60TH U.S. ROCK MECHANICS/GEOMECHANICS SYMPOSIUM
JUNE 21–24, 2026, TUCSON, ARIZONA
ISBN: 978-0-9894844-4-2

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Geochemical Alteration of Shales in H2-Saturated Brine and Implications for Caprock Integrity in Underground Hydrogen Storage
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Forecasting injection-induced seismicity at Decatur: a comparison of full fidelity and simplified modeling approaches
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GEOTHERMAL TRACK - POSTERS - MONDAY

A Novel Framework for Rapid and Automated Optimization of Multimodal Particle Size Distribution for Lost Circulation Materials
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Influence of Working Fluid Selection on Geothermal Heat Extraction Efficiency: A Thermal Reservoir Simulation Study
G. Akpabli; E. Agyei; N. N. Yeboah; A. A. Ayensigna; H. Rahnema; N. Sibaweihi; A. P. Asare
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Thermal Stress Effects on Rock Failure and Wellbore Stability in High-Temperature Drilling: A Critical Review
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Yulong Liu; Jonah Botvinick-Greenhouse; Yunan Yang; Chloé Arson
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The creep of rock–proppant systems during the operation of enhanced geothermal systems: A laboratory study
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CIVIL TRACK - POSTERS - MONDAY

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PETROLEUM-CONVENTIONAL TRACK - POSTERS - MONDAY

Machine Learning Enhanced Geomechanical Characterization and Wellbore Stability Assessment in the Offshore South Tano Field, Ghana
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MINING TRACK - POSTERS - MONDAY

Self-advancing goaf-edge support system for efficient strata control in continuous miner workings under hard-roof conditions
Abhaydeep Singh Gaur; Ashok Kumar; Dheeraj Kumar; Sanjoy Gorain; Abhishek Kumar; Suvankar Jana
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MS04: NUMERICAL MODELING AND COMPUTATIONAL GEOMECHANICS

Identifying Dynamic Failure Modes Using Advanced Numerical Modelling
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Evaluating the Effects of Alternating Strata and Soft Rock Thickness on Deep Vertical Shaft Performance Using Finite-Difference Modeling
D. Pradhan; G. Walton; S. Sinha
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Mine Design Optimization in a Clay-Filled, Steeply Bedded Limestone Rock Mass Using Calibrated FLAC3D Modeling with a Ubiquitous-Joint Formulation
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Generating S-Pillar Equivalent Hoek-Brown Properties for Stone Pillar Strength Analysis Using Finite Element Analysis
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The Preliminary Development of Simplified Methodology for Modeling Groundwater Inflow for Longwall Mines
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IS04: FUNDAMENTAL AND EXPERIMENTAL ROCK MECHANICS – III

Fracture Characterization of Mine Tailings-Based Geopolymers with Kaolin and Slag through Digital Image Correlation
A. Bahmanpour; A. Hedayat; B. Gorman; N. Tupa Fernandez; C.S. Moreno Roque; J.M. Jara Gonzales; H.G. Sosa Bolaños
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Intermediate Scale Oedometer Design for Consolidation of Rock Salt Rubble
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Linking Fault Roughness, Contact Evolution, Elastodynamic, and Acoustic Response During Laboratory Earthquakes
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GS04: GEOTHERMAL: NUMERICAL AND THEORETICAL MODELING

Coupled Fluid-Flow and Geomechanics Modeling for Enhanced Geothermal Systems
Q. Ni; A. Mohamad-Hussein; A.M. Khan; L. Cruces; G. Sosio; B. Deville; J. Mclennan
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Coupled Chemo-Thermo-Hydro-Mechanical Modeling: Mechanical Weakening and Stiffening Induced by Rock-Fluid Chemical Reactions
P. Hasanzade; J. Kim; E. Sonnenthal; J. Rutqvist
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Simulating Thermal Short-Circuiting in EGS: A Coupled Thermo-Hydro-Mechanical-Wellbore Approach
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PC03: FIELD SCALE GEOMECHANICS: CHARACTERIZATION AND MODEL BUILDING

