

**International Society for Soil Mechanics and Geotechnical Engineering**

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Research Highlights

Korea Advanced Institute of Science and Technology (KAIST), South Korea

The Geotechnical Engineering Division in Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST) is one of the most productive groups of its kind in the world. Our faculty members are internationally recognized experts in various sub-disciplines within geotechnical engineering. Currently, our division consists of 4 faculty members, over 40 graduate students, 3 postdoctoral research fellows, 3 research associates, 3 technical support staffs, and 3 administrative support staffs. KAIST is the one of the prestigious research-oriented schools, ranked 41 in the QS World University in 2018, and the department is ranked in the top 15 in its sub-discipline owing to its strong academic reputation and high number of citations per faculty member.

Faculty Members

Dr. Seung-Rae Lee, Professor
 Dr. Seung-Rae Lee is a professor at the Dept. of Civil and Environmental Engineering at KAIST. He joined KAIST in 1989 and has since made significant contributions to establishing the Geotechnical Engineering Division at KAIST by setting up the curriculum



and supervising a number of graduate students. Dr. Lee served as an editorial board member of several international journals, including Computer and Geotechnics and Acta Geotechnica. He has published more than 150 journal papers and 124 conference proceedings, and participated in many research projects as a principal investigator over the last 25 years. His current research includes geothermal

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energy recovery and heat storage, early warning system and prevention of landslide disasters, and design of radioactive waste disposal system. Recently he has dedicated himself as a chief investigator of the research center of extreme rainfall-induced landslide (ERL) from 2012 to 2017, aiming to develop a real-time prediction and counterplan system of landslide disaster.

Dr. Dong-Soo Kim, Professor

Dr. Dong-Soo Kim is a professor at the Dept. of Civil and Environmental Engineering at KAIST and the director of the KOCED Geo-Centrifuge Center. His primary field of expertise is site characterization, seismic design of geotechnical structures, and geotechnical centrifuge tests for earthquake and offshore geotechnical issues. Dr. Kim served as an Associate Vice President of Research and a Director of Applied Science Research Institute at KAIST. Currently, he is serving as an editorial board member of the journal *Géotechnique Letters*, vice president and a board member of the Korean Geotechnical Society, Earthquake Engineering Society of Korea, Korean Geo-Environmental Society, and Korea National Committee on Large Dam. He was the General Secretary of the 5th International Symposium on Deformation Characteristics of Geomaterials, and the Chairman of the 19th International Conference on Soil Mechanics and Geotechnical Engineering. (19th ICSMGE-Seoul).



Dr. Gye-Chun Cho, Professor

Dr. Gye-Chun Cho is a professor at the Dept. of Civil and Environmental Engineering at KAIST and the director of the Center for Utility Tunnel (CUT), which is dedicated to developing core technologies for the design, construction, and maintenance of urban small-diameter utility tunnels. His main research includes biopolymer treatment for soil improvement, geophysical characterization of geo-materials, design and construction methods for tunnels and underground spaces, geotechnical solutions for urban regeneration, and energy-related geotechnology, including gas-hydrate bearing sediments and geologic carbon dioxide storage. He has published more than two hundred international journal and conference papers. Dr. Cho and his group are actively engaged in collaborative research with various researchers from the Korea Institute of Civil Engineering and Building Technology (KICT), Korea Institute of Geoscience and Mineral Resources (KIGAM), Korea Electric Power Research Institute (KEPRI), and other research institutes.



Dr. Tae-Hyuk Kwon, Associate Professor

Dr. Tae-Hyuk Kwon is an associate professor at the Dept. of Civil and Environmental Engineering at KAIST. His research interests lie in emergent bio-thermo-hydro-mechano-coupled processes in subsurface, related to energy and sustainability problems. His current research centers on methane hydrate, geologic carbon storage, energy resource recovery, microbial activities in geo-materials, and landslides and debris flows, with novel multiscale experimentation involving geophysical characterization and process monitoring (both elastic and electromagnetic waves), X-ray CT imaging (both pore- and core-scales), and related inverse problems. He is also serving as an associate editor of *International Journal of Geo-Engineering* and *Journal of Korean Society of Hazard Mitigation*.



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Korea Advanced Institute of Science and Technology (KAIST), South Korea

Current Research

1. Landslide hazard, geothermal energy, high-level radioactive waste disposal

The research activities in which Dr. Seung-Rae Lee and his group are engaged are further described as follows:

High-efficiency ground heat exchanger systems: Low-cost and high-efficiency ground heat exchanger systems were developed to utilize geothermal energy. A heat exchanger system consists of (i) laboratory experiment and numerical analysis for developing heat transfer models for various heat exchangers, and (ii) thermo-hydro-mechanical analysis for heat transfer mechanisms of standing column wells considering ground water flow. As a result of his research, a robust geothermal energy design program and a numerical modeling code for standing column wells was developed, which was the first in Korea, enabling the optimal design of horizontal heat exchangers.

Landslide early warning system: A landslide early warning system was developed and is in operation for mitigating landslide hazards that frequently occur in Korea by taking into account the geological, topographical, geotechnical and rainfall characteristics. The developed landslide early warning system consists of (i) statistically-based landslide-induced rainfall thresholds and a landslide susceptibility map for estimating temporal and spatial probability, (ii) physically-based continuous rainfall thresholds derived from a slope stability analysis considering the rainfall infiltration mechanism, (iii) debris flow initiation criteria developed from a geomorphological evaluation technique for deciding whether the hazard type is from slope failures or debris flows, and (iv) a numerical modelling of debris flow impact factors for estimating potential hazard and risk information. The system is currently in operation for Busan, the second largest metropolitan city in Korea.

High-level radioactive waste disposal: The thermo-hydro-mechanical characteristics of bentonite buffers, one of the important components in deep geologic disposal of high-level radioactive wastes, are currently investigated. Through this study, they aim to propose an optimal temperature and temperature range in which buffers satisfy basic performance requirements. They strive to solve social issues in Korea through the aforementioned research studies.

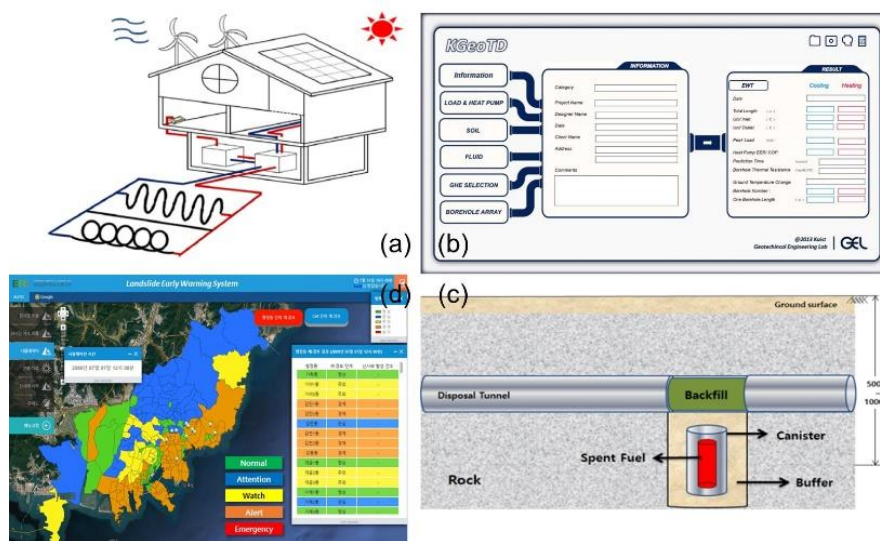


Figure 1. (clockwise from top left) (a) a schematic diagram of horizontal ground heat exchangers, (b) the developed geothermal energy design program, (c) a deep disposal system of high-level radioactive wastes, and (d) the developed landslide early warning system in operation.

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2. Seismic-related issues

Dr. Dong-Soo Kim and his research group are actively researching earthquake and seismic-related issues. Examples of their research projects are as follows:

Rocking foundation: the use of the rocking behavior of a shallow foundation, called rocking foundation, has emerged as an effective seismic design of shallow foundation to reduce the seismic load on super-structures. The rocking mechanism for the embedded shallow foundation is investigated with an emphasis on (1) soil rounding effect on embedded shallow foundation via horizontal slow cyclic tests; (2) comparison between cyclic and dynamic rocking behavior for embedded shallow foundation considering structural flexibility; (3) centrifuge modeling of improved design for rocking foundation using short piles.

Gravity type quay wall: To apply the performance-based design to a quay wall, the seismic performance verification methods for quay wall were improved. The detailed aspects of quay wall design are described as follows: (1) improvement of a seismic coefficient for limit-equilibrium-based design; (2) improvement of a seismic coefficient for performance-based design; (3) verification of performance of gravity type quay wall using a centrifuge test with viscous fluid; (4) evaluation of the dynamic earth pressure on a cantilever retaining wall.

Liquefaction: To analyze the liquefaction problem in detail, the physical and numerical modeling of the liquefaction is important. Liquefaction experimental and analysis projects (LEAP) is a global project to simulate the liquefaction of the ground by physical and numerical modeling. The soil dynamics laboratory at KAIST, additionally, participated in the LEAP (2016). The detailed aspects of liquefaction are described as follows: (1) development of centrifuge testing system for liquefaction phenomena; (2) development of Korean guidelines for identification, assessment, and mitigation of liquefaction hazards.

Site response analysis: The evaluation of seismic force on a structure is an essential part of the seismic design procedure. The seismic force depends on geological factors and hence, site characterization and estimation of soil amplification are needed to accurately evaluate the seismic force on a structure. However, the current seismic design code of Korea is based on the seismic design code of western US, without considering ground conditions relevant to Korea. In this study, a new seismic site classification system and site amplification factors were developed by considering the local ground conditions in Korea and design response spectra were proposed for different soil conditions. The new seismic design provisions were recently approved to be included in the revised version of the Korean national seismic design code. The detailed aspects of site response analysis are described as follows: (1) improvement of Korean seismic design code for the site classification system and site coefficient; (2) site response analysis and verification based on the field data.

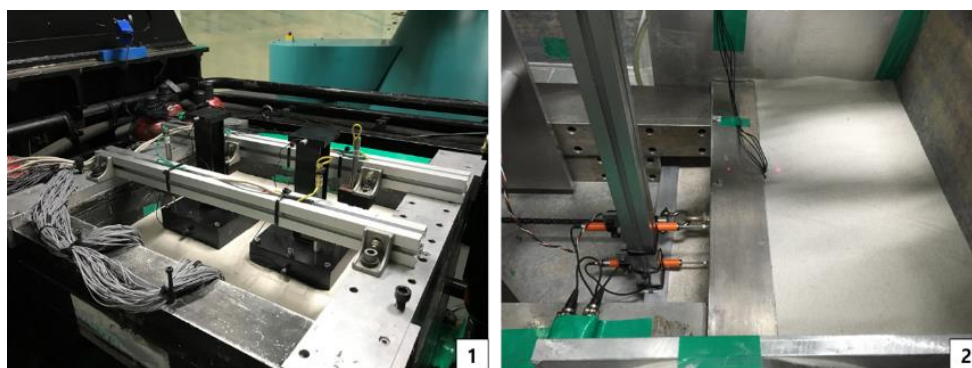


Figure 2. Geotechnical centrifuge test setup for earthquake related issues. (1) seismic behavior of single degree of freedom structure on disconnected piled raft (DPR); and (2) gravity-type quay wall.

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3. Offshore foundation-related issues

Dr. Dong-Soo Kim and his research group also investigate geotechnical engineering problems and technologies related to offshore foundations. Examples of their research projects are as follows:

Suction bucket/bucket installation: Offshore structures use skirted foundations or large diameter piles because offshore structures should withstand the huge environmental loads that are dominated by horizontal and overturning moment loads. The suction bucket is being considered as a competitive foundation type for offshore structures because underwater installation allows the use of 'suction' to help installation of suction bucket. The detailed aspects of suction bucket are described as follows: (1) suction bucket installation response; (2) bearing capacity of bucket foundation under uniaxial load; and (3) pullout resistance of suction bucket.

Lateral behavior of monopile: A large-diameter monopile foundation is favorable for non-cohesive soil layer with shallow bedrock depth. On a typical offshore wind turbine (OWT), the structure would be subjected to wind, waves, and current loads, and this combined load will apply overturning moments at foundation level. Therefore, the design of offshore foundation to support a wind turbine involves greater technical challenges, and the foundation must be designed to survive large horizontal and overturning loads. The subject of monopile lateral behavior covers: load-displacement behavior of large diameter monopile.

