Σαουδική Αραβία

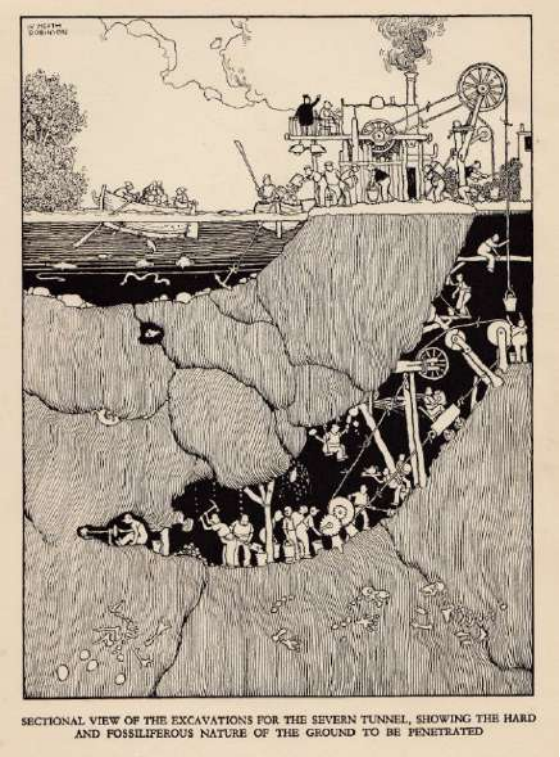
Αρ. 131 – ΟΚΤΩΒΡΙΟΣ 2019

ΕΛΛΗΝΙΚΗ
ΕΠΙΣΤΗΜΟΝΙΚΗ
ΕΤΑΙΡΕΙΑ
ΕΔΑΦΟΜΗΧΑΝΙΚΗΣ
& ΓΕΩΤΕΧΝΙΚΗΣ
ΜΗΧΑΝΙΚΗΣ

Τα Νέα της Ε Ε Ε Ε Γ Μ

131

Π Ε Ρ Ι Ε Χ Ο Μ Ε Ν Α



SECTIONAL VIEW OF THE EXCAVATIONS FOR THE SEVERN TUNNEL, SHOWING THE HARD AND FOSSILIFEROUS NATURE OF THE GROUND TO BE PENETRATED

ΕΛΛΗΝΙΚΗ
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ΕΔΑΦΟΜΗΧΑΝΙΚΗΣ
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ΜΗΧΑΝΙΚΗΣ

Εκλογές ΕΕΕΕΓΜ

Οδηγίες Ταχυδρομικής Ψηφοφορίας

Αγαπητοί συνάδελφοι,

Οι εκλογές θα γίνουν στη γενική συνέλευση της 7/11/2019. Όσοι συνάδελφοι επιθυμούν να στείλουν την ψήφο τους ταχυδρομικά παρακαλούνται να την αποστείλουν έτσι ώστε να βρίσκεται στην ταχυδρομική θυρίδα της ΕΕΕΕΓΜ μέχρι το μεσημέρι της 5/11/2019 οπότε τρία μέλη της εκτελεστικής επιτροπής της ΕΕΕΕΓΜ θα ανοίξουν τη θυρίδα για να μαζέψουν και να φυλάξουν τις επιστολικές ψήφους μέχρι τις εκλογές στη γενική συνέλευση. Οι ψηφοφόροι τοποθετούν το ψηφοδέλτιο σε λευκό φάκελο 11x23 cm (ή αντίστοιχο) χωρίς αναγραφή ονόματος ή άλλου στοιχείου, τον σφραγίζουν και τον τοποθετούν σε μεγαλύτερο εξωτερικό φάκελο (π.χ. 16x23 cm). Μόνον στον εξωτερικό φάκελο αναγράφεται το όνομα και η διεύθυνση του αποστολέα, καθώς και η επιγραφή «Περιέχει ψήφο».

Η ταχυδρομική διεύθυνση για την αποστολή είναι:

Μιχάλης Μπαρδάνης
Γενικός Γραμματέας ΕΕΕΕΓΜ
Τ.Θ. 13626
Αθήνα, Τ.Κ. 10310

και για όσους συναδέλφους ενδεχομένως στείλουν από το εξωτερικό:

Michael Bardanis
Secretary General HSSMGE
P.O. Box 13626
Athens, 10310
Greece

Για να προσμετρηθούν οι επιστολικές ψήφοι και να ψηφίσουν τα μέλη επιτόπου στη γενική συνέλευση, πρέπει να φροντίσουν μέχρι 5/11/2019 για την τακτοποίηση τυχόν οικονομικών οφειλών τους. Μέλη που θα ψηφίσουν στη γενική συνέλευση μπορούν να τακτοποιήσουν τις οφειλές τους και επιτόπου πριν από τις εκλογές. Για τυχόν ερωτήσεις για οφειλές παρακαλούμε επικοινωνήστε με τον ταμία της ΕΕΕΕΓΜ μέσω της ηλεκτρονικής διεύθυνσης gdoulis@edafomichaniki.gr .

Με εκτίμηση,

Μιχάλης Μπαρδάνης
Γενικός Γραμματέας ΕΕΕΕΓΜ

Ψηφοδέλτια Εκλογών της ΕΕΕΕΓΜ

Ψηφοδέλτιο Εκτελεστικής Επιτροπής

ΑΝΑΓΝΩΣΤΟΠΟΥΛΟΣ Ανδρέας
ΑΝΤΩΝΑΚΟΣ Γεώργιος
ΒΕΤΤΑΣ Παναγιώτης
ΓΙΟΥΤΑ-ΜΗΤΡΑ Παρασκευή
ΓΚΑΖΕΤΑΣ Γεώργιος
ΖΕΥΓΩΛΗΣ Ιωάννης
ΙΩΑΝΝΙΔΗΣ Κώστας
ΜΠΑΡΔΑΝΗΣ Μιχαήλ
ΜΠΕΛΟΚΑΣ Γεώργιος
ΝΤΟΥΛΗΣ Γεώργιος
ΞΕΝΑΚΗ Βασιλική
ΠΑΝΤΑΖΙΔΟΥ Μαρίνα
ΠΑΧΑΚΗΣ Μιχαήλ
ΠΛΥΤΑΣ Κωνσταντίνος
ΣΤΡΑΤΑΚΟΣ Χρήστος
ΣΧΙΝΑ Σταυρούλα
ΤΣΑΤΣΑΝΙΦΟΣ Χρήστος
ΧΛΙΜΙΝΤΖΑΣ Γεώργιος

Ψηφοδέλτιο Εξελεγκτικής Επιτροπής

ΑΛΕΞΑΝΔΡΗΣ Αργύριος
ΚΟΖΟΜΠΟΛΗΣ Απόστολος
ΤΥΡΟΛΟΓΟΥ Παύλος

Σταυροδοσία

μέχρι 9 σταυρούς για την Εκτελεστική Επιτροπή
μέχρι 3 σταυρούς για την Εξελεγκτική Επιτροπή

ΕΛΛΗΝΙΚΗ ΕΠΙΣΤΗΜΟΝΙΚΗ ΕΤΑΙΡΕΙΑ ΕΔΑΦΟΜΗΧΑΝΙΚΗΣ & ΓΕΩΤΕΧΝΙΚΗΣ ΜΗΧΑΝΙΚΗΣ

ΕΚΘΕΣΗ ΠΕΠΡΑΓΜΕΝΩΝ (22.10.2015 – 20.10.2019)

1. ΕΙΣΑΓΩΓΗ – Η ΕΚΤΕΛΕΣΤΙΚΗ ΕΠΙΤΡΟΠΗ

Η τρέχουσα Γενική Συνέλευση είναι απολογιστική και εκλογική.

Κατά την εκλογική Γενική Συνέλευση της ΕΕΕΕΓΜ της 21ης Οκτωβρίου 2015 εξελέγησαν στην Εκτελεστική Επιτροπή οι Ανδρέας Αναγνωστόπουλος, Πάνος Βέττας, Γιώργος Γκαζέτας, Μιχάλης Μπαρδάνης, Γιώργος Μπελόκας, Γιώργος Ντούλης, Βάλια Ξενάκη, Μαρίνα Πανταζίδου, Μιχάλης Παχάκης, με αναπληρωματικό τον Κώστα Ιωαννίδη.

Η νέα Εκτελεστική Επιτροπή συγκροτήθηκε σε σώμα στις 12/11/2015 με την ακόλουθη σύνθεση:

- Γεώργιος Γκαζέτας, Πρόεδρος της Εκτελεστικής Επιτροπής
- Παναγιώτης Βέττας, Α' Αντιπρόεδρος
- Μιχάλης Παχάκης, Β' Αντιπρόεδρος
- Μιχάλης Μπαρδάνης, Γενικός Γραμματέας
- Γεώργιος Ντούλης, Ταμίας
- Ανδρέας Αναγνωστόπουλος, Έφορος
- Γεώργιος Μπελόκας, Μέλος
- Βασιλική Ξενάκη, Μέλος
- Μαρίνα Πανταζίδου, Μέλος
- Κωνσταντίνος Ιωαννίδης, Αναπληρωματικό Μέλος

Στην ίδια Γενική Συνέλευση εξελέγησαν για την Εξελεγκτική Επιτροπή οι παρακάτω:

- Ανάργυρος Αλεξανδρής
- Απόστολος Κοζομπόλης
- Παύλος Τυρολόγου

Η Εκτελεστική Επιτροπή κατά την περίοδο από της εκλογής της μέχρι σήμερα συνεδρίασε 17 φορές. Αποφασίστηκε να μετέχουν στις συνεδριάσεις και τις δραστηριότητες της Ε.Ε. και τα αναπληρωματικά μέλη.

Παράλληλα, δεδομένου ότι τα μέλη της Ε.Ε. είναι και μέλη της Οργανωτικής Επιτροπής του 8ου Πανελληνίου Συνεδρίου Γεωτεχνικής Μηχανικής, η Ε.Ε. ασχολήθηκε με τα θέματα του Συνεδρίου σε ορισμένες από τις παραπάνω συνεδριάσεις. Πρόεδρος της Οργανωτικής Επιτροπής, ορίστηκε ο καθηγητής Γιώργος Γκαζέτας.

Στη συνεδρίαση της 18/10/2018, αποφασίστηκε η παράταση της θητείας της Ε.Ε. για 6 μήνες με απόφαση της Εκτελεστικής Επιτροπής (βάσει του καταστατικού) μέχρι τις 21/4/2019 με σκοπό την ολοκλήρωση της προετοιμασίας του 8ου ΠΣΓΜ. Στη συνεδρίαση της 12/4/2019 αποφασίστηκε η πρόσκληση σε γενική συνέλευση με θέμα την παράταση της θητείας της Ε.Ε. μέχρι την ολοκλήρωση του 8ου Πανελληνίου Συνεδρίου Γεωτεχνικής Μηχανικής (6-8 Νοεμβρίου 2019) οπότε έγινε κατά τα προβλεπόμενα στο καταστατικό η σχετική πρόσκληση σε Γενική Συνέλευση με δημοσίευση στον τύπο στις 19/4/2019.

Η γενική συνέλευση πραγματοποιήθηκε στις 11/6/2019 και εγκρίθηκε η παράταση της θητείας της Ε.Ε. για 6 μήνες (βάσει του καταστατικού) με πραγματοποίηση απολογιστικής και εκλογικής Γενικής Συνέλευσης της ΕΕΕΕΓΜ σε μία εκ των ημερών του συνεδρίου (6 έως 8 Νοεμβρίου 2019, οπότε θα είναι μεγαλύτερη η φυσική παρουσία όσο πιο πολλών μελών της ΕΕΕΕΓΜ γίνεται).

2. ΝΕΑ ΜΕΛΗ

Από τον Οκτώβριο του 2015 ενεγράφησαν στην ΕΕΕΕΓΜ τα ακόλουθα νέα μέλη (κατά σειρά εγγραφής):

- Ε. Γεωργίου, Πολιτικός Μηχανικός
- Ι. Τσιάπας, Πολιτικός Μηχανικός
- Α. Καραγεώργου, Μεταλλειολόγος Μηχανικός
- Ξ. Φλώρος, Πολιτικός Μηχανικός
- Γ. Ανδριάνης, Πολιτικός Μηχανικός
- Λ. Τσαντήλας, Πολιτικός Μηχανικός
- Ο. Μαυρούλη, Πολιτικός Μηχανικός
- Π. Πελέκης, Πολιτικός Μηχανικός
- Γ. Χαρωνίτης, Πολιτικός Μηχανικός
- Κ. Παπαδόπουλος, Πολιτικός Μηχανικός
- Φ. Πέτση, Πολιτικός Μηχανικός
- Κ. Παλασόπουλος, Πολιτικός Μηχανικός

3. ΜΕΛΗ ΤΗΣ ΕΕΕΕΓΜ ΣΤΙΣ ΤΕΧΝΙΚΕΣ ΕΠΙΤΡΟΠΕΣ ΤΗΣ ISSMGE

Η ΕΕΕΕΓΜ εκπροσωπείται στις τεχνικές επιτροπές της ISSMGE με 32 μέλη της, εκ των οποίων:

- καθηγητής Κυριαζής Πιτιλάκης υπήρξε Πρόεδρος και σήμερα είναι Αντιπρόεδρος της TC203 Earthquake Geotechnical Engineering and Associated Problems
- η κα Μαρίνα Πανταζίδου είναι Πρόεδρος της TC306 Geo-Engineering Education.

Μετά την εκλογή νέας εκτελεστικής επιτροπής της ΕΕΕΕΓΜ τον Νοέμβριο, θα αποσταλεί μήνυμα για την εκδήλωση ενδιαφέροντος από τα μέλη της ΕΕΕΕΓΜ για να γίνουν μέλη των Τεχνικών Επιτροπών της ISSMGE.

4. ΑΘΗΝΑΙΚΕΣ ΔΙΑΛΕΞΕΙΣ ΓΕΩΤΕΧΝΙΚΗΣ

Στις 23 Φεβρουαρίου 2016 διοργανώθηκε στην Αίθουσα Εκδηλώσεων του Κτιρίου Διοίκησης του ΕΜΠ η **10η** Αθηναϊκή Διάλεξη από τον **Δρα Σπύρο Καβουνίδη** με τίτλο: *«Κατολισθήσεις στην Ελλάδα, Εδαφομηχανική στην Πράξη».*

Στις 22 Μαρτίου 2017 διοργανώθηκε στην Αίθουσα Εκδηλώσεων του Κτιρίου του ΤΕΕ η **11η** Αθηναϊκή Διάλεξη από τον **Δρα Δημήτριο Κούμουλο** με τίτλο: *«Γεωτεχνική Αποθέσεων Απορριμμάτων».*

Στις 23 Ιανουαρίου 2019 διοργανώθηκε στην Αίθουσα Εκδηλώσεων του Κτιρίου Διοίκησης του ΕΜΠ η **12η** Αθηναϊκή Διάλεξη από την καθηγήτρια του Imperial College **Lidija Zdravkovic** με τίτλο: *«Assessing the geotechnical risk associated with natural and cut slopes».*

Όλες οι διοργανωθείσες Αθηναϊκές Διαλέξεις της ΕΕΕΕΓΜ έτυχαν ευρείας δημοσιότητας στην γεωτεχνική κοινότητα και την ευρύτερη κοινότητα των μηχανικών και είχαν σημαντικό ακροατήριο, μία δε εξ αυτών, η 10η Αθηναϊκή Διάλεξη μαγνητοσκοπήθηκε και αναρτήθηκε στην ιστοσελίδα YouTube (ηλεκτρονική διεύθυνση:

https://www.youtube.com/watch?time_continue=19&v=KI6yi8WIK6c).

Εξετάζεται από την ΕΕ η μαγνητοσκόπηση όλων των Αθηναϊκών Διαλέξεων για αρχειακούς λόγους και διάδοσης των δραστηριοτήτων της ΕΕΕΕΓΜ μέσω ανάρτησής τους στο διαδίκτυο.

Με απόφαση της ΕΕ κατά τη συνεδρίαση της 22/5/2019, ο επόμενος ομιλητής για την Αθηναϊκή Διάλεξη Γεωτεχνικής θα είναι ο **καθηγητής του Αριστοτελείου Πανεπιστημίου Θεσσαλονίκης Κυριαζής Πιτιλάκης** (Η ημερομηνία και το θέμα δεν έχουν καθορισθεί ακόμη.)

Με απόφαση της ΕΕ κατά την συνεδρίαση της 17/7/2019, η συχνότητα της Αθηναϊκής Διάλεξης θα είναι ανά έτος, στο χρονικό διάστημα από Φεβρουάριο έως Απρίλιο.

5. ΑΛΛΕΣ ΟΜΙΛΙΕΣ

Στις 1 Ιουνίου 2016 διοργανώθηκε στο ΕΜΠ διάλεξη της Αναπληρώτριας Καθηγήτριας στο Πανεπιστήμιο του Michigan (επισκέπτριας καθηγήτριας στο ΕΜΠ) **Άντας Αθανασοπούλου** με τίτλο: *«Εδαφικές Ταλαντώσεις από την Εμπηξη Πασσάλων».*

Στις 15 Ιουνίου 2016 διοργανώθηκε στο ΕΜΠ διάλεξη του Αναπληρωτή Καθηγητή στο Πανεπιστήμιο του Michigan (επισκέπτη καθηγητή στον Τομέα Γεωτεχνικής του ΕΜΠ) **Δημητρίου Zέκκου** με τίτλο: *«Προσδιορισμός Μηχανικής Συμπεριφοράς Στερεών Αστικών Αποβλήτων».*

Στις 14 Οκτωβρίου 2016 διοργανώθηκε στο ΕΜΠ διάλεξη του καθηγητή του Πανεπιστημίου Πατρών και του University of Central Florida **Νίκου Μακρή** με τίτλο: *«Σεισμική Ταλάντωση Λικνιζομένου Πλαισίου».*

Στις 18 Οκτωβρίου 2016 διοργανώθηκε στο ΕΜΠ διάλεξη του καθηγητή του Université Grenoble-Alpes, **Jacques Desrues** με τίτλο: *«From Discrete to Continuum Approach of BVP in Geomechanics: FEM-DEM Integrated Approach».*

Στις 15 Φεβρουαρίου 2018 διοργανώθηκε στο ΕΜΠ διάλεξη του Δρος **Χρήστου Τσατσανίφου**, πρώην προέδρου της ΕΕΕΕΓΜ, με τίτλο: *«Μετρό Doha: Mega Project με ρεκόρ Guinness».*

Στις 6 Μαρτίου 2018 διοργανώθηκε στο ΕΜΠ διάλεξη του Δρος **Χαράλαμπου Σαρόγλου,** βοηθού ΙΔΑΧ στο ΕΜΠ, με τίτλο: *«Γεωτεχνικά προβλήματα σε έργα υποδομής στη Λαϊκή Δημοκρατία της Κίνας. Έμφαση στη συμπεριφορά βραχομαζών».*

Στις 18 Οκτωβρίου 2018 διοργανώθηκε στο ΕΜΠ διάλεξη της Δρος **Ευαγγελίας Γαρίνη,** ερευνήτριας στο ΕΜΠ, με τίτλο: *«Ο ρόλος του εδάφους στον πρόσφατο σεισμό του Μεξικού (19 Σεπτεμβρίου 2017): Ομοιότητες και διαφορές με τον καταστροφικό σεισμό του 1985».*

Στις 15 Μαΐου 2019 διοργανώθηκε στο ΕΜΠ διάλεξη του Δρος **Gaetano Elia**, Associate Professor, Technical University of Bari, Italy, Visiting Fellow, Newcastle University, UK, με τίτλο: *«Advanced dynamic analyses in geotechnical earthquake engineering: opportunities and challenges».*

6. ΕΣΠΕΡΙΔΑ ΜΗ ΚΟΡΕΣΜΕΝΩΝ ΕΔΑΦΩΝ

Με την ευκαιρία της ανάληψης της διοργάνωσης του 8ου Παγκοσμίου Συνεδρίου Μη Κορεσμένων Εδαφών που θα γίνει το 2022 στη Μήλο (UNSAT 2022), η Ελληνική Επιστημονική Εταιρεία Εδαφομηχανικής και Γεωτεχνικής Μηχανικής (ΕΕΕΕΓΜ) διοργάνωσε ΕΣΠΕΡΙΔΑ ΜΗ ΚΟΡΕΣΜΕΝΩΝ ΕΔΑΦΩΝ στην Αίθουσα Εκδηλώσεων του Τεχνικού Επιμελητηρίου της Ελλάδας στην οδό Νίκης 4, Σύνταγμα, Αθήνα, την Δευτέρα 1η Ιουλίου 2019, ώρα 17:30, με ελεύθερη είσοδο.

Στο πλαίσιο της Εσπερίδας έγιναν οι ακόλουθες ομιλίες:

Μ. Μπαρδάνης: ΦΥΣΗ, ΜΗΧΑΝΙΚΗ ΣΥΜΠΕΡΙΦΟΡΑ ΚΑΙ ΕΜΦΑΝΙΣΗ ΜΗ ΚΟΡΕΣΜΕΝΩΝ ΕΔΑΦΩΝ

Αικ. Τσιαμπούση: Η ΧΑΡΑΚΤΗΡΙΣΤΙΚΗ ΚΑΜΠΥΛΗ ΕΔΑΦΟΥΣΝΕΡΟΥ ΚΑΙ Η ΣΗΜΑΣΙΑ ΤΗΣ

Ν. Χατζηγώγος: ΔΙΑΤΜΗΤΙΚΗ ΑΝΤΟΧΗ ΜΗ ΚΟΡΕΣΜΕΝΩΝ ΕΔΑΦΩΝ

Δ. Λουκίδης: ΔΙΟΓΚΩΣΗ ΕΔΑΦΩΝ ΛΟΓΩ ΜΕΤΑΒΟΛΗΣ ΤΟΥ ΒΑΘΜΟΥ ΚΟΡΕΣΜΟΥ

Ν. Χατζηγώγος: ΚΑΤΑΡΡΕΥΣΗ ΕΔΑΦΩΝ ΛΟΓΩ ΜΕΤΑΒΟΛΗΣ ΤΟΥ ΒΑΘΜΟΥ ΚΟΡΕΣΜΟΥ

Π. Σιταρένιος: ΚΑΤΑΣΤΑΤΙΚΗ ΠΡΟΣΟΜΟΙΩΣΗ ΤΗΣ ΜΗΧΑΝΙΚΗΣ ΣΥΜΠΕΡΙΦΟΡΑΣ ΤΩΝ ΜΗ ΚΟΡΕΣΜΕΝΩΝ ΕΔΑΦΩΝ

Μ. Μπαρδάνης: ΜΑΚΡΟΧΡΟΝΙΕΣ ΜΕΤΡΗΣΕΙΣ ΜΥΖΗΣΗΣ ΣΤΗΝ ΕΛΛΑΔΑ ΚΑΙ ΣΤΗΝ ΚΥΠΡΟ

E. Alonso: SHORT- AND LONG-TERM DEFORMATION OF COMPACTED MATERIALS. THE CASE OF BELICHE DAM

Η εσπερίδα παρακολουθήθηκε από 80 άτομα.

Προετοιμάστηκαν και τυπώθηκαν πρακτικά των άρθρων που παρουσιάστηκαν στις ομιλίες σε μορφή αυτόνομου τόμου πρακτικών, ο οποίος μοιράστηκε στους παρευρισκόμενους. Αντίτυπα παραμένουν στη διάθεση της ΕΕΕΕΓΜ για όσα μέλη μας επιθυμούν να προμηθευτούν τα πρακτικά αυτά. Οι ομιλίες έχουν μαγνητοσκοπηθεί και θα αναρτηθούν στην ιστοσελίδα του 8ου Παγκοσμίου Συνεδρίου Μη Κορεσμένων Εδαφών μαζί με τα πρακτικά της Εσπερίδας σε ηλεκτρονική μορφή.

