



EUROCK 2016

2016 ISRM International Symposium

Rock Mechanics & Rock Engineering: From the Past to the Future

www.eurock2016.org

Cappadocia (Ürgüp-Nevşehir) TURKEY
29 - 31 August 2016



Organized by
**Turkish National Society for
Rock Mechanics**



Invitation



On behalf of the International Society for Rock Mechanics (ISRM), Turkish National Society for Rock Mechanics cordially invites the international community to attend the EUROCK 2016 Symposium. The symposium will be held between 29 and 31 August 2016 in Cappadocia (Turkey) which is one of the seven sites included in the World Heritage List by UNESCO and also a natural and historical rock engineering laboratory.

The theme of the symposium is "Rock Mechanics & Rock Engineering: From the Past to the Future". The symposium intends to cover all aspects of rock mechanics and rock engineering from theories to engineering practices, emphasizing the future direction of rock engineering technologies. This event will be an excellent opportunity to promote the exchange of knowledge and experiences in various areas of the rock mechanics and rock engineering, as well as to visit many historical sites including old and modern rock structures caved in the soft tuffs of Cappadocia. The venue of the symposium, Ürgüp-Nevşehir, is located in the heart of the Cappadocia Region with convenient access to restaurants, hotels, historical sites and national museums. We believe that you will also enjoy participating to post-symposium excursions in the Cappadocia Region and Istanbul.

In the spirit of traditional Turkish hospitality, it is our pleasure to welcome you to Turkey, a bridge between Europe and Asia, and hope that your stay here will be intellectually and professionally stimulating and rewarding.

We look forward to meeting you in Cappadocia in August 2016.

Prof. Reşat ULUSAY
EUROCK2016, Chairman of the Organizing Committee

Symposium Themes

- Fundamental rock mechanics
- Rock properties, experimental rock mechanics and physical modelling
- Analytical and numerical methods in rock mechanics and rock engineering
- Stability of slopes in civil and mining engineering
- Design methodologies and analysis
- Rock dynamics
- Rock mechanics and rock engineering at historical sites and monuments
- Underground excavations in civil and mining engineering
- Coupled processes in rock mass for underground storage and waste disposal
- Rock mass characterization
- Petroleum geomechanics
- Instrumentation-monitoring in rock engineering and back analysis
- Risk management
- New frontiers (GPS, Extraterrestrial Rock Mechanics, Methane Hydrate Exploitation, CO₂ sequestration, earthquake prediction)

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Tentative Program

	August 27, 2016 Saturday	August 28, 2016 Sunday	August 29, 2016 Monday	August 30, 2016 Tuesday	August 31, 2016 Wednesday
Morning	ISRM Board Meeting Short Courses 1 - 2	ISRM Commission Meetings Short Course 2	Symposium (Parallel Sessions)	Symposium (Parallel Sessions)	Symposium (Parallel Sessions)
Afternoon	ISRM Board Meeting Short Courses 1 - 2	ISRM Council Meeting Short Course 2	Symposium (Parallel Sessions)	Symposium (Parallel Sessions)	Symposium (Parallel Sessions)
Evening	ISRM Board Dinner	ISRM Council Reception	Welcome Reception	Banquet	

Registration

	Before June 1, 2016	After June 1, 2016
ISRM Member	420 Euro	490 Euro
Non-Member of ISRM	525 Euro	625 Euro
Student	175 Euro	200 Euro
Accompanying Person	150 Euro	175 Euro

For Delegates fee includes

Participation to scientific sessions and exhibition
 Symposium Materials
 3 Luncheons & Coffee Breaks
 Welcome Reception
 Banquet

For Accompanying Persons fee includes

Welcome Reception
 Banquet

Award

The EUROCK Outstanding Paper Award will be selected from the papers presented during the symposium.

Proceedings

Full papers will be published in the Proceedings and will be provided with CD for participants.