Dynamic behavior of offshore wind turbine: Dynamic behavior evaluation of the offshore wind turbine (OWT) is required to design the structure to avoid vibration-induced damage such as resonance or seismic behavior. As the dynamic behavior of a structure is affected by soil-foundation-structure interaction (SFSI), this research focuses on evaluating natural frequency reduction because of the SFSI, and seismic behavior during/after the earthquake considering SFSI. The detailed subjects for OWT dynamic behavior are described as follows: (1) evaluation of OWT natural frequency; (2) seismic response of OWT.

Cyclic behaviors of tripod foundation: This involves the evaluation of the cyclic behaviors of the tripod foundation supporting the offshore wind turbine. Recently, the use of tripod suction bucket foundation is rapidly expanding as a foundation system supporting offshore wind turbines. In the offshore environment, wind turbine foundation structures should be designed by considering cyclic loading, which can lead to permanent deformation of structure, tilting problem, and overall degradation of soil stiffness. By using the centrifuge and 1-g model tests, cyclic behaviors can be evaluated. Cyclic behaviors depend on various loading characteristics, loading direction, level, and rate, and these were controlled for the investigation of cyclic behaviors of the tripod foundation. The detailed aspects of tripod foundations are described as follows: (1) permanent displacement of foundation; and (2) cyclic stiffness response of tripod suction foundations.

Submerged floating tunnel (SFT) foundation: Standardization of design and analysis protocols for anchorage-foundation systems considering the submerged ground condition are critical. This research shall focus on developing core technologies needed for the construction of smart submerged infrastructure of the highest standard globally, ensuring smartness, safety economic-viability and construction-ability. The detailed aspects of SFT foundation systems are described as follows: (1) foundation-anchor system for supporting submerged floating tunnel; (2) foundation design considering submerged ground condition; (3) assessment of foundation system behavior under various loading conditions.

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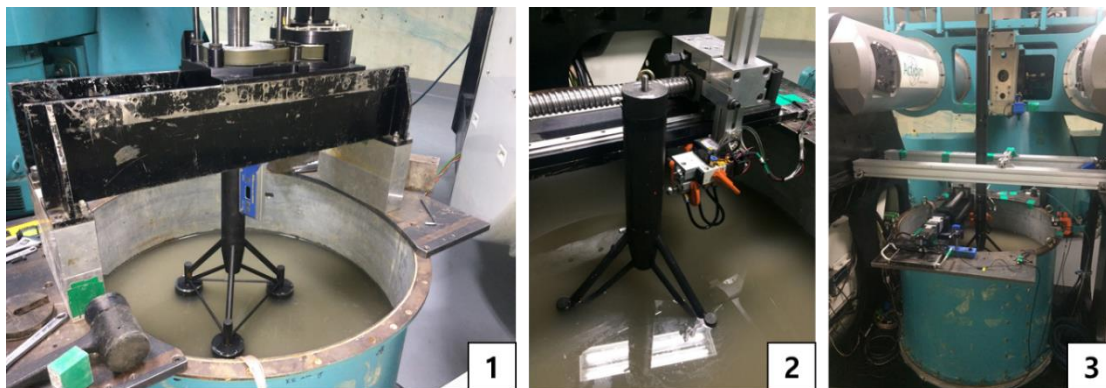


Figure 3. Geotechnical centrifuge experiment procedure for tripod offshore wind turbine's dynamic behavior evaluation. (1) foundation installation using vertical actuator; (2) impact test setup for evaluating OWT natural frequency; and (3) finished geotechnical centrifuge test setup

4. Soil treatment and monitoring related issues

Dr. Gye-Chun Cho and his research group are engaged in the following research activities:

Biopolymer-treated soils: Biopolymer treatment of soils can provide an eco-friendly and cost-effective alternative as a soil binder. Biopolymers are polymers derived from biological origins and have been used in various industries such as medicine, food, and agriculture. Various biopolymers such as chitosan, beta-glucan, xanthan gum, agar gum, and gellan gum are mixed with various soil types to investigate soil-biopolymer interactions and related soil-strengthening mechanisms. In addition to laboratory testing, field tests on soil slopes and soil pavements for erosion prevention were conducted, and the results verified the effects of biopolymer treatment.

Underground space monitoring: The construction of underground structures requires extensive monitoring of geological conditions. The sudden appearance of abnormal ground conditions can result in the collapse of the excavation face, which can have disastrous effects. Therefore, it is necessary to predict the ground conditions ahead of the excavation face. The tunnel electrical resistivity prospecting system (TEPS) developed by Dr. Cho's group can predict the ground conditions ahead of the excavation face using electrical resistivity techniques. The system can estimate the rock mass classification (RMR or Q-value), location, size, and status of any anomalies lying ahead of the tunnel face.

Gas hydrates and geologic carbon dioxide storage: Gas hydrates found in onshore permafrost sediments or offshore marine sediments are a potential future energy source. Gas hydrate-bearing formations can be also used as a cap-rock during carbon dioxide storage in marine sediments, where the byproduct hydrates form an impenetrable layer above the gas storage site. In Dr. Cho's group, both scenarios are investigated using experimental and numerical analysis techniques. Using seismic wave velocities and electrical resistivity techniques, the effects of hydrate formation and dissociation in various types of sediments are investigated. The "KAIST-Hydrate" program can also successfully model 2D and 3D multiphase T-H-M coupled analysis for hydrate production and well stability, as well as settlement, volumetric strain, shear stress, and hydrate saturation.

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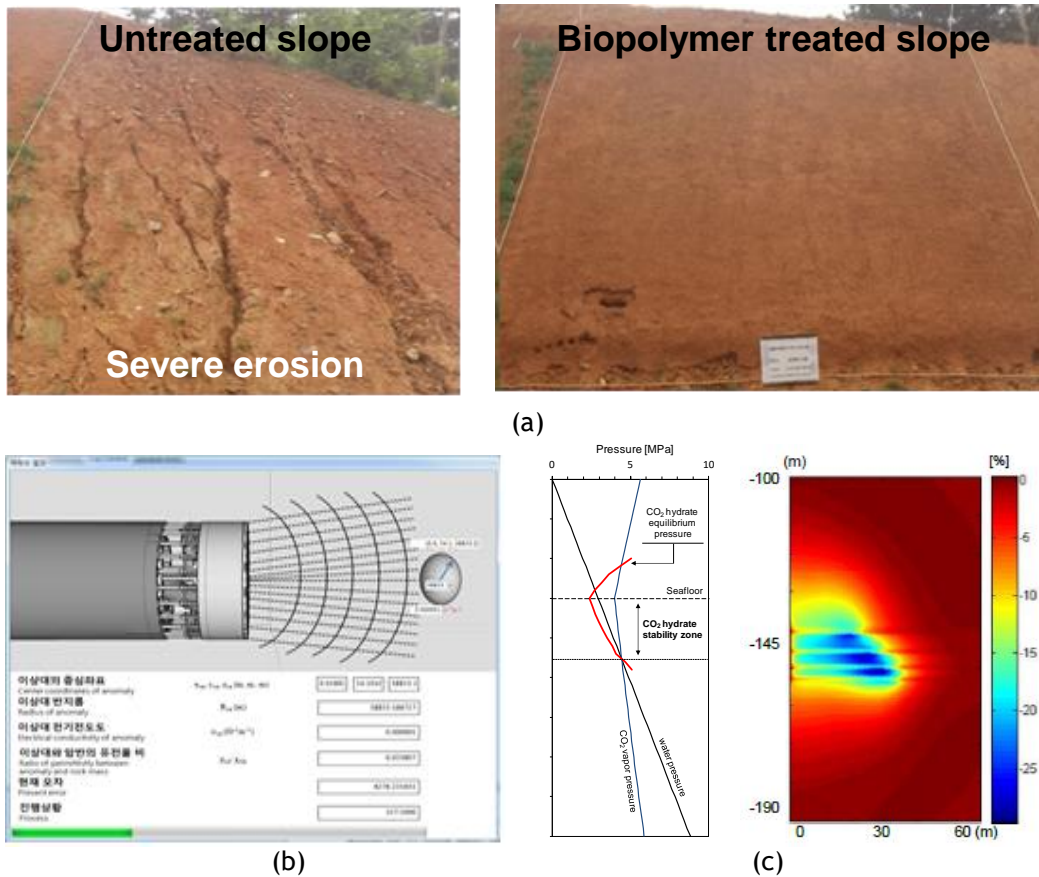


Figure 4. (a) Application of biopolymer-treated soils for slope stability and erosion prevention, (b) Developed tunnel electrical resistivity prospecting system (TEPS), (c) Developed numerical simulator for gas hydrate production and carbon dioxide sequestration

5. Excavation-related issues

Dr. Gye-Chun Cho leads research initiatives to bring together the academia, industry and government agencies to find sustainable solutions for various urban excavation and tunneling problems as follows:

Abrasive waterjet for rock excavation: Abrasive waterjet technology can be used to cut a rock alone or in conjunction with conventional mechanical excavation methods for rock excavation projects. The abrasive waterjet can remove the target material through the impact of abrasive particles accelerated by liquids flowing at high speeds. Dr. Gye-Chun Cho and his group have conducted research using different abrasives ranging from crushed garnets to steel balls and numerous water jet parameters have been analyzed both experimentally and numerically. Field studies using a prototype waterjet have yielded low vibration and low noise rock excavation with a clear excavation surface compared to conventional drill and blast techniques.

Center for Utility Tunnel (CUT): The Center for Utility Tunnel (CUT) is a government-funded research consortium of more than 34 universities, research institutes and industrial companies dedicated to developing core technologies for the design, construction and maintenance of urban small-diameter utility tunnels. CUT is one of the central components of Dr. Cho's research activities that drives the fundamental and applied research for the Korean tunneling industry.

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The main research projects conducted by the center include: (1) cross-section optimization and global standard design (LRFD) of utility tunnels; (2) life-cycle dependent safety management; (3) excavation rate prediction, propulsion and segment lining design of small diameter shield TBMs; (4) rapid construction techniques in special ground conditions; (5) noise- and vibration-controlled rapid excavation of vertical shafts; and (6) tunnel-shaft joint reinforcement and water cut-off systems.

The research project utilizes new and existing technologies for application in urban tunneling. These technologies include abrasive waterjet schemes for low vibration rock excavation, biopolymer grouts for shaft reinforcement, and electrical resistivity techniques for tunnel-ahead prediction. The center aims to build upon current research in geomechanics and excavation, and develop further expertise in the application of these technologies to urban tunneling and underground space regeneration.

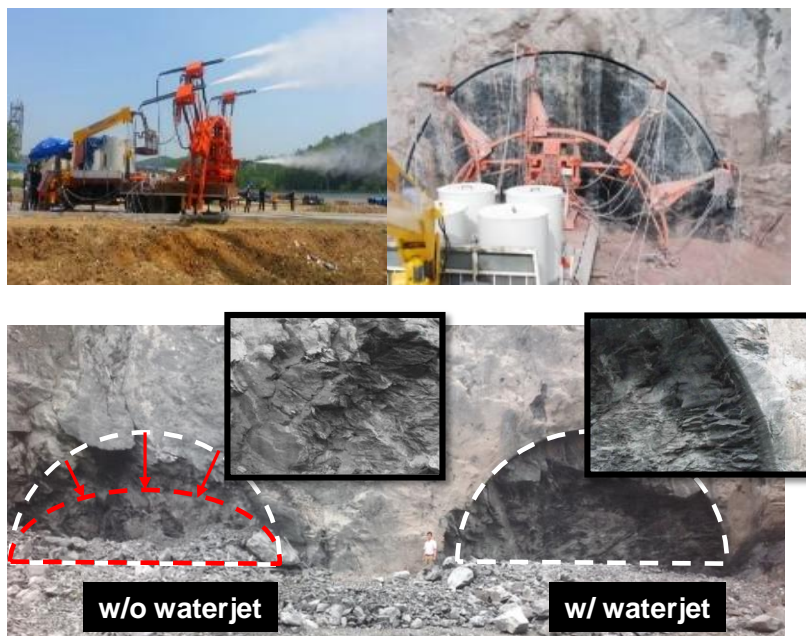


Figure 5. Application of abrasive waterjet for rock excavation

6. Use of microbial activities in soil improvement

Owing to the growing interests in sustainability, significant interest is being garnered in soil and ground improvement methods using microbial byproducts (e.g., biopolymer and biofilm). Dr. Tae-Hyuk Kwon investigates engineering behaviors of soils associated with microbial activities, and examples of his research projects are as follows:

Bioclogging and erosion resistance improvement by bacterial biopolymer and biofilm formation: When the biopolymer-producing bacteria are cultivated in soils, the soft biopolymer can reduce hydraulic permeability by several orders of magnitude, thereby occluding pore spaces. In addition, erosion resistance of soils is also proven to be improved with the accumulation of biopolymers' coating and gluing soil grains together.