Integrating Acoustic Logs, Seismic Data, and Experimental Correlations for Geertsma Subsidence Sensitivity to Elastic Property Variability
M. C. Duarte; F. B. Fernandes; J. A. S. Paixão; J. Park
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Log Based Mechanical Property Estimation for Large Scale Geomechanical Models: Insights from the Búzios Field
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Inverse Geomechanical Modeling of InSAR-Observed Surface Deformation to Assess Fault Reactivation Risk in the Delaware Basin, Texas
E. Parastatidis; L. Xing; M. W. Hildyard; G. D. Huang; A. Savvaidis
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PU03: HYDRAULIC FRACTURING – I

Real-time-scale hydraulic fracture monitoring using an extended Kalman filter-reduced model
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A phase-field model for three-dimensional hydraulic fractures in poroelastic media
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MS05: GROUND SUPPORT: SYSTEMS, MATERIALS AND FIELD PERFORMANCE

Innovations in cable bolting in a hot and seismic mining areas
G. Smolnik; R. Penczek; A. Guenette
Tucson, Arizona, June 2026. doi: https://doi.org/10.56952/ARMA-2026-0235

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Strategies for Supporting Weak Rock Mass in Underground Mining
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IS05: CONSTITUTIVE MODELING AND GEOPHYSICS

Modeling of time-dependent fracture of brittle rock under tensile loading
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Time-Dependent Stress-Deformation Behavior of Surrounding Rock in Bifurcated Tunnels Considering Stress Corrosion Effects
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Mechanistic Modeling of Stress Corrosion Cracking in Quartz Phase of Quartz-Bearing Shale Under Reactive Conditions
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Damage Monitoring in Rocks Using the Spectral Entropy of Ultrasonic Waves
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SS02: SUBSURFACE HYDROGEN STORAGE

Deformation of Rock Salt under the Combined Creep and Fatigue: Insights from DEM Modelling
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Mechanical Integrity of Interbedded European Zechstein and US Delaware Basin Salts for Energy Storage
M. Haddad; M.K. Özel; T.H. Khan; L. M. Ruiz Maraggi; L. G. Moscardelli
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Bulk and microstructural response of reservoir rock under hydrogen flow
J.U. Bang; D.C. Willette; R.Y. Makhnenko
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Experimental Investigation of Gas Flow, Breakthrough, and Wettability in Rock Samples from the Midcontinent Rift System (MRS) for Geological Natural Hydrogen Exploration
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Numerical Evaluation of Salt Cavern Closure under Varying Depth and Cavern Pressure: FLAC vs. SafeInCave
Zhidi Wu; Kaifang Li; Hermínio T. Honório; Denghong Zhou; Eric Poeck; Biao Qiu; Brandon Lampe
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PC04: FIELD SCALE GEOMECHANICS: SURVEILLANCE AND DIAGNOSTIC

Evaluation of Cavity Completion for Production Enhancement and Caprock Stability in Oil Sands Reservoirs
X. H. Yin; B. Zhang
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Geomechanical Model to Decode a Time-Dependent Failure in Shale Formations
J.F. Consuegra; A.C. Martinez; B. Gross; J. Kowan
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Challenges and lessons learned during drilling through Mg-rich clay carbonate rocks from Brazilian pre-salt
S.B. Duarte; G.L. Righetto; R.V. Sampaio; L.S. Almeida; M.A.M.C.C. Fernandes; J.C.B.A. Mauricio; M.V.F.S. Tavares; D.B. Alves; J.P. Oliveira; E.B. Caldato
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In-Situ Rock Characterization and Stress Measurements: A Test Well Case Study in Stillwater, Oklahoma
Marisela Sanchez; Anna Iuferova; Cory Fehr; Manuel Olan; Murtadha J. AlTammar; Rima T. Alfaraj; Khalid M. Alruwaili; Yanhui Han
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R.A. Birchwood; B. Lee; J.E. Elkhoury; R. Prioul
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Burial Effects on Fault Damage Zones: Numerical Modeling with a Hardening/Softening Elastoplastic Law
F.C. Dias; R. Quevedo; B.R.B.M. Carvalho; D. Roehl

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PU04: HYDRAULIC FRACTURING – II