Προγραμματίζεται και νέα σχετική εκδήλωση για το Φθινόπωρο του 2020.

7. ΥΠΟΣΤΗΡΙΞΗ ΣΥΜΜΕΤΟΧΗΣ ΝΕΩΝ ΓΕΩΤΕΧΝΙΚΩΝ ΜΗΧΑΝΙΚΩΝ ΣΕ ΔΙΕΘΝΕΙΣ ΕΚΔΗΛΩΣΕΙΣ

Με δαπάνες της ΕΕΕΕΓΜ έλαβαν μέρος σε Διεθνή και Ευρωπαϊκά Συνέδρια Νέων Γεωτεχνικών Μηχανικών (YGEC) οι κάτωθι συνάδελφοι:

- Γεωργία Αγαπουλάκη, στο 6ο Διεθνές Συνέδριο Νέων Γεωτεχνικών Μηχανικών στη Νότιο Κορέα τον Σεπτέμβριο του 2017

- Χρήστος Κουτσαντωνάκης, στο 27ο Πανευρωπαϊκό Συνέδριο Νέων Γεωτεχνικών Μηχανικών τον Σεπτέμβριο του 2019 στην Τουρκία.

8. 8Ο ΠΑΝΕΛΛΗΝΙΟ ΣΥΝΕΔΡΙΟ ΓΕΩΤΕΧΝΙΚΗΣ ΜΗΧΑΝΙΚΗΣ

Το 8ο Πανελλήνιο Συνέδριο Γεωτεχνικής Μηχανικής διεξάγεται στην Αθήνα μεταξύ 6 και 8 Νοεμβρίου 2019 στο Πολεμικό Μουσείο με παράλληλη τεχνική έκθεση.

Υπεβλήθησαν 220 περιλήψεις και 150 άρθρα που συμπεριλήφθησαν σε δίσκο USB με την μορφή πρακτικών.

Κύριος προσκεκλημένος ομιλητής του συνεδρίου ήταν ο καθηγητής του Πολυτεχνείου της Βαρκελώνης (UPC) **Eduardo Alonso**, ενώ έχουν προγραμματιστεί και 12 ακόμα κύριες ομιλίες προσκεκλημένων ομιλητών και συνεδρίες ιδιαιτέρου ενδιαφέροντος. Δεδομένου ότι κατά την περίοδο αναφοράς ιδρύθηκε και η **Κυπριακή Εταιρεία Εδαφομηχανικής και Γεωτεχνικής Μηχανικής** θα υπάρξει και ειδική συνεδρία εν μέρει για θέματα γεωτεχνικής μηχανικής στην Κύπρο.

9. ΕΛΛΗΝΙΚΗ ΜΕΤΑΦΡΑΣΗ ΤΟΥ ΠΟΛΥΛΕΞΙΚΟΥ ΤΗΣ ISSMGE

Έχει ολοκληρωθεί η Ελληνική μετάφραση του πολύγλωσσου λεξικού γεωτεχνικών όρων της ISSMGE και βρίσκεται σε φάση τελικού ελέγχου για αποστολή στην ISSMGE.

10. ΕΚΔΟΣΕΙΣ

Συνεχίζεται, με επιμέλεια του πρώην Προέδρου Χ. Τσατσανίφου, η έκδοση του ενημερωτικού δελτίου «ΤΑ ΝΕΑ ΤΗΣ ΕΕΕΕΓΜ» σε μηνιαία, περίπου, βάση. Μέσα στην περίοδο αναφοράς εκδόθηκαν σαράντα οκτώ (48) τεύχη (αρ. 84 έως 131).

11. ΠΑΡΟΥΣΙΑ ΣΤΟ ΔΙΑΔΙΚΤΥΟ – ΑΛΛΗΛΕΠΙΔΡΑΣΗ ΜΕ ΤΑ ΜΕΛΗ ΚΑΙ ΓΕΝΙΚΟΤΕΡΑ ΤΗ ΓΕΩΤΕΧΝΙΚΗ ΚΟΙΝΟΤΗΤΑ

Δημιουργήθηκε προφίλ της ΕΕΕΕΓΜ στον ιστότοπο επαγγελματικής δικτύωσης Linkedin με τον οποίο μπορούν να συνδεθούν μέλη της ΕΕΕΕΓΜ και άλλοι συνάδελφοι από την Ελλάδα και το Εξωτερικό που έχουν επίσης προφίλ στον ίδιο ιστότοπο.

Προς αποφυγή εσφαλμένων εντυπώσεων ή κακής χρήσης της σύνδεσης με αυτό το προφίλ, διευκρινίζεται και στο διαδίκτυο και εδώ ότι αποτελεί «Το προφίλ της Ελληνικής Επιστημονικής Εταιρείας Εδαφομηχανικής & Γεωτεχνικής Μηχανικής (ΕΕΕΕΓΜ), αντιπροσώπου για την Ελλάδα της Διεθνούς Ένωσης Εδαφομηχανικής & Γεωτεχνικής Μηχανικής. Το προφίλ αυτό φτιάχτηκε για την ταχύτερη διάδοση των νέων της επιστημονικής μας εταιρείας προς τα μέλη της και άλλους ενδιαφερομένους. Η δημιουργία επαφής με το παρόν προφίλ δεν συνιστά απόκτηση ιδιότητας μέλους της ΕΕΕΕΓΜ ή της ISSMGE. Για όσους επιθυμούν κάτι τέτοιο, ισχύουν οι προβλέψεις του καταστατικού για τη διαδικασία και τις προϋποθέσεις εγγραφής στην ΕΕΕΕΓΜ.»

Μέχρι σήμερα υπάρχουν 1144 συνδεδεμένα με αυτό το προφίλ μέλη (ακριβέστερα προφίλ του ίδιου ιστότοπου) που είναι πολύ περισσότερα από τα ενεργά μέλη της ΕΕΕΕΓΜ. Η δημιουργία του προφίλ αυτού έχει επιτρέψει την ταχύτερη και ευρύτερη διάδοση των δραστηριοτήτων της ΕΕΕΕΓΜ πολύ πέραν των μελών της και της ελληνικής γεωτεχνικής κοινότητας και της ευρύτερης κοινότητας των μηχανικών στη χώρα με τις ανακοινώσεις για συνέδρια, διαλέξεις και διακρίσεις να γίνονται γνωστές από πολύ περισσότερους συναδέλφους και στην Ελλάδα και στο Εξωτερικό. Ενδεικτικά αναφέρεται ότι οι ανακοινώσεις για τη διάλεξη Rankine από τον Γιώργο Γκαζέτα ξεπερνούσαν συστηματικά τις 10000 προβολές ανά ανακοίνωση.

Εκτός των ανωτέρω, μέσω του προφίλ αυτού, πολλά μέλη και μη (κυρίως νεαροί συνάδελφοι) έχουν στείλει μηνύματα προς την ΕΕΕΕΓΜ τα οποία συμπυκνώνονται στα εξής: 1. Ακόμα περισσότερες διαλέξεις και ομιλίες, και 2. «Ζωντανή» μετάδοσή τους στο διαδίκτυο ή έστω μαγνητοσκοπημένη προβολή στο διαδίκτυο. Τα αιτήματα αυτά εξετάζονται από την Ε.Ε. πάντοτε υπό το πρίσμα των διαθέσιμων οικονομικών και τεχνολογικών δυνατοτήτων.

Η ιστοσελίδα της ΕΕΕΕΓΜ (www.hssmge.gr) εξακολουθεί να είναι υποτυπώδης, γίνεται όμως προσπάθεια για να βελτιωθεί σύντομα. Αναρτώνται τακτικά τα ενημερωτικά δελτία της ΕΕΕΕΓΜ.

12. ΔΙΑΚΡΙΣΕΙΣ ΜΕΛΩΝ ΤΗΣ ΕΕΕΕΓΜ

Ο Πρόεδρος της ΕΕΕΕΓΜ καθηγητής Γιώργος Γκαζέτας επελέγη ως ο **59ος Ομιλητής Rankine.** Η διάλεξή του στο Imperial College την 20 / 3 / 2019 με τίτλο *«Benefits of Unconventional Seismic Foundation Design»* υπήρξε εξαιρετικά επιτυχής. Είναι διαθέσιμη στο YouTube (απλώς γράψτε Rankine). Προγραμματίζεται να επαναληφθεί (στα ελληνικά, βέβαια) και σε ειδική εκδήλωση που θα διοργανώσει η ΕΕΕΕΓΜ, από κοινού με τούς αντίστοιχους Συλλόγους: Αντισεισμικής Μηχανικής – ΕΤΑΜ, και Μηχανικής – ΕΕΘΕΜ.

13. ΑΝΑΛΗΨΕΙΣ ΔΙΟΡΓΑΝΩΣΗΣ ΣΥΝΕΔΡΙΩΝ

Κατά την περίοδο αναφοράς μέλη της ΕΕΕΕΓΜ συνέταξαν προτάσεις για την ανάληψη της διοργάνωσης διεθνών συνεδρίων:

Με πρόταση και προετοιμασία της κας Μαρίνας Πανταζίδου, μέλους της ΕΕ της ΕΕΕΕΓΜ, και προέδρου της Τεχνικής Επιτροπής για την Εκπαίδευση στη Γεωτεχνική Μηχανική της ISSMGE (TC306) ανελήφθη η διοργάνωση του **5ου Διεθνούς Συνεδρίου για την Εκπαίδευση στη Γεωτεχνική Μηχανική** (GEE 2020, https://www.erasmus.gr/microsites/1168) το οποίο θα διοργανωθεί μεταξύ 24 και 25 Ιουνίου 2020 στην Αθήνα, στο συνεδριακό χώρο του Νέου Μουσείου της Ακρόπολης.

Με πρόταση και προετοιμασία του κ. Μιχάλη Μπαρδάνη, Γενικού Γραμματέα της ΕΕΕΕΓΜ, και μέλους της Τεχνικής Επιτροπής για Μη Κορεσμένα Εδάφη της ISSMGE (TC106) ανελήφθη η διοργάνωση του **8ου Διεθνούς Συνεδρίου *Μή* Κορεσμένων Εδαφών** (UNSAT 2022) το οποίο θα διοργανωθεί τον Ιούνιο του 2022 στη Μήλο.

14. ΑΠΩΛΕΙΕΣ

Από το 2015, η επιστημονική κοινότητα των Ελλήνων γεωτεχνικών έχασε πέντε εξέχοντα μέλη της:

- Τον καθηγητή του Αριστοτελείου Πανεπιστημίου Θεσσαλονίκης Σταύρο Μπαντή,

- Τον ομότιμο καθηγητή του Αριστοτελείου Πανεπιστημίου Θεσσαλονίκης και τέως Αντιπρόεδρο της ΕΕΕΕΓΜ Δημήτριο Βαλαλά,

- Τον Ορέστη Παπαγεωργίου, πρώην Τομεάρχη της Διεύθυνσης Ανάπτυξης Υ/Η έργων της ΔΕΗ, και πρώην Γενικό Γραμματέα της Ελληνικής Επιτροπής Μεγάλων Φραγμάτων, ιδρυτικό μέλος της ΕΕΕΕΓΜ,

- Τον Νίκο Μουτάφη, πρώην Διευθυντή της Διεύθυνσης Ανάπτυξης Υ/Η έργων της ΔΕΗ, πρώην Λέκτορα ΕΜΠ, και πρώην πρόεδρο της Ελληνικής Επιτροπής Μεγάλων Φραγμάτων, και

- Τον Θεοφάνη Γκόφα, Υδραυλικό Μελετητή, ιδρυτικό μέλος της ΕΕΕΕΓΜ.

Θα τους θυμόμαστε με ευγνωμοσύνη για όσα προσέφεραν στην επιστήμη μας και στην ΕΕΕΕΓΜ.

Αθήνα, 20 Οκτωβρίου 2019

Για την Εκτελεστική Επιτροπή

Ο Πρόεδρος	Ο Γενικός Γραμματέας
Γ. Γκαζέτας	Μ. Μπαρδάνης

ΕΛΛΗΝΙΚΗ ΕΠΙΣΤΗΜΟΝΙΚΗ ΕΤΑΙΡΕΙΑ ΕΔΑΦΟΜΗΧΑΝΙΚΗΣ & ΓΕΩΤΕΧΝΙΚΗΣ ΜΗΧΑΝΙΚΗΣ

8ο Πανελλήνιο Συνέδριο Γεωτεχνικής Μηχανικής

Τετάρτη 6/11/2019

Ώρα	Αμφιθέατρο	Αίθουσα διαλέξεων
9:00-10:00	ΠΡΟΣΕΛΕΥΣΗ – ΕΓΓΡΑΦΕΣ	
10:00-10:30	**Έναρξη συνεδρίου - Χαιρετισμοί**	
10:30-11:30	**ΚΕΝΤΡΙΚΗ ΟΜΙΛΙΑ καθ. EDUARDO ALONSO**	
11:30-11:45	***15 λεπτά διάλειμμα***	
11:45-1:15	**Γεωτεχνική, και ενεργειακά θέματα**	**Συμπεριφορά του εδάφους**
1:15-2:15	**Μεσημβρινή διακοπή**	
2:15-2:45	**ΟΜΙΛΙΑ Κ. Πιτιλάκης**	**ΟΜΙΛΙΑ Σ. Κοντοέ**
2:45-4:15	**Αλληλεπίδραση εδάφους - κατασκευής**	**Γεωτεχνική και ενεργειακά θέματα**
4:15-4:30	***15 λεπτά διάλειμμα***	
4:30-5:00	**ΟΜΙΛΙΑ Μ. Καββαδάς**	**ΟΜΙΛΙΑ Α. Κολλιός**
5:00-7:00	**Σήραγγες & Υπόγεια έργα**	**Οπλισμένα επιχώματα και γεωσυνθετικά**
7:00-9:00	**Δεξίωση Υποδοχής**	

Πέμπτη 7/11/2019

Ώρα	Αμφιθέατρο	Αίθουσα διαλέξεων
8:30-9:00	Προσέλευση-Εγγραφές	
9:15-10:45	**Θεμελιώσεις & αντιστηρίξεις**	**Αλληλεπίδραση εδάφους - κατασκευής**
10:45-11:00	***15 λεπτά διάλειμμα***	
11:00-11:30	**ΟΜΙΛΙΑ Ι.Αναστασόπουλος**	**ΟΜΙΛΙΑ Κ. Γεωργιάδης**
11:30-12:00	**ΟΜΙΛΙΑ Δ. Ζέκκος**	**ΟΜΙΛΙΑ Π. Ντακούλας**
12:00-12:15	***15 λεπτά διάλειμμα***	
12:15-1:15	**Θεμελιώσεις & αντιστηρίξεις**	**Βελτιώσεις εδαφών**
1:15-2:15	**Μεσημβρινή διακοπή**	
2:15-2:45	**ΟΜΙΛΙΑ Ν. Γερόλυμος**	**ΟΜΙΛΙΑ Γ. Κουρετζής**
2:45-4:15	**Εδαφοδυναμική**	**Πρανή - Κατολισθήσεις**
4:15-4:30	***15 λεπτά διάλειμμα***	
4:30-6:00	**Εδαφοδυναμική**	**Μή κορεσμένα και διογκώσιμα εδάφη : Κύπρος, Ελλάδα**
6:00-8:00	**ΓΕΝΙΚΗ ΣΥΝΕΛΕΥΣΗ – ΕΚΛΟΓΕΣ**	

Παρασκευή 8/11/2019

Ώρα	Αμφιθέατρο	Αίθουσα διαλέξεων
8:30-9:00	Προσέλευση-Εγγραφές	
9:00-10:15	**Συμπεριφορά του εδάφους**	**Βραχομηχανική**
10:15-10:45	**ΟΜΙΛΙΑ Γ. Μπουκοβάλας**	**ΟΜΙΛΙΑ Ζ. Αγιουτάντης**
10:45-11:00	***15 λεπτά διάλειμμα***	
11:00-12:15	**Ο σεισμός του 1999 στην Αθήνα**	
12:15-1:30	**ΣΥΝΤΟΝΙΣΜΟΣ : Θ. Τάσιος Εδαφομηχανευό-μενοι για δεκαε-τίες**	
1:30-2:00	**Κλείσιμο συνεδρίου**	

ΑΡΘΡΑ

Advanced Tunnel Modelling

Ioannis Vazaios[1] and Nicholas Vlachopoulos[1,2]

Introduction

Multiple underground excavations for various purposes including transportation tunnels, repositories for nuclear waste disposal and other types of waste, facilities for oil and gas storage, mining etc. are under development at a global level. Moreover, the increasing demand in underground development has pushed the frontiers of the tunnelling field, with numerous projects taking place at great depths and under high magnitude stresses. Numerical modelling and its relevant advances have proven to be a valuable tool in the engineer's arsenal by providing useful insights in the material response during an excavation. However, and especially at great depths, the employed numerical technique lays heavily on the in situ stress regime and the in situ material properties, such as strength and deformability, that control the ground behaviour during an excavation. Previous and current research at the Queen's Geomechanics Group and the Royal Military College of Canada focuses on the modelling of such diverse tunnelling conditions with a view to address potential implications and the integration of the appropriate numerical modelling technique into the design process.

Numerical modelling

Over the last decades a number of different numerical approaches have been developed to address different problems within the engineering field. More specifically for the simulation of rockmasses continuum approaches such as the finite element method (FEM) and the finite difference method (FDM) have been widely used for the simulation of tunnel excavations, followed by discontinuum mechanics numerical techniques such as the distinct element method (DEM), coupled numerical models utilizing both discrete and finite element techniques (coupled FEM-DEM), and hybrid methods such as the finite discrete element method (FDEM) that utilizes the use of finite elements and discrete modelling algorithms. Each modelling technique is aiming for the simulation of specific rockmass conditions given the strength of the intact rock, the degree of jointing, the strength of joints and other material properties, with the modelling results depending on these parameters and their as accurate as possible estimation. Especially for rock materials in nature, these parameters can be highly variable as they cover a wide range of materials including massive rockmasses with no or few joints, jointed rocks with non-persistent joints, moderately jointed materials with persistent joints forming complete blocks, heavily jointed rockmasses, highly weathered jointed rocks that resemble soils etc. Therefore, this may rise significant challenges in their simulation.

Simulating excavations in weak, soft rocks

The response of weak, soft rockmasses (fractured, soft rockmasses with persistent joints, moderately to heavily fractured materials, weathered rocks) during an underground excavation is the result of the combined effect of the properties of the intact rock and the rockmass structure, the effects of which are incorporated together to create an "equivalent" continuum medium by assuming that is homogeneous and isotropic. For very blocky rockmasses that is a valid assumption given the fact that no specific joints control the rockmass behaviour, hence no specific plane of weakness can be identified, and the material behaviour is controlled by the overall rockmass shear strength. In such cases, the rockmass can be safely assumed to be a material with an elasto-plastic behaviour and continuum analyses can provide good estimates. A characteristic example is the extensive work conducted by Vlachopoulos (2009) at the Driskos Tunnel in Northern Greece (Figure 1), which was excavated in flysch, a material mainly consisting of thin to medium bedded alternations of siltstones and sandstones (Figure 2). The combined effect of a low rockmass strength with a relatively high overburden (approximately 220 m) led to highly squeezing conditions successfully captured by elasto-plastic continuum models (Figure 3). Further work by Vlachopoulos and Diederichs (2009) utilized elasto-plastic continuum models in 2D and 3D to associate the development of the plastic zone surrounding an excavation, as a result of shear failure, and the expected convergence in a tunnel with the advancement of the excavation face, better known as the Longitudinal Displacement Profile (LDP) approach (Figure 4).

Numerical simulation of hard rock excavations

Shear failure based models capture relatively well the behaviour of weak, soft rockmasses in tunnelling environments. However, within hard highly interlocked rockmasses with non-persistent joints shear failure based criteria integrated into continuum codes cannot capture the fracturing mechanisms. Fracturing triggered by the loss of confinement in high magnitude in situ stress regimes during the tunnel advancement and brittle rock failure are better captured by using discontinuum based approaches. Research conducted at Queen's Geomechanics Group using the finite-discrete element method (FDEM) showed how such an approach can capture the brittle response of a hard rock excavation. More specifically, by using field observations from the Underground Research Laboratory (URL) Test Tunnel in Manitoba, Canada (Diederichs 2007) (overburden 420 m), a tunnel scale model created in Irazu (Geomechanica 2017) was calibrated to capture the fracturing mechanisms and the replication of the "vshaped" notch failure observed at the URL Test Tunnel (Figure 5) which was excavated within a massive, "fracture-free" granite. The numerical model was able to capture the rockmass failure in extension due to the high compressive stresses at the crown and the floor of the tunnel. Recorded stress paths from the numerical model are in a good agreement with proposed rockmass strength models for brittle fracturing, hence showing the great potential of the method (Figure 6).

Simulation of discontinuities

For the successful modelling of a tunnel project within a rockmass it is critical to incorporate the discontinuities observed in the material in a fashion that is going to be both mechanically and computationally efficient. Weak, highly fractured rockmasses simulated using continuum based modelling are usually not explicitly incorporating rock joints. The effect of the discontinuities in such cases is integrated in the model by appropriately reducing the shear strength of the rockmass based on the degree of jointing and the joint condition. Work by Vlachopoulos (2009) utilized the Geological Strength Index (GSI) (Marinos and Hoek 2000) estimated at the Driskos Tunnel in order to achieve the required rockmass strength reduction by using the Hoek-Brown criterion (Hoek et al. 2002) in 2D and 3D numerical models. On the contrary, hard rockmasses with non-persistent joints require the explicit simulation of them within the numerical model to capture the material response during an underground excavation. Furthermore, non-persistent joint systems in nature can have variable geometries depending the in situ conditions. In order to capture this variability, discrete fracture network (DFN) modelling may be employed. Research by Vazaios et al. (2017) focused on acquiring discontinuity geometrical data from an unsupported railway tunnel in Brockville, Ontario using LiDAR (Light Detection and Ranging) and used DFN modelling in order to replicate the joint network geometry for that

given rockmass. The simulated joints can then be extracted and imported into discontinuum codes in order to replicate the fracture conditions of a specific site (Figure 7).