Viscoelastic characteristics of bacterial biopolymers: To predict the behaviors of biopolymer-associated soils, the behaviors and properties of the biopolymers must be identified because they are required as part of the effective mixture models. Dr. Kwon's group has been working on measuring the microscale elastic modulus and complex shear modulus of biofilms and biopolymers using atomic force microscopy (AFM) and particle-tracking microrheology (PTM).

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Seismic and induced polarization responses of bioclogged soils: Dr. Kwon and his group also investigate feasibility of using seismic responses (P and S wave velocity and attenuation) and induced polarization responses (complex conductivity) for monitoring *in situ* accumulation of bacterial biopolymers in soils. It has been found that biopolymer formation and the resulting permeability reduction can be effectively monitored by using P and S wave attenuation and by imaginary conductivity.

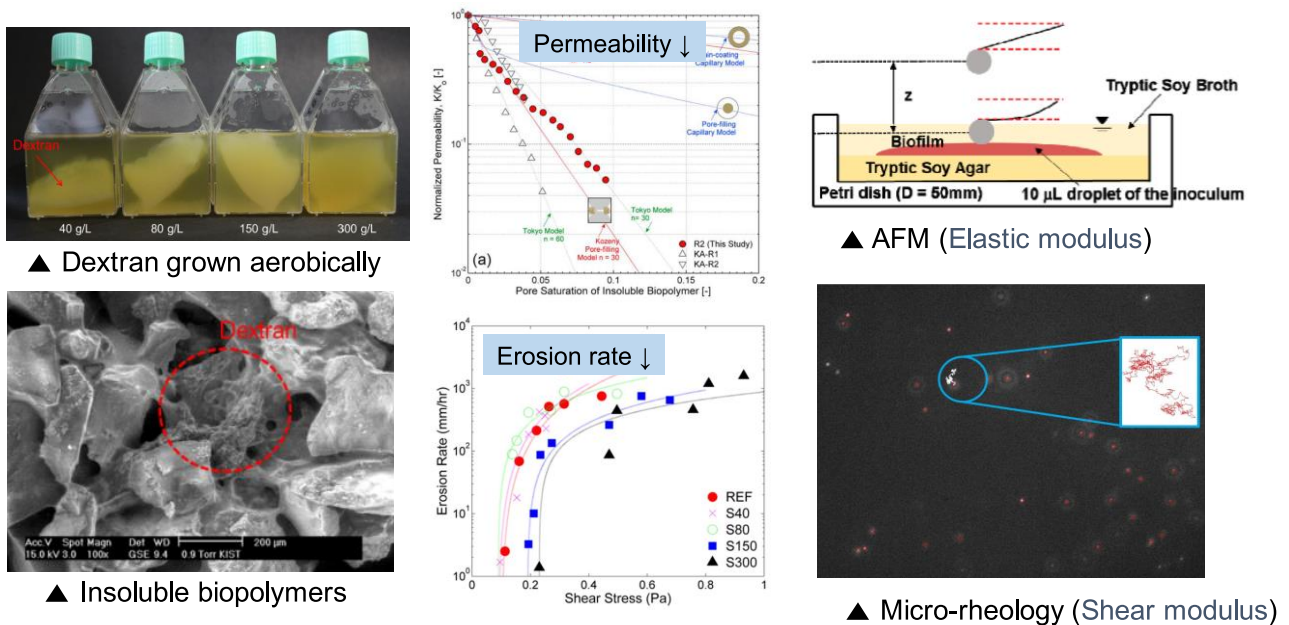


Figure 6. Behaviors of biopolymer-accumulated soils.

7. Multiphase flows in porous media

Understanding, prediction, and manipulation of multiphase flows in porous media are some of the important challenges in various energy-related practices such as hydrocarbon resource recovery, energy storage, geologic carbon storage, and methane hydrate production. Examples of such research from Dr. Kwon's group are listed below.

Understanding and predictive modeling of multiphase flows in porous media: Various factors such as capillary number, viscosity ratio, and wettability affect multiphase flows. The fundamentals of multiphase flows in porous media are being investigated via microfluidics, pore network modeling (PNM), and computational fluid dynamics (CFD).

Microbial enhanced oil recovery: The effect of bacterial biosurfactant on enhancing oil recovery is studied by identifying the changes in interfacial tension (IFT) and contact angle during production of biosurfactant by bacteria.

Methane hydrate production: Methane production from natural hydrate-bearing deposits poses various challenges and problems related to seafloor stability, geohazards, and wellbore integrity. Therefore, the emergent phenomena occurring during dissociation of methane hydrate in sediments are being investigated via laboratory experiments using X-ray CT imaging and T-H-M-coupled numerical modeling.

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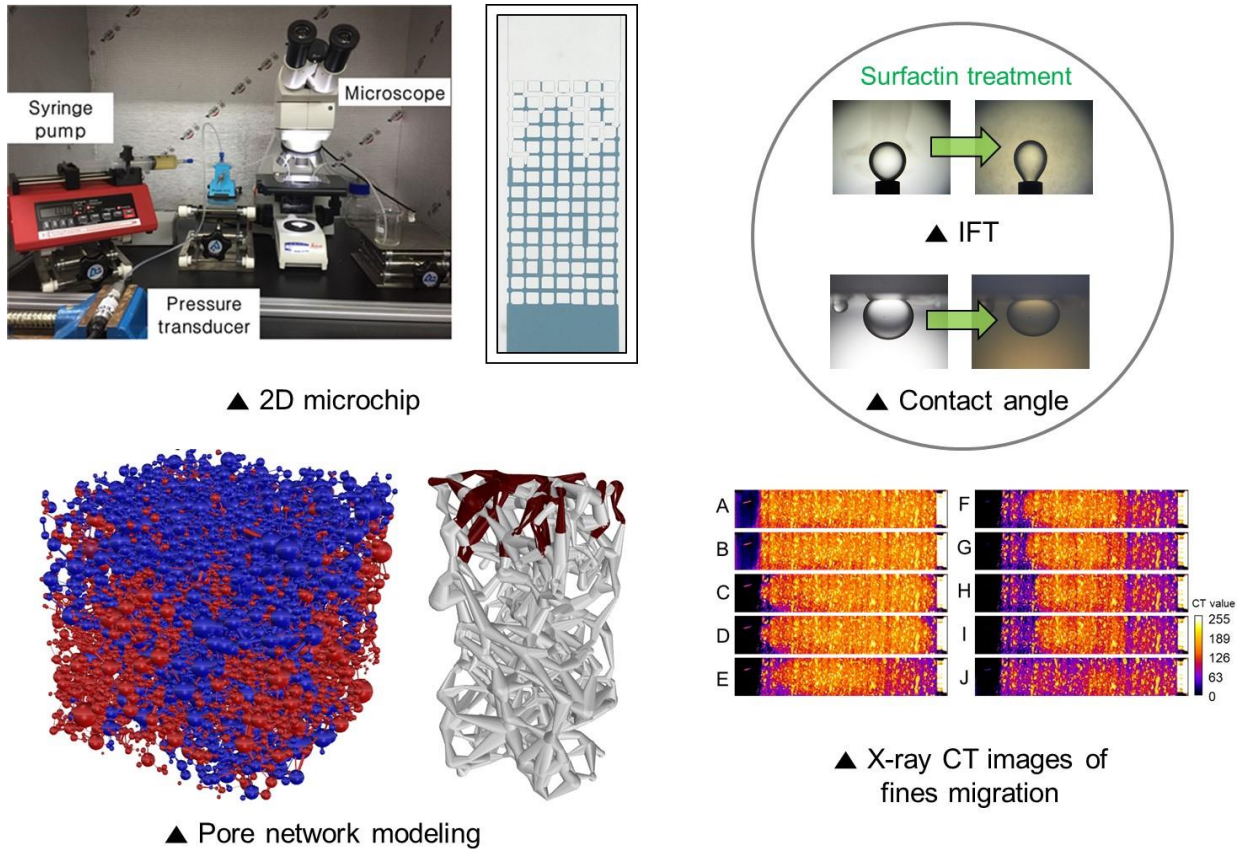


Figure 7. Research related to multiphase flow behaviors in porous media.

Research Facilities

State-of-the-art Geotechnical Centrifuge

KOCED's Geotechnical centrifuge testing center is equipped with the second largest geotechnical centrifuge facility in South Korea. This facility houses a geotechnical centrifuge having a 5-m radius arm with a 4.5 m effective radius, and a maximum capacity of 240g-ton. It has a flat basket with a dimension of 1.2 m × 1.2 m × 1.2 m (width × length × height). Additionally, it can be equipped with a centrifuge-mounted self-balanced earthquake simulator (shaking table).



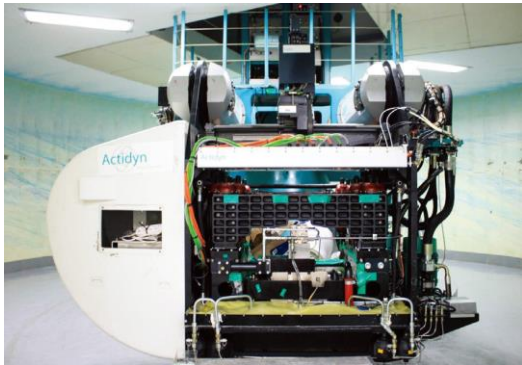
Manufacturing company	ACTIDYN systems (France)
Platform radius	5.0 m
Max. capacity	240g-tons
Max. payload	2,400kg up to 100g
Payload dimension	1.2 m × 1.2 m × 1.2 m
Max. acceleration	130g @ 1,300 kg payload

Figure 7. KOCEDs geotechnical centrifuge

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The self-balanced earthquake simulator can generate sinusoidal and real recorded earthquake motions during experiments. It can take loadings up to 0.5g in prototype scale. The allowable frequency range of input load is from 20 Hz to 300 Hz on the model scale.



Electro-hydraulic servo type	
Max. payload	700 kg
Max. acceleration	0.5g (in prototype)
Frequency range	Max. 300 Hz
Platform dimensions	0.7 m × 0.7 m × 0.65 m

Figure 8. Self-balanced earthquake simulator

KOCED's Geotechnical centrifuge center has striven to build top-tier facilities to support geotechnical researchers, engineers and other construction companies. This facility has immense applicability to a wide variety of geotechnical problems including earthquakes and offshore engineering issues.

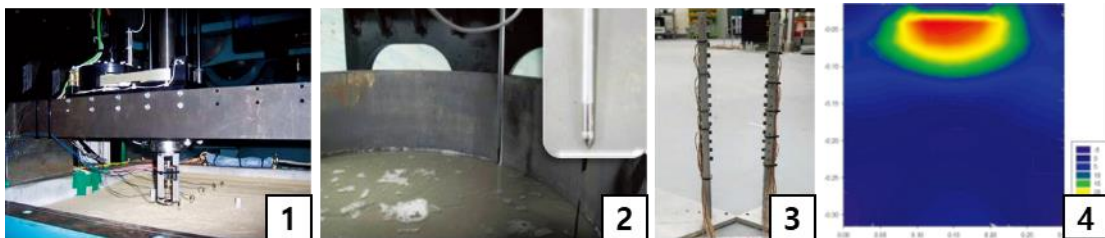


Figure 10. Soil property evaluation technique. (1) HWAW, SASW; (2) CPT; (3) Bender element array; (4) Tomography.

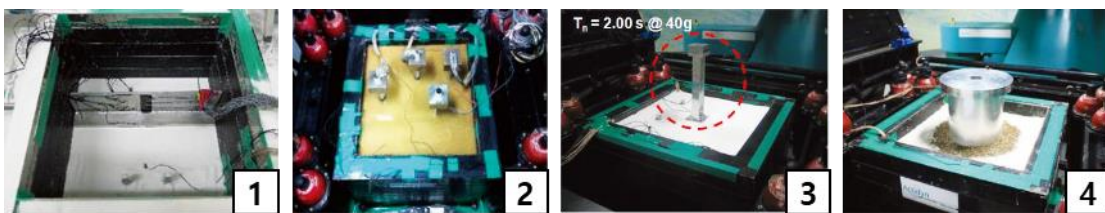


Figure 11. Seismic behavior analysis. (1) inverted T-shape retaining wall; (2) pile foundation; (3) shallow foundation; (4) nuclear reactor foundation.



Figure 12. Offshore foundation evaluation. (1) monopile; (2) monopod; (3) tripod; (4) suction bucket foundation.

