

TIME/ROOM	MARFIM 1 + 2	MARFIM 3	MARFIM 4	MARFIM 5 + 6
<b>TECHNICAL SESSIONS - 16 SEPTEMBER</b>				
<b>14:00 - 15:30</b>	<b>TS01 - Underground Rock Excavations I (Mining Engineering)</b>	<b>TS02 - Experimental Rock Mechanics I (Laboratory)</b>	<b>TS03 - Rock Mechanics for Nuclear Waste Disposal</b>	<b>TS04 - Fracture and Dynamic Behavior I</b>
14:00 - 14:15	<p>13342: The long-term strength of rock salt pillars as back-calculated from collapsed and stable cases</p> <p>M. Mathey, S. Peysa.</p>	<p>14291: Statistical characterization of shale microstructures: determination of Representative Elementary Area</p> <p>P. Cosenza, D. Prêt, S. Hédan, A. L. Fauchille.</p>	<p>13899: Site characterization for the Beishan underground research laboratory for geological disposal of high-level radioactive waste in China</p> <p>J. Wang, R. Su, X. Zhao, L. Chen, H. Zhao.</p>	<p>13680: An experimental study on the fracability evaluation of hot dry rock: using an integrated thermo-mechanical model</p> <p>D. Wang, B. Yu, H. Qin, X. Yan, W. Cheng, Q. Liu, D. Han, L. Yang.</p>
14:15 - 14:30	<p>14347: An RMR-based stability analysis for empirical design of underground excavation spans</p> <p>A. C. Adoko, A. Alipov.</p>	<p>14328: Advanced triaxial testing of fault rocks</p> <p>E. Pimentel.</p>	<p>13912: Application on technology of detecting groundwater seepage field in preselected area for high-level radioactive waste disposal</p> <p>J. Fan, X. Li, G. Du, J. Wang.</p>	<p>14083: Fracturing of migmatite: influence of anisotropy</p> <p>M. Petruzalek, T. Lokajicek, T. Svitek, Z. Jechumtalova, P. Kolar, J. Sileny.</p>
14:30 - 14:45	<p>14535: Stress redistribution and its effects on rock failure of large underground caverns with high in-situ stress</p> <p>Z. Hu, Y. Xu, B. Wu, N. Xu.</p>	<p>14342: Significance of large-scale in-situ triaxial tests for validation of sophisticated numerical models</p> <p>K. Tani.</p>	<p>14072: TBM performance prediction of Underground Research Laboratory of geological disposal of high-level radioactive waste</p> <p>H. Ma, J. Wang, K. Man, L. Chen, X. Zhao, Q. Gong.</p>	<p>14473: Reactivation of major faults during strong rock bursts as realization of tectonic process.</p> <p>A. Batugin.</p>

14:45 - 15:00	<p>14687 - Impact of size excavation on time-dependent behavior of drifts excavated at the Meuse/Haute-Marne URL</p> <p>L.-M. Guayacan Carrillo, G. Armand, N. Conil, R. L. Vaissiere, H. Djizanne.</p>	<p>14460: Shear behavior of rock mass containing non-persistent joints</p> <p>S. Fereshtenejad, J.-J. Song.</p>	<p>14775: Design implications of retrievability in HLW geological repositories</p> <p>J. Stahlmann, V. Mintzlaff, R. P. L. Léon-Vargas, I. Epkenhans.</p>	<p>14480: Characterization of dynamic behavior of NPR bolt based on stress wave theory and SHTB/weight-dropping tests</p> <p>W. L. Gong, Y. Sun, B. Lv, M. He, D. Zhu.</p>
15:00 - 15:15	<p>15079: Strategies for managing Large Deformations at CSA Underground Mine</p> <p>B. Chapula, M. Sharifzadeh.</p>	<p>14601: On the selection of the most appropriate methods to characterize the shear strength of discontinuities</p> <p>J. López-Molilna, V. Castellanos-Pedroza, S. Herrera-Castañeda, E. Montiel-Gutiérrez.</p>	<p>15071: Investigation of the influence of different drying methods on the microstructure of bentonite</p> <p>H. Sun, D. Mašín, J. Najser.</p>	<p>14127: Experimental investigation on the fluid flow characteristics of 3D-printed single fractures with various fractal dimension</p> <p>J. Xie, M. Gao, R. Zhang, L. Ren, Z. Zhang, C. Li, Z. He.</p>
15:15 - 15:30	<p>15083: Semmering base tunnel: TBM excavation in a faulted rock mass with high overburden - verification and updating of geotechnical models during construction</p> <p>A. Poisel, M. Brandtner, O. K. Wagner.</p>	<p>14622: Experimental study on water injection in rock fractures under critical state</p> <p>Z. Dou, D. Shang, Z. Zhao, T. Gao, J. Li, Q. Yang.</p>	<p>15116: Cement-rock interface subjected to scCO<sub>2</sub></p> <p>J. C. Barría, D. Manzanal, C. M. Martín, T. Piqué, J. M. Pereira.</p>	<p>14594: KIC measurement of rocks using a pseudo-compact tension (pCT) test</p> <p>A. Muñoz-Ibáñez, J. Delgado-Martín, M. Costas-Piñó, J. Rabuñal-Dopico, J. Alvarellos-Iglesias, J. Canal-Vila.</p>
16:00 - 17:30	<b>TS05 - Numerical Modelling I (Fracture Mechanics)</b>	<b>TS06 - Rock Mass Characterization</b>	<b>TS07 - Seismic Behavior of Rock Masses</b>	<b>TS08 - Rock Slope Engineering I</b>