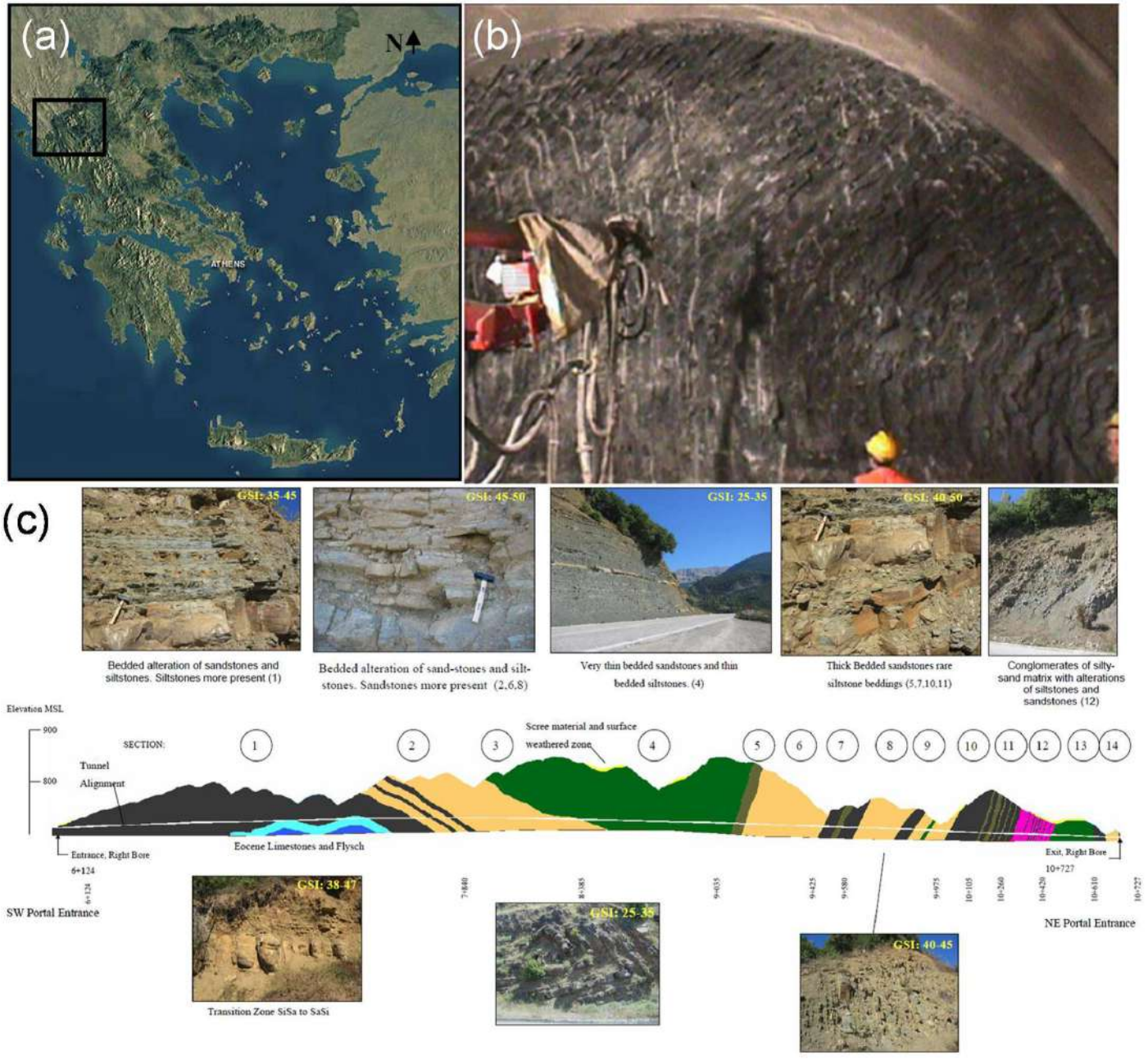

Figure 1: (a) General location of the Driskos Tunnel in Northern Greece. (b) Photo of Tunnel Face at Chainage 9+400 to 9+600 m. (c) Representative rock masses and cross-section of the Driskos Tunnel, Egnatia Odos, Greece (Vlachopoulos 2009).

Figure 2: Flysch consisting of alternating sandstone and siltstone layers (Vlachopoulos 2009).

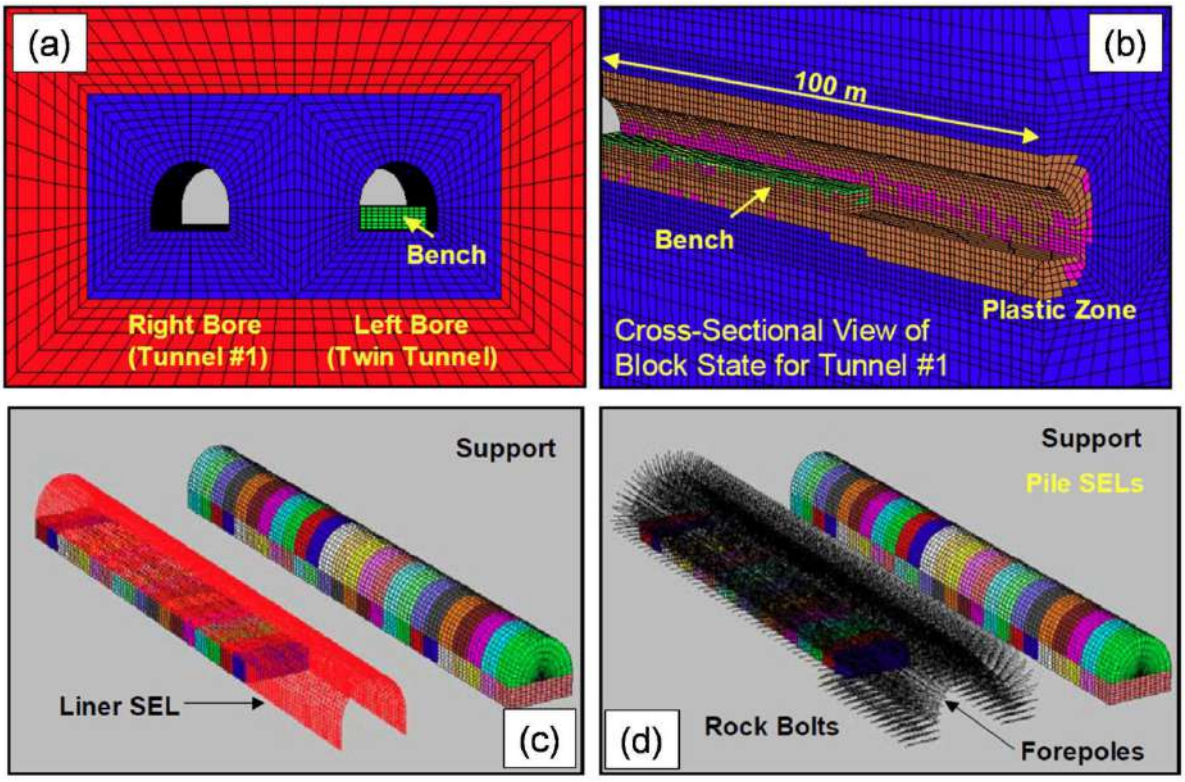

Figure 3: 3D Numerical model of the Driskos Tunnel developed in FLAC3D. (a) Twin tunnels with the first branch fully excavated and top heading completed in the second branch. (b) Plastic yield zone of single tunnel. (c) Model detail highlighting with a different colour the different excavation stages and support detail of the tunnel liner, and (d) forepoles and rockbolts completing the support system (Vlachopoulos 2009).

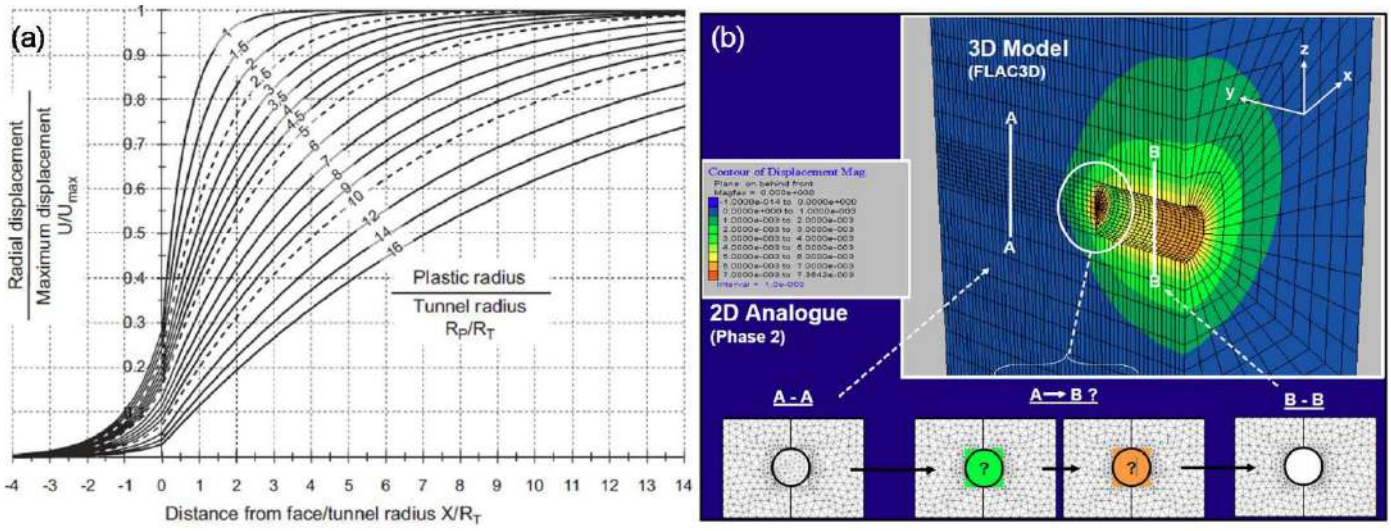

Figure 4: (a) Longitudinal Displacement Profile (LDP) templates for estimating the tunnel convergence as a function of the tunnel plastic radius at different excavation stages (Vlachopoulos and Diederichs 2009). (b) 3D tunnel model capturing the 3D effects at the face (FLAC3D) and 2D plain strain tunnel model at different stages as an analogue of the tunnel advancement (Vlachopoulos 2009)

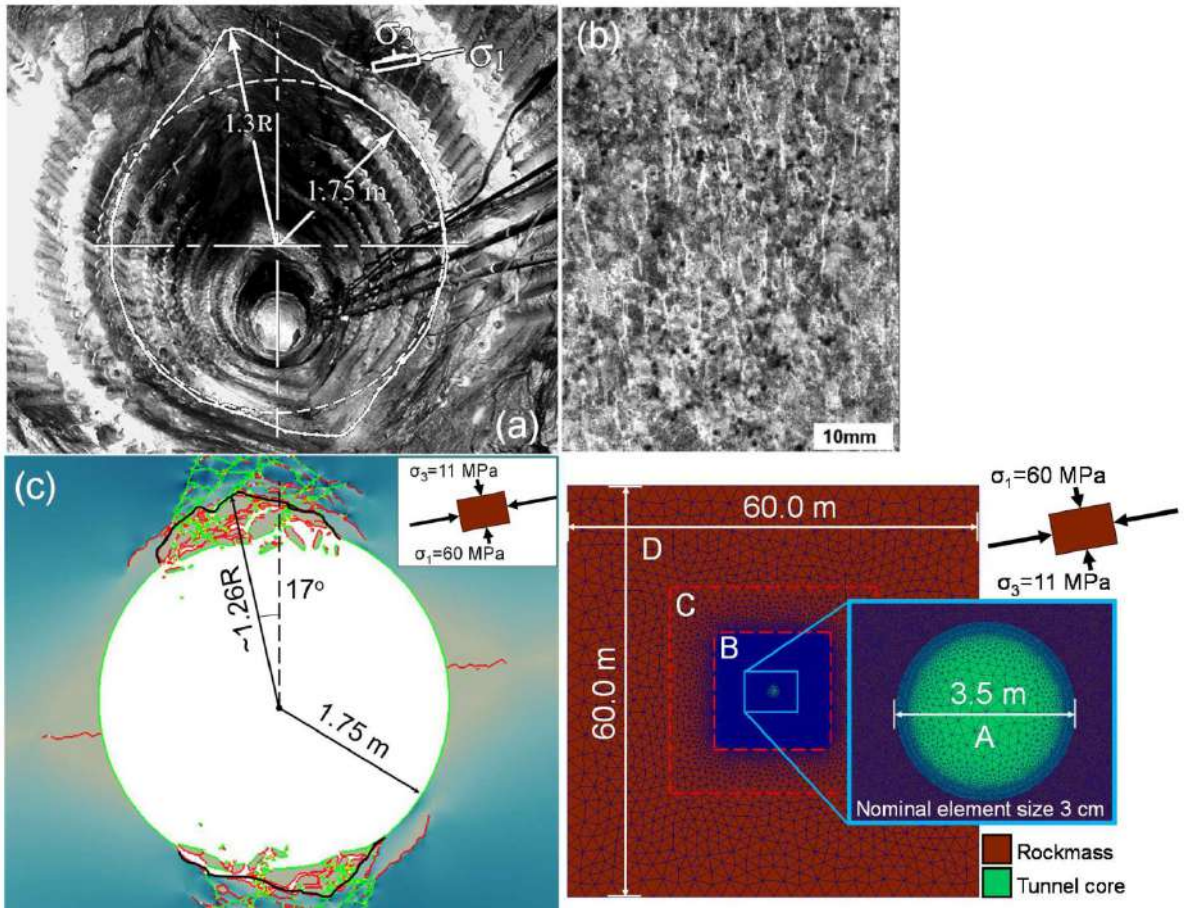

Figure 5: (a) Photograph of the URL Test Tunnel and the "v-shaped notch" failure due to brittle failure (spalling) (Diederichs 2007), and (b) detail of cracks (dyed white) in compressive test sample of Lac du Bonnet granite (Diederichs 2000). (c) Calibrated tunnel model using the FDEM method developed in Irazu replicating the brittle failure observed at the URL Test Tunnel.

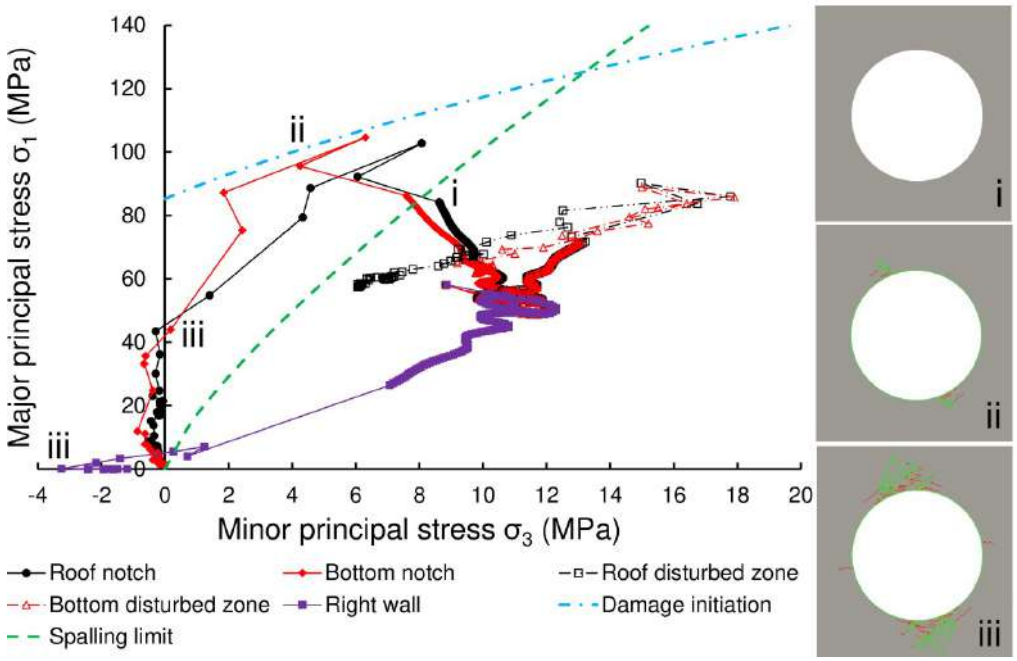

Figure 6: Principal stress paths of the collapsed material (roof and bottom notches) and the damaged material (roof and bottom disturbed zones). The recorded principal stresses at Stage ii are in a good agreement with the composite strength envelope of brittle rockmasses proposed by Diederichs (2007).

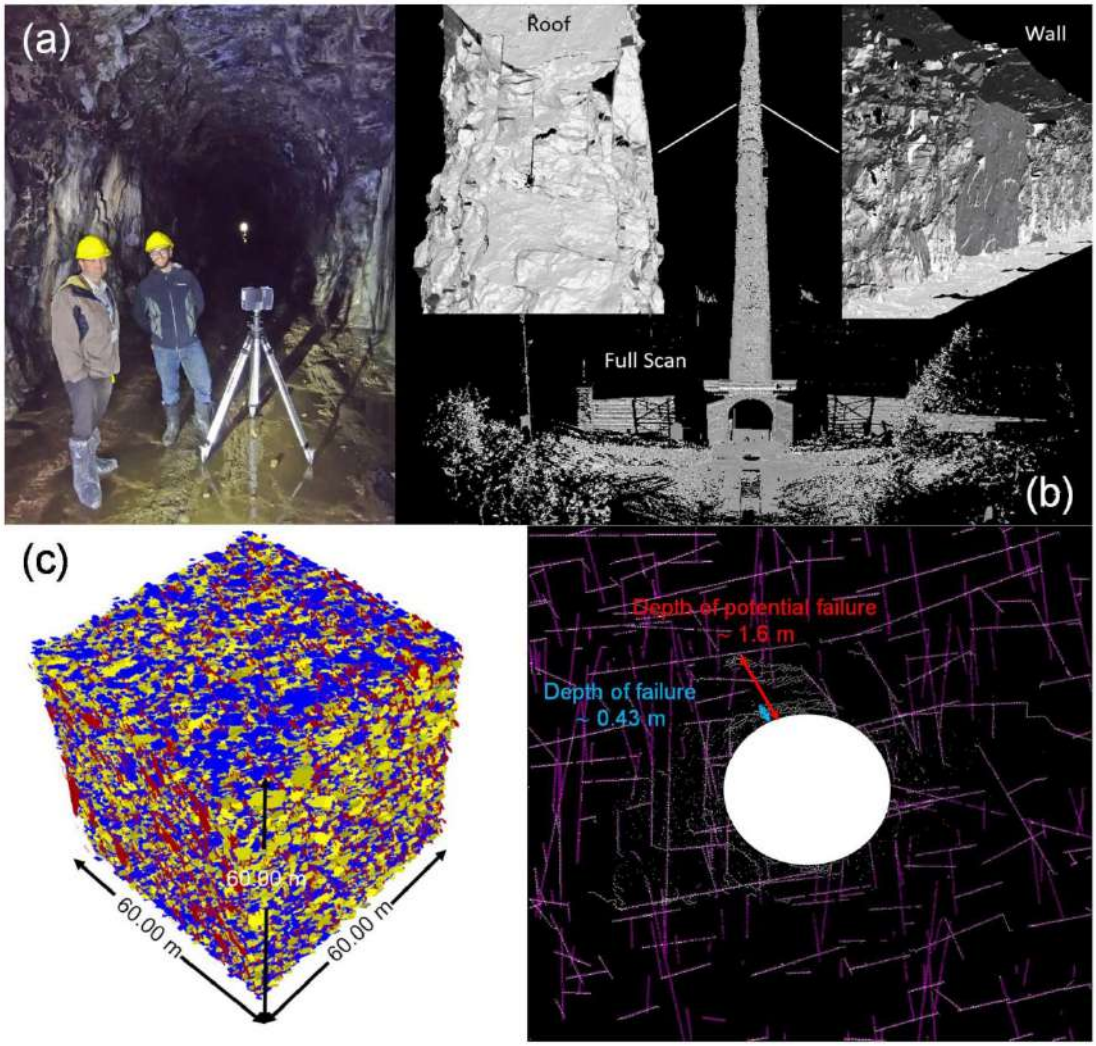

Figure 7: (a) LiDAR scanning conducted at the Brockville Tunnel, Ontario, Canada. (b) 3D surface model of the tunnel from collected LiDAR data. (c) Discrete fracture network (DFN) model created by LiDAR obtained data (Vazaios et al. 2017) and incorporation of the simulated joints into UDEC (Farahmand et al. 2018).

Assessing the excavation damage zone (EDZ)

By adopting the appropriate numerical method, tunnel scale excavations can be successfully simulated and provide a great insight of the expected rockmass response that can assist and optimize the engineering design. Numerical models that can capture the failure mechanisms in a realistic manner can provide reasonable estimates of the extent of the stress induced damage as a result of an underground excavation and the subsequent stress redistributions. That is of great importance as excavation induced damage changes the properties of the surrounding ground, with the extent of this altered material depending on the initial rockmass strength and field stresses. Especially for underground excavations, and given specific site conditions and project requirements, estimating relatively accurately that damage extent is critical. Within weak rockmasses twin tunnelling for instance is a rather characteristic example. Excavation induced damage due the excavation of the first branch alters the rockmass properties and affects the second boring if the damage extent exceeds that of the pillar between the two tunnels (Figure 8). Regarding hard rock excavations, the interaction of stress induced fractures and pre-existing, nonpersistent joints is a significant issue that may rise especially in cases that the underground development is meant for storage of substances that are required to stay in isolation from the ground surface, such as nuclear waste for instance. In such cases the numerical model has to be able to capture the fracture mechanics of the intact rock bridges between the pre-existing joints and reasonably predict their interaction (Figure 9).

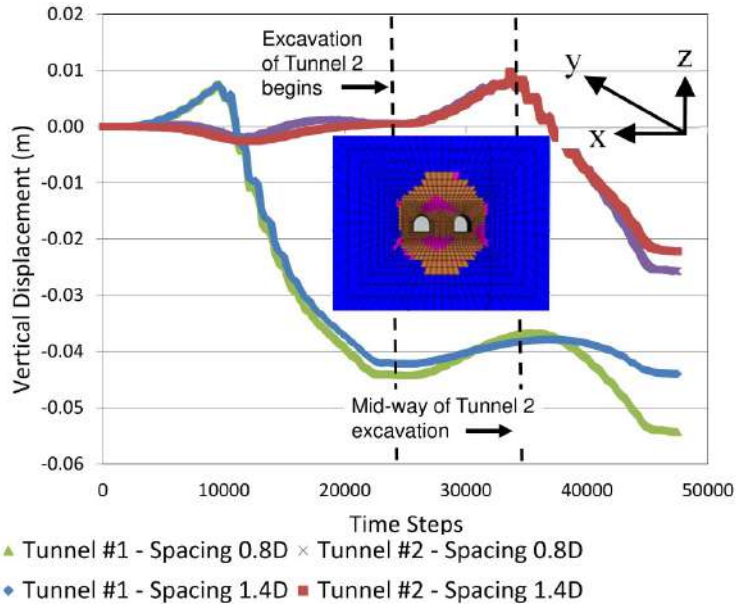

Figure 8: Twin tunnelling interaction due to the plastic zone surrounding the underground openings (Vlachopoulos et al. 2018).

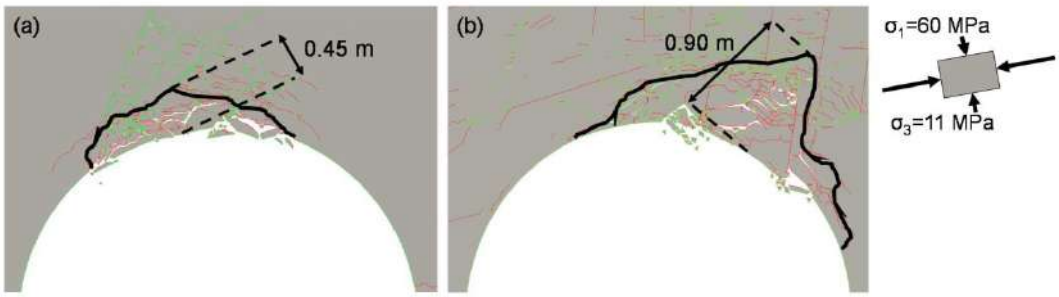

Figure 9: Comparison of damage shape and extent between (a) "fracture-free" and (b) "fractured" model using FDEM (Vazaios et al. 2018).

Conclusions

Numerical modelling for deep excavations can be a great asset in the design toolbox of a tunnel engineer. Given that the appropriate method for specific site conditions and project specifications is adopted, numerical models can provide a great insight of the rockmass response during an excavation, assist in the design process, and be an integral part of the observational tunnelling approach in which numerical models and field observations are coupled to provide solutions and optimize the design.

Numerical models developed with caution and by making reasonable assumptions can estimate excavation induced damage extents and help with determining the support system required for a given project. However, they are subjected to limitations. Employed methods, determination of the required input parameters, constitutive assumptions, required computational time, and level of realism achieved from the model are only some of the factors that need to be taken into account for the development of a numerical model that is going to be representative and correspond to the in situ conditions (Figure 10). A tunnel model that is not obeying in the field conditions it is meant for can result in significant misinterpretations, hence misleading the engineer and resulting in a design that is not appropriate for the specific ground conditions.