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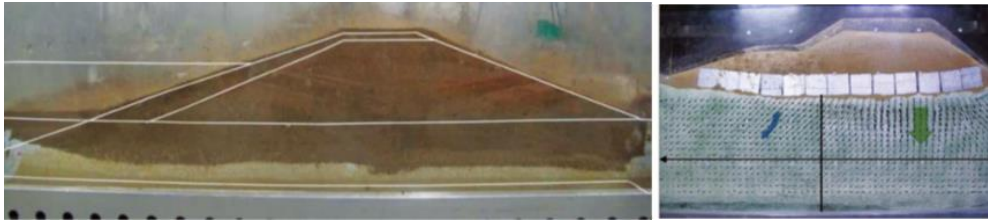


Figure 13. Embankment seepage & settlement analysis.

Abrasive Waterjet System

The intensifier abrasive waterjet system is equipped with a hydraulic oil pump and intensifier that generates high water pressures. Abrasives are supplied to the high-pressure water near the end of the nozzle and the mixture is sprayed onto the target material via a focusing tube.

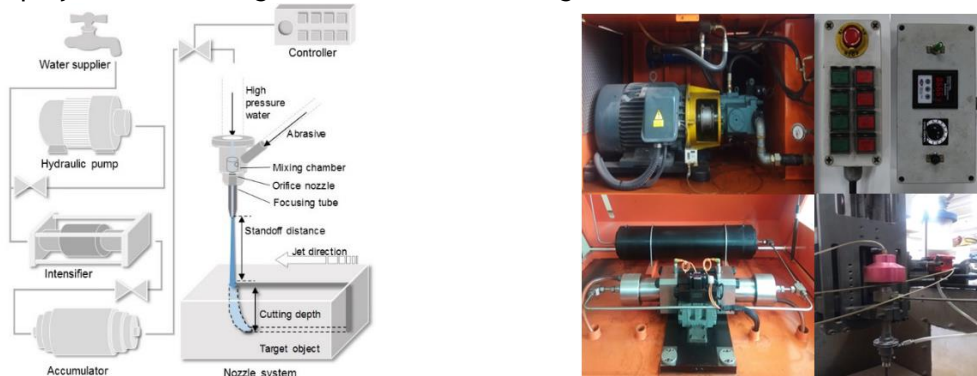


Figure 14. Abrasive waterjet system.

Max. pressure	420 MPa
Max. flow rate	6 L/min
Jet system	Sapphire orifice nozzle, Tungsten carbide focusing tube
Orifice diameter	0.254 mm
Jet transfer velocity	1.2–16 mm/s

Tunnel Electrical Resistivity Prospecting System (TEPS)

The TEPS system can predict ground conditions ahead of the excavation face using electrical resistivity techniques. More than five electrodes are necessary for accurate prediction of the tunnel face, and the system can measure a range of 3–4 times the tunnel diameter in the direction of tunnel excavation. A unique back analysis based on electrical field theory is used to calculate the electrical resistivity from the measured resistance.



Avg. measurement time	5 min
Avg. analysis time	30 min
Measurement range	3–4 times the tunnel diameter (in the direction of tunnel excavation)

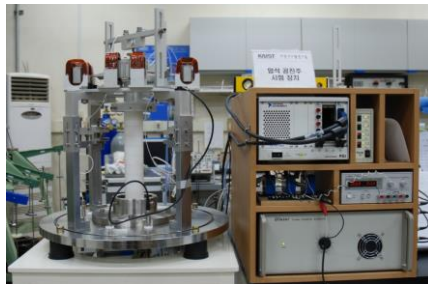
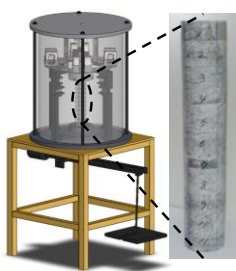
Figure 15. Tunnel electrical resistivity prospecting system.

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Rock Mass Dynamic Test apparatus (RMDT)

The RMDT apparatus is a modified Stokoe-type resonant column (RC) test device that has sufficient torque power to test rock column specimens for shear strains up to $10^{-2}\%$. Using this system, the characteristics of wave propagation in jointed rocks can be tested for small to intermediate shear strain levels.



Drive plate	Four-armed plate with magnets (Magnet: 70 mm × 50 mm × 25 mm)
Max. axial loading	2 MPa
Shear strain range	10^{-5} – $10^{-2}\%$

Figure 16. Rock mass dynamic test apparatus.

Conference reports

The 70th Canadian Geotechnical Conference and the 12th Joint CGS/IAH-CNC Groundwater Conference, Ottawa, Canada

GeoOttawa 2017, the 70th Canadian Geotechnical Conference and the 12th Joint CGS/IAH-CNC Groundwater Conference, was held at the Shaw Centre in Ottawa, Ontario from October 1 - 4, 2017. It was a successful event with over 900 delegates in attendance. The trade show was sold out with 75 booths, and 23 companies participating at all sponsorship levels. 400 papers were approved for presentation at **GeoOttawa 2017**, with authors from all over Canada and numerous countries around the world. The extensive conference program featured daily plenary sessions with well-known and respected keynote speakers, technical, specialty, and poster sessions, as well as a diverse range of short courses and workshops. The top contributors in the field were celebrated with awards and recognition throughout the week. On the 70th anniversary of the Canadian conference, outstanding Canadian Geotechnical Achievements were celebrated. The organizing committee led by Dr. Mamadou Fall, University of Ottawa, hosted a wonderful intellectually challenging and celebratory event.

An impressive group of keynote speakers were included in the program; Richard Bathurst, Professor of Civil Engineering at the Royal Military College of Canada, gave the CGS's R.M. Hardy Keynote Address, titled "*Load and Resistance Factor Design and Calibration for Simple Soil-Structure Limit States in MSE Walls*". Dr. Kamini Singha, from Colorado School of Mines, presented the IAH's Darcy Lecture. Her lecture was titled "*A Tale of Two Porosities: Exploring Why Contaminant Transport Doesn't Always Behave the Way It Should*". The Hydrogeology Lecture was given by Mark Jensen, Director of Deep Geologic Repository Geoscience and Research at the Nuclear Waste Management Organization, titled "*Radioactive Waste Management in Canada: The Role of Geosciences*", while the Geotechnical Lecture was presented by Robert Blair. Blair, a senior hydrogeologist and engineering geologist with a private consultancy in Ontario, lectured on "*Refinements in Bedrock Geology Understanding of Downtown Ottawa*". Dr. Greg Brooks of the Geological Survey of Canada, Natural Resources Canada delivered the CGS Lecture, "*Prehistoric Sensitive Clay Landslides and Earthquakes in the Ottawa Valley*". On the final day of the conference, delegates were treated to a lecture titled "*The geotechnical assessment of railway infrastructure reliability*" from the 2017 CGS Colloquium speaker, Dr. Michael Hendry. In addition to acting as Associate Director of the Canadian Rail Research Laboratory, and a Principal Investigator for the Railway Ground Hazard Research Program, Dr. Hendry is an Assistant Professor at the University of Alberta.

Before the conference started, **GeoOttawa 2017** offered four short courses and one workshop, which was an excellent opportunity for professionals and students to participate in a learning environment before the conference officially began. Excellent short courses were given on trenchless technologies, liquefaction and seismic remediation of dams, construction dewatering, aquifer test interpretation, and geotechnical and geoscience research grant applications.

In celebration of **GeoOttawa 2017** being the 70th annual Canadian Geotechnical Society conference, the Canadian Geotechnical Achievements initiative was a highlight of the week. A compilation of 29 significant geotechnical projects throughout the history of Canada were selected from numerous submissions by CGS members, engineering companies, and geotechnical professionals across the country. These projects were showcased during the Geotechnical Achievements Luncheon, and on posters for the duration of the conference. Selected achievements are highlighted in the following pages. The 29 projects showcased at **GeoOttawa 2017** are as follows:

- Kenney Dam; Kemao Tunnels and Powerhouse, British Columbia
- Confederation Bridge - Geotechnical Investigations and Foundation Design, New Brunswick / Prince Edward Island
- Beaufort Sea Islands - Design and Construction, Northwest Territories
- Empress Hotel - Foundation Settlement Measurements and Analyses, British Columbia
- Alex Fraser Bridge - Geotechnical Investigation and Design, British Columbia
- Deltaport Container Terminal; Caisson Wharf - Geotechnical Design and Construction, British Columbia
- Highland Valley Copper Tailings Dam - Geotechnical Design and Construction, British Columbia
- Seymour Falls Dam - Geotechnical Design and Seismic Upgrade, British Columbia

Conference reports

The 70th Canadian Geotechnical Conference and the 12th Joint CGS/IAH-CNC Groundwater Conference, Ottawa, Canada (Con't)

- Terzaghi Dam - Geotechnical Design and Construction, British Columbia
- Underground Research Laboratory (URL), Manitoba
- Keele Valley Landfill Site - Geotechnical Engineering and Hydrogeology Design, Ontario
- Hwy 417/Mississippi River Twin Bridges - Geotechnical Investigation and Design, Ontario
- Toronto Subway System - Geotechnical Investigation and Design of Tunnels, Ontario
- Romaine-2 Hydroelectric Development - Asphalt Core Rockfill Design, Quebec
- La Grande Hydroelectric Development - Geotechnical Conditions and Designs, Quebec
- Manic-3 and Péribonka Dams - Deep Foundation Cutoff Walls, Quebec
- Transcona Grain Elevator - Failure and Righting, Manitoba
- Canadian Liquefaction Experiment Project (CANLEX), Canada
- St. Mary River Irrigation Project - Geotechnical Foundations, Alberta
- Kelsey Dam - Design and Construction of Water Retention Dikes on Discontinuous Permafrost, Manitoba
- District of North Vancouver - Geohazards Risk Management Program, British Columbia
- Downie Slide - Very Large Rockslide Stabilization Project, British Columbia
- Edmonton Light Rail Transit System - Geotechnical Excavations, Alberta
- Gardiner Dam - Geotechnical Conditions and Design, Saskatchewan
- Collaboration to Characterize the Quaternary and Cretaceous Deposits in Saskatchewan, Saskatchewan
- Steep Rock Iron Mine - Construction, Operation, and Decommission, Ontario
- Charles Creek - Debris Flow Mitigation Structure, British Columbia
- Glacier Skywalk - Geotechnical Investigation and Design, Alberta
- Les Terains Aurifères (LTA) - Cover with Capillary Barrier Effects to Control Acid Mine Drainage, Quebec

Further details and photos of each of the Canadian Geotechnical Achievements projects can be found on the [CGS Instagram account](#). The CGS extends its thanks to Project Managers Doug VanDine and Lisa McJunkin, who were supported by Michel Aubertin and Mamadou Fall, for their extensive contributions to the project. In addition, we wish to thank the Review Committee of Jean Côté, Mamadou Fall, James Graham, Heinrich Heinz, Fred Matich, Suzanne Powell, and Doug VanDine, as well as Translators Valérie Fréchette, Thomas Pabst, and Michel Aubertin, and Poster Designer Hartley Facultad. Our appreciation goes out to those who submitted projects, as the final product would not have been possible without quality submissions from all over Canada. Everyone in the international geo-community are invited to attend and participate in the 2018 GeoEdmonton Conference 23-26 September 2017. Further details are available at <http://www.geoedmonton2018.ca/>.



Photo 1. Dr. Richard Bathurst receiving recognition from Dr. Mike Bozozuk for giving the opening keynote lecture, the Hardy Address

Conference reports

The 70th Canadian Geotechnical Conference and the 12th Joint CGS/IAH-CNC Groundwater Conference, Ottawa, Canada (Con't)



Photo 2. Zhong Han (2nd from right) receiving his Graduate Student Presentation Award from (L to R) Dr. Dennis Becker, Canadian Foundation for Geotechnique, Dr. Sumi Siddiqua, Administrator of Student Competitions and Dr. Dharma Wijewickreme, President of the Canadian Geotechnical Society.



Photo 3. CGS President Dr. Dharma Wijewickreme giving opening remarks.

Conference reports

The 70th Canadian Geotechnical Conference and the 12th Joint CGS/IAH-CNC Groundwater Conference, Ottawa, Canada (Con't)



Photo 4. Dr. Doug Stead, Simon Fraser University, receiving the R.F. Legget medal from Dr. Dharma Wijewickreme, the highest honour in the Canadian Geotechnical Society.



Photo 5. Colour night at Canadian War Museum.

*Emily Fournier, Communications Coordinator of Canadian Geotechnical Society
Greg Simens, Editor for North America*



Geographical location

Confederation Bridge spans 12.9 km across the Northumberland Strait and provides a permanent link between Cape Tormentine, New Brunswick and Borden, Prince Edward Island.