16:00 - 16:15	14111: Simulating laboratory-scale damage in granite using Bonded Block Models (BBM)  S. Sinha, G. Walton.	13591: GSI adjustments for directional Hoek-Brown strength quantified by case studies  N. Baczynski.	14145: Microseismic monitoring using distributed optical fiber sensing techniques – An opportunity for coal burst risk management  X. Luo, L. Ricard, J. Duan, M. V. Werken.	13879: The Q-Slope Method for Rock Slope Engineering in Faulted Rocks and Fault Zones  N. Barton, N. Bar.
16:15 - 16:30	14262: DEM modeling of hydraulic fracturing with supercritical carbon dioxide  , M. Li., F. Zhang.	14356: A suggested visual approach for estimating Hoek-Brown mi for different rock types  T. G. Carter.	14394: Field monitoring seismic response of underground excavations and rock bolts at Kiirunavaara underground mine  P. Zhang, A. H. Botelho, S. Dineva, E. Nordlund, B. Woldemedhin.	14101: Stability analysis of over-tilted benches in an ornamental granite quarry  L. R. Alejano, X. Estévez-Ventosa, I. Pérez-Rey, J. González.
16:30 - 16:45	14264: Displacement based XFEM for fractured porous media with intersecting discontinuities under dynamic load  Y. K. Gujjala, D. Deb.	14395: Tunnelling and karst systems: a review  M. Coli, L. Piccini, M. Muscedra.	14662: In-situ stress constraints on the focal mechanisms of induced seismicity  Y. Mukuhira, T. Ito, M. C. Fehler, M. Naoi, H. Moriya, H. Asanuma, M. O. Häring.	14208: Probabilistic stability analysis of open pit rock slopes using numerical modelling  M. Abdulai, M. Sharifzadeh.
16:45 - 17:00	14452: Analysis of crack propagation for Brazilian split test based on energy entropy	14400: Application of the V-GSI system for assessments of rock mass quality and parameters	14820: Improving the quality and quantity of geotechnical core logging data	14217: A new method for Predicting of rock fall from the tunnel face

	C. Xu, X. Liu, E. Wang, S. Wang.	J. Sutton, P. Schlotfeldt.	K. Esmaili.	H. Tobe, Y. Miyajima, S. Shirasagi, T. Yamamoto.
17:00 - 17:15	14499: Coupled X-FEM approach to reproduce the mechanics due to direct fluid injection into a natural in-situ fault  A. K. Schwartzkopff, A. Sainoki.	14899: Definition of discontinuity sets by cluster analysis: a case study  M. S. Lana, M. A. Silva, J. M. P. Alves, A. M. Klen.	14898: Seismic identification of magmatic rocks in sedimentary basin: some implication for geomechanics studies  J. N. Cruz, N. C. Ferreira, V. R. Marchesi, J. O. Peixoto, M. C. B. Machado, D. L. P. Domingues, S. A. B. Fontoura, R. Dias, C. J. C. Gonçalves.	14265: A discussion of strength reduction techniques in safety analysis with DEM models  J. Muralha, J. V. Lemos.
17:15 - 17:30		14830: Correlation between geotechnical logging from borehole and mapping at Cuiabá mine  J. P. B. Amaral, R. S. Pereira, R. C. Padula.	14952: Rock mechanical analyses of seismic events in a deep coal mine in Germany during flooding  M. Alber, T. Backers, R. Fritschen, T. Neuffer.	15036: Drone imagery for the acquisition and assessment of rock fall areas  A. Gaich, M. Poetsch, B. Rieder, W. Schubert.