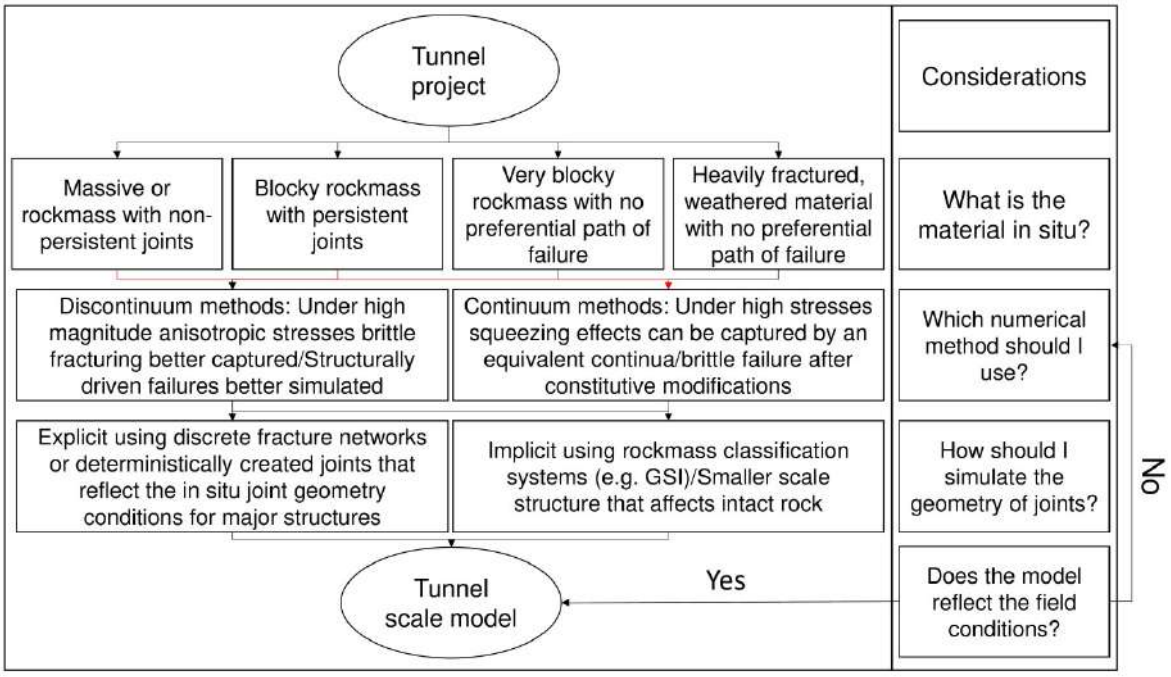

Figure 10: Considerations and indicative considerations of how to build a tunnel scale numerical model.

Acknowledgements

The authors would like to thank the Natural Sciences and Engineering Council of Canada, the Canadian Department of National Defense, the Royal Military College Green Team, and the Nuclear Waste Management Organization of Canada for their financial support as well as the continuous support and contributions of Dr. Mark S. Diederichs, Dr. Omid K. Mahabadi and Dr. Andrea Lisjak.

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ΔΙΑΚΡΙΣΕΙΣ ΕΛΛΗΝΩΝ ΓΕΩΤΕΧΝΙΚΩΝ ΜΗΧΑΝΙΚΩΝ

Βασίλειος Μαρίνος

Ο Αναπληρωτής Καθηγητής του Τμήματος Γεωλογίας ΑΠΘ ευρίσκεται στην Κίνα με εκπαιδευτική άδεια για διάστημα 40 ημερών, για σειρά διαλέξεων σε Πανεπιστήμια, Ερευνητικά κέντρα και Συνέδρια σε αντικείμενα Τεχνικής Γεωλογίας και Βραχομηχανικής, υπογείων έργων και κατολισθήσεων.

Επισκέφτηκε το Shaoxing University (Centre of Rock Mechanics and Geohazards), Beijing University of Geosciences και Chinese Academy of Sciences ενώ έδωσε προσκεκλημμένες διαλέξεις στο Εθνικό Συνέδριο Τεχνικής Γεωλογίας της Κίνας στο Πεκίνο (1500 σύνεδροι) και στο 2nd Shaoxing International Forum on Rock Mechanics and Engineering Geology (SXFRG) και τεχνικές παρουσιάσεις στο 12th ARC (Asian Regional Conference) της Διεθνούς Ένωσης IAEG στην Νότια Κορέα. Τέλος, πραγματοποίησε πλήθος παρουσιάσεων ως Αντιπρόεδρος της Διεθνούς Ένωσης IAEG στην Ν. Κορέα για τις δραστηριότητες της IAEG στο Εκτελεστικό γραφείο και Συμβούλιο της ένωσης αλλά και την ανάληψη του Ευρωπαϊκού Συνεδρίου της IAEG στην Αθήνα το 2020.

ΝΕΑ ΑΠΟ ΤΙΣ ΕΛΛΗΝΙΚΕΣ ΚΑΙ ΔΙΕΘΝΕΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΝΩΣΕΙΣ

ΕΛΛΗΝΙΚΗ ΕΠΙΣΤΗΜΟΝΙΚΗ ΕΤΑΙΡΕΙΑ ΕΔΑΦΟΜΗΧΑΝΙΚΗΣ & ΓΕΩΤΕΧΝΙΚΗΣ ΜΗΧΑΝΙΚΗΣ

Εσπερίδα Μη Κορεσμένων Εδαφών της Ελληνικής Επιστημονικής Εταιρείας Εδαφομηχανικης και Γεωτεχνικής Μηχανικής

Με την ευκαιρία της ανάληψης της διοργάνωσης του 8ου Παγκοσμίου Συνεδρίου Μή Κορεσμένων Εδαφών που θα γίνει το 2022 στη Μήλο (UNSAT 2022), η Ελληνική Επιστημονική Εταιρεία Εδαφομηχανικής και Γεωτεχνικής Μηχανικής (ΕΕΕΕΓΜ) διοργάνωσε ΕΣΠΕΡΙΔΑ ΜΗ ΚΟΡΕΣΜΕΝΩΝ ΕΔΑΦΩΝ στην Αίθουσα Εκδηλώσεων του Τεχνικού Επιμελητηρίου της Ελλάδας στην οδό Νίκης 4, Σύνταγμα, Αθήνα, την Δευτέρα 1η Ιουλίου 2019, ώρα 17:30, με ελεύθερη είσοδο.

Στο πλαίσιο της Εσπερίδας έγιναν οι ακόλουθες ομιλίες:

Μ. Μπαρδάνης: ΦΥΣΗ, ΜΗΧΑΝΙΚΗ ΣΥΜΠΕΡΙΦΟΡΑ ΚΑΙ ΕΜΦΑΝΙΣΗ ΜΗ ΚΟΡΕΣΜΕΝΩΝ ΕΔΑΦΩΝ

Αικ. Τσιαμπούση: Η ΧΑΡΑΚΤΗΡΙΣΤΙΚΗ ΚΑΜΠΥΛΗ ΕΔΑΦΟΥΣ-ΝΕΡΟΥ ΚΑΙ Η ΣΗΜΑΣΙΑ ΤΗΣ

Ν. Χατζηγώγος: ΔΙΑΤΜΗΤΙΚΗ ΑΝΤΟΧΗ ΜΗ ΚΟΡΕΣΜΕΝΩΝ ΕΔΑΦΩΝ

Δ. Λουκίδης: ΔΙΟΓΚΩΣΗ ΕΔΑΦΩΝ ΛΟΓΩ ΜΕΤΑΒΟΛΗΣ ΤΟΥ ΒΑΘΜΟΥ ΚΟΡΕΣΜΟΥ

Ν. Χατζηγώγος: ΚΑΤΑΡΡΕΥΣΗ ΕΔΑΦΩΝ ΛΟΓΩ ΜΕΤΑΒΟΛΗΣ ΤΟΥ ΒΑΘΜΟΥ ΚΟΡΕΣΜΟΥ

Π. Σιταρένιος: ΚΑΤΑΣΤΑΤΙΚΗ ΠΡΟΣΟΜΟΙΩΣΗ ΤΗΣ ΜΗΧΑΝΙΚΗΣ ΣΥΜΠΕΡΙΦΟΡΑΣ ΤΩΝ ΜΗ ΚΟΡΕΣΜΕΝΩΝ ΕΔΑΦΩΝ

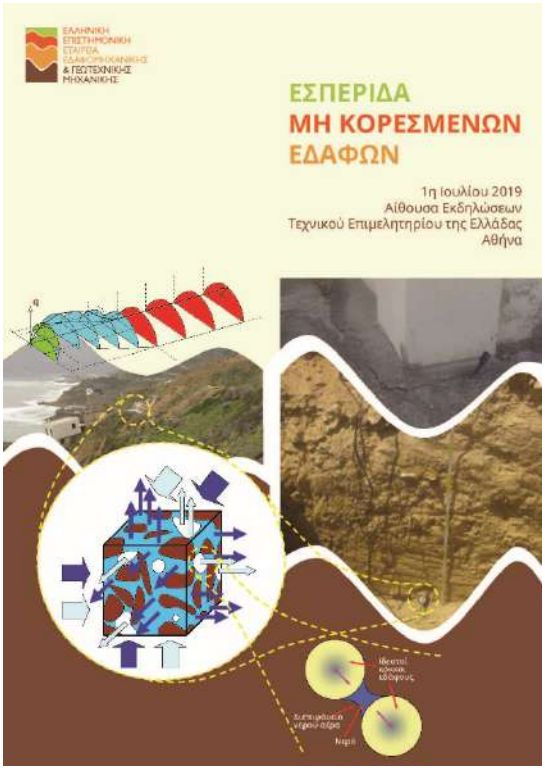
Μ. Μπαρδάνης: ΜΑΚΡΟΧΡΟΝΙΕΣ ΜΕΤΡΗΣΕΙΣ ΜΥΖΗΣΗΣ ΣΤΗΝ ΕΛΛΑΔΑ ΚΑΙ ΣΤΗΝ ΚΥΠΡΟ

E. Alonso: SHORT- AND LONG-TERM DEFORMATION OF COMPACTED MATERIALS. THE CASE OF BELICHE DAM

Η εσπερίδα παρακολουθήθηκε από 80 άτομα.

Προετοιμάστηκαν και τυπώθηκαν πρακτικά των άρθρων που παρουσιάστηκαν στις ομιλίες σε μορφή αυτόνομου τόμου πρακτικών, ο οποίος μοιράστηκε στους παρευρισκόμενους. Αντίτυπα παραμένουν στη διάθεση της ΕΕΕΕΓΜ για όσα μέλη μας επιθυμούν να προμηθευτούν τα πρακτικά αυτά. Οι ομιλίες έχουν μαγνητοσκοπηθεί και θα αναρτηθούν στην ιστοσελίδα του 8ου Παγκοσμίου Συνεδρίου Μη Κορεσμένων Εδαφών μαζί με τα πρακτικά της Εσπερίδας σε ηλεκτρονική μορφή.

Προγραμματίζεται και νέα σχετική εκδήλωση για το Φθινόπωρο του 2020 ενώ θα υπάρξει και ειδική συνεδρία στο 8ο Πανελλήνιο Συνέδριο Γεωτεχνικής Μηχανικής.



Ο καθηγητής του Πανεπιστημίου UPC της Βαρκελώνης Eduardo Alonso κατά τη διάρκεια της διάλεξής του.

Η δρ Κατερίνα Τσιαμπούση, Λέκτορας του Πανεπιστημίου Imperial College του Λονδίνου κατά τη διάρκεια της διάλεξής της.

Ο δρ Νίκος Χατζηγώγος από το Τμήμα Γεωλογίας του Αριστοτελείου Πανεπιστημίου Θεσσαλονίκης και την TRIGER κατά τη διάλεξή του.

Ο αναπληρωτής καθηγητής του Πανεπιστημίου Κύπρου και Πρόεδρος της Κυπριακής Επιστημονικής Εταιρείας Εδαφομηχανικής και Γεωτεχνικής Μηχανικής Δημήτρης Λουκίδης κατά τη διάρκεια της διάλεξής του.

Ο Λέκτορας του Πανεπιστημίου του Coventry Παναγιώτης Σιταρένιος κατά τη διάρκεια της διάλεξής του.

Ελληνική Επιστημονική Εταιρεία
Εδαφομηχανικής και Γεωτεχνικής Μηχανικής

Πρακτικά
Εσπερίδα Μη Κορεσμένων Εδαφών

Αίθουσα Εκδηλώσεων του
Τεχνικού Επιμελητηρίου της Ελλάδας
Νίκης 4, Σύνταγμα, Αθήνα

1η Ιουλίου 2019

Έκδοση της Ελληνικής Επιστημονικής Εταιρείας Εδαφομηχανικής και Γεωτεχνικής Μηχανικής (ΕΕΕΕΓΜ), 2019.

ΣΗΜΕΙΩΜΑ ΤΟΥ ΠΡΟΕΔΡΟΥ ΤΗΣ ΤΕΧΝΙΚΗΣ ΕΠΙΤΡΟΠΗΣ TC106 ΤΗΣ ΔΙΕΘΝΟΥΣ ΕΝΩΣΗΣ ΕΔΑΦΟΜΗΧΑΝΙΚΗΣ & ΓΕΩΤΕΧΝΙΚΗΣ ΜΗΧΑΝΙΚΗΣ

Αποτελεί ιδιαίτερη ευχαρίστησή μου να προλογίσω αυτά τα Πρακτικά της Εσπερίδας Μη Κορεσμένων Εδαφών της Ελληνικής Επιστημονικής Εταιρείας Εδαφομηχανικής και Γεωτεχνικής Μηχανικής (ΕΕΕΕΓΜ). Η κατανόηση της μηχανικής συμπεριφοράς των μη κορεσμένων εδαφών είναι κρίσιμη για τη γεωτεχνική μηχανική. Τα περισσότερα συμπυκνωμένα εδάφη είναι μη κορεσμένα και πολλά φυσικά εδάφη βρίσκονται σε κατάσταση μερικού κορεσμού, ειδικά στις πιο ξηρές περιοχές της Ελλάδας και της λεκάνης της Μεσογείου γενικότερα. Όμως ακόμα στην καθημερινή μας πρακτική επιχειρούμε να αναλύσουμε τη συμπεριφορά των μη κορεσμένων εδαφών με προσεγγίσεις από τα πλήρως κορεσμένα εδάφη. Σε μερικές περιπτώσεις η προσέγγιση αυτή μπορεί να είναι συντηρητική (με το να αγνοούμε τη μύζηση του εδάφους κάνουμε θεώρηση του δυσμενέστερου δυνατού σεναρίου). Σε κάποιες περιπτώσεις όμως, η υπόθεση πλήρους κορεσμού μπορεί να αποτύχει πλήρως να προβλέψει τη συμπεριφορά του εδάφους με πολύ δυσμενείς συνέπειες (όπως οι παραμορφώσεις λόγω κατάρρευσης από διαβροχή). Συγχαίρω την ΕΕΕΕΓΜ για τη διοργάνωση αυτής της εκδήλωσης για την ανάδειξη του σημαντικού αυτού αντικειμένου στην Ελλάδα. Ελπίζω ότι αυτή η Εσπερίδα θα ανοίξει την όρεξή σας για το αντικείμενο και θα σας ενθαρρύνει να παρακολουθήσετε το 8ο Διεθνές Συνέδριο Μη Κορεσμένων Εδαφών που θα διοργανωθεί από την ΕΕΕΕΓΜ το 2022.

Καθηγητής David Toll
Πρόεδρος της Τεχνικής Επιτροπής TC106 για Μη Κορεσμένα Εδάφη της ISSMGE

Εσπερίδα Μη Κορεσμένων Εδαφών

Μεγάλο μέρος του πλανήτη επηρεάζεται από κλιματολογικές συνθήκες που επιβάλλουν την παρουσία μή κορεσμένων γεωυλικών στην επιφάνεια του φλοιού της γης ακόμα και μέχρι σημαντικό βάθος. Η ιδιαιτερότητα των υλικών αυτών είναι ότι οι πόροι τους δεν είναι πλήρως γεμάτοι με νερό, οπότε θα ήταν πλήρως κορεσμένα, ούτε εντελώς άδειοι από νερό, οπότε θα ήταν απολύτως ξηρά. Στους πόρους τους συνυπάρχουν νερό και αέρας κατά την αναλογία που περιγράφει ο βαθμός κορεσμού, δηλαδή ο λόγος του όγκου των πόρων των γεωυλικών που είναι γεμάτος με νερό προς το σύνολο του όγκου των πόρων. Πολλές από τις φυσικές καταστροφές που συμβαίνουν ολοένα και συχνότερα λόγω της κλιματικής αλλαγής σχετίζονται ακριβώς με τη μεταβολή του βαθμού κορεσμού των γεωυλικών αυτών υπό την επιρροή έντονων καιρικών φαινομένων. Άλλες από αυτές είναι ραγδαίες, όπως κατολισθήσεις μετά από ραγδαίες ή παρατεταμένες βροχοπτώσεις, και άλλες αργές και προοδευτικές, όπως οι παραμορφώσεις σε κατασκευές λόγω της συρρίκνωσης του εδάφους που προκαλεί η παρατεταμένη ξηρασία, και της διόγκωσης του εδάφους που φέρνει η κατοπινή βροχερή περίοδος. Καθώς τα φαινόμενα αυτά γίνονται πιο έντονα σε περιοχές με πιο υγρό και ψυχρό κλίμα, στις οποίες μέχρι πρότινος η εμφάνιση μη κορεσμένων εδαφών ήταν σπάνια, και καθώς αναπτύσσονται διαρκώς περιοχές με ξηρότερο και θερμότερο κλίμα, στις οποίες τα γεωυλικά αυτά εμφανίζονται πολύ συχνά, αυξάνεται και η ανάγκη για τη μελέτη της μηχανικής συμπεριφοράς των μη κορεσμένων εδαφών και της ενσωμάτωσής της στην καθημερινή γεωτεχνική πρακτική.

Στο πλαίσιο αυτό, οργανώθηκε η Εσπερίδα Μη Κορεσμένων Εδαφών από την Ελληνική Επιστημονική Εταιρεία Εδαφομηχανικής και Γεωτεχνικής Μηχανικής (ΕΕΕΕΓΜ). Σκοπός της διεξαγωγής της ήταν η ενημέρωση των μελών της ΕΕΕΕΓΜ, της ευρύτερης κοινότητας των μηχανικών και του κοινού για το αντικείμενο αυτό και τη σημασία του στη γεωτεχνική πρακτική. Ευχή και επιδίωξη ήταν και η παρότρυνση της ελληνικής γεωτεχνικής κοινότητας για μεγαλύτερη ενασχόληση με το αντικείμενο, εν όψει και της διοργάνωσης του 8ου Διεθνούς Συνεδρίου Μη Κορεσμένων Εδαφών από την ΕΕΕΕΓΜ το 2022. Εκ μέρους της ΕΕΕΕΓΜ, εύχομαι τα πρακτικά αυτά να αποτελέσουν έναν χρήσιμο τόμο αναφοράς για την ελληνική γεωτεχνική κοινότητα.

Η εσπερίδα αυτή θα ήταν αδύνατη χωρίς τη συνεισφορά πολλών συναδέλφων. Πρώτα και κύρια των μελών της Εκτελεστικής Επιτροπής της ΕΕΕΕΓΜ και ειδικά του Προέδρου, καθηγητή κ. Γκαζέτα χάρη στις επαφές του οποίου η εκδήλωση έτυχε μεγαλύτερης δημοσιότητας αλλά και εμπλουτίστηκε με την ομιλία του καθηγητή Eduardo Alonso από το πανεπιστήμιο UPC της Βαρκελώνης, ο οποίος απεδέχθη ευγενικά την πρόσκληση να δώσει μία ομιλία στο πλαίσιο της εσπερίδας. Φυσικά αντίστοιχες ευχαριστίες πρέπει να αποδοθούν στους ομιλητές που αποδέχθηκαν την πρόσκληση να παρουσιάσουν τις ομιλίες τους αλλά και να συγγράψουν τα αντίστοιχα άρθρα για τα πρακτικά αυτά. Εκτός από συγγραφείς, οι ίδιοι συμμετέχοντες είχαν και τον ρόλο των κριτών των υπόλοιπων εργασιών πλην της δικής τους προκειμένου να επιτευχθεί η μέγιστη δυνατή ποιότητα κειμένου αλλά και η αλληλοαναφορά στα άρθρα για τη δημιουργία ενός εύχρηστου τόμου αναφοράς-«εργαλείου» για τους αναγνώστες.

Μ. Ε. Μπαρδάνης
Γενικός Γραμματέας ΕΕΕΕΓΜ

ΕΣΠΕΡΙΔΑ ΜΗ ΚΟΡΕΣΜΕΝΩΝ ΕΔΑΦΩΝ

Περιεχόμενα

International Geosynthetics Society

The IGS Young Members Committee would like to give a special thank you to all of the participants of the first ever **IGS Young Members Logo Competition**. We received over 40 different logos from participants all over the world. An international judging panel made up of members of the committee was tasked with judging the submissions and we are pleased to announce the winner and runner-up.

Winner

Young Members

Talia da Silva Burke from South Africa is the designer of the winning logo. As the winner of the contest, Talia will be awarded a $250 USD Amazon gift card.

Runner-Up

Caitlin Emerson from the United Kingdom is the designer of the runner-up logo. Caitlin will be awarded a $50 USD Amazon gift card.

Society for Earthquake and Civil Engineering Dynamics

Upcoming event: Lecture

Soil-Structure Interaction and Optimum Seismic Design of Onshore and Offshore Energy Projects

In this presentation, **Dr. Prodromos Psarropoulos** will explore various topics concerning the geotechnical and structural design of onshore or offshore energy facilities with the help of case studies. The first part of the presentation focuses on the impact of local site conditions on the ground surface motion. In the second part emphasis is given on the quantitative assessment of the earthquake-related geohazards and the realistic estimation of the peak ground displacements that will actually determine the soil-structure interaction and the structural demand. Finally, the third part of the presentation is devoted to remote sensing and early-warning systems that are required for the safe operation of the energy projects.

Synopsis

Since society demands increased availability and reliability of energy supply, together with improved environmental standards, the structural design of any onshore or offshore energy project (including its foundation) may be very demanding, depending on the circumstances. It is evident that in the case of long energy projects that traverse remote regions with extreme terrains and/or seabeds, such as a gas pipeline or a cable, the design may be more challenging due to the variety of geotechnical conditions and the potential geohazards along the routing. Nevertheless, in areas that are characterized by moderate or high seismicity the design of energy projects may be more complicated due to the various types of seismic loading. The seismic loading may be either dynamic due to the inertial forces developed on the mass of the structure(s) and/or quasi-static due to the permanent ground deformations (PGDs) caused by various earthquake-related geohazards, such as active-fault ruptures, slope instabilities, and soil liquefaction phenomena. The current presentation tries through case studies to shed some light on these interesting issues of geotechnical earthquake engineering from a structural and a geotechnical perspective. The first part of the presentation focuses on the impact of local site conditions (i.e. soil stratigraphy, bedrock geomorphology, and/or surface topography) on the ground surface motion that will dominate the dynamic structural response. In the second part emphasis is given on the quantitative assessment of the earthquake-related geohazards and the realistic estimation of the PGDs that will actually determine the soil-structure interaction and the structural response / distress. Finally, the third part of the presentation is devoted to remote sensing and early-warning systems that are required for the safe operation of the energy projects.