When it began or was completed

Investigation, design and construction was carried out over 44 months. Assembly of the bridge was carried out over 11 months. Confederation Bridge officially opened in June 1997.

Why a Canadian geotechnical achievement?

When constructed, Confederation Bridge was the world's longest bridge over 'ice-infested' waters. The project is unique in that it was one of the earliest use of design, build, operate, and transfer project delivery in Canada. The bridge fulfilled a 100-year aspiration and promise of Canada to physically link Prince Edward Island to the mainland.

The foundation concepts for the bridge were developed by Keith Kosar and David Walter of Golder Associates, and were advanced with input from some of Canada's most renowned geotechnical engineers including Norbert Morgenstern, Jack Clark, Norman McCammon, Don Bassett, Victor Milligan, Dennis Becker and Ryan Philips. The ring footing foundation units had to be robust enough to withstand the harsh environmental conditions of the Northumberland Strait, yet economical and constructible within an unforgiving marine environment.

Key design issues included a bridge deck as high as 60 m above the sea water level, depth to seafloor up to about 35 m, large lateral and eccentric loads on the structures due to ship impact, wind, waves, and ice, complex geology and variable strength bedrock, and a short seasonal construction window due to ice and bad weather. The design used newly developed limit states methodology and was confirmed through numerical modeling, full scale field tests, and centrifuge modelling.

The bridge is operated by Strait Crossing Bridge Limited.

Submitted by

Keith Kosar (Kiewit Engineering Group), David Walter (Amec Foster Wheeler), and Dennis Becker (Golder Associates)

Key References

Kosar, KM, Burwash, WJ, Milligan, V and McCammon, NR. 1993. **Geotechnical foundation design considerations for the Northumberland Strait Crossing.**

Proceedings CSCE Annual Conference, Fredericton, NB , pp 381–390.

Kosar, KM, Walter, DJ, and Burwash, WJ. 1994. **Design of foundations to resist high lateral loads for the Northumberland Strait Crossing.**

Proceedings 4th International Conference on Short and Medium Span Bridges, Halifax, NS.

Becker, DE, Burwash, WJ, Montgomery, RA and Liu, Y. 1998. **Foundation Design Aspects of the Confederation Bridge.**

Canadian Geotechnical Journal, Vol 35, pp 750-768.

Photographs



After completion of construction (1998).



Construction of large diameter battered drilled concrete shafts for approach spans (1994-1995).



Terzaghi Dam Geotechnical Design and Construction

Geographical location

Approximately 20 km west of Lillooet, British Columbia

When it began or was completed

Construction began in 1955 and was completed and first filled in 1960.

Why a Canadian geotechnical achievement?

Terzaghi Dam, originally named Mission Dam, is located in the Bridge River valley approximately 45 km upstream of its confluence with the Fraser River. It is a 55 m high earth and rockfill dam that impounds the Carpenter Lake reservoir. Water from the reservoir is conveyed through two tunnels into steel penstocks to a powerhouse on Seton Lake approximately 410 m in elevation below.

Karl Terzaghi designed the dam. Site construction monitoring was carried out by Ripley and Associates (primarily Cyril Leonoff and Mark Olsen). Terzaghi Dam was arguably Terzaghi's most challenging project with considerable post-construction settlement predicted and the need for a massive grout curtain, unprecedented at the time, to cut off deep pervious soils.

After Terzaghi died in 1963, a commemorative issue of *Géotechnique* was published with just one technical paper (Terzaghi and Lacroix, 1964). Terzaghi Dam was chosen for the commemorative issue because of the profound difficulties in understanding and adapting to the complex foundation conditions beneath the dam. In the words of Arthur Casagrande, "This project demanded more extensive use of Terzaghi's experience and professional knowledge ... than any other single consulting assignment".

Mission Dam was renamed Terzaghi Dam, in 1965. The dam is owned and operated by BC Hydro.

Submitted by

Klohn Crippen Berger

Key Reference

Terzaghi, K and Lacroix, Y. 1964. **Mission Dam: An Earth and Rockfill Dam on a Highly Compressible Foundation.** *Géotechnique*, Vol 14, pp 13-50.

Photograph and Figure



Terzaghi Dam Spillway (2015).



Site Plan from Terzaghi and Lacroix, 1964.



Keele Valley Landfill Site Geotechnical Engineering & Hydrogeology Design

Geographical location

City of Vaughan (Maple), Ontario

When it began or was completed

The former sand and gravel pit was purchased by Metro Toronto in 1983. Construction of the clay liner and leachate collection system commenced in 1983 and was completed in 1994. Landfilling operations began in 1983 and the site was closed in 2002.

Why a Canadian geotechnical achievement?

Geotechnical engineering and hydrogeology were extremely important in the design and construction of the Keele Valley Landfill Site (KVLS) to prevent leachate contamination of the underlying Oak Ridges Moraine aquifers. Design and staged construction of a 1.2 m thick compacted clay till liner (permeability $<1 \times 10^{-8}$ cm/s) provided the necessary barrier to leachate contaminant migration.

During operation, the KVLS was the largest landfill in Canada, and one of the largest in North America. The 376 ha site included a fill area of 99 ha and a total capacity of approximately 33 million m^3 . The KVLS was one of Canada's first fully engineered landfill sites. Engineered components included a compacted clay till liner, a leachate collection system (French drains and HDPE pipes), a landfill gas collection/utilization system, a final cover and an extensive monitoring system. The performance and integrity of the clay till liner was monitored by numerous devices installed within, below and above the liner. The interaction between the landfill leachate and the liner was analyzed in a liner-leachate compatibility testing program involving both field and laboratory testing.

Experience gained at the KVLS fostered research in the design of clayey barrier systems for many other waste disposal facilities, and the development of the Ontario Landfilling Standards – O. Reg. 232/98.

Submitted by

David Staseff (Ministry of Transportation Ontario), on behalf of the many geotechnical engineers and hydrogeologists involved in the project.

Key References

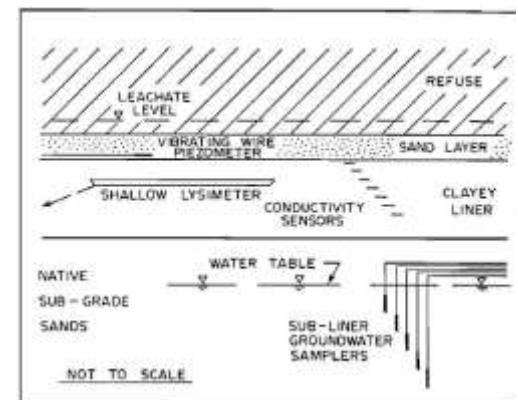
King, KS, Quigley, RM, Fernandez, F, Reades, DW and Bacopoulos, A. 1993. **Hydraulic conductivity and diffusion monitoring of the Keele Valley Landfill Liner, Maple, Ontario.** Canadian Geotechnical Journal, Vol 30, pp 124-134.

Many other papers that reference the KVLS are included in the Canadian Geotechnical Journal.

Photograph and Figure



Aerial view of the Keele Valley Landfill Site taken in the mid-1980s.



Liner performance instrumentation (from King et al, 1993).



Geographical location

Winnipeg, Manitoba

When it began or was completed

Failure 1913; righting was completed in October 1914

Why a Canadian geotechnical achievement?

The foundation failure and righting of the Transcona Grain Elevator is a geotechnical achievement. The failure occurred during loading, after bearing pressures exceeded the limiting shear resistance of the underlying clay foundation soil. While the mat foundation for the elevator was likely designed to tolerate large settlements, its susceptibility to a deep-seated base shear failure was neither understood nor expected (Allaire, 1916). Early foundation engineers recognized this unique opportunity to compare the loading at failure with that predicted by classical bearing capacity formulae (Skempton, 1951). Subsequent studies demonstrated that the ultimate theoretical bearing capacity of 6,420 psf (307.4 kPa) was remarkably close to the actual observed bearing capacity at failure of 6,200 psf (296.9 kPa) (Blatz and Skaftfeld, 2003).

More remarkable was the effort to right the elevator by excavating under and lowering the high side and gradually raising the low side. Initially, a trench was excavated along the high side of the structure to the underside of the mat foundation. Drifts were then excavated beneath the mat foundation and a row of 14 piers was sunk to bedrock. The structure was raised using shoring screws and timber rockers installed on the tops of successive rows of piers. To assist, twelve timber pushers were placed against the side of the bins. On October 17, 1914, two days behind schedule, the elevator was back in its vertical position having been raised about 12 feet (3.7 m).

The elevator has been successfully used since this time and is now owned and operated by Parrish and Heimbecker Limited.

Submitted by

Ken Skaftfeld, Winnipeg, Manitoba

Key References

Allaire, A. 1916. **The failure and righting of a million – bushel grain elevator**, Transactions of the ASCE, Vol 80, pp 799-832.

Blatz, J and Skaftfeld, K. 2003. **The Transcona grain elevator failure: a modern perspective 90 years later**. Proceedings, 56th Canadian Geotechnical Conference, Winnipeg, MB, pp 8-22 to 8-29.

Skempton, AW. 1951. **The bearing capacity of clays**. Division I, Building Research Congress. London, England, pp 180-189.

See also:

http://cgs.ca/virtual_archives_projects.php?lang=en

Photographs



Elevator after failure.



Shoring screws used to lift structure.



Downie Slide

Very Large Rockslide Stabilization Project

Geographical location

Along west side of Revelstoke Reservoir; 65 km north of Revelstoke, British Columbia.

When it began or was completed

Downie Slide was identified in 1956; investigations and initial drainage works began in 1974; the main drainage system was installed between 1977 and 1981; monitoring, assessment and maintenance continues.

Why a Canadian geotechnical achievement?

Downie Slide is located on the Columbia River within BC Hydro's Revelstoke Reservoir. The slide is in mica schist/gneiss bedrock with multiple water levels. At nearly 10 km² in area, 250 m deep and approximately 1.5 billion m³ in volume, this is the world's largest known landslide stabilization project.

Construction of the Revelstoke Dam was contingent on the stabilization of Downie Slide. Key safety issues were the potential for reservoir blockage, a landslide-generated wave, and upstream flooding of Mica Dam, approximately 70 km to the north. After a thorough site investigation by BC Hydro and many consultants, and an extensive public consultation, drainage was selected as the appropriate method for stabilization.

The drainage included 2,450 m of adits, primarily located in the bedrock slide mass, and 24,000 drain holes advanced from within the adits. The achieved drainage has been calculated to have increased the stability of the slide by nearly 10%, and more than offset the raising of the reservoir which impounded the toe of the slide. The stabilization allowed the construction and the safe operation of the Revelstoke Dam and reservoir for over 30 years.

Monitoring and maintenance of the drainage system is the responsibility of BC Hydro.

Submitted by

Tom Stewart (BC Hydro)

Key References

Imrie, AS, Moore, DP and Enegren, EG. 1991. **Performance and maintenance of the drainage system at Downie Slide.** In *Landslides*, D Bell (editor), Balkema, Rotterdam.

Kalenchuk, KS, Hutchison, DJ and Diederichs, MS. 2009. **Downie Slide - Interpretations of complex slope mechanics in a massive, slow moving, translational landslide.** Proceedings, Canadian Geotechnical Conference Halifax, NS, pp 367-374.

Photographs



Aerial view of Downie Slide (outlined in red) looking up the Revelstoke Reservoir and Columbia River valley.



Typical conventional drill and blast, horseshoe-shaped, extensively supported adit

Conference reports

The 50th Anniversary Symposium of SEAGS, 14th – 15th Sep 2017, Thailand

The 50th Anniversary Symposium of SEAGS was successfully held on 14-15 September 2017 in Thailand with more than 180 participants. The conference was made possible by the generous financial support of the sponsors and exhibitors. Their efforts to make this conference a success are greatly appreciated and acknowledged. Hard bound and soft copies of the proceedings of over 400 pages were produced and given to the participants. The two-day symposium was jointly organized by the Thai Geotechnical Society, Southeast Asian Geotechnical Society, Association of Geotechnical Societies in Southeast Asia (AGSSEA), and AIT. Prof. Roger Frank, the President of International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) delivered the Presidential address. Prof. Worsak Kanok-Nukulchai, AIT President, Dr. Noppadol Phien-wej, President SEAGS, and Dr. Suttisak Soralump, President Thai Geotechnical Society delivered the welcome addresses. Inaugural addresses were delivered by Prof. Ikuo Towhata, VP for Asia ISSMGE, and Prof. San Shyan Lin, Chairman AGSSEA. Committee members did an excellent job to bring a very successful event.