TIME/ROOM	MARFIM 1 + 2	MARFIM 3	MARFIM 4	MARFIM 5 + 6
<b>SPECIAL SESSIONS - 17 SEPTEMBER</b>				
<b>10:00 - 11:00</b>	<b>SS01 - AI in Rock Mechanics</b>	<b>SS02 - Rock Fracture Mechanics</b>	<b>SS03 - Laboratory Testing</b>	<b>SS04 - Photogrammetry Application</b>
10:00 - 10:20	<p>14599: Comparison of Bayesian Belief Networks and Artificial Neural Networks for prediction of tunnel ground class</p> <p>J. Morgenroth, E. Snieder, M. Perras, U. Khan.</p>	<p>14220: Fatigue hydraulic fracturing - Concept and applications in hard rock</p> <p>A. Zang, S. Von Specht, P. Niemz, O. Stephansson, G. Zimmermann.</p>	<p>14142: Preliminary in situ stress and fracture characterization in the Bedretto Underground Laboratory, Swiss Alps: implications on hydraulic stimulation</p> <p>X. Ma, N. G. Doonechaly, M. Hertrich, V. Gischig, G. Klee.</p>	<p>14698: Photogrammetry for recording rock surface geometry and fracture characterization</p> <p>L. Uotinen, M. Janiszewski, A. Baghbanan, E. C. Hernández, J. Oraskari, H. Munukka, M. Szydłowska, M. Rinne.</p>

10:20 - 10:40	<p>14740: Neural networks and virtual reality for geo-data solutions</p> <p>S. Garcia, P. Trejo, J. López-Molina, V. Castellanos-Pedroza.</p>	<p>14338: Dynamic shear tests on rock discontinuities and some considerations</p> <p>Ö. Aydan.</p>	<p>15015: Current Laboratory Techniques for Measuring Biot's Coefficient of Rock: A Review</p> <p>H. A. Kasani.</p>	<p>14749: Discontinuity analysis at different scales using DEMs and photogrammetry</p> <p>M. Brugger, H. Käsling, K. Thuro.</p>
10:40 - 11:00	<p>15073: Comparison of artificial neural networks for TBM data classification</p> <p>G. Erharter, T. Marcher, C. Reinhold.</p>	<p>15000: On the significance of recognizing the 3D directionality of fracturing under polyaxial stress states for understanding and modelling the 3D directional dilation of brittle rocks</p> <p>M. Rahjoo, E. Eberhardt.</p>	<p>15115: Novel true triaxial apparatus applied to the study of sand mass production under anisotropic stress conditions</p> <p>L. E. Walle, A. N. Berntsen, E. Papamichos.</p>	<p>15043: Automatic determination of discontinuity areas from photogrammetric 3D models</p> <p>M. Poetsch, P. Hergan, A. Gaich.</p>

TECHNICAL SESSIONS - 17 SEPTEMBER

14:00 - 15:30

**TS09 - Underground Rock Excavations II (Tunnelling)**

**TS10 - Experimental Rock Mechanics II (Laboratory)**

**TS11 - Rock Mechanics for Geothermal Energy**

**TS12 - Case Histories I (Mining Engineering)**

14:00 - 14:15

13618: Influence of foliation orientation on tunnel behavior

W. Schubert.

14649: Development of an apparatus to track rock fragment trajectory in 3D

D. E. Guccione, K. Thoeni, O. Buzzi, S. Fityus, A. Giacomini.

14736: 3D rotation applied to in situ stress fields for 2D numerical modelling, borehole stability and drill core recovery in deep geothermal wells

G. Stockinger, H. Käsling, K. Thuro, F. Menschik.

13848: Draw point behavior in LKAB's SLC mines

A. Gustafson, H. Schunnesson, K. Jonsson.

14:15 - 14:30

13660: The gap between lining and ground on pressure tunnels excavated in anisotropic rock mass: Effect on the stress distribution

