

WORKSHOP (ISRM Commission on Testing Methods)

Title of the Workshop: Some considerations for the development of new ISRM Suggested Methods

Date: 15 September 2026, Skopje, N. Macedonia (before EUROCK2026 Symposium)

Venue: Hotel Aleksandar Palace, Skopje, N. Macedonia

Aim and description of the Workshop: To provide a forum for discussion through presentations by invited speakers on some selected new developments about experimental and field studies that could become prospective ISRM Suggested Methods (SMs) in the near future. It is also hoped that this workshop will serve as a platform to initiate and enhance further interests among ISRM members in proposing new SMs, and to better understand the needs and perspectives of practicing engineers and scientists within our society.

Workshop facilitator: Reşat Ulusay (resat@hacettepe.edu.tr)

Target Audience: Rock mechanists, rock engineers, engineering geologists and geotechnical engineers (academicians, engineers and undergraduate and graduate students)

Registration fee: Free

(*The time and room number of the workshop, as well as the order of the speakers, will be announced in due course.)

Workshop Speakers:

1) Prof. Sergio Fontoura (Brazil)

Title: Digital rock testing: from pretty pictures to engineering protocols

Summary: Digital rock testing uses 3D imaging and numerical simulation to derive mechanical and hydraulic properties directly from rock microstructure. This lecture will review current capabilities, limitations, and sources of uncertainty, then propose key elements for practical protocols—covering imaging, segmentation, modeling choices, and validation—to make digital tests reliable inputs for rock engineering design.

2) Prof. Xia-Ting Feng (China)

Title: Monitoring, Warning, and Mitigation of Rockburst in Deep Tunnels

Summary: A rockburst is a phenomenon whereby accumulated elastic energy around deep tunnel violently released, resulting in rock bursting and ejection. An intelligent monitoring and warning system has been established to distinguish between different types of rockbursts, excavation methods and directions. A rockburst energy control methodology—including mechanisms for energy reduction, release, and absorption—has been developed. The technology for microwave-induced energy release, energy-absorbing rockburst-resistant bolts, and grouting-based wave absorption have been proposed to mitigate rockburst.

3) Emeritus Prof. Ömer Aydan (Japan)

Title: Development of some experimental procedures for evaluating the effects of wetting-drying cycles on soft rocks

Summary: Soft rocks containing minerals and substances prone to absorb and desorb water may be easily degraded in time space. These soft rocks are well-known to be mudstone, siltstone, sandstone, shale, tuff and gypsum/anhydrite. The absorption of water results can result in swelling while desorption may cause shrinkage, These may be categorized volumetric changes and they may cause cracking and eventual disintegration. In literature, there are several attempts to evaluate these characteristics of soft rocks due to cyclic wetting and drying processes. This study describes some experimental procedures to evaluate characteristics of absorption/desorption, volumetric changes and cracking carried out on Chinen sandstone, mudstone and sandstone of Shinzato formation of Ryukyu Islands, Japan, Esna shale in Luxor, Egypt, Tuffs of Cappadocia region of Türkiye.

4) Prof. Predrag Miscevic (Croatia)

Title: Can an undisturbed sample of soft rock be made for testing

Summary: Besides their relatively low strength, a basic characteristic of soft rocks is their tendency to relatively quickly disintegrate under external influences, such as stress relaxation due to extraction, changes in temperature (heating, freezing) or changes in humidity (wetting, drying), that relatively quickly destroy the structural bonds within the soft rock. In the process of extracting soft rock sample and preparing soft rock specimens, the tools used lead to a change in temperature and humidity, and thus most often to the decomposition of the sample. The presentation will show some procedures that can help solve this problem, though there is no definite solution. Even following special custom-made sampling procedures, specimens do not comply with standardized testing requirements, namely regarding geometric dimensions. As a consequence, adjustments to the test procedures are required, and their consequences have to be assessed.

5) Dr. Ignacio Perez-Rey (Spain)

Title: Lessons Learned from Updating and Developing a New ISRM Suggested Method for Determining the Tensile Strength and Elastic Constants of Rocks by the Direct Tension Test

Summary: The Suggested Method arose from the need to address the bi-modular behavior of rocks, for which no standard procedures existed. Following the formal proposal to the ISRM Commission on Testing Methods, an international multi-laboratory benchmark was conducted to identify critical aspects of the direct tension test. These results guided the technical and operational decisions taken during the development of the new ISRM Suggested Method and supported its final formulation.