The Symposium consists exclusively of invited papers. There are 34 distinguished invited lecturers.

Achievements, Looking Ahead and Case Histories

1. C.W.W. Ng, J. L. Coe and A. Gunawan: State-of-the-Art Research in Geo-energy and Geo-environmental Engineering: Energy Pile and Earthen Capillary Landfill Cover System
2. R. N. Hwang and L.W. Wong: Effects of Preloading of Struts on Retaining Structures in Deep Excavations
3. T. L. Gouw: Proposed Design Guideline of Dynamic Compaction for Practicing Engineers
4. Warakorn Mairaing and Bunpoa Kunsuwat: Vegetation Effects on Landslides in Thailand
5. Paulus Rahadjo: Selected Case Histories on Man Made Slope Failures in Indonesia

Foundations, Tunnelling & Soil Movements

6. S. S. Lin, C.K. Hsieh, C. J. Kuo, and Y. K. Lin: Finite Element Analysis to Characterize the Lateral Behavior of a Capped Pile Group
7. Zh. A. Zhussupbekov, A. R. Omarov, A. Yergen, K. Borgekova and G. Tleulenova: Piling Designing, Installation and Testing on Problematical Soil of Kazakhstan
8. D.E.L. Ong: Detrimental Effects of Lateral Soil Movements on Pile Behaviour
9. T. Hosoi, W. Koji and M. Shinya: Challenging Technologies of Diaphragm Wall and Bored Pile
10. V. Balakumar, M. Huang, E. Oh and A. S. Balasubramaniam: A Critical and Comparative Study On the 2D and 3D Analyses of Raft and Piled Raft Foundations
11. L. Ge: Liquefaction-Induced Settlement of Structures on Shallow Foundation
12. J. H. Yin and W. Q. Feng: Validation of a New Simplified Hypothesis B Method for Calculating Consolidation Settlement of Clayey Soils Exhibiting Creep
13. C.W. Boon and L. H. Ooi: Longitudinal and Transverse Interactions between Stacked Parallel Tunnels Constructed Using Shield Tunnelling in Residual Soil
14. M. Sugimoto, H. Tanaka, N. T. Huynh, S. Chaiyaput, L.G. Lam, and J. Chen: Study on Shield Operation Method in Soft Ground by Shield Simulation
15. L. J. Endicott: Innovations in Tunnelling
16. Suched Likitlersuang: Strength and Stiffness Parameters of Bangkok Clays for Finite Element Analysis

Ground improvement

17. D. T. Bergado, P. V. Long, P. Jamsawang, Na Lampun, C, and A. S. Balasubramaniam: On Prefabricated Vertical Drain (PVD) and Deep Cement Mixing (DCM)/Stiffened DCM (SDCM) Techniques for Soft Ground Improvement
18. C. W. Hsieh: Weaving Pattern and Lateral Confinement Effects on the Engineering Behavior of Hexagonal Wire Mesh Panels

Conference reports

The 50th Anniversary Symposium of SEAGS, 14th – 15th Sep 2017, Thailand (Con't)

19. S. C. Chian: Optimising Cement Dosage in Ground Improvement and Early Quality Control Schemes
20. K. J. Shou, J. Yen, and C. Y. Hsieh: Trenchless Excavations for Underground Pipelines in Difficult Geology
21. P. Pinto: Leziria Tagus Bridge - Ground Challenges
22. S. S. Liew: Common Blind Spots in Ground Investigation, Design, Construction, Performance Monitoring and Feedbacks in Geotechnical Engineering
23. K. Yasuhara, Yang, S. S. Horikawa, I. and Yamane, H.: Settlement of River Dykes and their Adjacent Residences on Soft Clay Deposits after the Tohoku-Pacific Ocean Earthquake in 2011
24. T. Al-Hussaini: Seismic Hazard Assessment Procedures - Reflection on Bangladesh
25. S. Horpibulsuk: Failure and Remedial Approach of a Riverbank Protection Structure
26. S. De Silva and H. Wang: Reclamation for Al Raha Beach Development, Abu Dhabi, UAE

Slope Stability, Excavations and Landslides

27. H. J. Liao, S. Ho Cheng, and C.C. Chen: Anchors of Anchored Slopes in Taiwan
28. D. G. Lin: Evaluating the Efficiency of Subsurface Drainage for Large Landslides in Taiwan
29. G. Chao: Evaluation of Factors Influencing Expansive Soil Embankment Slope Failure
30. F. Ahmad, A. S. Yahaya, M. H. Halim, and M. Azmi: The Community Slope Safe Awareness Program at Bukit Antarabangsa, Kuala Lumpur
31. T. Awwad, S. Al Kodsí and L. Awwad: Formulating Practical Equations by Numerical Analysis Parametric Study to Determine the Location of Neutral Plane
32. K. Mukherjee: A Standardised Detailed Reliability Based Methodology in Determining Risk on Stationary Platforms due to Shallow Gas Geohazard
33. I. Towhata; Future Task of Geotechnics Discipline
34. D. H. Kim, A. S. Balasubramaniam and I. Gratchev; Application of Photogrammetry and Image Analysis for Rock Slope Investigation

In conjunction with the conference, the respective council meetings of SEAGS & AGSSEA and the General meeting of SEAGS members were also held.

Dr. Geoff Chao was elected as the Honorary Secretary General of SEAGS. The SEAGS & AGSSEA also produced and distributed complimentary copies of CD on the collection of past journal papers for 1970 - 2013 during the conference. The CD will be useful to practitioners and researchers alike.



Photo 1. Commemoration Session "How it all started Contributions in the past 50 years and visions for the future"

Conference reports

The 50th Anniversary Symposium of SEAGS, 14th – 15th Sep 2017, Thailand (Con't)



Photo 2. Dr. Z. C, Moh: Founding President: Vision-Mission-Accomplishment



Photo 3. Group Photo



Photo 4. Welcome address: Prof. Worsak Kanok-Nukulchai, AIT President

Conference reports

The 50th Anniversary Symposium of SEAGS, 14th – 15th Sep 2017, Thailand (Con't)



Photo 5. SEAGS Recognition Awards - Dr. Noppadol Phien-wej, President SEAGS



Photo 6. SEAGS Recognition Awards - Prof. Roger Frank



Photo 7. SEAGS Recognition Awards - Dr. John D. Nelson



Photo 8. SEAGS Recognition Awards - Dr. Ooi Teik Aun



Photo 9. SEAGS Recognition Awards - Prof. Dennis T. Bergado



Photo 10. SEAGS Recognition Awards - Prof. San Shyan Lin, Chairman AGSSEA

Conference reports

The 50th Anniversary Symposium of SEAGS, 14th – 15th Sep 2017, Thailand (Con't)



Photo 11. Dr. Geoff Chao - SEAGS, Secretary General



Photo 12. Inaugural addresses were delivered by Prof. Ikuo Towhata, VP for Asia ISSMGE



Photo 13. Dr. Suttisak Soralump, President Thai Geotechnical Society



Photo 14. Opening ceremony: MC: Dr. Apiniti Jotisankasa; Secretary General - Organizing Committee and the Editor of Proceedings



Photo 15. SEAGS & AGSSEA Council Meetings in progress

Dr. Noppadol, President SEAGS

Conference Reports

The 2nd International Symposium on Asian Urban GeoEngineering, Changsha, China

The 2nd International Symposium on Asia Urban GeoEngineering was held from November 24-27, 2017, in Changsha, a historical and modern city in Hunan, China. In 2015, the first symposium was held in Fukuoka, Japan. The symposium was organised by the Asian Technical Committee 6 (ATC6) “Urban GeoEngineering” of ISSMGE, Hunan University, Tianjin University and Chinese Institution of Soil Mechanics and Geotechnical Engineering. The aim of this symposium was to share ideas and experiences about urban geoenvironmental engineering in Asian countries among engineers, researchers, and academic professors. The emphasis was on improving our knowledge in meeting geoenvironmental requirements for a long-term sustainable urban development and the need to protect and preserve our environment.

Extensively, urban construction is going on in Asian countries, and environmental friendliness and sustainability are emphasized in modern urbanization processes. Environmental friendliness addresses the control of ground movement, mitigation measures, and risk management. Those control or mitigation measures should be sustainable. Moreover, the performance of deep excavation and tunnels, mitigation measures, and risk management are often site dependent and vary from country to country. The ground conditions, construction practices, codes, and standards are very different among Asian countries. The aim of this symposium was to share knowledge and experiences on the analysis, design, construction, and maintenance of urban geoenvironmental engineering among engineers, researchers, and academic professors in Asian countries.

More than 100 researchers participated in this symposium from various Asia countries and regions, such as Mainland China, Taiwan, Hongkong, Macao, Japan, Vietnam, Malaysia, Singapore and Indonesia. 35 academic presentations were given in the symposium, and more than 50 papers were collected in the conference proceedings co-published by Springer and the Zhejiang University Press. These presentations and papers have covered a wide range of issues concerning on urban geoenvironmental problems in Asian countries. Showcasing diversity and quality, these papers report the state of the art and point to future directions of research and development in this exciting area.

During the symposium, the 2nd Meeting of ATC6 “Urban GeoEngineering” was held on 25th of November (Saturday), 2017. 17 ATC6 Members attended the meeting. Details of last meeting minutes (1st ATC6 committee meeting held on 11th of November, 2015) were confirmed. And some agreements have been made: the web site of ATC6 shall be ready within 2 months; the 3rd ATC6 symposium will be held in 14th to 18th of October, 2019 in Taipei, Taiwan together with 16th Asian Regional Conference, ISSMGE in the style of “special sessions”.



Photo 1. Group photo of 2nd ATC6 Symposium

Conference Reports

The 2nd International Symposium on Asian Urban GeoEngineering, Changsha, China (Con't)



Photo 2. Group Photo of 2nd ATC6 committee meeting

Benson Hsiung
Secretary of ATC6

TC Corner

TC304 (in collaboration with TC309) – Publically-available databases “304dB”

The technical committee on Engineering Practice of Risk Assessment & Management (TC304, risk) has recently compiled publically-available databases (nickname: 304dB), as the first step of the collaboration between TC304 and newly established technical committee on Machine Learning and Big Data in Geotechnics (TC309, machine learning). The main goal of this collaboration is to explore the use of advanced statistical methods and machine learning techniques for determining relationships within the data, and computing parameters for analytical models that apply those relationships to the use case at hand.

At this time, the following databases are available:

1. CPT databases
2. Multivariate soil/rock property databases
3. Geospatial databases

The databases can be freely downloaded at the following link:

http://140.112.12.21/issmge/Database_2010.htm

CPT databases

Four sets of vertical CPT clusters, i.e., multiple vertical CPTs are conducted in a local site, and one set of horizontal CPT are available for download. Some clusters have closely spacing vertical CPTs with small horizontal separation distances. These datasets are ideal for the study of spatial variability and underground stratification. One site (Baytown) is also with performance measurements (footing settlements & bearing capacities). This dataset is ideal for the study of performance-based and reliability-based design. Figure 1 shows an example of data available for the Hollywood, SC test site.

Multivariate soil/rock property databases

Eight multivariate datasets are available. These databases are for soil/rock samples with simultaneously measured properties (e.g., two clay samples at the same depth in the same site are tested, one to obtain Atterberg's limits and the other to obtain undrained shear strength). They may be used for estimating soil/rock design parameters and for the study of correlations among different soil/rock properties. Figure 2 shows the correlation plots produced by the data in a multivariate clay database.

Geospatial databases

Differently from the other two databases, the information essentially consists of a list of links to datasets available elsewhere. They can be either resources freely accessible on-line (e.g. Italian National Geoportal, UK National Geoscience Data Centre) or geospatial datasets compiled and managed for specific reasons (e.g. datasets used for landslide risk management in Hong Kong). In the latter case, the accessibility option can either be a public web page or the email of the person responsible for the data, who preliminary agreed to share them for academic studies upon request. Figure 3 shows an Italian seismic hazard.