J. M. Robles, M. M. Menéndez.

14697: Experiment of true triaxial hydraulic fracturing of deep shale using varying pumping rates

J. Zhou, Y. Guo, X. Chang, L. Wang, H. Wang, L. Hou, L. Zuo, T. Jiang, G. Zhong.

14088: Cyclic hydraulic stimulation design to develop Enhanced Geothermal Systems

G. Zimmermann, H. Hofmann, A. Zang, O. Stephansson, M. Farkas, J. S. Yoon, L. Zhuang, K. Y. Kim, K.-B. Min.

14307: Seismic hazard assessment at Cuiabá Mine

C. Dominoni, S. A. B. Fontoura, D. C. Potvin, R. F. Cota.

14:30 - 14:45	<p>14358: Leakage potential through a shotcrete lined high pressure headrace tunnel - An analysis on a case from Nepal</p> <p>K. Panthi, C. B. Basnet.</p>	<p>14704: Wave velocity measurements in three directions on axially loaded water-saturated granite and gneiss core specimens</p> <p>L. Jacobsson, G. Kjell, R. Kiuru, J. Suikkanen.</p>	<p>14137: Characteristics of altered volcanic rocks in geothermal reservoirs</p> <p>M. Villeneuve, B. Kennedy, D. Gravley, S. Mordensky, M. Heap, P. Siratovich, L. Wyering, J. Cant.</p>	<p>14644: Risk analysis of limestone open pit mine slope stability in rembang district, Central Java, Indonesia</p> <p>M. A. Azizi, I. Marwanza, N. A. Hartanti, A. Anugrahadi.</p>
14:45 - 15:00	<p>14602: Flexible support intersection between two perpendicular experimental drifts excavated in the Callovo-Oxfordian claystone</p> <p>H. Djizanne, L.-M. Guayancan-Carrillo, A. Arnould, N. Conil, G. Armand.</p>	<p>14809: An experimental study of dynamic fracture toughness of rocks subjected to hydrostatic confinement</p> <p>W. Yao, K. Xia.</p>	<p>14677: A 3D numerical study of the heating capability loss of reservoir in enhanced geothermal system</p> <p>Y. Zhang, G. Zhao.</p>	<p>14646: Assessment of surface subsidence hazard using strength reduction method: A case study of a limestone mine</p> <p>B. K. Jeon, H. Y. Jeong, S. D. Lee, S. W. Jeon, W.-K. Song.</p>
15:00 - 15:15	<p>14641: Consideration of proneness of rocks to strain-bursting through an assessment of elastic parameters</p>	<p>15027: Innovative and alternative rock mechanics testing methods</p>	<p>14733: Geomechanical investigation of a geothermal aquifer in the South German Molasse Basin</p>	<p>14709: Deep shaft sinking through limestone, mudstone, and halite</p>



15:00 - 15:15	B.-A. Sainsbury, N. Kurucuk.	T. Stoxreiter, P. Gehwolf, R. Galler.	D. Bohnsack, K. Zosseder, M. Potten, H. Käsling, K. Thuro.	S. Pollak, T. Mahoney, G. Capes.
15:15 - 15:30	14730: Investigation, design and construction of 5 NATM highway tunnels – Serra do Mar, Brazil  M. A. Cunha, M. S. Paula, C. A. Campanhã, L. F. M. C. Rocha, B. P. Goulart, J. L. Demartini, L. C. Vicente, W. S. Iyomasa, F. S. Santos.	15084: Brittle characteristics of hard rocks and temperature effect on rockbursts under thermo-mechanical coupling  T. B. Li, M. B. Gao, G. Q. Chen, C. Ma, H. S. Pan.	15032: 3D numerical analysis using a coupled geomechanics and fluid-heat flow model for heat extraction from enhanced geothermal reservoirs  S. Li, X.-T. Feng, Z. Pan.	14788: Consequences of leaving large pillars at depth and in a high stress environment  S. Singh, D. Nokane, W. J. Gouws.