Poroelastic effects in the steady-state propagation of a semi-infinite hydraulic fracture
Evgenii Kanin; Andreas Möri; Brice Lecampion; Dmitry Garagash
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Input Uncertainties to Hydraulic Fracture Modeling
R. Suarez-Rivera
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Phase Field Model for Simulating Hydraulic Fracture Propagation in Saturated Poroelastic Media Around a Tunnel
Akshay Chandan Dey; Debasis Deb; Aditya Vyas
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A Physics-Based and Logistic Regression Workflow for Predicting Fracture Initiation in Cemented Limited-Entry Completions
Mohammed H. Alameer; Tameem Almani; Badr Alasiri
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Microseismic Network Analysis Reveals Stress Transmission Pathways During Hydraulic Stimulation
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Sensitivity Analysis of Parent Child Interactions
R. Suarez-Rivera; E. Manuel; H. Nasrabadi
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SHOWCASE: QUANTIFYING STABILITY & SAFETY MARGINS IN ROCK ENGINEERING

Implementation of Pre-splitting and Double Benching at Nevada Gold Mines Phoenix Operation
Mikayla Bowers
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Using analysis cases to choose design acceptance criteria and determine preferred slope configurations
D. Kinakin
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Reducing Uncertainty in Open Pit Slope Stability Using Advanced Analytics of Monitoring Data
Paolo Farina
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How do you know your catch benches are working? Evaluating effectiveness with automated rockfall detection
B. Lecomte
Tucson, Arizona, June 2026. doi: https://doi.org/10.56952/ARMA-2026-0771

SHOWCASE: FRONTIERS IN GEOTHERMAL ENERGY

The role of computational geomechanics in the design, operation and control of Enhanced Geothermal Systems for district heating
C.F. Arson
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Some Geomechanics Aspects of Unconventional Geothermal & Petroleum Reservoir Stimulation
Ahmad Ghassemi
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Update on the Cape Station Enhanced Geothermal Project
Sireesh Dadi
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Geomechanical Contributions to Recent Advances in Closed-Loop Geothermal Development
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STORAGE AND SEQUESTRATION TRACK - POSTERS - TUESDAY

Geomechanical Assessment of Adjacent Salt Caverns for Hydrogen Storage Under Cyclic Loading
A. Mohamad-Hussein; V. De Gennaro
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Conditional Neural Field Latent Flow Matching Model for Real-time Inverse Modeling of Geological Carbon Sequestration
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Rate Effects on Mechanical Response and Damage Evolution of Salt Rock Under Uniaxial Cyclic Loading and Unloading
Huan Li; Hao Wang; Haina Zhang; Liangliang Ye; Hongling Ma; Xilin Shi
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Efficient 3D Field Scale Geometry Construction for Geomechanical Modelling of Fault Reactivation and Induced Seismicity
A. T Bere; S. Mahadevan
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Laboratory Investigation of Fault Reactivation and Acoustic Emission Patterns in Entrada Sandstone Under Triaxial Compression: Implications for CO2 Injection-Induced Seismicity
G. Akpabli; N. N. Yeboah; M. W. Apau; E. Agyei; A. B. Kojo; H. Rahnema; B. Vidzro
Tucson, Arizona, June 2026. doi: https://doi.org/10.56952/ARMA-2026-0207

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X. M. Zhang; R. Dupree; C. Cagle; N. Z. Dvory
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Microscale Investigation of Pore-Throat Structure and CO2 Occurrence During Miscible CO2 Flooding and Subsequent Water Flooding
Lekun Zhao; Zuo Chen; Xiaoyu Hou; Hongwei Shi
Tucson, Arizona, June 2026. doi: https://doi.org/10.56952/ARMA-2026-0261

Hydrogen Storage Pathways: A Review of Surface and Subsurface Storage Methods
Rima T. Alfaraj; Murtadha J. AlTammar
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Injection-production optimization of an abnormally high-pressure gas storage considering geomechanical integrity and uncertainty
K C Lu; H Y Tang; X P Wang; Y L Zhao; B Gong; J Zhang; L H Zhang
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Wellbore Implementation into a Field-Scale Model Utilizing the Schwarz Approach
Tonya S.A. Ross; Alejandro Mota
Tucson, Arizona, June 2026. doi: https://doi.org/10.56952/ARMA-2026-0737

Selection of Failure Criteria for Predicting Rupture of Clay-Rich Faults in Geologic CO2 Sequestration
Meng Cao; Yves Guglielmi; Jonny Rutqvist; Jens Birkholzer
Tucson, Arizona, June 2026. doi: https://doi.org/10.56952/ARMA-2026-0743