About the speaker

Dr. Prodromos Psarropoulos is a Structural and Geotechnical Engineer with a balanced scientific and professional experience in the analysis and design of various structures and geostructures for almost 25 years. After his Ph.D. on Geotechnical Earthquake Engineering from National Technical University of Athens (NTUA), he conducted advance research in various institutes in Greece and Italy, while he has been an adjunct Associate Professor of Geophysics and Earthquake Engineering in the Department of Infrastructure Engineering of the Hellenic Air-Force Academy. In parallel, he has been involved in the design and construction of various challenging engineering projects in Greece and abroad. His expertise is on Geotechnics, Soil Dynamics and Earthquake Engineering, including mainly: (a) problems of static and dynamic soil-structure interaction (such as foundations, retaining structures, pipelines, etc.), (b) static and seismic stability assessment of dams, slopes and embankments, and (c) numerical simulation of dynamic soil response (i.e. local site effects and microzonation studies). Currently, he is teaching courses of geotechnical engineering and offshore engineering in the School of Rural and Surveying Engineering of NTUA, while he has been a lead member of the team of experts for the quantitative geohazard assessment and the seismic design of the upgrade of the main oil-refinery in Greece and two major high-pressure gas pipelines in south-east Europe (IGI-Poseidon and TAP).

Further information

This evening meeting is organised by SECED and chaired by Stavroula Kontoe (Imperial College London). Non-members of the society are welcome to attend. Attendance at this meeting is free. Seats are allocated on a first come, first served basis. Tea, coffee and biscuits will be served from 5.30pm - 6pm. For further information, please contact Shelly-Ann Russell (tel. 020 7665 2147, email societyevents@ice.org.uk).

(https://www.seced.org.uk/index.php/component/eventbooking/evening-meetings/soil-structure-interaction-and-optimum-seismic-design-of-onshore-and-offshore-energy-projects?Itemid=822)

Το **3ο Ευρωπαϊκό Συνέδριο της Διεθνούς Ένωσης Τεχνικής Γεωλογίας και Περιβάλλοντος** (IAEG) θα διεξαχθεί στην Αθήνα τον Σεπτέμβριου του 2020. Η απόφαση λήφθηκε στο Συμβούλιο της IAEG στην Ν. Κορέα τον Σεπτέμβριο, στα

πλαίσια διεθνούς συνεδρίου της IAEG της Ασιατικής περιοχής (12th ARC of IAEG).

Ως Αντιπρόεδρος της Διεθνούς Ένωσης για την Ευρώπη πρότεινα την ενεργοποίηση των Ευρωπαϊκών Συνεδρίων της IAEG και έθεσα ως πρόταση την διεξαγωγή του στην Αθήνα το 2020. Η απόφαση για την ανάληψη του διεθνούς συνεδρίου ήταν ομόφωνη από το Συμβούλιο μετά από σχετική παρουσίαση της πρότασης για την ανάληψή του. Το συνέδριο θα διοργανωθεί από την Ελληνική Επιτροπή Τεχνικής Γεωλογίας (ΕΕΤΓ).

Επίσης, αναλάβαμε την διοργάνωση και διεξαγωγή τόσο του Εκτελεστικού Γραφείου της IAEG (Executive Meeting) όσο και του Διεθνούς Συμβουλίου (Council). Τέλος, αναλάβαμε την διεξαγωγή του διαγωνισμού Richard Walters Prize για την βράβευση νέου Τεχνικού Γεωλόγου από την Διεθνή Ένωση (βράβευση ανά δύο χρόνια). Σχετικώς επισυνάπτω το διαφημιστικό φυλλάδιο, το logo του συνεδρίου και πρόσκληση.

Βασίλης Μαρίνος
Αναπληρωτής Καθηγητής, Τμήμα Γεωλογίας, ΑΠΘ

ΠΡΟΣΕΧΕΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΚΔΗΛΩΣΕΙΣ

Για τις παλαιότερες καταχωρήσεις περισσότερες πληροφορίες μπορούν να αναζητηθούν στα προηγούμενα τεύχη του «περιοδικού» και στις παρατιθέμενες ιστοσελίδες.

8ο Πανελλήνιο Συνέδριο Γεωτεχνικής Μηχανικής, 6 – 8 Νοεμβρίου 2019, Αθήνα, Ελλάς, www.8hcge2019.gr

2019 GEOMEAST International Congress & Exhibition, 10 -14 November 2019, Cairo, Egypt, www.geomeast2019.org

The 8th International Symposium on Roller Compacted Concrete (RCC) Dams, Nov. 11th – 12th, 2019, Kunming, China, chincold-en@vip.126.com, http://www.chincold.org.cn

8th International Geotechnical Symposium, 13-15 November 2019, Istanbul, Turkey, www.geoteknik2019.org/en/

XVI Panamerican Conference on Soil Mechanics and Geotechnical Engineering, 18-22 November 2019, Cancun, Quintana Roo, Mexico, http://panamerican2019mexico.com/panamerican

International Symposium on Rock Mechanics and Engineering for Sustainable Energy, 24-24 November 2019, Hanoi, Vietnam, http://vietrocknet.org

GEOTEC HANOI 2019 The 4th International Conference on Geotechnics for Sustainable Infrastructure Development, November 28 – 29, 2019, Hanoi, Vietnam, https://geotechn.vn

3rd International conference on Geo-Energy & Geo-Environment Conference, Nov. 30 – Dec. 1 2019, ChangSha, China, www.gege2019.com.

YSRM2019 - The 5th ISRM Young Scholars' Symposium on Rock Mechanics and REIF2019 - International Symposium on Rock Engineering for Innovative Future - Future Initiative for Rock Mechanics and Rock Engineering - Collaboration between Young and Skilled Researchers/Engineers – 1-4 December 2019, Okinawa, Japan, www.ecpro.co.jp/ysrm2019/index.html

ICGU 4th 2019 4th International Conference on Ground Improvement and Ground Control (ICGI2019): Infrastructure Development and Natural Hazards Mitigation, 1-3 December 2019, Luxor, Egypt, https://icgi2019-ets.org/page/p/Welcome-ICGI

ETS Conference and Exhibition 2019, 4-5 December 2019, Luxor – Egypt, https://icgi2019-ets.org/page/p/Welcome-ETS

ISOG 2019 First Indian Symposium on Offshore Geotechnics, December 5-6, 2019, IIT Bhubaneswar, Odisha, India, https://sites.google.com/iitbbs.ac.in/isog2019/home

15th International Conference on Geotechnical Engineering, and 9th Asian Young Geotechnical Engineers Conference, 05 ÷ 07-12-2019, Lahore, Pakistan, http://www.pges-pak.org

GeoSS International Conference on Case Histories & Soil Properties, 5-6 December 2019, Singapore, www.iccs2019.org

1st ITA-CET Meeting for European Tunnelling Professors and PhD Students, 5-6 December 2019, Torino, Italy, ita-cet.secretariat@developpement-durable.gouv.fr

ETH zürich WS2020 From research to practice in geotechnical engineering

Winter School
From research to practice in geotechnical engineering
12 – 17 January 2020, Ascona, Switzerland
https://geotechnics.ethz.ch/ws2020.html

Coordinator: Prof. Dr. I. Anastasopoulos

With the ultimate goal of developing innovative mitigation techniques, the international geotechnical engineering community has made substantial efforts to gain deeper insights on geotechnical hazards. For the state of practice to advance, academics need to join forces with practitioners.

The Winter School aims to bring these two groups together, to question the status quo, and to propose out-of-the-box solutions. The programme will combine:

(a) **Keynote lectures by international experts** from the academia and the industry;

(b) **Seminars** on state-of-the-art numerical and physical modelling techniques;

(c) **Presentations** by the participants;

(d) **Panel sessions**, where the participants will have a "debate" with industry and academia experts on the applicability of their ideas; and

(e) **Special session on start-ups**, on the process of product development, from initial conception to founding of a new company.

It is envisaged that this novel setup will not only expose the participants to different points-of-view, but will also allow cross–fertilization of ideas between the academia and the industry. Industry experts will have an opportunity to gain an overview of the latest developments, but also to contribute in shaping these ideas so that innovations can have a better chance of finding their way to practise. The Special session on start-ups aims to further emphasize the path from innovation to application.

The participants will benefit from this chance to learn from, and challenge, senior researchers and industry experts, interact with each other, engage in critical thinking and to build international networks.

Topics & Keynote Speakers

Geotechnical earthquake engineering
Prof. George Gazetas, NTUA

Prof. Gopal Madhabushi, University of Cambridge
Dr. Stavroula Kontoe, Imperial College London

Offshore geotechnics
Prof. Guy Houlsby, University of Oxford
Prof. Michael Brown, University of Dundee

Landslides, tailing dams, and rockfalls
Prof. Eduardo Alonso, Uni. Politècnica de Catalunya
Prof. Alexander Puzrin, ETH Zurich
Prof. Jan Laue, Luleå University of Technology
Prof. Jonathan Knappett, University of Dundee

Field investigation
Prof. Sebastiano Foti, Politecnico di Torino
Dr. Michael Iten, Marmota Engineering AG

Foundations and retaining structures
Prof. Sarah Springman, ETH Zurich
Prof. Christos Vrettos, TU Kaiserslautern

Industry specialists
Prof. AlainPecker, École des Ponts Paris Tech
Prof. Nikos Gerolymos, NTUA
Prof. Carlo Rabaiotti, HS für Technik Rapperswil
Dr. Ignasi Aliguer Piferrer, SAALG Geomechanics
Dr. Felix Shroeder, GCG LLP London

Specialized seminars
- Centrifuge Modelling
  Prof. Gopal Madhabushi, University of Cambridge & Dr. Orestis Adamidis, ETH Zurich
- Finite Differences (FLAC)
  Prof. Nikos Gerolymos, NTUA
- Finite Element Modelling
  Dr. Stavroula Kontoe, Imperial College London
- Material Point Method (MPM)
  Dr. Francesca Ceccato, University of Padova

Special session on startups
Dr. Michael Iten, Marmota Engineering AG

Additional information can be found on the dedicated website https://geotechnics.ethz.ch/ws2020.html.

If you have any additional questions, please do not hesitate to contact us at ws2020@igt.baug.ethz.ch.

Contact

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ISSPDS-Edinburgh 2020 2nd International Symposium on Seismic Performance and Design of Slopes, January 18–22, 2020, Edinburgh, UK, www.isspds.eng.ed.ac.uk

IGS TC-R GEOREINFORCEMENT

GeoReinforcement Developments, Advancements, Durability, Performance and Innovative Applications
20 – 21 January 2020, Barcelona, Spain
www.geosyntheticssociety.org/tc-reinforcement-tc-barriers-workshops-in-barcelona

The intention of the workshop is to stimulate the discussion and the formation of a group of experts to encourage the preparation of a guideline or a white paper on the very specific and defined topics shown below. The key presentations will be made available only to participants of the workshop discussions.

- **Reliability based design and analysis of geosynthetic reinforced structures** — *Lead: Richard Bathurst, USA*
- **Geosynthetic encased columns** — *Lead: Erol Güler, Turkey*
- **Serviceability Limit States: analyses, design, specification** — *Lead: Pietro Rimoldi, Italy*
- **Advancements, Developments and State of the Practice for International Codes of Geosynthetics in Reinforced Soil Structures** — *Lead: Robert Lozano, USA*

The TC-R registration fee includes lunch and two coffee breaks on each day.

Presented by: **The IGS Technical Committee on Soil Reinforcement**.

IGS TC-B GEOBARRIER

GeoBarrier Developments, Advancements, Durability, Performance and Innovative Applications
22 – 23 January 2020, Barcelona, Spain
www.geosyntheticssociety.org/tc-reinforcement-tc-barriers-workshops-in-barcelona/#squelch-taas-tab-content-0-1

The intention of the workshop is to stimulate the discussion and the formation of a group of experts to encourage the preparation of a guideline or a white paper on the very specific and defined topics shown below.

- **Re-Cap of Munich 2018 Workshop, Geomembrane Puncture Protection, Welding of Geomembranes, Digital Quality Control Systems** — *Leads: Siamak Paulson, Australia & Boyd Ramsey*
- **Advancements with Geosynthetic Clay Liners** — *Leads: Craig Benson, USA & Gemmina Di Emidio, Belgium*
- **Performance and Durability of Geomembranes** — *Leads: Kerry Rowe, Canada & Malek Bouazza, Australia*
- **Case Histories of Usual and Innovative Barrier Applications** — *Leads: Pete Atchison, United Kingdom & Jonathan Shamrock, New Zealand*

The TC-B registration fee includes lunch and two coffee breaks on each day.

Presented by: **The IGS Technical Committee on Barrier Systems**.

International Conference on Geotechnical Engineering – Iraq, 19 - 20 February 2020, Baghdad, Iraq, http://issmfe.org/international-iraqi-geotechnical-conference

ASIA 2020 Eighth International Conference and Exhibition on Water Resources and Renewable Energy Development in Asia, 10 - 12 March 2020, Kuala Lumpur, Malaysia, www.hydropower-dams.com/asia-2020

GeoAmericas2020 4th Pan American Conference on Geosynthetics, 26-29 April 2020, Rio de Janeiro, Brazil, www.geoamericas2020.com

WTC 2020 ITA-AITES World Tunnel Conference, 15-21 May 2020, Kuala Lumpur, Malaysia, www.wtc2020.my

14th Baltic Sea Geotechnical Conference 2020 Future Challenges for Geotechnical Engineering, 25 ÷ 27 May 2020, Helsinki, Finland, www.ril.fi/en/events/bsgc-2020.html

Nordic Geotechnical Meeting Urban Geotechnics, 25-27 May 2020, Helsinki, Finland, www.ril.fi/en/events/ngm-2020.html

ICED 2020 First International Conference on Embankment Dams: Dam Breach Modeling and Risk Disposal, 5 – 7 June 2020 in Beijing, China, http://iced-2020.host30.voosite.com

EUROCK 2020 Hard Rock Excavation and Support, 13-19 June 2020, Trondheim, Norway, www.eurock2020.com

DFI Deep Mixing 2020, 15 to 17 June 2020, TBD, Gdansk, Poland, www.dfi.org/DM2020

XIII International Symposium on Landslides - Landslides and Sustainable Development, June 15th – 19th 2020, Cartagena, Colombia, www.scg.org.co/xiii-isl

EGRWSE 2020
3rd International Conference On Environmental Geotechnology, Recycled Waste Materials and Sustainable Engineering
18-20 June 2020 Izmir, TÜRKİYE

3rd International Conference on Environmental Geotechnology, Recycled Waste Materials and Sustainable Engineering

18-20 June 2020, Izmir, Turkey
www.egrwse2020.com

Third International Conference on Environmental Geotechnology, Recycled Waste Materials and Sustainable Engineering, EGRWSE-2020 will be held in Izmir, Turkey from June 18 to 20, 2020 (www.egrwse2020.com). The symposium is hosted by Dokuz Eylül University, Department of Civil Engineering, Geotechnics Division.

EGRWSE-2018 and EGRWSE-2019 conferences were very successful events covering the state-of-the art research on environmental geotechnology, sustainability, and use of recycled waste materials for civil infrastructure. Participation to EGRWSE-2020 will benefit academic researchers, practicing engineers and representatives from local authorities. Besides presenting their own research or professional work, participants will be informed from and discuss latest accomplishments, innovations and future directions in environmental geotechnology, use of recycled wastes, and sustainability. Participants will connect with each other in order to develop networks and collaborations.

We look forward to having the pleasure of welcoming you all to "Third International Conference on Environmental Geotechnology, Recycled Waste Materials and Sustainable Engineering" in Izmir, Turkey.

Conference Objectives

Environmental Geotechnology is an interdisciplinary science that covers soil and rock and their interaction with environment, which includes behavior of the soil-water system. The importance of Environmental Geotechnology has been increasingly recognized because of environmental pollution. In order to enhance living standards, we need more advanced, applicable and sustainable environmental technologies.

Recycling is the process of collecting and processing materials that would otherwise be thrown away as waste and turning them into new products. Various types of recyclable materials are currently in use in the construction industry. These include tire shreds, ground tire rubber, fly and bottom ash, blast-furnace slag, steel slag, cement kiln dust, silica fume, crushed glass, and other type of materials. Recycling is beneficial since it protects the environment and economically profitable. In order to elevate the use of recycled waste in civil engineering, research studies and documented field applications of recycled materials are needed.

Sustainable Engineering, within the scope of civil engineering profession, may be defined as the process of designing structures in such a manner that energy and resources are consumed sustainably either during construction stages or thereafter. Considering that earth's resources are rather limited in the face of population rise and demands of modern life style that is keen on high life standards, the engineer is responsible of creating design work that does not only involve best strength and stiffness considerations but also has sustainable point of view so that we do not compromise our environment and undermine the future of next generations.

The organizing committee, with above mentioned considerations, welcomes research and case study articles that cover environmental engineering, use of recycled materials in new design and construction or retrofit of existing structures as

well as sustainable engineering approaches and their field applications.

Contact

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GEE2020 International Conference on Geotechnical Engineering Education 2020, June 24-25, 2020, Athens, Greece, www.erasmus.gr/microsites/1168

E-UNSAT 2020 4th European Conference on Unsaturated Soils - Unsaturated Horizons, 24-06-2020 ÷ 26-06-2020, Lisbon, Portugal, https://eunsat2020.tecnico.ulisboa.pt

Geotechnical Aspects of Underground Construction in Soft Ground
29 June to 01 July 2020, Cambridge, United Kingdom

Organiser: University of Cambridge
Contact person: Dr Mohammed Elshafie
Address: Laing O'Rourke Centre, Department of Engineering, Cambridge University
Phone: +44(0) 1223 332780
Email: me254@cam.ac.uk

16th International Conference of the International Association for Computer Methods and Advances in Geomechanics – IACMAG
CHALLENGES and INNOVATIONS in GEOMECHANICS
01-07-2020 ÷ 04-07-2020, Torino, Italy
www.symposium.it/en/events/2020/16th-international-conference-of-iacmag?navbar=1

The 16th International Conference of the International Association for Computer Methods and Advances in Geomechanics (15IACMAG) will be held in Turin, Italy, 29 June - 4 July 2020. The aim of the conference is to give an up-to-date picture of the broad research field of computational geomechanics. Contributions from experts around the world will cover a wide range of research topics in geomechanics.

Pre-conference courses will also be held in Milan and Grenoble.

TOPICS

Methods and Tools

- Laboratory and Field Testing
- Monitoring and Remote Sensing
- Constitutive Modelling
- Coupled T-H-M-C Processes
- Multiphase Modelling
- Reliability and Risk Analysis

Applications in Geotechnical Engineering

- Surface and Near Surface Structures: Excavations, Foundations, Tunnels
- Deep Structures: Tunnels, Caverns
- Dams and Earth Structures
- Natural Slopes
- Coastal Engineering
- Mining Engineering
- Earthquake and Dynamics

Environmental Geomechanics

- Soil-Atmosphere Interaction
- Ice Mechanics
- Landfills and Waste Disposal
- Ground Improvements, Reinforcement, Geosynthetics
- Preservation of Historical Sites

Geomechanics for Energy

- Gas and Petroleum Engineering
- Underground Storage of Petroleum, Gas, CO2 and Nuclear Waste
- Geothermal Energy
- Offshore Technology
- Energy Geostructures

Parallel sessions:

- PS1 - Laboratory and field testing
- PS2 - Monitoring and remote sensing
- PS3 - Constitutive modelling
- PS4 - Coupled T-H-M-C processes
- PS5 - Multiphase modelling
- PS6 - Reliability and risk analysis
- PS7 - Surface and near surface structures: excavations, foundations, tunnels
- PS8 - Deep structures: tunnels, caverns
- PS9 - Dams and earth structures
- PS10 - Natural slopes
- PS11 - Coastal engineering
- PS12 - Mining engineering
- PS13 - Earthquake and dynamics
- PS14 - Soil-atmosphere interaction
- PS15 - Ice mechanics
- PS16 - Landfills and waste disposal
- PS17 - Ground improvements, reinforcement, geosynthetics
- PS18 - Preservation of historical sites
- PS19 - Gas and petroleum engineering

- PS20 - Underground storage of petroleum, gas, CO2 and nuclear waste
- PS21 - Geothermal energy
- PS22 - Offshore technology
- PS23 - Energy geostructures

Mini Symposia:

- MS1 - Complex formations with a block-in-matrix fabric and field testing
- MS2 - Quantification and reduction of uncertainty in geomechanical numerical models
- MS3 - Computational rail geotechnics
- MS4 - Advanced constitutive modeling of soils in practical applications
- MS5 – Large strain problems in geomechanics
- MS6 - Building and infrastructure response to ground movement
- MS7 - Material Point Method in Computational Geomechanics
- MS8 - Probabilistic site characterization and data analytics
- MS9 - Validation of Numerical Modeling Techniques for Analysis of Soil-Liquefaction and its Consequences
- MS10 - Inverse analysis for parameter calibration and assessment of model perfomances

Organizing Secretariat

We are SYMPOSIUM
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7th ICRAGEE International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, 13 – 16 July 2020, Bengaluru, India, http://7icragee.org

3rd International Conference on Geotechnical Engineering (ICGE – Colombo -2020), 10 - 11 August 2020, Colombo, Sri Lanka, http://icgecolombo.org/2020/index.php

ISFOH 2020 4th International Symposium on Frontiers in Offshore Geotechnics, 16 – 19 August 2020, Austin, United States, www.isfog2020.org

2020 CHICAGO International Conference on Transportation Geotechnics, August 30 - September 2, 2020, Chicago, Illinois, USA, http://conferences.illinois.edu/ICTG2020

EUROGEO WARSAW 2020 7th European Geosynthetics Congress, 6-9 September 2020, Warsaw, Poland, www.eurogeo7.org

37th General Assembly
of the European Seismological Commission
6 to 11 September 2020, Corfu, Greece
www.escgreece2020.eu

6th International Conference on Geotechnical and Geophysical Site Characterization "Toward synergy at site characterisation", 7 ÷ 11 September, Budapest, Hungary, www.isc6-budapest.com

27th European Young Geotechnical Engineers Conference and Geogames
17 – 19 September 2020, Moscow, Russia
https://t.me/EYGEC2020

Organiser: Russian Society for Soil Mechanics, Geotechnics and Foundation Engineering

Contact person: PhD Ivan Luzin

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ICEGT-2020 2nd International Conference on Energy Geotechnics, September 20-23, 2020, La Jolla, California, USA, https://icegt-2020.eng.ucsd.edu/home

EUROENGEO
3RD EUROPEAN REGIONAL CONFERENCE OF IAEG
ATHENS 2020
Leading to Innovative Engineering Geology Practices
20-24 September 2020
www.euroengeo2020.org

Dear Colleagues,

It is a great pleasure to announce that the 3rd European Regional Conference of IAEG, will be hosted in Athens, Greece, by the IAEG National Group of Greece. The conference will take place from 20th to 24th of September 2020.

The activation again of the IAEG regional conference in Europe is a fundamental action for our region. Considering that almost half of the members and National Groups (NGs) of IAEG are from European region, we hope that the initiative will become a stable event, involving the scientific and professional community of the same area.

The conference will be organized with the collection of extensive abstracts.

It is our pleasure also to announce that the Executive Office and Council of IAEG for 2020 will be hosted in the occasion of the conference in Athens.

The next Richard Wolters Prize competition for 2020 will be moreover presented by IAEG at the occasion of the conference.

The Call for Abstracts is now Open!

We the undersigned, Dr. Vassilis Marinos, Dr. Constantinos Loupasakis, Dr. Charalampos Saroglou are delighted to invite you to participate in IAEG European Regional Conference.

