnical Parameters and In-Situ Stresses on Strainburst Potential |
| 10:45 AM | RIC2023-TP33 – Farzaneh Hamediazad
Stability Analysis of Hard Rock Pillars Under Compressive and Shear Loading Conditions Using 2D and 3D Numerical Modeling |

SESSION 15: FOUNDATION ENGINEERING

KENT

Session Chair - Navid Bahrani

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|----------|---|
| 10:00 AM | RIC2023-TP198 – Merrick Jones
A simplified method of incorporating monitored data for settlement prediction using Bayesian back analysis compared with Settle3 |
| 10:15 AM | RIC2023-TP71 – Ian Williams
A Comparative Analysis of a Laterally Loaded Pile Group Using Different Software |
| 10:30 AM | RIC2023-TP50 – Michael Diez de Aux
RSPile Analysis of Two Osterberg Cell Load Tests on Post-Grouted and Conventionally Installed Caissons in Vaughan, Ontario |
| 10:45 AM | RIC2023-TP148 – Lysandros Pantelidis
An analytical method for designing laterally loaded piles |

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APRIL 26

11:10–12:10 PM

PAPER PRESENTATIONS

SESSION 16: PROBABILISTIC ANALYSIS

CIVIC

Session Chair - Jean Hutchinson

- 11:10 AM RIC2023-TP38 – JIxeondyke Drie Ifurung
Failure Mechanism and Behavior of Two-Tiered Bamboo Reinforced Mechanically Stabilized Earth Retaining Wall Subjected to Isolated Footing Load
- 11:25 AM RIC2023-TP164 – Elahe Mohammadi
RFEM analysis of a subway station considering conditional random field
- 11:40 AM RIC2023-TP120 – Nishant Dayal
Probabilistic Slope Stability Analysis

SESSION 17: CONTINUUM AND DISCONTINUUM MECHANICS FOR ROCK MASSES

SIMCOE & DUFFERIN

Session Chair - Trevor Carter

- 11:10 AM RIC2023-TP171 – Scott Cylwik
A practical nonlinear strength criterion for rock masses and other geologic materials
- 11:25 AM RIC2023-TP29 – Beverly Yang
Does Rock Engineering Need to Quantify GSI?
- 11:40 AM RIC2023-TP35 – Navid Bahrani
Application of Continuum-Based Voronoi Tessellated Models for Simulating Brittle Damage and Failure in Hard Rocks

SESSION 18: SLOPE STABILITY CASE STUDIES

KENT

Session Chair - Conrad Felice

- 11:10 AM RIC2023-TP191 – Gianluca Brocca
Internal and Global Analysis of a Gabion Wall using 2D and 3D Limit Equilibrium Analysis: A comparison of multiple methods
- 11:25 AM RIC2023-TP141 – Juan Pablo Cerutti
Mechanical Stability of a Tailings Dam Incorporating Principles of Unsaturated Soil Mechanics
- 11:40 AM RIC2023-TP170 – Sam Giannakos
Mitigating Geotechnical Challenges Associated with Marshland Restoration in the San Diego Bay
- 11:55 AM RIC2023-TP66 – Ahmed Ibrahim
On the role of air flow in air-convection embankments: Insights from thermal numerical modeling

12:10–1:10 PM Lunch

1:10–1:25 PM

SPONSOR PRESENTATION

Geobruugg

1:25–2:10 PM

KEYNOTE

Dr. Mohamed Meguid

An overview of the challenges and developments in the analysis of transportation infrastructure in a changing climate



Rocscience International Conference 2023 Schedule

APRIL 26

2:10–2:25 PM Coffee Break

2:25–3:15 PM **PAPER PRESENTATIONS**

SESSION 19: 2D & 3D ROCK FALL ANALYSIS

CIVIC

Session Chair - Anna Giacomini

2:25 PM RIC2023-TP216 – Grace Huang

A framework for back-analysis of 3D rockfall trajectories

2:40 PM RIC2023-TP182 – Jorge Andrés Arrigada Triana

On the use of Dips and RocFall for designing structures in highly fractured igneous rocks in the Chilean Patagonia

2:55 PM RIC2023-TP221 – Manuel Eicher

Taking into account the fragmentation and variability of rockfall and the third dimension in rockfall barrier design

SESSION: SLIDE2 & SLIDE3 Q&A

SIMCOE & DUFFERIN

Hosted by: Rocscience LEM Team - Sina Javankhoshdel, Brigid Cami, & Terence Ma

SESSION: RS2 & RS3 Q&A

KENT

Hosted by: Rocscience FEM Team - Kien Dang, Alireza Azami, & Sina Moallemi

3:15–3:30 PM Coffee Break

3:30–5:15 PM **SPECIAL PRESENTATION**

Rock Fall Analysis and Remediation

3:30 PM Jean Hutchinson & Anna Giacomini

Developing rockfall calibration data sets - Trajectory analysis from remotely sensed data; Parts I & II - Collecting and interpreting data from natural rock slopes

4:00 PM Julia Potter

Thermal Imaging for Rockfall Detection – Updates and Ongoing Research

4:15 PM Qiuyi (Bing) Li

Radar-Informed Automated Back-analysis of Rock Fall Hazards

4:30 PM Geobruigg

The Innonet project: understanding the capacity of flexible protection systems against rockfall in natural terrain

4:45 PM Maccaferri

HelloMac: An innovative Early Warning System for rockfall and debris flow protection structures

5:00 PM Q&A, Panel Discussion

5:15–5:30 PM **CLOSING MESSAGE**