TC Corner (Con't)

TC304 (in collaboration with TC309) – Publically-available databases
 “304dB”

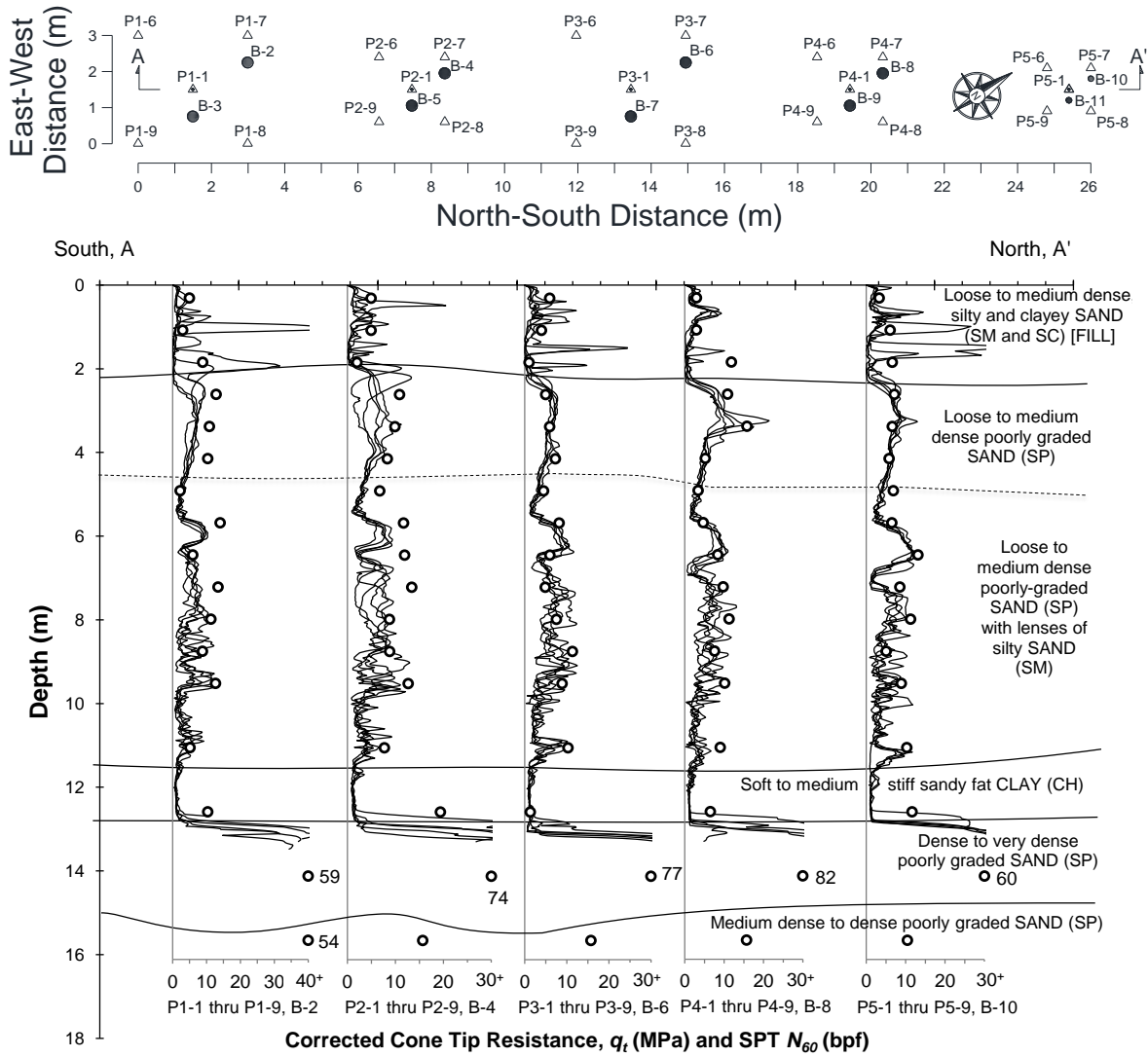


Figure 1. Example of data available for the Hollywood, SC test site: site and exploration plan (top), and subsurface cross-section indicating spatial variability of soil (bottom).

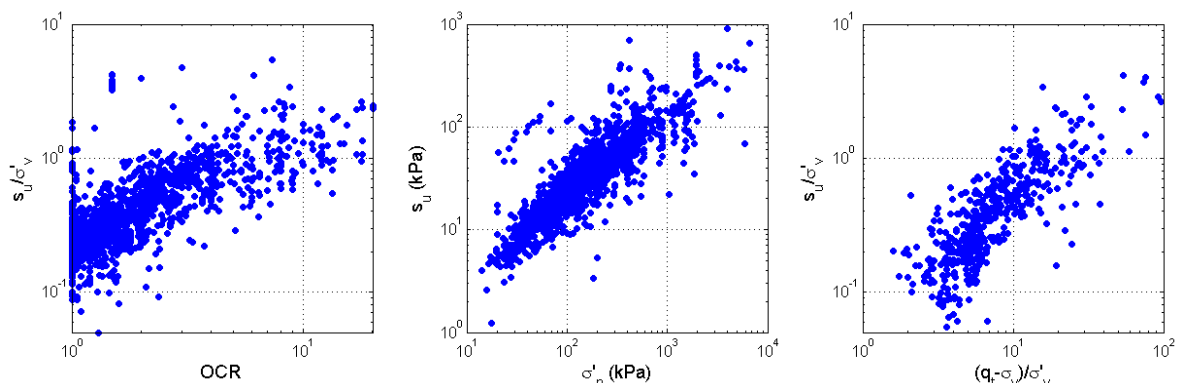


Figure 2. Correlation plots produced by the data in a multivariate clay database in 304dB.

TC Corner

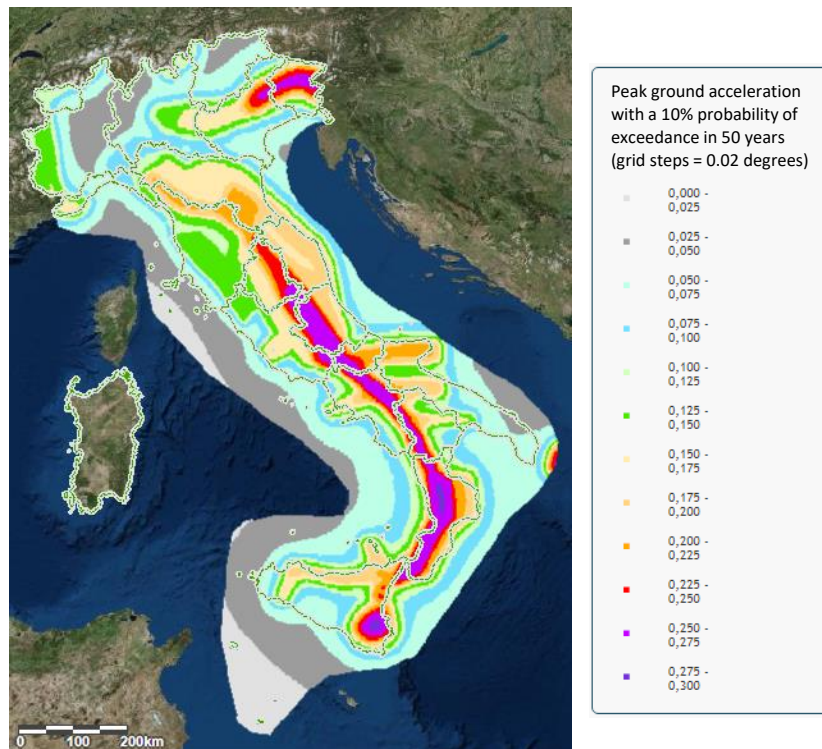
TC304 (in collaboration with TC309) – Publically-available databases
“304dB”

Figure 3. Italian seismic hazard: peak ground acceleration with a 10% probability of exceedance in 50 years on a grid spaced at 0.02° (Source: Italian National Geoportal, <http://www.pcn.minambiente.it/mattm/en/>)

The complete list for the database leaders & current contributors (contributors in alphabetic order):

CPT databases (leader: Armin Stuedlein):

Arjan Grashuis, Mark Jaksa, Armin Stuedlein, Zhongqiang Liu (NGI)

Multivariate soil/rock property databases (leader: Yu Wang):

Guojun Cai, Jieru Chen, Jianye Ching, Marco D'Ignazio & Tim Länsivaara

Geospatial databases (leader: Michele Calvello):

Michele Calvello, Wing Sun (Hong Kong GEO)

Young Members' Arena

Meet the Young Member Presidential Group (YMPG) of Term 2018 – 19

Message from the Young Member Arena Editor - *Tugce Baser*

This past year has been one of change in the ISSMGE Young Member Presidential Group (YMPG) and I am honored to serve as the editor of Young Member Arena for the term 2018-2019. I am thrilled to share YMPG vision for the future of young geotechnical engineers with other valuable members of the group. We will keep working hard to not only continue pursuing the YMPG vision and passion but also expand and innovate to resonate with the new generation.

Our primary goal is to help foster the community of young members including students and engage them with the legends in the field. As the YMPG grow with new members, we will provide opportunities for young members to meet and develop relationships, to connect with leaders in the field, and promote young member activities in both regional and international platforms. Our responsibilities continue to facilitate the development of the international young member community of geotechnical engineering through bimonthly articles in the Bulletin of ISSMGE. Through this media, we hope to better connect the next generation of geotechnical engineers, which we believe will aid in our future professional lives and help to grow the ISSMGE particularly among its student and younger member population. We wish a successful year to all members of the community!

YMPG of the term 2018-2019 consists of passionate members as in the previous terms and it is my greatest pleasure to introduce them. Each of us are very excited to be a part of the ISSMGE.



Tugce Baser
(Bulletin Editor of YM Arena)
Member Society: Canada

Dr. Baser is a postdoctoral research associate at the Department of Civil Engineering of University of Alberta. She holds a PhD degree in Geotechnical Engineering from University of California San Diego. Her main research areas are coupled flow processes in unsaturated soils, fundamental multi-physics processes; engineering challenges; and implementation strategies for soil borehole thermal energy storage (SBTES) from renewable energy sources in the vadose zone, and coupled relationships of thermal and hydraulic properties of unsaturated soils. Other research interests include energy related geotechnical applications such as geo-exchange systems, Trenchless technologies specifically Horizontal Directional Drilling, energy based subsurface characterization, and sustainability assessment of renewable energy resources. She is a member of American Society of Civil Engineers, ISSMGE, Canadian Geotechnical Society, and International Geosynthetics Society.

Dr. Baser's overall goals in geotechnical engineering profession and specifically for the ISSMGE YMPG are to:

- (a) engage students with the geotechnical engineering to increase the awareness of the profession;
- (b) enhance the knowledge in the area;
- (c) reach out young members to provide update and information to resonate; and
- (d) connect young members with legends in the professional and academic communities

Dr. Baser is also currently serving as the Public Relations Committee chair of the Geo-Institute Student Leader Council. She can be contacted at tugce@ualberta.ca and for more information visit tugcebaser.wixsite.com/baser

Young Members' Arena (Con't)

Meet the Young Member Presidential Group (YMPG) of Term 2018 – 19



Lucy Wu (President)
Member Society: USA

After graduating from MIT with a Bachelor's of Science and Stanford University with a Master's of Science in Civil Engineering, I started my career as a geotechnical engineer with Arup in Hong Kong. My work is primarily focused on private building developments, mainly on the design of excavations and foundations. I have been involved in the design of several excavation with large unbalanced loads as well as the design of different types of deep foundations. I have also worked on other geotechnical work such as slope stability and natural terrain hazard mitigation. I am a licensed professional engineer (PE) in the State of California.

This is my third term as a member of the YMPG. In the previous term (2013-2015), I led the Website Task Force and am now serving as a Vice-Chair in this term. I enjoy reading, long distance running, hiking, and traveling in my free time. Feel free to contact me about anything, technical or otherwise. I can be reached at lucywu@alum.mit.edu.



Jean-Timothy Potgieter (Vice President)
Member Society: South Africa

Jean Potgieter was born and raised in Pretoria, South Africa. After graduating from the University of Pretoria, he worked at two consulting engineering firms from 2013 to 2015. Initially for Rust Geotechnical Consultants and then for Jones & Wagener. During this period, he worked on a range of geotechnical projects including tailings dams, foundation design, retaining walls, and site investigations. In 2016, Jean won a scholarship funded by Terra Strata to investigate the fundamental differences between designing retaining walls with simplistic and complex design methods. He completed his Master's degree at the end of 2016.

Currently, Jean is employed by the University of Pretoria's business arm, Enterprises, as a geotechnical consultant to Namdeb - a diamond mining operation on the west coast of Namibia. Jean currently resides in Pretoria. He enjoys public speaking, playing sports and is currently involved with triathlon.



Ceres Chung (Secretary)
Member Society: Hong Kong

I am one of the three representatives of Asia Region in Young Member Presidential Group (YMPG). I have worked in geotechnical engineering industry since my graduation at the Hong Kong University of Science and Technology with Bachelor of Civil and Structural Engineering in 2007. I mainly worked on private buildings jobs with deep excavation, and foundation design.