Sincerely

Vassilis P. Marinos
Chairman of the 3rd European Regional Conference of IAEG
Vice President of IAEG for Europe
Associate Professor of the Aristotle University of Thessaloniki, Greece

Constantinos Loupasakis
Co-chairman of the 3rd European Regional Conference of IAEG
President of the Greek National Group of IAEG
Associate Professor of the National Technical University of Athens, Greece

Charalampos Saroglou
Co-chairman of the 3rd European Regional Conference of IAEG
Secretary of the Greek National Group of IAEG
Dr. Engineering Geologist of the National Technical University of Athens, Greece

MAIN TOPICS

- Characterisation and Behaviour of Soils and Rocks
- Environmental Engineering Geology
- Advances in Site Investigation for Engineering Geology
- Engineering Geology for Engineering Works
- Engineering Geology for Urban Environment
- Analysis and mitigation of Geo-hazards
- Recent advances in Geomatics and Remote Sensing for use in Engineering Geology
- Engineering Geology and Cultural Heritage Protection
- Engineering Geology for the Society
- Technical Committee Sessions
- Young Engineering Geologists Meeting

CONTACT

Bliss conferences – Events – DMC IKE
20, Eftihidou Str., Athens
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Fourth International DAM WORLD Conference, 21-25th September 2020, Lisbon, Portugal, https://dw2020.lnec.pt

3rd International Symposium on Coupled Phenomena in Environmental Geotechnics
October 29th – 30th, 2020, Kyoto, Japan
https://cpeg2020.org

The "International Symposium on Coupled Phenomena in Environmental Geotechnics (CPEG)" is a quadrennial event organized under the auspices of the Technical Committee TC215 (Environmental Geotechnics) of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE), with a focus on coupled processes (e.g., chemical-physical, bio-physical, multiphase flow, etc.) in environmental geotechnics.

The first symposium of the series was held in Torino (Italy) in 2013, and the second one in Leeds (UK) in 2017.

The third symposium, CPEG2020, is conjointly organized by the Japanese Geotechnical Society (JGS) and Kyoto University, it will be held at Kyoto University's main campus on October 29th and 30th, 2020, and welcomes submission from all over the world.

Symposium Themes

1. Coupled Processes

E.g., improved understanding of coupling of any natural and/or anthropogenic thermo-hydro-mechanical-chemical-bio-gas processes within soils and rocks, biogeochemical processes for improving or stabilizing soils, multi-phase flow, etc.

2. Soil-Atmosphere Interaction

E.g., role of vegetation in sustainable management of slopes and geostructures, vegetation controls on urban flooding, geotechnics of the soil critical zone: creation or restoration of full soil functionality, etc.

3. Surface Containment

E.g., landfill liners and environmental barriers, gas generation and extraction, capping systems for landfills and polluted sites, etc.

4. Clean-up and Remediation

E.g., novel characterization of contaminated sites, pollutant retardation and degradation processes, active barriers for polluted sites, bio-remediation of metals and radionuclides, natural attenuation and enhanced bioremediation of organic pollutants, etc.

5. Waste Geotechnics

E.g., waste characterization, radioactive waste disposal, carbon capture and storage, waste degradation and settlement, mining and mineral extraction wastes, etc.

6. Energy Geotechnics

E.g. energy geo-storage and geo-structures, numerical methods in energy geotechnics, geoenvironmental aspects of energy geotechnics, geosynthetics in energy applications, geotechnical challenges for energy infrastructure, etc.

7. Bio-inspired/mediated Geotechnics

E.g., hazard mitigation, environmental protection and restoration, ground improvement, etc.

8. Reclamation

E.g., environmental aspects of land reclamation, soil improvement, ground stabilization and its effects on contamination, coastal landfills, etc.

9. Others

5TH World Landslide Forum Implementation and Monitoring the USDR-ICL Sendai Partnerships 2015-2015, 2-6 November 2020, Kyoto, Japan, http://wlf5.iplhq.org

10th International Conference on Scour and Erosion (ICSE-10), November 15-18, 2020, Arlington, Virginia, USA, www.engr.psu.edu/xiao/ICSE-10 Call for abstract.pdf

GeoAsia 2021

7th Asian Regional Conference on Geosynthetics
March 1-4, 2021, Taipei, Taiwan

ISRM European Rock Mechanics Symposium
Rock Mechanics and Rock Engineering from theory to practice
21-25 June 2021, Torino, Italy
http://eurock2021.com

It is a great pleasure and an honour to extend to you a warm invitation to attend the EUROCK 2021 *Rock Mechanics and Rock Engineering from theory to practice* in Turin, Italy, 21 to 25 June 2021.

As in the previous editions, the conference topics will address trough general and parallel sessions the most recent developments in rock mechanics, stimulations fruitful technical and scientific interaction within the fields of rock mechanics, rock engineering and engineering geology.

The programme includes workshops dedicated to innovative topics, Keynotes lectures delivered by distinguished speakers and a series of technical visit that coupled scientific topics with cultural, touristic and eno – gastronomical aspects.

Most of parallel sessions will be opened with a Theme Lecture and will continue with 9 to 11 presentations. Other papers will be presented in three poster sessions each one lasting a whole day.

Technical visits are scheduled as the closure of Wednesday programme, while the gala dinner will be hosted on Tuesday night.

Technical visits are scheduled in the days after the conference.

TOPICS

- Rock properties and testing methods
- Rock mass characterization
- Rock mechanics for heritage
- Rock mechanics for infrastructures
- Geophysics in rock mechanics
- Numerical modeling and back analysis
- Nonlinear problems in rock mechanics
- Mining rock mechanics
- Design methods and analysis
- Monitoring and back analysis
- Excavation and support
- Risk and hazard
- Petroleum engineering and hydrofracking
- Applicability of EUROCODE-7 in rock engineering

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SYDNEY ICSMGE 2021 20th International Conference on Soil Mechanics and Geotechnical Engineering, 12-17 September 2021, Sydney, Australia, www.icsgme2021.org

UNSAT2022
8th International Conference on Unsaturated Soils
June or September 2022, Milos island, Greece

LATAM 2021
Challenges in rock mechanics: towards a sustainable development of infrastructure
20-22 September 2021, Asuncion, Paraguay
https://larms2021.com

The **Geotechnical Society of Paraguay (SPG)**, active member of the **International Society for Rock Mechanics and Rock Engineering (ISRM)**, is pleased to invite you to thw **IX Latin American Rock Mechanics Symposium** that will take place in the beautiful city of Asunción, Paraguay from September 20th to 22nd. The congress will host the theme "Challenges in rock mechanics: towards a sustainable development of infrastructure" covering topics of present relevance and interest for the Latin-American region.

The IX Latin American regional Conference of ISRM will host the conversation taking place worldwide regarding sustainable development. We hope to address the main challenges that arise in our discipline when faced with massive needs of infrastructure, in particular in developing countries.

Topics will include but not limited to the following:

- Energy infrastructure: dams, reservoirs, waste disposal
- Environmental geomechanics
- Site Characterization
- Soft Rocks
- Tunnelling
- Rock mass properties
- Rock mass classification
- Shotcrete
- Numerical methods

3rd European Conference on Earthquake Engineering & Seismology, 19 – 24 June 2022, Bucharest, Romania, https://3ecees.ro

ΕΝΔΙΑΦΕΡΟΝΤΑ ΓΕΩΤΕΧΝΙΚΑ ΝΕΑ

Massive landslide prompts long-term closure of State Highway 4, New Zealand

A landslide has been developing for some time on State Highway 4, between Whanganui and Raetihi in the district of Ruapehu in New Zealand. Reports on October 9, 2019, said the recurring landslide has destroyed roads, resulting in considerable local disruption.

The event prompted a long-term closure of the road, officials said. The effects of the huge landslide were captured in a series of images via drone by photographer, Mark Brimblecombe.

"These images suggest that there is a significant volume of material still to be released in this landslide. Reconstructing the road is going to be a very substantial challenge given the magnitude of the landslide, and the volume of partially failure material," landslides expert Dr. Dave Petley said.

According to Judith MacDonald from the Regional Health Network, State Highway 4 was an ambulance route between Raetihi and Whanganui Hospital, making doctors worry some patients in Ruapehu won't reach the hospital on time.

"That's a two and half hour one way trip now through to State Highway 1, so we anticipate the helicopters will be used for acute emergencies and the ambulance will take road traffic as they can."

She said the Whanganui District Health Board have talked with local health practitioners to conduct an action plan. "We're looking at some innovative local responses like having Zoom as an option for virtual consults, particularly for follow-ups to avoid people having to travel five hours round circuit to access a follow-up specialist assessment in Whanganui."

Logging truck company McCarthy Transport also expressed dismay over the event, saying the landslide aftermath added an extra 130 km (81 miles) to 200 km (124 miles) to their trip.

The company's Chief Executive Steve McDougall said, "It's a huge financial disruption and an operational disruption. We've got two logging crews. That wood is now having to come back down to Whanganui and go west to New Plymouth, or come down to Whanganui and then go east via Marton up State Highway 1."

Mayor Don Cameron aired his sentiments in a meeting, saying, "It means for the southern districts like Whanganui, Rangitikei and place like that, their price of having goods delivered is going to move up quite markably, and that will happen almost immediately. It's not just Ruapehu that's suffering it. It's also obviously further down in the south region as well."

"Our towns have gone through the Ruapehu blowing up with businesses shutting down and tourism sites shutting down. We've gone through that, so we'll get through this, but it needs everyone to work together and that's happening at the moment," he added.

The transport agency said geotechnical engineers are examining the site to identify the extremity of the slip and determine options for reinstating the road.

(Julie Celestial / THE WATCHERS, October 10, 2019, https://watchers.news/2019/10/10/massive-landslide-prompts-long-term-closure-of-state-highway-4-new-zealand/?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+adorraeli%2FtsEq+%28The+Watchers+-+watching+the+world+evolve+and+transform%29)

When mountains collapse: New-tech geodatabase helps geologists assess landslide hazard and risk

Early in the morning of August 2, 2014, part of a mountain collapsed in Jure, Nepal, about 70 kilometres northeast of Kathmandu. Some 5.5 million cubic metres of rock and debris — equal to the size of Grouse Mountain, north of Vancouver, BC — tumbled down into the Sunkoshi Valley, killing over 200 people, destroying two dozen homes, and completely wiping out the Arniko highway. It also dammed the Sunkoshi River for about a month. Water backed up behind a 55-metre-tall pile of rock, creating an ever-growing lake that submerged dozens of houses and a hydropower station.

My name is Jesse Mysiorek. I'm pursuing a master's degree in engineering geology, specializing in slope stability analysis, at Simon Fraser University in Burnaby, BC. However, for my thesis project, I'm currently undertaking research in both Nepal and at the university campus to determine why, how, and when landslides like the Jure slide occur.

Jesse Mysiorek conducts fieldwork on the Jure, Nepal landslide with state-of-the-art remote-sensing equipment. The landslide can be seen two kilometres down the valley.

By applying state-of-the-art scientific remote-sensing techniques and traditional geological methods at the Jure landslide that have been integrated into a new kind of geodatabase, I have been able to better understand why the mountain broke away in 2014 and gain insight into the mountain's future stability.

Mixed/virtual reality interactive fieldsite

I use a wide range of remote-sensing tools to study slope stability. In the photograph below, you can see me interacting with a hologram of 100-metre-high rock cliff at the Jure, Nepal, landslide. The hologram is part of a large holographic Jure landslide geodatabase that I am developing. In addition to holographic maps from the Jure region, the database includes information from GIS, rockfall modelling, change-detection, mitigation, rock samples collected, and GPS field locations.

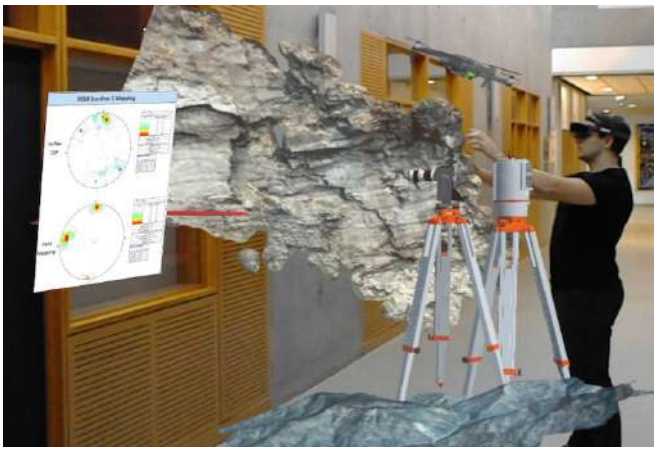
The technology I'm using is called mixed reality. Unlike virtual reality, which generates virtual objects such as computer-graphic simulations and fully immerses users within a digital or virtual environment, mixed reality presents the real world and virtual-world objects (holograms) together. It allows users to see both the world around them and the holograms simultaneously, in real time. It also allows people to add digital elements to their actual environment.

The purpose of mixed reality is to enhance the user's ability to communicate information. Traditional media, such as written reports, computer images, and so on, are limited in the amount and type of information they easily convey. Mixed-reality technology, however, creates an immersive environment in which users can show results and conduct mapping and analysis with multiple users at the same time. It also collects, within a mixed-reality app, all the information to be shared — much like a video game does, allowing users to walk around and interact with any element in the mixed realm.

In my research, mixed reality allows me to interact by way of holographic representations with the steep, dangerous rock slopes of the Jure slide site while I'm standing safely in the office. Using the system, I can project all the data that is on my computer, including analyses and results, into the mixed-reality setting. I can map rock outcrops into the system, link multiple engineers into the hologram to communicate or map information, and see all my GPS locations as if I were in the field. If I click on any location in the hologram, the system flies me into it as if I were onsite in Nepal.

It is very accurate and always stays georeferenced. For example, if I can map the slope to see how steep it is and in what direction it faces, and it will always face that correct location. However, I can also move the models around without reference to orientation or size, if I select that option from the menu.

The interface that makes this possible is Microsoft HoloLens goggles.



Geologists can interact with the mixed reality holographic landslide database to assess landslide risk. The rock cliff shown here represents the landslide slope above Jure, Nepal, and is about 100 m high in real life; the red line indicates where the author conducted March 2018 fieldwork. Remote-sensing equipment is also displayed as interactive holograms within the mixed reality tool.

Ground truthing

In order to make the database and mixed-reality system accurate and useful, I need to ground-truth my data. Although I'm using remotely sensed data collected via, for example, laser scanning, photogrammetry and unmanned aerial vehicles to create the 3-D slope representation models, they still need to be verified with information that can be obtained only through traditional field-geology methods that require me to physically touch and walk on the landslide and rock outcrops.

I'm in Nepal to get that field information.

Early warning signs

While researching the Jure landslide and mountain, I noticed that historical satellite imagery captured before the 2014 slide showed that the slope had been slowly breaking apart since 2000. The mountain was showing signs even then that the slope was failing.

Had anybody noticed and accurately interpreted the signs at the time, could the landslide have been prevented? Unfortunately, there was no way of holding the entire mountain up.

Historical satellite imagery of the Jure landslide: a) Multiple rockfall/rock slope failures occur throughout the slope and highway, 2004; b) Rockfalls and large mid-slope landslide scar, 2012; c) August 9, 2014, Jure Landslide dammed lake; d) Slope is still experiencing progressive rockfalls/rock slides with a large (20,000 m^3) movement above the south-west headscarp, 2017. Images modified from Google Earth Pro, 2019. Inset: photograph taken during March 2018 fieldwork.

However, if the signs had been identified beforehand, the people living near the mountain could have been warned and educated. Residents, businesses and the government may have been able to prepare for an eventual collapse, which might have helped to mitigate the damage and save lives.

If a landslide happens once, will it happen again?

The problem with landslides is that nobody really knows what causes them. Because of this poor understanding of the risks, people continue to live near hazardous areas, increasing public-safety risks. Despite the Jure landslide's size and the loss of life and damage it caused in 2014, little geotechnical work has been done on the mountain to understand its future stability.

My work to combine remote sensing techniques and traditional geological methods at the site into the mixed reality geodatabase has provided some insight into the processes and conditions that led to the slide and the likelihood of it happening again. I have also determined a way to provide early warning of future signs of instability and another part of the mountain giving way.

A potential solution is to apply low-cost monitoring systems at the top of the landslide at areas identified as hazards and apply barriers, divert surface draining away from the landslide, drain and reduce groundwater pressure, and divert dangerous future landslides and rockfalls from communities and infrastructure.

Looking ahead

In the future, this research into the why, how and what's next of landslides and the use of mixed reality to explore slope stability in areas of concern may provide a new and effective technique for understanding and predicting landslides.

Scientists will be able use the technique to analyze, interpret and communicate research results to audiences, including academia, government officials, consultants and — most importantly — the residents of communities in potentially hazardous areas.

Simon Fraser University student Jesse Mysiorek wrote this post as part of Science Borealis's Spring 2019 Pitch & Polish, a mentorship program that pairs students with one of our experienced editors to produce a polished piece of science writing.

(Jesse Mysiorek, New Science Communicator, October 15, 2019 Science Borealis, https://blog.science-borealis.ca/when-mountains-collapse-new-tech-geodata-base-helps-geologists-assess-landslide-hazard-and-risk/?fbclid=IwAR2s2BS9qTKXbc6jF3SQ5zojm1yJet-iqB9a6tr40CP1IuNbVnf9Xo-euD-A)

(Από το μέλος της ΕΕΕΕΓΜ Γιάννη Μεταξά)

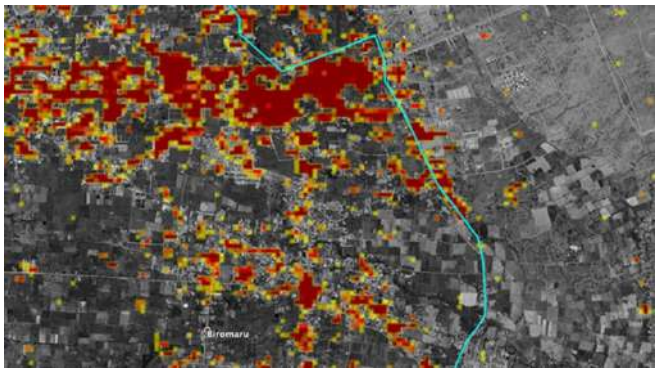
Study reveals new landslide risk factor

New research by NASA scientists revealed that flooding rice fields - a previously unknown risk factor - triggered a disastrous effect following the fatal 2018 Palu earthquake in Indonesia. Shortly after the extreme shaking, the solid ground turned into a landslide of muddy soil, increasing the death toll and worsening the economic impact. The study was published on September 27, 2019.

Soil liquefaction happens when the shaking from a massive earthquake rips through wet and loose soil, becoming more powerful than the friction that usually holds together the dirt particles. This results in the soil losing its structural coherence, making it flow like liquid. As the once-solid ground gets washed away, the establishments and structures standing above it will crumble, leading to landslides. Furthermore, heavy objects such as vehicles get submerged into the mud, while buried water and sewer pipes surface.

During the Palu earthquake, initial reports pointed out that most of the approximately 2 000 fatalities were from a tsunami. However, current surveys revealed that landslides triggered by soil liquefaction caused as much damage as the raging waves.

Researchers were left puzzled at first since soil liquefaction commonly occurs in flat surfaces with wet or sandy grounds such as coastal plains. They had thought flat landscapes was a factor because the water table-- the distance below ground where land absorbs water-- must be shallow, and that's unusual on a hillside. Palu's soil is sandy, but it's in a sloping valley that seemed to pose small threat. It was found that all landslides originated along a distinct line, and this surprised the researchers when they noticed it. As the scientists took a closer look, it showed that the line was an aqueduct.



JPL's ARIA team produced this Damage Proxy Map of Palu after the 2018 earthquake. The aqueduct is marked in blue; red and yellow pixels show likely damage. The terrain slopes uphill from left to right, with major damage below the aqueduct and little above it. Image credit: NASA/JPL-Caltech/JAXA

"So we started studying why the aqueduct is clearly defining the boundary between land sliding and no sliding," author Sang-Ho Yun said.

The Gumbasa Aqueduct was finished in 1913 to lessen the threats of famine by providing a consistent supply of water for local farmers. Only land downhill from the aqueduct is irrigated, and the water is not pumped uphill. Farmers practice wet rice cultivation below the aqueduct, which at one point the field becomes flooded during the growing cycle. This principal method of rice farming in tropical Asia increases the water table as time goes by to just below the surface of the ground. Farmers grow coconut palms father downhill, which needs less irrigation and do not increase the water table as much.

Widespread liquefaction below the aqueduct was revealed via maps. Several slides carried about 16 square km (6 square miles) of land far downhill, in some areas farther than 15 m (49 feet). The slides were slowed or stopped by the plantations of coconut palms. There was no liquefaction identified uphill of the aqueduct.

Main author Kyle Bradley said the conclusion is clear that "If there hadn't been intensive irrigation, the landslides wouldn't have happened."

On a positive note, he added, "This is a human-caused hazard, and it can have a human solution. We can't mitigate the hazard of ground shaking on Palu, but the agricultural practices can be updated based on this new understanding."

The plantation played a significant and critical role in halting the slides, and the authors suggest that planting more trees, those interspersed with rice fields, in places that are extremely irrigated might lessen the chances of soil liquefaction.

Palu is not the only city on Earth where farmers are growing extremely irrigated plantations on wet and sandy slopes, said Bradley.

"If an engineer had gone to Palu and evaluated the system from first principles, they would likely have been able to identify this risk. I hope this study is an impetus for people to go and study these other places."

The research was published in the *Nature Geoscience* journal.

Reference

"Earthquake-triggered 2018 Palu Valley landslides enabled by wet-rice cultivation" - Bradley K. et al - Nature Geoscience - DOI: 10.1038/s41561-019-0444-1

(Julie Celestial / THE WATCHERS, October 22, 2019, https://watchers.news/2019/10/22/study-reveals-new-landslide-risk-factor/?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+adorraeli%2FtsEq+%28The+Watchers+-+watching+the+world+evolve+and+transform%29)

Earthquake-triggered 2018 Palu Valley landslides enabled by wet rice cultivation

Kyle Bradley, Rishav Mallick, Harisma Andikagumi, Judith Hubbard, Ella Meilianda, Adam Switzer, Nairong Du, Gilles Brocard, Dedy Alfian, Benazir Benazir, Guangcai Feng, Sang-Ho Yun, Jedrzej Majewski, Shengji Wei & Emma M. Hill

Abstract

The death toll and economic impact of an earthquake can be greatly exacerbated if seismic ground shaking triggers landslides. Earthquake-triggered landslides typically occur in two

different contexts: localized failure of steep slopes and resulting landslides that pose a major threat to life in areas below; and lateral spreading of nearly flat sediment plains due to shaking-induced liquefaction, which can damage large areas of critical infrastructure. Unexpected catastrophic landsliding triggered by the 28 September 2018 earthquake at Palu, Indonesia did not occur in either typical context, but produced both destructive outcomes. Here, we show that alluvial ground failure in the Palu Valley was a direct consequence of irrigation creating a new liquefaction hazard. Aqueduct-supported cultivation, primarily of wet rice, raised the water table to near ground level, saturating sandy alluvial soils that liquefied in response to strong ground shaking. Large-displacement lateral spreads occurred on slopes of 1°. Slopes steeper than 1.5° sourced long-runout landslides and debris flows that swept through villages occupying the gentler slopes below. The resulting damage and loss of life would probably not have occurred in the absence of a raised water table. Earthquake-triggered landsliding of gentle, irrigated alluvial slopes is an under-recognized, but avoidable, anthropogenic hazard.