**TECHNICAL SESSIONS - 17 SEPTEMBER**

16:00 - 17:30

**TS13 - Fracture and Dynamic Behavior II**

**TS14 - Numerical Modelling II**

**TS15 - Instrumentations and Monitoring I**

**TS16 - Hard and Weak Rocks Behavior**

16:00 - 16:15	<p>14132: Failure mechanisms under triaxial non-proportional loading of rocks on the basis of acoustic emission measurements</p> <p>V. Karev, Y. Kovalenko, K. Ustinov, I. Pantelev, A. Zaitsev.</p>	<p>14422: Modeling the Japan Trench fault instability by FEA with cohesive joint elements</p> <p>K. Ahn, A. Pouya.</p>	<p>13326: The use of open-source hardware and software in low-cost geotechnical sensors: a strain-gauge logger and a tilt-test machine</p> <p>M. M. Menéndez, I. P. Rey, L. R. Alejano.</p>	<p>14094: Anisotropic deformation characteristics of soft mudstone via measuring full strain tensor components during triaxial compression</p> <p>Y. Togashi, M. Kikumoto, K. Tani, K. Hosoda, K. Ogawa.</p>
16:15 - 16:30	<p>14178: Fracture potential-based multi-staged hydraulic fracturing design in tight oil reservoirs</p> <p>K. Zhang, Y. Su, W. Wang, L. Fan, J. Xu.</p>	<p>14850: CFD-DEM simulation of solids production in unconsolidated reservoirs</p> <p>G. W. C. Branco, R. Q. Velloso, A. Zhemchuzhnikov.</p>	<p>14112: Prediction of tunnel crown settlement by means of inclination monitoring</p> <p>K. Sakai, T. Tani, T. Aoki, H. Ohtsu.</p>	<p>14272: The importance of barrier pillars in controlling load transfer and seismicity in us burst-prone mines</p> <p>H. Maleki, B. Jaramillo.</p>
16:30 - 16:45	<p>14234: Forecasting hydraulic fracture geometry using an artificial neural network</p>	<p>14859: Application of the node-centric indirect boundary element method to 3D multi-material rock problems</p>	<p>14905: Seismic Analysis of Vibration Induced by Rock Blasting in Underground Mining</p>	<p>14361: Long-term and short-term uniaxial strength of the Belencito claystone in unsaturated conditions</p>

16:30 - 16:45	B. T. Silveira, E. C. M. Sanchez, R. G. Escobar, D. Roehl.	S. Moallemi, T. Yacoub, J. Curran.	A. R. Matos, A. A. Gontijo, L. R. Fonseca, F. B. Pereira, B. B. Frontini, A. R. Rati, L. C. Costa, G. A. Costa.	M. Espitia, B. Caicedo, L. Vallejo.
16:45 - 17:00	14282: Damage evolution characteristics of rock under confining pressure and repeated blasting  C. He, J. Yangjun.	14923: The importance of geometric dilation in response to brittle rock failure for support design in high stress environments  E. Eberhardt, T. Lavoie, M. Rahjoo.	14152: Rock mass behavior in deep mines: in situ monitoring and numerical modelling  F. De Santis, V. Renaud, Y. Gunzburger, I. Contrucci, P. Bernard.	14370: Importance of structural geology in weak rocks failure mechanisms comprehension - 3 open pit mine case studies  L. A. Sala, M. P. P. Melo, E. A. G. Marques.
17:00 - 17:15	14448: The relationship between fracture toughness and confining pressure  G. Gao, C. Wang, P. Wang, R. Yang.	14944: The brittle to ductile behavior of “hard soil and soft rock” – experimental review and challenges for constitutive modelling  S. Stauder, T. Marcher.	14280: Method for monitoring of pore pressure in jointed rock mass of an unlined headrace tunnel subjected to varying power plant operation: A case study  B. Neupane, K. Panthi, K. Vereide.	14608: Progressive failure due to tunnel misalignment with geostatic principal stresses  O. P. M. Vitali, T. B. Celestino, A. Bobet.

