



(Edinburgh Castle)

XVI ECSMGE 2015
13-17 September 2015 - Edinburgh



Od 13. do 17. septembra je v Edinburghu potekala evropska konferenca geoteknikov (XVI European Conference on Soil Mechanics and Geotechnical Engineering), ki se odvija vsaka 4 leta. Na konferenci, katere tema je bila "Geotehnika za infrastrukturo in razvoj" ("Geotechnical Engineering for Infrastructure and Development"), je sodelovalo preko 930 geoteknikov. V zborniku konference je objavljenih 676 prispevkov, ki so jih pripravili raziskovalci in strokovnjaki iz 38 Evropskih držav in 27 neevropskih držav. Glede na ožje področje, ki ga obravnavajo, so prispevki razdeljeni in objavljeni v sklopih: Infrastruktura; Razvoj; Stabilnost pobočij in geohazard; Problematični materiali, okolje, voda in energija; Raziskave, klasifikacija, preskušanje in forenzika; Modeliranje, monitoring in izbira parametrov; Razvoj v izobraževanju in praksi. Po številu udeležencev, objavljenih prispevkov in javnih predstavitev so bili v ospredju raziskovalci in strokovnjaki iz Združenega Kraljestva, ki so pripravili skoraj 30% vseh prispevkov.

Več kot 60 razstavljalcev je predstavilo novosti na področju opreme za laboratorijske in terenske raziskave, opreme za monitoring, napredek na področju računalniških programov, geosintetikov in nove izdaje revij in strokovne literature.

V osrednjih vabljenih predavanjih (keynote lectures) so raziskave in analize, ki so jih opravili skupaj s sodelavci, predstavili:

- prof. Kenichi Soga (University of Cambridge, UK): The Role of Distributed Sensing in Understanding the Engineering Performance of Geotechnical Structures
- prof. Antonio Gomez Correia (University of Minho, Portugal): Geotechnical Engineering for Sustainable Transportation Infrastructure
- prof. Giulia Viggiani (Roma Tor Vergata, Italy): Artificial Ground Freezing: From Applications and Case Studies to Fundamental Research.

XVI ECSMGE se je udeležilo 7 predstavnikov iz Slovenije; izr.prof.dr. Janko Logar, doc.dr. Ana Petkovšek, doc.dr. Boštjan Pulko in Jasna Smolar, vsi UL FGG, izr.prof.dr. Vojkan Jovičič (IRGO Consulting d.o.o.), dr. Vladimir Vukadin (IRGO) in mag. Simona Golčman Ribič (IRGO Consulting d.o.o.), ki so s soavtorji pripravili tri prispevke. Doc. dr. Boštjan Pulko, izr.prof.dr. Vojkan Jovičič in mag. Simona Golčman Ribič so prispevke tudi predstavili. Navzoči so za aktualne predstavljene teme pokazali veliko zanimanje in zastavili nekaj vprašanj. Za najbolj vedoželjne prilagamo povzetke, celotni prispevki pa so objavljeni v Zborniku posvetovanja.

Geotechnical design of the reconstruction of the Bloudek jumping hill in Planica (Pulko B., Kilar V., Logar J.)

Abstract:

In Planica, Slovenia, the reconstruction of large ski jumping hill, originally constructed by Ivan Rožman and Stanko Bloudek, was completed in 2012. The slope consists of lightly bonded glacial moraine which is stable despite the steepness of the slope. The paper briefly presents the project and focuses on 3D soil-structure interaction analysis between the reinforced concrete arch and the steep landing slope.

Back analyses of the instability mechanism encountered during the construction of tunnel Suhodol (Jovičič V., Bucu J., Sehagic N., Husic, A)

Abstract:

The tunnel Suhodol – T3 is a twin motorway tunnel, of approximate length of 2800m, located at the part of the Motorway at the Section Lepenica - Tarčin at Corridor Vc at Bosnia and Herzegovina. The tunnel excavation was carried out

within the complex of Bosnian Schist Mountains. The geological structure was heavily affected by the tectonic forces, so that the majority of the tunnel excavation was carried out in poor to very poor rock. The instability problems occurred in the shale section, in which heavily weathered material was found during the progression through the fault zone, which was also water bearing. The numerical back analyses of the event were carried out with an aim to resolve the stress-strain and deformation field around the tunnel after the collapse. The parameters of the rock mass were adjusted so as to simulate the progression of the event. The same parameters were then used to devise the necessary remedial measures that were implemented in the right tube. The possible mechanisms of failure are discussed and the remedial measures, which were successfully applied, are described in the paper.

Geological-geotechnical and hydrogeological investigations for safety upgrade of Nuclear Power Plant Krško (Golčman Ribič S., Ratej J., Vukadin V.)

Abstract:

At Krško Nuclear Power Plant (NPP) in Slovenia additional facilities are being currently planned in line with the post Fukushima increased safety requirements. In addition to that a special consideration had to be given to the fact that a Hydro Power Plant Brežice on Sava river is being constructed in the vicinity. Its accumulation basin will have a direct influence on groundwater conditions at NNP Krško location. In order to reevaluate existing geomechanical, geotechnical and hydrogeological conditions on site, different ground and groundwater investigations programs were carried out since 2011. The investigations were divided into two segments. First segment has focused on determination of the geological and geomechanical parameters necessary for the designing of new objects in static and dynamic conditions. A special care was also given to stability of existent objects due to changed ground water conditions in dynamic conditions. The second segment has focused on the hydrogeological investigations and micro modeling of the technological part of the plant which is sealed with slurry wall curtain so that necessary protective measures inside technology part could be designed. In this paper the type and scope of investigation with key results are presented.

Impact of creep on the behaviour of embankments constructed from chemical gypsum (Maček M., Smolar J., Petkovšek A.)

Abstract:

A major concern that engineers face when assessing by-products as fill material is whether the standard methods of laboratory and field tests, developed for soils, would recognize the specific long term behaviour of different types of by-products. Chemical or synthetic gypsum is a by-product from power utilities and acid neutralization. It is a fine grained, non plastic, uniformly graded silty material. The mechanical properties of chemical gypsum can be measured using standard soil testing methods, which could be modified to measure specific gypsum behaviour. For example, long lasting oedometer tests were performed to study creep behaviour. To further improve the understanding of the behaviour of chemical gypsum, a 12 m high and 125 m long instrumented embankment was constructed, using the red gypsum filter cake as fill material. Instrumentation includes pore

pressure meters, vertical and horizontal inclinometers and surface geodetic points. Based on the results of laboratory tests and field experiments, a calibration of numerical models was performed and prediction of structural response of experimental embankment was made.