Abstract Submission is open, visit www.eurock2016.org

Keynote Lectures



Prof. Giovanni Barla
Polytechnic University of Turin, Italy

Application of numerical methods in tunnelling: Recent trends



Prof. Şevket Durucan
Imperial College, UK

Reservoir geomechanics helps improve CO₂ storage performance and risk assessment



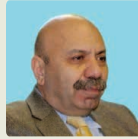
Prof. Sergio A.B. de Fontoura
Pontifical Catholic Univ. of Rio de Janeiro, Brazil

Analysis of the hydromechanical behavior of fault zones in petroleum reservoirs



Prof. Doug Stead
Simon Fraser University, Canada

Characterisation of open pit slopes: Towards an integrated remote sensing-modelling approach



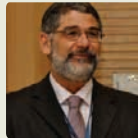
Prof. Nuh Bilgin
Istanbul Technical University, Turkey

Rock engineering problems related to mechanical excavation in complex geology, solutions and examples from Turkey



Prof. Xia-Ting Feng
ISRM President, The Chinese Academy of Sciences, China

Monitoring, warning and dynamic mitigation of geo-disaster development process in underground hard rock engineering



Prof. Yossef H. Hatzor
Ben Gurion University, Israel

Seismic vulnerability of historic monuments: A rock mechanics perspective



Dr. Philippe Vaskou
GEOSTOCK SAS, France

Structural characterization of faults and fractures in underground works

Short Courses



Course 1: One-Day Short Course
Ürgüp, August 27, 2016

“Key points for success in mechanical excavation, from theory to practice”

Lecturer: **Prof. Nuh BILGIN** *Istanbul Technical University, Turkey*

The short course is aimed to explain the basic principles of rock cutting mechanics in order to assist the practicing engineers in selecting the most appropriate machinery for a specific job and predicting machine performance to ensure efficient excavation. Numerical examples will be presented using real-life mining and civil engineering data for providing efficient solutions to specific problems.



Course 2: Two-Days Short Course
Ürgüp, August 27-28, 2016

“Rock Mechanics Principles for Geologists and Engineers”

Lecturers: **Prof. John A. Hudson & Prof. John Cosgrove** *Imperial College, UK*

The course will introduce students and professionals in geoscience/geoengineering with a solid background in the principles of rock mechanics, with special focus on the application of structural geology and rock mechanics to rock engineering design. The course will

- provide participants with a better understanding of the relation between the geological environment and the properties for rock mechanics analyses and rock engineering design,
- provide participants with the necessary rock mechanics principles for geoengineering and some practice in selected topics of interest through class discussion.

Registration fees for the short courses (*)

	Before June 1, 2016	After June 1, 2016	Students
Course 1	60 Euro	80 Euro	40 Euro
Course 2	120 Euro	150 Euro	80 Euro

(*) The fees include participation and course materials.

Host City and Cappadocia Region



Ürgüp

The Cappadocia region's most upscale and contemporary tourist city, Ürgüp has a number of lovely hotels, many built in and around centuries-old cave dwellings. The city and its surrounding area are known for their mysterious fairy chimneys, early Christian rock churches and fine vineyards. A mix of ancient and modern, Ürgüp is a center for traditional handmade carpets, but also has a lively nightlife. Hot air ballooning is very popular, and a fantastic way to see the beauty of landscape from above.

Cappadocia Region : One of the World's Heritages and Historical Rock Engineering Laboratory



Turkey, a bridge between the Asian and European continents, is richly endowed with various civilizations that have inhabited this land since the Palaeolithic age. One of the seven sites, which are included in the World Heritage List by UNESCO, is the Cappadocia Region of Turkey. Cappadocia extends over 5.000 km² within the triangle of Kayseri – Aksaray – Niğde in Central Anatolia of Turkey. This area forms a high plateau and is covered by almost layered acidic volcanic tuffs and lavas with several hundreds meters thick originated from three volcanoes. In the Ionoclastic Period (725 – 845 AD), the Cappadocia Region gradually became the most important religious center in Anatolia. Between the 9th and 13th centuries the rock settlements of Zelve were also home to the first seminaries for priests.



Easy carving and thermal properties of the Cappadocian tuffs have been the main reasons for the extensive multi – purpose underground and semi – underground (cliff) settlements in the region from the past to the present. There are 23 known large – scale underground cities in which thousands of people lived in historical times. The self supporting structures in these soft tuffs, 90 m below the surface, consisted of 8 floors with ceremonial halls, storage areas with ventilation systems. In Göreme, tuff layers eroded by the water and wind action created the strange landscape of towering cones named “ Fairy Chimneys”, and the valleys in which hundreds of impressive dwellings, catacombs and rock – cut churches were carved.

The underground openings with different sizes and shapes excavated in this area are being still used today, and the modern ones are constructed for lodging, housing, storage of foods and fruits and as wine house, restaurant, hotel and music hall.



Cappadocia is also a natural and historical rock engineering laboratory. The main rock engineering problems are time-dependent deformations threatening the long-term performance of underground openings, rock falls and rock slides from the castles and high rock cliffs threatening the cliff settlements and natural monuments, degradation of deformability and strength characteristics of rocks with time due to cyclic wetting – drying and freezing – thawing, collapse of some fairy chimneys, failures associated with erosion, bending and toppling of blocks and spalling and slabbing associated with yielding.