17:15 - 17:30		14576: Numerical study of the effect of delay timing on blast induced rock damage  A. S. Hashemi, P. Katsabanis.	14916: Quality control of support system in hard rock mines  P. F. S. Resende, G. A. P. Batista, A. S. Carvalho, J. H. Silva, J. E. F. Ramires, B. R. F. Araújo, G. R. Ribeiro, A. A. Gontijo, A. R. Matos.	15068: Highest mountains suggest strong curvature of shear strength envelopes for rock  M. Singh, N. Barton.
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TIME/ROOM	MARFIM 1 + 2	MARFIM 3	MARFIM 4	MARFIM 5 + 6	CATARATAS 1
<b>SPECIAL SESSIONS - 18 SEPTEMBER</b>					
<b>10:00 - 11:00</b>	<b>SS05 - Modelling for Mining Applications</b>	<b>SS06 - Rockfall</b>	<b>SS07 - Field Testing</b>	<b>SS08 - Weak Rocks</b>	
10:00 - 10:20	14107: Simplified methods of geomechanical analysis for small-scale underground mining  A. D. LORENZO, A. Pasqua, M. Cardu, A. Godio, J. Caccatore	14263: Discrete element simulations of punch tests for the mechanical characterization of cortical meshes  F. Gabrieli, A. Pol, N. Mazzon, M. Deana.	14547: Distribution of structural planes and its influence on brittle failure in China Jinping Underground Laboratory Phase II  H. Xu, X.-T. Feng.	Latest progress on weak rocks	
10:20 - 10:30	14267: A limit equilibrium model to simulate the effect of pillar geometry  J. Maritz, D. F. Malan.	14449: Experimental study of reinforced soil bunds subjected to horizontal impact  O. Korini, M. Bost, J.-P. Rajot, Y. B. Braouli, N. Freitag.	14453: Potential applications of multi-sensor remote sensing in rock mass characterisation  D. Donati, D. Stead.	He Manchao	
10:30 - 10:40				Properties and characteristics of weak rocks	
10:40 - 11:00	14331: The Effect of Rock Mass Damage on Strength Degradation in Large Open Pits	14994: New rockfall testing method of flexible rockfall barriers	14080: Updated in situ rock stresses in Norway based on recent estimations and measurements	Milton Kanji	

	D. Potyondy, L. Lorig, M. Purvance.	C. Wendeler, A. Lanter, G. Lu, A. Caviezel, A. Ringenbach, P. Bartelt.	A. Simonsen, C. Li.		
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**TECHNICAL SESSIONS - 18 SEPTEMBER**

11:30 - 13:00	TS17 Numerical Modelling III	TS18 - Instrumentations and Monitoring II	TS19 - Experimental Rock Mechanics III (Laboratory)	TS20 - Rock Slope Engineering II	TS21 - Rock Mechanics I (Interdisciplinary)
11:30 - 11:45	<p>14159: Understanding the instability mechanisms of chalk mines in presence of water (France)</p> <p>v. Renaud, A. Cherkaoui, J.-M. Watelet, P. Gombert, C. Krosiek</p>	<p>13883: Managing the Deforming of Ground Support and Reinforcement</p> <p>E. Jones, E. Hancock.</p>	<p>14929: On extraction-induced microcracking in aggregates</p> <p>E. Hamdi, S. Ezzeiri, S. Omrani, Z. Lafhaj, K. Jeridi.</p>	<p>14273: Effect of pH on the geomechanical properties in slopes in open pit mine – A case study in the Peruvian Andes</p> <p>C. J. Barriga, E. L. Pereira, H. M. Lima.</p>	<p>14144: Methodology to Predict and Reduce the Unplanned Dilution in Narrow Vein Underground Mines. Case Study: Córrego do Sítio Mine - Santa Bárbara - MG, Brazil. L. C. B. Costa, R. P. Figueiredo.</p>
11:45 - 12:00	<p>14335: Prediction of grout take in rock grouting using data mining</p> <p>Q. Liu, Z. Zhao, F. Xiao.</p>	<p>14336: Creation of rock mass monitoring deformations systems on rock burst hazardous mineral deposits.</p> <p>K. Morozov.</p>	<p>13898: Thermal conductivity characteristics of thermally treated Beishan granite under uniaxial compression condition</p> <p>X. Zhao, J. Wang, P. F. Li, Z. Zhao, H. R. Xu, M. Cai.</p>	<p>14355: Global characterization of high rock slopes using the Hoek-Brown mb parameter as controlling index</p> <p>T. G. Carter, C. Carranza-Torres.</p>	<p>14802: Constitutive models with damage applied to geotechnical behavior of evaporate rock</p> <p>J. Forero; J. J. V. Braga; I. A. Pimentel; F. K. C. Pinedo; S. A. B. Fontoura.</p>
12:00 - 12:15	<p>14366: Numerical modelling of thermal drilling of rock by heating-cooling cycle</p>	<p>14357: In-situ assessment of distributed strain and curvature characteristics in shotcrete tunnel linings based on fiber optic strain sensing</p>	<p>14084: A new approach of the Cerchar abrasiveness test to predict the wear of TBM's disc cutter</p>	<p>14782: Slope stability in heterogeneous rock masses with a block-in-matrix fabric</p>	<p>14590: Experimental investigation on the size effects of KIC in selected rock types</p>