GEOTHERMAL TRACK - POSTERS - TUESDAY

Experimental study of temporary plugging and diversion fracturing in naturally fractured hot dry rock
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Flow and Heat Transfer of Supercritical CO2 in 3D U-shaped Wells
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Laboratory investigation of pore pressure response in the cement sheath for geothermal production from superhot rock
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Optimization of Well Configuration and Spacing in Geothermal Reservoirs: A Numerical Investigation of Thermal Breakthrough and Heat Extraction Efficiency Using CMG STARS
G. Akpabli; E. Agyei; N. N. Yeboah; A. A. Ayensigna; H. Rahnema; N. Sibaweihi; E. A. Owusu
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Evaluation of Global Arps and Machine Learning Models for Predicting Geothermal Water Production of New Bakken Wells
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The State of Stress Analysis Tool (SOSAT): A Convenient Tool for Probabilistic Geomechanical Risk Analysis and its Application to Enhanced Geothermal Systems
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Fiber-Based Lost Circulation Materials: A CFD-DEM Study
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INTERDISCIPLINARY TRACK - POSTERS - TUESDAY

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M.C. Ngoma; O. Kolawole
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Tracking Rupture Partitioning in a Caprock Analogue Fault Zone with a Downhole Full-Strain Analyzer and Optical Fibers
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The Unrecognized Failure Mechanism - a Failure to Communicate
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Novel framework for permeability prediction in shales
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Constitutive hydromechanical modeling of porous rock deformation based on lab-scale testing
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CIVIL TRACK - POSTERS - TUESDAY

Hybrid Alkali-Activation and Enzyme-Induced Carbonate Precipitation (EICP) Mortar for Enhanced Surface Stability of Tailings Dams: Performance and Mechanisms
Xueqiao Han; Chao Zhang; Lei Ma
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Semi-analytical analysis of graded permeability skin-zone surrounding a circular wellbore in an infinite poroelastic medium subjected to far-field loading
Ankita J. Sheoran; Tanmay K. Bhandakkar
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Jyoti Jagajjita Raj; Susmit Mantayya Swami; Swapnil Mishra
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MINING TRACK - POSTERS - TUESDAY

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YD. Wang; J. Lin; M. Masoudian; F. Reusch; D. Beck
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Immersion pressure on the mechanical and acoustic emission characteristics of coal pillar under water immersion after mine closure
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Data-Driven Estimation of Pillar Strength in Rock Salt Mines of the Salt Range
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Multivariate Modeling of Rock Fragmentation in Bench Blasting: Influence of Rock Properties and Operational Parameters—A Case Study from Limestone Quarries
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Study on deformation and damage patterns of butted-well salt cavern clusters under different distribution modes
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Leveraging use of FLAC3D for stub pillar sizing in a sub level operation
A. Mbedzi; A. Chagwedera; O. Mandingaisa
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MS06: SEISMICITY, ROCKBURST AND DYNAMIC GEOMECHANICS

Dynamic Direct Shear Behavior of 3D-Printed Rock Joints under CNS Conditions Using an MTS Shock System
Bo Hyun Kim; Sang Ho Cho; Tyler M. Emery
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R. Noorani; K. Hutton
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D.S. Collins; R. Noorani; K. Hutton; D. Angus
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CS02: TUNNELS AND UNDERGROUND STRUCTURES

AI-Augmented and Physics-Informed Thrust-Vector Autonomy for Shield TBMs
Z.X. Zhang; Y.F. Zhu; Y.T. Zhu; X. Huang
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Pooya Hamdi; Alexander Herzog; Jonas Dickmann; Emilie Lemaire; Matthew Perras; Michal kruszewski; Florian Amann
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Digital Tunnel Construction based on Field Surrounding Rock Information Acquisition and Analysis under Complex Geological Conditions
Q. Zhang; Y.X. Shen; Y.C. Pei; X.K. Guo; X.J. Li; H.H. Zhu

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Cluster-Based Rockfall Analysis Using High-Resolution LiDAR: A Case Study on a Rock Slope in Western Colorado

M. Petrova; L. Weidner; G. Walton

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Semi-Deterministic Underground Wedge Stability Analysis Incorporating Peripheral Joint Sets

Doandy Yonathan Wibisono; Anna Crockford; William K. Zietlow

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SS03: SUBSURFACE CO2 STORAGE