(*Nature Geoscience*, 27 September 2019, https://www.nature.com/articles/s41561-019-0444-1)

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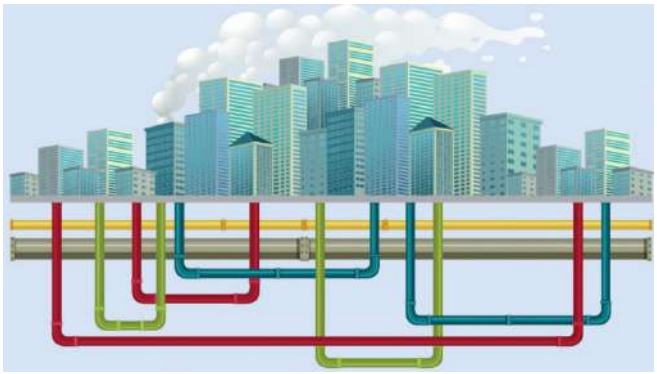
Soil squeaks give early warning of infrastructure collapse

Loughborough engineer awarded grant to develop ultrasonic monitoring system to detect deterioration of ground below transport, energy and building infrastructure



The LTI team's sensors could be distributed along buried infrastructure, sending alarms if potentially harmful signals are detected.

The concrete and the clay beneath my feet begin to crumble, as the popular 1960s song goes. It's a case of truth in art. Structures sitting on or in earth – which represent most of the built environment – can seem perfectly stable for decades, and then collapse without warning.

Such disasters have been seen recently in the UK, with the collapse of the Whaley Bridge dam in Derbyshire and in Brazil, where a mining dam suddenly collapsed in February causing over 200 deaths.

One reason for such collapses is that earth is a complex and unpredictable material. It is composed of particles of widely varying sizes and shapes, and changing conditions, such as variable loading and moisture, can cause a previously stable area to start deforming.

Once this process begins, it is very difficult to predict how the constituent particles of the earth will interact with each other, and whether structures supported by this region will remain stable.

As such variables are often connected with population growth (i.e. increasing traffic on roads and alterations in train timetables) and with climate change (changes in local rainfall or aridity) these problems are becoming more pressing; a situation which civil engineers believe is likely to continue.

Climate change can contribute to instability of ground conditions. Image from Pixabay

Alister Smith of Loughborough University's School of Architecture, Building and Civil Engineering has been studying this phenomenon for some years and this week was awarded a Philip Leverhulme Prize of £110,000 to develop a monitoring system based on his research.

The Leverhulme Prizes are awarded by the eponymous trust to industrial researchers whose work has already attracted international attention and whose future careers are judged to be exceptionally promising.

Smith is the principal investigator on an EPSRC-funded project called Listening to Infrastructure (LTI). The project notes the rapid deterioration of many vital parts of existing infrastructure, and is focusing on acoustic methods to monitor the ground movements that might cause such deterioration.

When any material deforms, the movement of its constituent particles (or crystals in the case of metals) against each other generates high-frequency sound. Known as acoustic emissions (AE), such sounds are commonly used to monitor the condition of materials such as concrete and steel.

However, because earth deforms in an unpredictable way, unlike the well-understood cracking mechanisms of construction materials, it has been very difficult to interpret the AE signals generated by ground movements. Smith and his colleagues have published their research in the *Journal of Geotechnical and Geo-Environmental Engineering*, *Geotechnique* and elsewhere.

Smith's LTI project applies artificial intelligence to interpreting the ultrasonic AE signals of deforming earth that is supporting infrastructure. He is determining whether AI-equipped acoustic sensors can be used to automatically extract knowledge of the health of deteriorating buried infrastructure systems from the raw AE data they extract, and whether this technology could be used to develop a continuous AE-monitoring system that could be distributed at separate locations along the length of such infrastructure.

"If we can listen to geotechnical assets with intelligent sensors – analogous to a stethoscope being used to listen to a patient's heartbeat – we will be able to provide information on the condition of infrastructure and early warning of deterioration in real-time", explained Smith. "Our vision is of a family of AE sensors distributed globally, protecting people

and infrastructure worldwide by providing an early warning that will enable interventions to be put in place.

"These interventions could be an emergency evacuation or preventing traffic from accessing part of the network (actions which protect people), or they could be in the form of maintenance and remediation, which prevents catastrophic failures and extends an asset's lifespan. This research has the potential to revolutionise infrastructure stewardship and it is an honour to have my past research achievements and ideas for the future recognised by receiving this Prize."

(Stuart Nathan / the ENGINEER, 23rd October 2019, https://www.theengineer.co.uk/soil-squeaks-early-warning-infrastructure-collapse)

Acoustic emission sensing of pipe-soil interaction: Full-scale pipelines subjected to differential ground movements

Alister Smith, Ian D. Moore, and Neil Dixon

This paper presents the first full-scale demonstration of the potential use of pipe/soil interaction-generated acoustic emission (AE) for early detection of buried pipe deformation. Full-scale tests were performed at the buried infrastructure research facility at Queen's University, Canada, using a split-box apparatus to impose differential ground motion on a steel pipe buried in dry sand, and to investigate the influence of stress level and patterns of deformation on AE generation. The pipe was instrumented with AE sensors, strain gauges, fibre optic strain sensing and linear potentiometers, and surface deformation was measured using an automatic total station. AE measurements were used to interpret the evolution of the pipe/soil interaction behaviour. AE activity correlated strongly (R2 from 0.83 to 0.99) with both the rate and magnitude of pipe deformation at different burial depths, and quantified relationships are presented that enable interpretation of pipe/soil interaction behavior from AE measurements.

(https://doi.org/10.1061/(ASCE)GT.1943-5606.0002185, https://repository.lboro.ac.uk/articles/Acoustic_emission_sensing_of_pipe-soil_interaction_Full-scale_pipelines_subjected_to_differential_ground_movements/9362135/1)

Acoustic emission behaviour of dense sands

Alister Smith and Neil Dixon

Abstract

Interpretation of acoustic emission (AE) generated by particulate materials has to date been qualitative. The objective of this study was to move the discipline towards quantitative interpretation of AE to enable early warning of serviceability and ultimate limit state failures in the field, and to enhance the instrumentation of element and physical model tests in the laboratory. Results from a programme of drained triaxial tests on dense sands show that: AE generation is proportional to the imposed stress level, imposed strain rate, fabric coordination number and boundary work done; there are two types of AE response at the transition from contractive to dilative behaviour, which was governed by the mean particle size; and AE activity in particulate materials is negligible until the current stress conditions (compression and/or shear) exceed the maximum that has been experienced in the past. Relationships have been quantified between AE and boundary work (i.e. AE generated per Joule) for a unit volume of sand under isotropic compression and shear, and between AE and shear strain rate. An example interpretation framework demonstrates how AE measurements could be used to identify the transition from contractive to dilative behaviour, mobilisation of peak shear strength and quantify accelerating deformation behaviour that typically accompanies shear zone development.

(https://doi.org/10.1680/jgeot.18.P.209, https://www.icevirtuallibrary.com/doi/abs/10.1680/jgeot.18.p.209)

ΕΝΔΙΑΦΕΡΟΝΤΑ - ΣΕΙΣΜΟΙ

Scientists discover new geophysical phenomenon - Stormquake

A study published on October 14, 2019, shows a new geophysical phenomenon where a heavy storm can trigger seismic events in the nearby ocean as powerful as a 3.5 magnitude earthquake. Lead author Wenyuan Fan, an assistant professor of Earth, Ocean and Atmospheric Science said they call this phenomenon a "stormquake".

"This involves coupling of the atmosphere-ocean and solid earth. During a storm season, hurricanes or nor'easters transfer energy into the ocean as strong ocean waves, and the waves interact with the solid earth producing intense seismic source activity," said Fan.

The researchers examined nearly a decade of seismic and oceanographic records from September 2006 to February 2019. From there, they discovered a link between potent storms and extreme seismic activity near the edge of ocean banks. The team found evidence of over 10 000 stormquakes from 2006 to 2019 offshore of New England, Florida, Gulf of Mexico, Nova Scotia, Newfoundland, and British Columbia.

"We can have seismic sources in the ocean just like earthquakes within the crust," Fan stated. "The exciting part is seismic sources caused by hurricanes can last from hours to days."

Fan, along with his colleagues, came up with a novel approach to track seismic events and identify whether one is a stormquake. It must happen during a stormy day and it must meet other geophysical standards to know the robustness of the connection between the seismic event and the storm. Furthermore, earthquakes and other seismic events must be ruled out.

The researchers cited Hurricane "Bill" as an example. The Atlantic hurricane happened on August 15, 2009, which hit Newfoundland as a tropical storm but developed into a Category 4 hurricane. It weakened into a Category 1 hurricane when it reached offshore on August 22, 2009. A number of seismic events were recorded off the New England and Nova Scotia coasts when the hurricane touched down, which resulted in transcontinental surface waves.

In a similar manner, 2008 Hurricane "Ike" produced a stormquake in the Gulf of Mexico. 2011 Hurricane "Irene" also did the same near Little Bahama Bank, offshore Florida.

However, the researchers noted that not all hurricanes produce stormquakes as there are hotspots. For instance, Hurricane "Sandy" did not spawn any stormquakes. This indicates that local oceanographic features and seafloor topography have something to do with the occurrence of stormquakes.

"We have lots of unknowns," Fan said. "We weren't even aware of the existence of the natural phenomenon. It really highlights the richness of the seismic wavefield and suggests we are reaching a new level of understanding of seismic waves."

Reference

"Stormquakes" - Fan, W. et al. - Geophysical Research Letters - https://doi.org/10.1029/2019GL084217

(Julie Celestial / The Watchers, October 17, 2019, https://watchers.news/2019/10/17/stormquake/?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+adorraeli%2FtsEq+%28The+Watchers+-+watching+the+world+evolve+and+transform%29)

Geophysical Research Letters

Stormquakes

Wenyuan Fan, Jeffrey J. McGuire, Catherine D. de Groot-Hedlin, Michael A.H. Hedlin, Sloan Coats, Julia W. Fiedler

Abstract

Seismic signals from ocean-solid Earth interactions are ubiquitously recorded on our planet. However, these wavefields are typically incoherent in the time domain limiting their utilization for understanding ocean dynamics or solid Earth properties. In contrast, we find that during large storms such as hurricanes and Nor'easters the interaction of long-period ocean waves with shallow seafloor features located near the edge of continental shelves, known as ocean banks, excites coherent transcontinental Rayleigh wave packets in the 20 to 50 s period band. These "stormquakes" migrate coincident with the storms, but are effectively spatiotemporally focused seismic point sources with equivalent earthquake magnitudes that can be greater than 3.5. Stormquakes thus provide new coherent sources to investigate Earth structure in locations that typically lack both seismic instrumentation and earthquakes. Moreover, they provide a new geophysical observable with high spatial and temporal resolution with which to investigate ocean wave dynamics during large storms.

(First published: 14 October 2019, https://doi.org/10.1029/2019GL084217, https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2019GL084217)

Earthquakes Can Be Predicted Five Days Ahead

An international team of researchers, which includes physicists from HSE University and the RAS Space Research Institute (IKI), have discovered that, with an impending earthquake, the parameters of internal gravity waves (IGWs) can change five days before a seismic event. This data can help

experts develop short-term earthquake forecast methods. The results of the study have been published in the journal *Doklady Earth Sciences*.

Today, scientists can predict seismic disasters ranging from tens of years to months. However, it is still impossible to determine the precise timing of the event. More accurate and reliable short-term forecasts are necessary so that people can be evacuated from the seismic impact zone. To do this, the researchers record various anomalies and manifestations of geophysical processes in seismically active regions. The list of precursors is constantly updated, and the more data on earthquakes, the higher a forecast's accuracy.

The authors of the study processed satellite data taken from earthquakes that occurred in several seismically active regions: in Uzbekistan on May 26, 2013; in Kyrgyzstan on January 8, 2007; and in Kazakhstan on January 28, 2013. It turned out that, five days before the seismic disaster, in all three cases, the parameters of internal gravity waves (IGW) changed. IGW is the fluctuation of air masses, which, in contrast to sound waves, and in addition to longitudinal, also has a transverse component.

The researchers observed how the temperature of the middle atmosphere (the layer of the Earth's atmosphere, which includes the stratosphere and mesosphere) behaves over time. Then, the IGW wavelengths were determined. The maximum wavelengths were 14.2 km and 18.9 km, respectively. Moreover, it is known that IGWs with vertical wavelengths of more than 10 km can arise during periods of deep convective heating.

'This means that processes occur in the Earth's lithosphere, the development of which gives rise to convective instabilities in the lower atmosphere. They are the cause of IGW in seismically active regions. Internal gravity waves, once they reach mesosphere, can be destroyed. When this happens, the IGW energy transforms into thermal motion, which affects the temperature,' explains Sergey Popel, Professor at the HSE Faculty of Physics and head of the IKI laboratory, one of the authors of the study.

Furthermore, the researchers determined that the wavelength begins to grow 4-5 days before the event, reaching its maximum value two days before the earthquake, and then dropping sharply the day before.

The study's results can be used to identify IGWs in seismically active regions, and in some cases, for making short-term forecasts of the timing of the onset of upcoming seismic events.

(Higher School of Economics, October 23, https://www.hse.ru/en/science/news/314257206.html)

Forecasting earthquakes 5 days ahead, research

An international team of scientists reporting in Doklady Earth Sciences discovered that with an impending earthquake, the parameters of internal gravity waves (IGWs) can change several days before the seismic event. IGW is the fluctuation of air masses, which, in contrast to sound waves, and in addition to longitudinal, also has a transverse component. The discovery is expected to help develop better short-term earthquake forecast methods.

The authors of the new study used satellite data taken from earthquakes that occurred in several seismically active regions: in Uzbekistan on May 26, 2013; in Kyrgyzstan on January 8, 2007; and in Kazakhstan on January 28, 2013 and discovered that five days before the seismic disaster, in all three cases, the parameters of internal gravity waves (IGW) changed.

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Reference

"Variations of the Parameters of Internal Gravity Waves in the Atmosphere of Central Asia before earthquakes" - V.V. Adushkin et al. - Doklady Earthquake Sciences - https://doi.org/10.1134/S1028334X19070201

(Teo Blašković / THE WATCHERS, October 23, 2019, https://watchers.news/2019/10/23/forecasting-earthquakes-5-days-ahead-research/?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+adorraeli%2FtsEq+%28The+Watchers+-+watching+the+world+evolve+and+transform%29)

Variations of the Parameters of Internal Gravity Waves in the Atmosphere of Central Asia before Earthquakes

V. V. Adushkin, V. I. Nifadiev, B. B. Chen, S. I. Popel, G. A. Kogai, A. Yu. Dubinskii, P. G. Weidler

Abstract

Based on the data of experimental studies of wave disturbances in the Earth's atmosphere before and after the earthquakes in Uzbekistan (May 26, 2013) and Kyrgyzstan (January 8, 2007), earlier unknown changes in the parameters of internal gravity waves are revealed. These changes were manifested during the period of five days before the earthquake and in certain cases can be used for short-term prediction of the time when seismic events are to occur.

(Doklady Earth Sciences, July 2019, Volume 487, Issue 1, pp 841–845, https://doi.org/10.1134/S1028334X19070201, https://link.springer.com/article/10.1134%2FS1028334X19070201#citeas)

ΕΝΔΙΑΦΕΡΟΝΤΑ - ΓΕΩΛΟΓΙΑ

There's a 'Doorway to the Underworld' in Siberia So Big It's Uncovered Ancient Forests

The Batagaika Crater in the Siberian town of Batagay, Russia, is known as the "hell crater" to locals. The crater is in fact a thermokarst depression, or permafrost "megaslump."

It's no secret that Siberia's permafrost is on thin ice. Conditions are varying so much that huge holes are appearing out of nowhere, and, in some places, tundra is quite literally bubbling underneath people's feet.

But one of the biggest craters in the region, known by the local Yakutian people as the 'doorway to the underworld', is growing so rapidly that it's uncovering long-buried forests, carcasses, and up to 200,000 years of historical climate records.

Known as the Batagaika crater, it's what's officially called a 'megaslump' or 'thermokarst'.

Many of these megaslumps have been appearing across Siberia in recent years, but researchers think Batagaika could be something of an anomaly in the region, located around 660 km (410 miles) north-east of the region's capital city of Yakutsk.

Not only is the crater already the largest of its kind, almost 1 km (0.6 miles) long and 86 metres (282 feet) deep, but it's getting bigger all the time.

Research presented in 2016 by Frank Günther from the Alfred Wegener Institute in Germany revealed that the head wall of the crater has grown by an average of 10 metres (33 feet) per year over the past decade of observations.

And in warmer years, the growth has been up to 30 metres (98 feet) per year.

The team also suspects that the side wall of the crater will reach a neighbouring valley in the coming months as temperatures heat up in the Northern Hemisphere, which could lead to even more land collapse.

"On average over many years, we have seen that there's not so much acceleration or deceleration of these rates, it's continuously growing," Günther told Melissa Hogenboom from the BBC.

"And continuous growth means that the crater gets deeper and deeper every year."

That's not great news for climate change. The crater formation first started after a large chunk of forest was cleared nearby in the 1960s.

Because the ground was no longer shaded in the warm, summer months, it heated up more rapidly than it had in the past, eventually causing the permafrost to melt and the ground to collapse.

Major flooding in 2008 made the melting even worse, and contributed to the size of the crater.

The instability of the region isn't just dangerous for locals, there are also concerns that as the hole gets deeper and larger, it will expose carbon stores that have been locked away for thousands of years.

"Global estimations of carbon stored in permafrost is [the] same amount as what's in the atmosphere," Günther told the BBC.

As the crater continues to melt, these greenhouse gases could be released into the atmosphere, triggering more warming.

"This is what we call positive feedback," added Günther. "Warming accelerates warming, and these features may develop in other places.

But it's not all terrible news. A study published in February 2017 in the journal *Quaternary Research* has shown that the layers exposed by the crater could now reveal 200,000 years of climate data.

That's in addition to the preserved remains of long-buried forests, ancient pollen samples, and even the frozen remains of a musk ox, mammoth, and a 4,400-year-old horse.

Here's some ancient tree remains in the melting permafrost:

The research was led by Julian Murton from the University of Sussex, who says the exposed sediment could be useful for understanding how the climate of Siberia changed in the past, and predicting how it will change in the future.

While most of the planet went through periods of cooling and warming over the past 200,000 years, the climate history of Siberia is vastly unknown.

But according to Murton, the last time Siberia saw this kind of slumping occur was around 10,000 years ago, as Earth transitioned out of its last Ice Age.

And today greenhouse gas levels in our atmosphere are much higher than they were back then - we've exceeded 400 parts per million CO_2, compared to 280 parts per million when the last Ice Age ended.

"The Batagaika site contains a remarkably thick sequence of permafrost deposits, which include two wood-rich layers interpreted as forest beds that indicate past climates about as warm or warmer than today's climate," Murton told Sarah Emerson over at Motherboard last year.

"The upper forest bed overlies an old land surface that was eroded, probably when permafrost thawed in a past episode of climate warming."

If the researchers can use this information to understand exactly what happened to Siberia last time the permafrost melted, we might be able to better prepare for when it happens again.

But there's more research that needs to be done - the exact dates of the sediment that have been exposed in the crater still aren't known, Murton told Hogenboom.

He's now planning to drill bore holes in the region to analyse more sediment and get a more accurate understanding of what happened in the past.

"Ultimately, we're trying to see if climate change during the last Ice Age [in Siberia] was characterised by a lot of variability: warming and cooling, warming and cooling as occurred in the North Atlantic region," says Murton.

The research has been published in *Quaternary Research*.

(Fiona Macdonald / Science Alert, 23 Feb 2018, https://www.sciencealert.com/siberian-doorway-to-the-underworld-so-huge-millennia-old-forests-and-carcasses-climate-change

ΕΝΔΙΑΦΕΡΟΝΤΑ - ΛΟΙΠΑ

Corridor with first cable-stayed bridge, largest intersection and longest bridge in Qatar to be ready by 2021

The impressively complex Umm Lekhba (Landmark) Interchange has nine bridges providing a free traffic flow in all directions highlighting its significance as a key access point on Doha Expressway for local residential areas and malls.

Doha: Sabah Al Ahmad Corridor project is the first in Qatar to be called a "Corridor" instead of a road due to its great importance and unique construction. The new Corridor, to be completed in 2021, will have the first cable-stayed bridge in Qatar as well as the largest intersection, longest bridge, deepest and longest bi-directional tunnel.

The Corridor, unveiled today by the Prime Minister and the Representative of Emir of Kuwait, will include the upgrade of seven main roads, which will not only bring relief to Doha traffic, by providing an alternative route to the busy 22 February street and double traffic capacity, but also connect the south of the country to the north via Doha by linking the Doha Expressway with the southern part through Al Wakra Bypass.

The project is named after Kuwait Emir to strengthen bonds of solidarity and brotherhood between the two countries and mark Kuwait's National Day.

Overview of Sabah Al Ahmad Corridor

Sabah Al Ahmad Corridor will extend for approximately 25 kilometres from Hamad International Airport to Umm Lekhba Interchange (known as Landmark Interchange) on Doha Expressway. Its scope includes the upgrade of seven main roads namely, E Ring, F Ring, Mesaimeer, Al Bustan, Bu Erayyen, Lebday and sections of Al Markhiya Street. In addition, Ashghal will enhance 12 kilometres of local and peripheral roads intersecting with the Corridor. The total road works of the project is approximately 37 kilometres.

Once completed in 2021, Sabah Al Ahmad Corridor will significantly contribute to the relief of traffic congestion on Doha Expressway in particular, 22 February Street. The new Corridor will be a vital alternative and parallel route that will serve thousands of daily commuters from the north to the south of Doha. Commuters travelling from Hamad International Airport will be able to reach Umm Lekhba Intersection in approximately 18 minutes compared to the current 50 minutes via Doha Expressway and 22 February Street reducing the time taken by 70%.

The new Corridor will also form a vital link between the north and the south of Doha through Al Watiyyat Interchange, at F Ring Road, which will constitute a key point to accommodate traffic to both Sabah Al Ahmad Corridor and Doha Expressway. This interchange will also create a vital connection between Doha Expressway and Southern Part of Doha Express Highway (Al Wakra Bypass) as well as to Mesaieed Road further south.

The current road layout holds up to three lanes in each direction, which will be upgraded to between four and five lanes in each direction. This expansion will accommodate approximately 20,000 vehicles per hour in both directions on the Corridor while Doha Expressway currently accommodates 12,000 vehicles per hour, which will significantly improve traffic movements in the surrounding areas.

The project will convert all roundabouts to more efficient and safer signalised junctions as well as build and upgrade 17 interchanges. These interchanges will deliver 32 bridges and 12 vehicular underpasses to enhance connectivity and provide smooth traffic movements in addition to 12 pedestrian bridges.

65 kilometres of pedestrian and cycle paths along with 1.5 million square metre of landscaping will also be delivered as part of the project's scope of works.

First Cable-Stayed Bridge in Qatar

Sabah Al Ahmed Corridor includes the first Cable-Stayed Bridge in Qatar with a length of 1200 metres. It extends from Mesaimeer Road to Al Bustan Street and crosses over Halul Intersection on Mesaimeer Road and Faleh Bin Nasser Intersection on Salwa Road.

Longest Bridge

The Corridor will be the home to the longest flyover in the country, which spans 2.6 kilometres extending from Al Bustan Street to Bu Erayyen Street and crossing over Al Waab Street and Rasheeda Street.

Largest Interchange

Sabah Al Ahmad Corridor will include the largest Interchange in Qatar. The impressively complex Umm Lekhba (Landmark) Interchange has nine bridges providing a free traffic flow in all directions highlighting its significance as a key access point on Doha Expressway for local residential areas and malls.