	M. Pressacco, T. Saksala.	C. M. Wernsberger, W. Lienhart, A. Kluckner, W. Schubert	G. R. Piazzetta, G. Pintaude.	M. L. Napoli, M. Barbero, C. S. C. Scavia .	A. Muñoz-Ibáñez, J. Delgado-Martín.
12:15 - 12:30	14476: Establishing a stepwise verification and upscaling process for modelling brittle failure in rock using the fdem method  S. Markus, M. Diederichs, I. Vazaios.	14367: On-site applications of innovative tools for deformation monitoring in underground excavations  A. Carri, A. Valletta, A. Segalini, R. Savi.	14141: Correlations between geomechanical and physical properties for amphibolites and schists from south of Minas Gerais state, Brazil  K. S. Rezende, E. A. G. Marques.	14947: Q-Slope and RHRS for the evaluation of highway rock slopes – Serra do Mar, Brazil  M. S. Paula, A. V. Maion, G. A. Campanha, L. M. N. Castilho, M. A. Cunha.	14287: In situ application of Schmidt hammer test on a coal face with large-scale  M. Mesutoğlu, I. Ozkan.
12:30 - 12:45	14669: 3D numerical modeling of rock cutting experiments under confining pressure through discrete element method  N. Gonze, F. Descamps, J.-P. Tshibangu.	14411: Long-term stability monitoring of underground cavern using geotechnical instrumentation - A case study  K. Sudhakar, S. R. Naik.	14158: Geometrical and mechanical characterization of 3D-printed rock joints  J. Jaber, M. Conin, O. Deck, C. Grandclaude, M. Moumni, C. Auvray, O. Godard, S. Kenzari	15064: Slope stability assessment and slope optimization at Letseng Diamond Mine, Lesotho  N. Lefu, L. Lorig.	14192: Visco-elastic-plastic solutions for tunneling and corresponding support measures in squeezing rock with different rheological constitutive models  C.-C. Xia, C. Xu, Y.-P. Liu, C.-L. Han.
12:45 - 13:00	14948: Geomechanical modeling of mudrock stress-level dependency and application to a salt-sediment system	14575: Velocity amplification of obliquely incident S-wave through parallel fractures near a free-surface	14279: Combination of various laboratory tests to investigate rock burst	15069: Dynamic Stability of Mine Slopes due to Bench Blasting	14562: Assessment of coal pillar behaviour at great depth using field monitoring and numerical models

	M. Nikolinakou, M. Heidari, P. Flemings, M. Hudec.	A. H. Botelho, P. Zhang, S. Dineva, E. Nordlund.	L. Gottsbacher, A. Klammer, W. Schubert, R. Marschallinger, P. Hofmann, F. Zobl, R. Ketcham, D. Edey.	S. H. Prassetyo, G. M. Simangunsong, A. Sadikin.	S. Ram, P. Waclawik, J. Nemcik, A. Kumar, R. Kukutsch, V. Kajzar.
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**TECHNICAL SESSIONS - 18 SEPTEMBER**