Composite-Core Experiments on the Reactive Evolution of Shale-Sandstone Interfaces under Supercritical CO2

L.B. Dje; M. Radonjic; S. William-Stroud

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Transmissivity of scCO2 for Faults Interpreted at the Decatur, Illinois Sequestration Site

S.C. Williams-Stroud; T.D. Murray; M. Couëslan; S. Whittaker

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Shale barrier modeling and evaluation with eccentric casing and in-situ stress anisotropy

L. Liu; E. Fjær; X. Xie

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Subsurface Geomechanical Response to CO2 Sequestration in a Depleted Gas Reservoir

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S. Park; U. Lawal; K. Kim

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GS05: STRESS, FAULTING, FRACTURE MODELING, AND SUBSURFACE ENERGY STORAGE

Fault Identification Using Multiple Event Catalogs from the Stimulation Operation at the Utah FORGE Site

X. M. Zhang; E. Shimony; U. Wygodny; A. Lellouch; N. Z. Dvory

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Ayyaz Mustafa; Guanyi Lu; Andrew P. Bunger
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Crustal Stress Variability and Fault Reactivation Potential in the Lower Rhine Graben and Adjacent Regions
M. Kruszewski; A. Jones; F. Amann; A. Verdecchia; S. Carrasco Morales; R. Harrington; T. Oswald
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Suifeng Wang; Shuang Liang; Guofeng Ran; Renli Liu; Tao Wang
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IS06: EMERGING TOPICS IN GEOMECHANICS

Spectral Mineral Identification in support of Rock Strength Classification
E.C. Wellman; N.H. Wellman; E. Williams; A.N. Hughes; D. Riley
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Tiansheng Zhang; Emmanuel Detournay; Haiying Huang
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Geomechanical Calibration of Peridotites for Modeling Stimulation of Geologic Hydrogen Production
C. Mitchell; T. Sherizadeh; S. Nowak; U. Mutlu; S. Hender; G. Boitnott; A. Lisjak; O. Mahabadi
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Mathematical Description of Stresses in a Circular Borehole
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Salt Caprock Mechanical Behavior during Production in the Brazilian Pre-Salt Hydrocarbon Reservoirs, Santos Basin
T.B. Meneguim; L.D.Q. Vieira; E.S.R. Santos; R.A.P. Chaves; R.O. Silva; M.F. Leão
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MS07: SLOPE STABILITY, OPEN PIT DESIGN AND HYDROGEOLOGY

Optimal slope design in the presence of discrete discontinuities
M. H. Tayyab; D. Jenkus; S. Utili
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A Review on Hydro-Mechanical Degradation in Rock Masses: From Field Observation to Numerical Modeling
J. Castillo Gomez; K. Luxbacher; R. Abousleiman
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The Model Prognosis - A Tool for Improving Numerical Analyses of Rock Slopes
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Subsidence Risk Analysis of Property Overlying a Historic Coal Mine Using Probabilistic and Numerical Models
E. Maldonado; S. Fay; R. Ray
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Hybrid Analytical–Numerical Calibration Framework for Surface Subsidence in Mountainous Multi-Seam Coal Mining
Gaobo Zhao; Cody Goetz; Benjamin Haugen; Ravi Ray; Bo Hyun Kim
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CS03: NUMERICAL MODELLING IN GEOMECHANICS

Effects of jointing and confinement on rock mass deformability using Synthetic Rock Mass (SRM) models: The case of Hong Kong Granite
Suet Lui Charlotte Yu; Ioannis Vazaios
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An Algorithm for Rockfall Block Reconstruction from Point Clouds of Debris Fragments
C. Crosby; G. Walton; L. Weidner
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Simulating Spalling with Bonded-Particle Models
D.O. Potyondy; W. Fu
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Numerical Assessment of Borehole Stability and Spalling Behavior for Deep Borehole Disposal Using the PFC2D-SNBV Model
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SS04: RESERVOIR CHARACTERIZATION AND PERMANENT CONTAINMENT

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SHOWCASE: AI & DATA SCIENCE IN ROCK MECHANICS

Machine Learning Applications for Geotechnical Data Collection
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SHOWCASE: THE ROLE OF SUBSURFACE GEOMECHANICS IN THE ENERGY TRANSITION

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PETROLEUM-UNCONVENTIONAL TRACK - POSTERS - WEDNESDAY - I

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