Longest and deepest bi-directional tunnel

The project consists of the recently opened Al Rayyan Road, which is the longest and deepest bi-directional tunnel in Qatar. It sits 25 metres below ground level and extends for 2.1 kilometres connecting Bu Erayyen Street and Lebday Street.

Residential Areas and Main Roads

The new Corridor is a major link facilitating connections to 15 main roads namely Al Wakra Road, Ras Bu Abboud Road, E Ring Road, F Ring Road, Industrial Road, Salwa Road, Al Rayyan Road, Al Waab Street, Al Luqta Street, Al Markhiya Street, Doha Highway and Khalifa Avenue. It will serve 25 densely populated residential areas such as Al-Thumama, Al Nuaija, Bu Hamour, Al Waab, Al Rayyan, Al Luqta, Al Gharrafa, etc.

World Cup Stadiums

Sabah Al Ahmad Corridor will facilitate access to most of the World Cup FIFA 2022 stadiums including Ras Bu Abboud, Al Thumama, Al Wakra, Khalifa International and Qatar Foundation Stadiums.

Qatar Rail

The Corridor provides easy access to some of Doha Metro stations such as the Economic Zone, Al Waab and Old Rayyan.

Drive through Sabah Al Ahmad Corridor project

Once completed, road users coming from Hamad International Airport and southern Doha and heading north will be able to use the new Corridor via F-Ring Road then continue on the existing Mesaimeer flyover to use the new 900-metre bridge crossing over Al Shehaimiya Interchange (formerly known as Bu Hamour Interchange).

The new Cable-Stayed Bridge will allow road users to drive towards the north avoiding Halul Intersection and Faleh Bin Nasser Intersection on Salwa Road to smoothly reach Al Bustan Street. From there, road users will be able to continue their journey using the 2.6 kilometre bridge. This will allow them to avoid the Snay Bu Hasa Intersection and Al Waab Intersection as well as Lekhwiya Roundabout, which will be converted to a signalised junction.

At this stage, road users would have reached Bu Erayyen Street where they will be able to drive through the recently opened tunnel at Lebday Interchange in Al Rayyan, which connects to Lebday Street. Two additional bridges will deliver a free traffic flow to alleviate the traffic at Mekkah and Al Luqta Intersections and deliver connectivity to Thani Bin Jassim tunnel to continue their journey to the north, road users will be able to drive through Al Markhiya Street in Al Gharrafa and reach Umm Lekhba Interchange (known as Landmark Interchange).

(από τις εντυπώσεις του Εκδότη από το Qatar)

Το Φαράγγι της Σαμαριάς!

Γνωρίζατε ότι η Κρήτη έχει περισσότερα φαράγγια από όσα ολόκληρη η υπόλοιπη Ελλάδα μαζί; Αμέτρητα φαράγγια από άκρη σε άκρη στο νησί συγκεντρώνουν το ενδιαφέρον χιλιάδων πεζοπόρων και φυσιολατρών κάθε περίοδο του χρόνου. **Η φυσική ομορφιά των τοπίων είναι απαράμιλλη και δεν είναι τυχαίο πως μερικά από αυτά αναγνωρίζονται ως από τα εντυπωσιακότερα στην Ευρώπη.** Μεταξύ τους σίγουρα ξεχωρίζει με διαφορά το πασίγνωστο φαράγγι της Σαμαριάς στα Χανιά.

Όσοι τυχεροί έχουν ολοκληρώσει την διάσχιση 15 χιλ. από τον Ομαλό μέχρι την Αγία Ρουμέλη, δεν έχουν λόγια να περιγράψουν τις ομορφιές τις διαδρομές, τα εντυπωσιακά τοπία σε τμήματα του φαραγγιού και συνολικά την εμπειρία διάρκειας περίπου 6 ωρών που μένει χωρίς αμφιβολία αξέχαστη. **Η μαγευτική πορεία στη φύση μέσα στον Εθνικό Δρυμό των Λευκών Ορέων, από το πυροσβεστικό φυλάκιο στο Ξυλόσκαλο ως το φυλάκιο στο παλιό χωριό της *Αγίας Ρουμέλης*, θα σας χαρίσει για 13 χιλ. εικόνες που δεν φτάνει ο νους όσα βίντεο και αν δείτε στο ίντερνετ.**

Το τελευταίο τμήμα επίσης θα σας φυλάει την μεγαλύτερη απόλαυση. Την σύντομη διαδρομή μέχρι την φανταστική παραλία της Αγίας Ρούμελης όπου θα **μερικές βουτιές στα κρυστάλλινα νερά θα ολοκληρώσουν την ξεχωριστή αυτή μονοήμερη απόδραση στο απόλυτο Κρητικό τοπίο...**

Ένας από τους χιλιάδες επισκέπτες της Κρήτης που διέσχισε το φαράγγι της Σαμαριάς και έζησε την σπουδαία εμπειρία, κατέγραψε υπέροχα πλάνα και μας χαρίζει ένα σούπερ βίντεο της εκδρομής που θα θυμάται για πάντα!

Δείτε την παραγωγή που δημοσίευσε στο youtube κανάλι του και μας μετέφερε νοερά σε μία από τις ομορφότερες γωνιές της Κρήτης:

https://www.youtube.com/watch?v=FZxJ12cnH2c

(DayNight.gr, 23 Οκτωβρίου 2019, https://www.daynight.gr/exormisi-sto-faraggi-tis-samarias/?fbclid=IwAR0lfeEvcBLI3XBdqUW2JKvVo6zsMt1q7dwbrGhvRJDd9zW2ajke8Avnr0E)

The Mystery of the Tidal Phenomenon of Chalkida, Greece

Tasos Kokkinidis

The bridge of Chalkida at the strait of Evripus

People of Chalkida (or "Halkida") on the Greek island of Evia have a plenitude of reasons to be proud of their historic and beautiful city. But if there's one thing that stands out among all its other qualities, it would have to be its tides, which are unique in the world.

The sea currents in the famous Evripus Channel, the narrow strait of water separating Chalkida from the mainland of Greece, move in a northerly direction for six hours at a time.

Immediately afterward follows a period of approximately eight minutes when the waters remain stationary, similar to a "neap tide" which is part of the normal tidal cycle in the world's oceans.

After the complete stillness of those eight minutes, the waters change their orientation again, reversing direction, flowing toward the south for another six hours.

This eternal process had no beginning and will have no end. It happens four times each and every day (for the most part — more on that later) and has provoked the admiration and interest of humans from ancient times.

It has been scientifically proven that these currents, or tides, which occur throughout Earth's oceans and seas, are created due to the moon's gravitational pull on the Earth.

https://www.youtube.com/watch?v=ukzIAQRi_q0

However, this cosmic rule has its own, unique exceptions. This periodical phenomenon is based on the lunar month.

On the 7th, the 8th and the 9th lunar days, as well as the 22nd, the 23rd and the 24th lunar days, the waters do not change direction every six hours! It's possible that during these six days, which are called "The days of the mess," the waters can change direction up to a total of fourteen times, or they can even not change direction at all and stay still for up to eight minutes!

The Evripus Channel as seen by satellite

The speed of the current peaks at about 12 kilometers per hour (7.5 mph or 6.5 knots), both going northward and southward, and smaller vessels are often incapable of sailing against it. When nearing the time of the reversal of the flow, sailing is even more precarious because of the formation of whirlpools.

The mystery and beauty of this phenomenon has understandably captivated Greeks from ancient times. It is said that that the channel took its name from a man called Euripus, who drowned in his valiant attempt to try to solve the mystery of the "crazy waters."

The great Greek philosopher Aristotle himself, who had ancestors from Chalkida, traveled to the area to study this phenomenon, and a number of other scientists and philosophers have tried to solve the riddle of these irregular tides over the centuries.

In his work "Phaedo," Plato has Socrates use the Euripus tide as a simile for things that "go up and down" in describing the thinking of those who hold that nothing is sound or stable.

In modern-day Chalkida, visitors continue to be stunned as they observe the change of the water's direction every six hours (and are perhaps even more perplexed when they view the many changes that can take place during the "Days of the mess").

The best viewpoint to observe this unique phenomenon is from the old drawbridge in the middle of the city, which is moved to allow for shipping traffic. The bridge is located at the very narrowest point of the strait, where the waters are only 38 meters (125 feet) wide.

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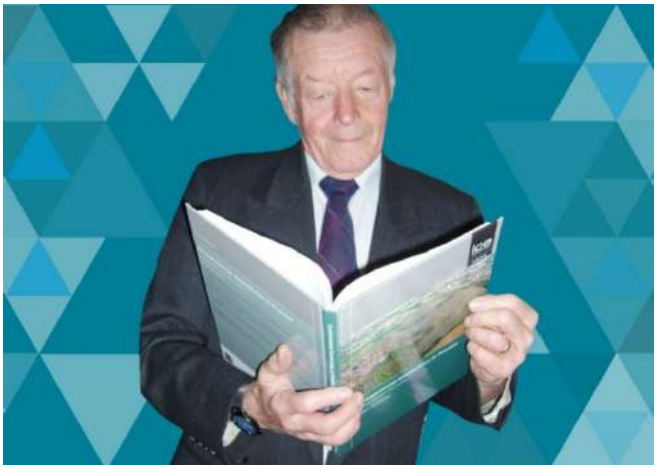
A cup of tea with Robert Sarsby

Robert Sarsby, an author of *Environmental Geotechnics in Practice: Introduction and case studies*, on why he chose to become a civil engineer, what it takes to write a book and more!



Robert Sarsby pictured reading his latest book

What inspired you to work in civil engineering?

I grew up in Sherwood Forest and we were always building mini 'structures' of some form or other out of timber, metal and soil. At the same time I really enjoyed maths and physics at school and civil engineering seemed to be the ideal profession to continue doing what I liked.

What does writing a book entail?

You do not need to be a genius to write a book but you do need Edison's formula, i.e. 1% inspiration and 99% perspiration. You need to be persistent, self-motivated and a little bit self-opinionated.

What is the best part of writing a book?

The rush of enthusiasm at the start and the flood of relief at finishing the book.

And the worst…? What was the biggest challenge you faced?

Trying to obtain reference sources that have been incorrectly cited by other authors. My biggest challenge was to obtain, and present images and illustrations that are acceptable to a

publisher in terms of quality and proof of ownership or usage.

What will the reader learn from *Environmental Geotechnics in Practice: Introduction and case studies*?

A key lesson is always to apply common sense to any construction project. As with any analysis you should always critically scrutinise your input and output data. If in doubt, go back to first principles. In addition, a successful project requires a holistic approach and attention to detail - choosing just one or the other is not good enough.

How do you take your tea?

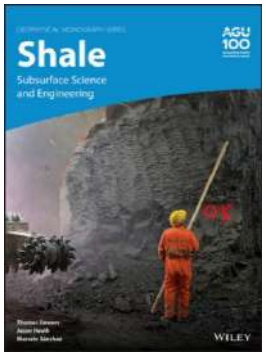
Either strong black or Earl Grey with skimmed milk and a sweetener.

If you could invite any engineer (alive or dead) to dinner, who would it be?

The designer (Thomas Pritchard) of the Iron Bridge in Shropshire so that he could see how his bridge turned out. I am sure that he would be amazed that it has become such a wonder and he would also discover what impact it had on bridge construction industry. I would also like to ask him how exactly he envisaged that the bridge would be erected, given the physical constraints of the site.

(https://www.icebookshop.com/What-s-new/A-cup-of-team-with-Robert-Sarsby.aspx?utm_source=Communicator&utm_medium=email&utm_content=buttonLink107&utm_campaign=8096943&_ccCt=u7tdMc6knNJ8Vsu_1YcBRXZgDZmqSyLta9aOXXi1hQxH9FbGyufIX5BLdDPXGoSX)

ΝΕΕΣ ΕΚΔΟΣΕΙΣ ΣΤΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΠΙΣΤΗΜΕΣ



Shale: Subsurface Science and Engineering

Thomas Dewers, Jason Heath, Marcelo Sánchez

Advances in theories, methods and applications for shale resource use

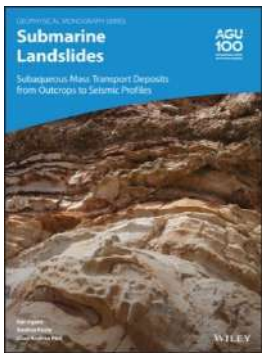
Shale is the dominant rock in the sedimentary record. It is also the subject of increased interest because of the growing contribution of shale oil and gas to energy supplies, as well as the potential use of shale formations for carbon dioxide sequestration and nuclear waste storage.

Shale: Subsurface Science and Engineering brings together geoscience and engineering to present the latest models, methods and applications for understanding and exploiting shale formations.

Volume highlights include:

- Review of current knowledge on shale geology
- Latest shale engineering methods such as horizontal drilling
- Reservoir management practices for optimized oil and gas field development
- Examples of economically and environmentally viable methods of hydrocarbon extraction from shale
- Discussion of issues relating to hydraulic fracking, carbon sequestration, and nuclear waste storage

(Wiley, October 2019)



Submarine Landslides: Subaqueous Mass Transport Deposits from Outcrops to Seismic Profiles

Kei Ogata, Andrea Festa, Gian Andrea Pini

An examination of ancient and contemporary submarine landslides and their impact

Landslides are common in every subaqueous geodynamic context, from passive and active continental margins to oceanic and continental intraplate settings. They pose significant threats to both offshore and coastal areas due to their frequency, dimensions, and terminal velocity, capacity to travel great distances, and ability to generate potentially destructive tsunamis.

Submarine Landslides: Subaqueous Mass Transport Deposits from Outcrops to Seismic Profiles examines the mechanisms, characteristics, and impacts of submarine landslides.

Volume highlights include:

- Use of different methodological approaches, from geophysics to field-based geology
- Data on submarine landslide deposits at various scales
- Worldwide collection of case studies from on- and offshore
- Potential risks to human society and infrastructure
- Impacts on the hydrosphere, atmosphere, and lithosphere

(Wiley, November 2019)

BIM in Principle and in Practice, Third edition

Peter Barnes

BIM in Principle and in Practice, now in its third edition, is an indispensable guide to BIM principles and techniques. It provides clear explanations of core concepts, and answers many of the common questions that are asked about BIM.

In contrast to other narrowly focused guidance on BIM, this book offers a straightforward overview of BIM fundamentals in simple language, with clear explanations of how BIM is used at each stage of a construction project. Coverage includes: core concepts, benefits of using BIM, examples of BIM in practice, design liability and ownership, collaboration and contracts, and insurance.

Thoroughly revised to include the latest BIM developments, this edition includes detailed coverage of current standards (BSI, PAS and ISO), new case studies, the UK Government's 2016 Building Information Modelling mandate, consolidated recommendations of the EU BIM Task Group, future directions including consideration of potential changes to EU Procurement rules following Brexit, and an extensive guide to further resources and reading.

BIM in Principle and in Practice will continue to be essential reading for civil engineers who require a firm grasp of how BIM is used and the benefits it can provide, and it is also ideal reading for students on courses covering BIM techniques.

Book Review

This third edition has been brought up to date with current guidance and statistics which indicates the uptake of BIM in the UK and worldwide.

As an Engineer and Project Manager I found this book had compelling arguments encouraging the use of BIM. The potential of BIM is vast; projects can become safer, efficient and more sustainable.

The book takes the reader on a journey through every aspect of planning and implementation. Much of the guidance on technology, effective communication and collaboration is transferable to all projects.

I would recommend this book to those new to BIM as it outlines the advantages of BIM and clearly explains every stage of the process. Existing BIM users will also benefit having this book for reference and consideration of current legal complexities and technological limits.

Paula McMahon, Sir Robert McAlpine, UK

(ICE Bookshop, 04 March 2019)

ΗΛΕΚΤΡΟΝΙΚΑ ΠΕΡΙΟΔΙΚΑ

www.issmge.org/filemanager/article/700/ISSMGE_BULLETIN_2019_OCT_FINAL.pdf

Κυκλοφόρησε το Τεύχος No. 5 του Τόμου 13 (Οκτωβρίου 2019) του ISSMGE Bulletin της International Society for Soil Mechanics and Geotechnical Engineering με τα παρακάτω περιεχόμενα:

Research highlights – Institute for Geotechnical Engineering, ETH Zurich

Report from Board-level committee

Conference reports

- The 13th Chinese National Conference on Soil Mechanics and Geotechnical Engineering (CNCSMGE), Tianjin, China
- SiDRR conference, Beijing, China

ISSMGE Foundation reports

Hot news

- Winter School: from research to practice in geotechnical engineering, Switzerland

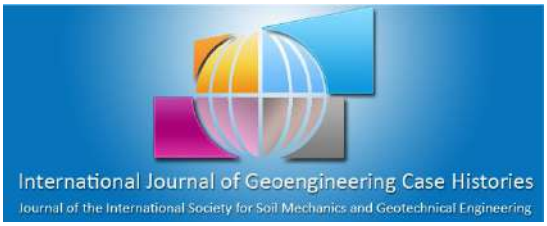
Obituary

- Prof. Serif Wissa Agaiby (1962 – 2019)
- Prof. Gert den Hoedt (1935 – 2019)

Event Diary

Corporate Associates

Foundation Donors



An official journal of the International Society for Soil Mechanics and Geotechnical Engineering
www.geocasehistoriesjournal.org/pub/issue/view/43

Κυκλοφόρησε το Volume 5, Issue 1, του International Journal of Geoengineering Case Histories με τα παρακάτω περιεχόμενα:

- Editorial, Adrian Russell, Bernardo Caicedo, David Toll
- A Lightweight Soil Nail Retaining Wall in Unsaturated Clay, Richard Herraman
- Numerical Simulation of the Mechanical Behavior of Single Piles in Expansive Soil, Yunlong Liu, Sai K. Vanapalli, Christ-Fabel Nyambere, Hamze Mohamoud
- Geobarrier System for Protection Against Rainfall-induced Slope Failure, Harianto Rahardjo, Alfrendo Satyanaga, Nurly Gofar, Eng Choon Leong, Jernice Huiling Kew, Chien Looi Wang, Johnny Liang Heng Wong
- Numerical Simulation of Capillary Barrier System under Rainfall Infiltration in Singapore, Alfrendo Satyanaga, Harianto Rahardjo, Chai Juay Hua

https://about.ita-aites.org/publications/archives-ita/ita-news

Κυκλοφόρησε το τεύχος 69, Οκτωβρίου 2019 της ITA με τα παρακάτω περιεχόμενα:

- MESSAGE FROM JINXIU (JENNY) YAN, ITA PRESIDENT
- ITA TUNNELLING AWARDS: JOIN US!
- ITA TUNNELLING AWARDS - 4 FINALISTS FOR THE MAJOR PROJECT OF THE YEAR
  CUTTING EDGE CONFERENCE 2019
- "THE CHALLENGE OF MODERN TUNNELLING" SEMINAR IN WARSAW
- SAVE THE DATE: UNDERGROUND SPACES WORKSHOP MEXICO
- SICAT: THE PLACE TO BE LAST SEPTEMBER
- ITA PUBLICATION ON HANDLING, TREATMENT & DISPOSAL OF TUNNEL SPOIL MATERIALS
- SUS LILLE 2019
- THINK DEEP SWEDEN IS UNDERWAY
- ITA PRESIDENT MEETS WITH ITACUS CO-CHAIRS
- ISOCARP - ITACUS YOUNG PROFESSIONAL'S THINK DEEP PROGRAMME
- ITA-COSUF WORKSHOP
- "INTERNATIONAL CONFERENCE ON SHOTCRETE FOR UNDERGROUND SUPPORT 2019"
- 13TH IRANIAN TUNNELING CONFERENCE: NEW HORIZONS IN TUNNELLING
- STUVA 2019

Κυκλοφόρησε το IGS Newsletter της International Geosynthetics Society με τα παρακάτω περιεχόμενα:

IGS NEWSLETTER – October 2019

Helping the world understand the appropriate value and use of geosynthetics

- IGS By Laws Voting – Cast Your Vote By November 15th READ MORE
- Exciting Plans For Prague READ MORE
- Spotlight On IGS Stabilization Committee READ MORE
- Early Bird Registration Is Now Open For EuroGeo 7! READ MORE
- IGS Chapter Focus: North America READ MORE
- IGS Influences Irrigation Thinking READ MORE
- IGS Signs Kyoto 2020 Landslide Protocol READ MORE
- Student Award Paper Spotlight: Soil-Geosynthetic Interface Strength Properties from Inclined Plane and Direct Shear Tests – a Comparative Analysis READ MORE
- Seminar on Geosynthetics Textbook Outline & Teaching Experience, Tai'an, China, 16 Aug 2019 READ MORE
- Calendar of Events

READ MORE AT GEOSYNTHETICSSOCIETY.ORG

https://www.icevirtuallibrary.com/toc/jgein/26/5

Κυκλοφόρησε το Τεύχος 5 του Τόμου 26 (Οκτωβρίου 2109) του Geosynthetics International της International Geosynthetics Society με τα παρακάτω περιεχόμενα:

Performance and design of reinforced slopes considering regional hydrological conditions, K-H Yang, T. S. Nguyen, Y-H Li, B. Leshchinsky, pp. 451–473

Seismic bearing capacity of strip footing placed on a reinforced slope, K. Halder, D. Chakraborty, pp. 474–484

Seismic sliding stability analysis of reinforced soil retaining walls, P. Xu, K. Hatami, G. Jiang, pp. 485–496

A comparison of frictional and socketed concrete injected columns in a transition zone, H. Mahdavi, B. Fatahi, H. Khabbaz, pp. 497–514

Experimental investigations on inclined pullout behaviour of geogrids anchored in trenches, R. Bhowmik, J. T. Shahu, M. Datta, pp. 515–524

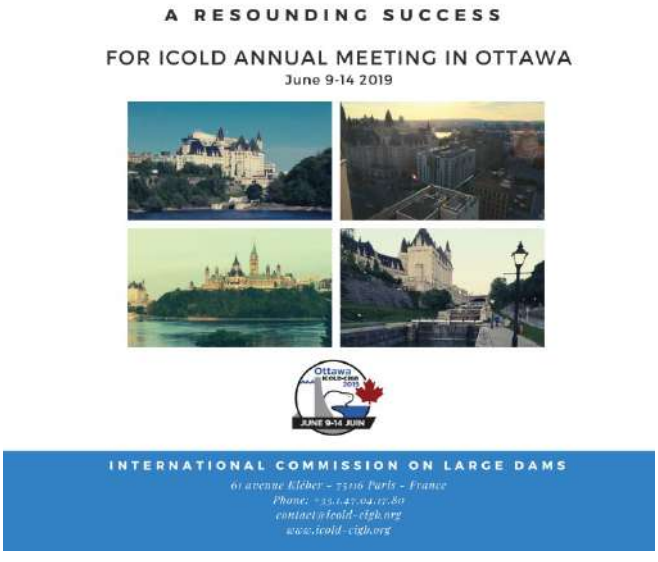
Fibre-reinforced sand-coal fly ash-lime-NaCl blends under severe environmental conditions, N. C. Consoli, V. B. Godoy, L. F. Tomasi, T. M. De Paula, M. S. Bortolotto, F. Favretto, pp. 525–538

Assessment of approaches to obtain ebullition pressures for organophilic clay blankets, J. Eun, J. S. McCartney, D. Znidarčić, pp. 539–550

Experiments and DEM analysis on vibration reduction of soilbags, Y. Q. Wang, X. Li, K. Liu, G. Liu, pp. 551–562

Κυκλοφόρησε το Newsletter της ICOLD - Special Issue - October 2019, αφιερωμένο στο συνέδρια της Ottawa, 9-14 Ιουνίου 2019.

https://www.icold-cigb.org/userfiles/files/NEWSLETTERS/Special%20Issue%20October%202019-Web.pdf



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