14:00 - 15:30	TS22 - Underground Rock Excavations III	TS23 - Experimental Rock Mechanics IV (Field)	TS24 - Petroleum Geomechanics	TS25 - Case Histories II (Civil Engineering)	TS26 - Rock Mechanics II (Interdisciplinary)
14:00 - 14:15	13614: Deformation measurements of Basal Reef stopes with cemented backfill in South Africa.  P. Couto, D. F. Malan.	13619: Field testing of weak rock deformation in water tunnels: A practical review of the flatjack test  L. Selen, K. Panthi, L. Tunbridge, T. Schönborn.	14221: Near-wellbore geomechanical damage of naturally fractured system due to production-induced stresses  X. A. Rodríguez, J. G. Osorio.	14664: Influence of an open-pit quarry on the stability of an underground cavity  F. Descamps, D. Danis, J.-P. Tshibangu, K. Meessen.	14288: Estimation of concrete lining thickness for stability of circular mine shafts in different rock masses  İ. Özkan, S. S. Hussaini.
14:15 - 14:30	14167: Underground gas production and migration induced by mining subsidence  S. Lafortune, Z. Pokryszka, A. Charmoille.	14201: In-situ swelling pressures in sulphate bearing rocks: findings from field observations  W. Steiner, M. Schwalt.	14261: Numerical simulation of slot-shaped breakout in high-porosity sandstone  T. Wang, F. Zhang, Y. Han.	14577: Geological and hydrogeological characterization for modelling and rock engineering purposes: Case studies from the Äspö Hard Rock Laboratory, Sweden  Å. Fransson, G. Viola.	13627: On the mechanism of pillar rockbursts induced by dynamic disturbances from blasting  J. Deng, Y. Gong, T. Elsheikh, B. Patel.
14:30 - 14:45	14324: Failure mechanisms developed in rock masses under shallow foundations	14437: Uncertainty quantification of in situ stress estimations: a Bayesian approach	14318: A coupled SPH-PD numerical procedure for the analysis of fluid flow through deformable porous media	14604: Research on risk of metro foundation pit construction by nonlinear fuzzy comprehensive evaluation model	14606: Application of the Theory of Critical Distances for the fracture prediction of rocks at different temperatures and containing U-shaped notches



	A. T. S. Alencar, R. Galindo, S. Melentijevic.	Y. Feng, J. P. Harrison, N. Bozorgzadeh.	S. Das, D. Deb, R. Pramanik.	T. Xu, Z. Song, G. Zhou.	J. Justo, J. Castro.
14:45 - 15:00	14585: Leakage remediation of the right abutment of a concrete face rockfill dam and behavior after five years  J. A. Valencia-Quintanar, J. A. López-Molina, V. Castellanos-Pedroza, J. Alemán-Velásquez.	14559: Theoretical bandwidth for the measurement of strain waves in borehole tensor strainmeters  J. Tian, K. Zhang, Z. Hu.	14799: Numerical simulations of cascade casing collapse in oil wells due to events in the production stage  J. D. V. URIBE, D. D. E. F. Melo, B. G. Souza Jr, S. A. B. Fontoura, J. L. R. Anjos, L. F. M. Almeida, C. J. C. Gonçalves	14663: The remediation of a rock fall and a landslide at karst edge  V. Jovičić, B. Merhar, S. P. Medved.	14722: Experimental study on energy dissipation of red sandstone soil with different dry densities by SHPB  T. Wang, Z. Song, J. Yang, R. Huo.
15:00 - 15:15	14689: Stability evaluation and safe designing of barriers against rivers in an opencast working - A case study  P. K. Mandal, A. J. Das, S. Tewari, R. Bhattacharjee, L. Kumar, P. K. Singh.	14702: Long-term experience with stress state determination using CCBO probe in various rock mass  P. Waclawik, L. Stas, K. Soucek, M. Vavro, V. Zajicova.	15075: Numerical modeling of pore collapse in hydrocarbon reservoirs using the cap plasticity constitutive model  M. Sanei, O. Duran, P. R. Devloo.	14344: Long-time monitoring of rock-hewn rock structures in Cappadocia (Turkey) and some environmental effects  R. Ulusay, Ö. Aydan, H. Tano.	14516: Failure mechanism and Acoustic Emission characteristic of Beishan granite under true triaxial compression  Y. Zhang, X.-T. Feng, Q. Han, C.-X. Yang, R. Kong, Y. Gao.
15:15 - 15:30	14931: Geomechanical substantiation of measures of safety in the process of development of the Southern Hingansk deposit  M. I. Rasskazov, A. V. Rasskazova, M. I. Potapchuk, A. A. Teryoshkin.	15037: 3D imaging on a hard rock TBM  A. Gaich, M. Poetsch, W. Schubert.	15091: Effects of Crustal Stress on the Hydraulic Stimulation of Shale Gas Reservoirs  Z. Zhang, X. Li, J. He, G.-F. Li, P. He.	14742: Neuro-construction of a landslide susceptibility simulator  S. Garcia, P. Irejo, J. Lopez-Molina, A. Valencia-Quintanar, V. Castellanos-Pedroza, V. Paez-Juarez, L. Borjar Hernández	15081: Study on the blasting perforation process of blast holes in single row under different confining pressures  X. Zhang, Y. Ji, H. Li, D. Li, H. Wang, H. Zhou.