Venue

Perissia Hotel & Convention Center



Perissia Hotel & Convention Center is in Ürgüp, 60 minutes far from Kayseri Airport. The venue has been designed for various organizations and rendering its services to its guests with its experienced staff, up to date technologic infrastructure and with catering options from Turkish and world cuisines. Convention Center has 10 parallel meeting rooms having different capacities which can host up to 1500 participants in main hall. A wide foyer area with daylight and state of the art technological equipment, enable the Perissia Hotel & Convention Center to meet all kinds of needs and requests.

Accommodation

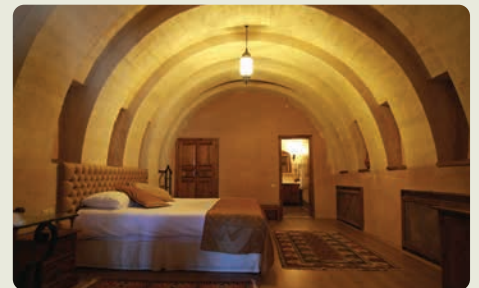
Perissia Hotel

Perissia Hotel is in Ürgüp, the center of Cappadocia, and 40 minutes from Nevşehir - Tuzköy Airport, 60 minutes from Kayseri - Erkilet Airport. Situated on a 55,000 square meter of land on a hilltop, Perissia Hotel with all its amenities and a welcoming staff will make sure your stay is an enjoyable one.



Alfina Cave Hotel Cappadocia

The Alfina Cave Hotel Cappadocia, which has been carved in tuffs, is located about 300 m from the center of Ürgüp town. The Alfina Cave Hotel Cappadocia is a 41 room upscale hotel located in the heart of Cappadocia, Nevşehir district, catering to the sophisticated traveler. With its elegant decor and unique design, the Alfina Cave Hotel Cappadocia is the perfect combination of history and classic elegance.



Technical & Touristic - Cultural Tours

Cappadocia Tour (1-2 September 2016)

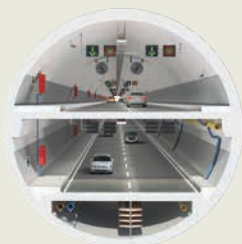
A technical and touristic - cultural trip in the vicinity of Cappadocia Region, including man – made historical rock – hewn structures, underground cities, open air museums and modern rock structures, will be organized at the end of the symposium.



Istanbul Tour (3-4 September 2016)

Two-day tour in Istanbul including visit to EURASIA Tunnel and magnificent historical and touristic places in Istanbul.

EURASIA Tunnel Project (Istanbul Strait Road Tube Crossing Project) will connect the Asian and European sides of Istanbul via a highway tunnel going underneath the seabed. The Eurasia Tunnel with diameter of 13.7 m will serve the Kazlıçesme-Goztepe route where vehicle traffic is most intense in Istanbul and will cover a total of 14.6 kilometers. While 5.4 kilometers of the project will comprise a twin-deck tunnel to be constructed underneath the seabed using special technology with connecting tunnels to be constructed using other methods, road expansion and improvement works are to be carried out on a total route of 9.2 kilometers on the European and Asian sides. 120,000 cars and light vehicles are expected to travel through the tunnel each day. During the technical part, the construction company will present technical information about the Eurasia Tunnel Project and provide a teleconference from its railway project in Ethiopia, and then the tunnel will be visited.



The touristic and cultural program in Istanbul will include visits to highlights of Istanbul including Hippodrome, Blue Mosque, Saint Sophia, Topkapi Palace and Grand Bazaar.



Tours for Accompanying Persons

Several tours will be organized and operated exclusively for participants and accompanying guests.



Access



Exhibition and Sponsors

There are a range of sponsorship levels providing various opportunities for promotion to a targeted and highly influential group of rock mechanics professionals at EUROCK 2016 ISRM International Symposium. Companies who would like to set up an exhibition at EUROCK 2016 are asked to contact organizer.

Supporting Institutions and Societies



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Turkish Society for
Engineering Geology



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Turkish Hard Coal Enterprises

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Important Dates

Abstract submission deadline
Notification of abstract acceptance
Full paper submission deadline
Notification of full paper acceptance
Author's Registration Deadline

September 15, 2015
October 15, 2015
January 15, 2016
March 15, 2016
April 15, 2016

Contact

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