I have been involved in geotechnical projects in different countries/cities, including Hong Kong, Mainland China, Ireland, and Sweden. The overseas experience broaden my horizon and build up the connections with consultant and contractor in different parts of the world. I am working in Ireland currently under company transfer program, but I still have strong connections with Hong Kong office and the industry.

I am always looking to build on my technical skills. I am also eager to share my experience with others in the industry.

Young Members' Arena (Con't)

Meet the Young Member Presidential Group (YMPG) of Term 2018 – 19



Fei (Tiffany) Wang
Member Society: China

Fei Wang is currently an Associate Professor of the Southeast University. She majors in Geo-environmental Engineering, and mainly focuses on Soil Mix Technology Stabilised/Solidified Contaminated Site Soils. She got her bachelor degree in Yangzhou University (China) in 2009. Later, she furthered her study in the Hong Kong University of Science and Technology (HKUST), the research topic was the Significance of Metal Exchange in EDDS-flushing Column Experiments. After she graduated from HKUST, she worked for a company as an engineer for one year and was involved in the design of a number of projects. She got her PhD degree from the Department of Engineering at the University of Cambridge.

She is a member of Cambridge Philosophical Society, Chinese Society for Rock Mechanics and Engineering, and Jiangsu Society for Environmental Sciences etc. In addition, she is a reviewer of Science and Technology Books, Elsevier; Journal of Hazardous Materials; Journal of Environmental Radioactivity; Journal of Environmental Management & Journal of Agricultural Science and Applications etc.



Mario Terceros Arce
Member Society: Bolivia

In 2015 and 2017, I have participated in the “Congreso Internacion de Fundaciones Profundas de Bolivia” (2nd and 3rd CFPB) as a member of the organization board and field expositor. At that time I realized the scarcity of engineers interested in Geotechnics, but also realized the thirst of knowledge and curiosity of the young students as engineers, which motivated me to get involved with the ISSMGE. This year (2017) will be my second period serving the ISSMGE’s Young Member Presidential Group (YMPG), a role I will enjoy with a lot of enthusiasm.

I earned my Bachelor of Science in the Tecnológico de Monterrey (ITESM, Mexico) in 2013. During a one year exchange program in the Technical University of Munich, my interest on Geotechnical and deep foundation engineer woke up. I took all the geotechnical courses of the program and afterwards I prolonged my stay in Germany in order to make an internship in BAUER GmbH. Currently I am an MSc. student in the Universidad San Francisco Xavier de Chuquisaca, Bolivia, while working in a foundation Engineering Company. My research focuses on the design of piled raft foundations for high-rise buildings and its economic benefits, focusing especially on the effect that the pile installation technology has (Expander Body on the toe of the pile, Drilled displacement piles and traditional cased bored piles) on the piled raft load-settlement behavior (“capacity”).

Personally I enjoy outdoor sports like mountain biking, running, climbing. If you would like to contact me for further information write me at: mta@incotec.cc

Young Members' Arena (Con't)

Meet the Young Member Presidential Group (YMPG) of Term 2018 – 19



Vitor Pereira Faro
Member Society: Brazil

I am from Viseu, Portugal. I have a Bachelor's and a Master's Degree from the University of Coimbra, Portugal, and a Doctoral and Post Doctoral degrees from the Federal University of Rio Grande do Sul, Porto Alegre, Brazil. Nowadays I am a Professor at the Federal University of Paraná, in Curitiba, Brazil.

I'm mostly working with soil-structure interaction, geotechnical modeling, slope stability, and Geological-Geotechnical Risks, being the coordinator of some research projects. I'm also coordinating some extension projects, where I try to bring Geotechnics to society. Part of Brazilian Society of Soil Mechanics and Geotechnical Engineering (ABMS) board, where I am the treasurer of Paraná - Santa Catarina core, I am a passionate geotechnical engineer and wish to connect with geotechnical engineers and researchers around the world. You can contact me at vitorpereirafaro@gmail.com.



Aswin Lim
Member Society:
Indonesia

I was born in Pontianak, a capital city of West Borneo Province, Indonesia. I finished my bachelor degree in civil engineering at Universitas Katolik Parahyangan and got my M.S. and Ph.D. degree from Taiwan Tech. My research focus is deep excavation and numerical modelling for geotechnical problems.

My motivations to serve the YMPG as a committee member:

1. I have felt the benefit from ISSMGE Foundation and I realize that most of my colleagues do not know or do not care about ISSMGE. In my opinion, serving YMPG is an excellent opportunity in order to promote ISSMGE within young geotechnical engineers.
2. In my humble opinions, Southeast Asia Young Geotechnical Engineers have not adequately exposed to the international activity compared to other regions. Meanwhile, most of the country in Southeast Asia are developing countries and many infrastructures are under construction. I hope I could attract them to show up in the international activities to gain more experiences and build networking in international society. I believe the experiences and networking can benefit all parties.



Ezra Yoanes Setiasabda
Member Society: USA

I am currently a PhD candidate in Geotechnical Engineering at University of California, Berkeley. I am primarily working on numerical modeling of cyclic behavior of sand using Material Point Method (MPM). Originally from Indonesia, I earned my B.Eng in 2014 from the Hong Kong University of Science and Technology (HKUST) and M.S. in 2016 from University of California, Berkeley. Upon my graduation from HKUST, I worked at Arup Hong Kong on jobs including 27 m excavation at Repulse Bay and preservation of historical retaining walls at Central area. In the San Francisco Bay Area (California), I have worked at Rockridge Geotechnical on jobs including ground improvements using drill displacement column, and earthquake retrofitting and seismic upgrades.

This would be my first term as a Member of Young Member Presidential Group (YMPG). A little bit more about myself: I am a die-hard fan of Liverpool FC, enjoy classical music, and love to read about philosophy and Christian theology. Should you want to talk more, technical, otherwise, feel free to reach me at ezrayst@gmail.com.

Young Members' Arena (Con't)

Meet the Young Member Presidential Group (YMPG) of Term 2018 – 19



Truong Hoang Minh
Member Society: Australia

After graduating from Taiwan Tech in 2013 with a Master of Science, I have worked for Golder Associates in Singapore for almost 4 years. I have been involved in various industry projects such as design of foundation, deep excavation, tunnelling, land reclamation, and ground improvement. I am a member of Geotechnical Society of Singapore since 2013.

I am currently undertaking my PhD at University of Wollongong, working for the Australian Research Council project in the field of ground improvement and stabilization for soft soils under heavy haul train loads.

I am passionate about geotechnical engineering and wish to be connected with the globally young geotechnical engineers and researchers. You can contact me at truonghoangminh88@gmail.com.



David Buxton
Member Society: New Zealand

I graduated from Canterbury University, Christchurch, NZ in 2006 with a BE Civil (Hons). From 2007 to 2016 I worked for Tonkin + Taylor, the largest geotechnical consultancy in New Zealand. Since mid-2016 I have been based in Whangarei, Northland, working for Hawthorn Geddes Engineers and Architects, a local consulting company of 25 staff including Geotech, structural, civil and architecture. I have a wide range of geotechnical experience including shallow foundations, piles, landslips, retaining walls, excavations and settlement.

I attended the 10th Australia New Zealand Young Geotechnical Professionals Conference (ANZ YGPC) in 2014 and found it a rewarding experience. I was then an organiser of the 11th ANZ YGPC in 2016 and attended the 6th International Geotechnical Engineers' Conference (iYGEC6) in Seoul 2017. Young engineers conferences are rewarding - take any chance to attend you get. You can contact me at dsb@hgcs.co.nz.



Daniel King
Member Society: Australia

I am a geotechnical engineer with Golder Associates in Melbourne, Australia. Following my undergraduate studies, I worked full-time for 4 years at Golder Associates, before returning to university to complete a PhD. I returned to full time work with Golder in 2017.

While at Monash University, I presented at the 10th International Geosynthetic Conference in Berlin in 2014 and the 11th ANZ Young Geotechnical Professional conference in 2016. I was the postgraduate student representative for the Engineering Faculty Research Training committee and tutored a number of geotechnical subjects. I have been a committee member of the Australian Geomechanics Society for the past 4 years and chaired the organising committee for the 2016 and 2017 AGS Victoria Symposium.

I have nominated myself for the YMPG committee of the ISSMGE because I have an active interest in the geotechnical profession and hope to encourage young students and engineers to become involved with the ISSMGE. You can contact me at dking@golder.com.au

Young Members' Arena (Con't)

Meet the Young Member Presidential Group (YMPG) of Term 2018 – 19



Fabio Tradigo
Member Society: Italy

After graduating as a Structural Engineer at Politecnico di Milano, I became Doctor of Philosophy in Seismic, Structural, and Geotechnical Engineering at Politecnico di Milano with a thesis on soil-structure interaction (2015), developing solid numerical skills and experience in the field of Finite Element Analyses. Since 2014 I'm working in Arup Milan office as a Senior Civil and Geotechnical Engineer, being involved in national and international projects, including preliminary to detailed design, assistance to general contractors for design and built, as well as due diligences. I am also involved with a number of research projects in collaboration with European universities.

In Arup, I am currently the geotechnical numerical skills representative for Europe, the responsible for Arup Italy research activities and I am leading Arup Italy BIM development in the geotechnical and infrastructure sector.

I am serving the YMPG committee because I believe an active well connected network of young professionals is key to strengthen the relationship between research and practice, to share experiences across the globe and to develop our discipline in the next years.

I am a father of two sons and a daughter, I am passionate about soccer, classical and rock music, good food, data, and digital.
Feel free to contact me at fabio.tradigo@arup.com



Hong Doan
Member Society: France

Dr Hong Doan has ten years of experience in geotechnical engineering, including over seven years in the offshore sector. This includes a wide experience as a practicing geotechnical engineer, working on projects related to foundation design and soil-structure interaction analysis, including advanced testing techniques and advanced numerical techniques for jackets, jack-up rigs, subsea structures and offshore wind turbines.

Current role of Principal Engineer at Subsea7, he is responsible for project management, commercial management, technical management, consultancy and supervision of engineering teams on a variety of projects across the project life cycle from business development, tendering through to delivery of projects and close out. Furthermore daily duties include business development, client relations, networking, and mentoring newly hired engineers.

He teaches Civil Engineering graduates and Master's students about advanced Geotechnics at ENPC Ecole des Ponts ParisTech and is an invited speaker at Ecole Centrale Nantes. He provides also the technical training to a large spectrum of Clients at Client premises. He is an active member of CFMS's group preparing the recommendation on foundation design for offshore wind turbine at French coast. He was awarded in 2016 one of two French nominated participants for 25th European Young Geotechnical Engineers Conference, has authored 3 journal publications and over 10 communications at specialty conferences and congresses. He holds a MBA degree from School of International Management Paris (2011).

Young Members' Arena (Con't)

Meet the Young Member Presidential Group (YMPG) of Term 2018 – 19



Azucena Roman
Member Society: Mexico

I am a Civil Engineer graduated from the National Autonomous University of Mexico and I hold a Master's Degree in Civil Engineering Systems from the Technical University of Madrid. I have focused my professional career on geotechnical engineering studies as well as transportation network analysis and modelling. I have been widely involved in research activities in the last 8 years regarding geotechnical studies and foundation design for strategic infrastructure such as urban overpasses, tunnels, and metro lines. I have also developed transit efficiency optimization models in a sustainable framework. My main areas of expertise are seismic soil-structure interaction for transit systems, networks modeling and simulation, traffic studies and sustainable mobility. I am currently a lecturer at the Faculty of Engineering at UNAM and I work at the Institute of Engineering at UNAM on my PhD research, building an integrated model to conduct seismic hazard assessments and vulnerability studies for urban transportation networks. I can be reached at roman.delasancha@gmail.com.



Daniel Avutia
Member Society: South Africa

Daniel is a Chartered Professional Civil/Geotechnical Engineer in the Renewable Energy, Infrastructure and Mining sectors and sits on the National (SAICE) and International (ISSMGE YMPG) Geotechnical Engineering executive committees. Daniel is the Chair for the 7th African Young Geotechnical Engineer Conference to be held in Cape town in 2019. Daniel won the Young Engineer of the Year Award in South Africa in 2015, the National Institute of Materials, Minerals and Mining Young Persons' Lecture Competition representing Africa in Dublin, Ireland and was selected to represent Africa at the International Society for Rock Mechanics (ISRM) RockBowl competition in Montreal Canada in 2015. Daniel was also a finalist for the prestigious SAICE JE Jennings in 2014 and has presented at International and National Engineering conferences with technical publications on four continents.



Mauro Giuliano Sottile
Member Society: Argentina

I was born and raised in Corrientes, Argentina. I carried out my studies there, at the Universidad Nacional del Nordeste. I earned my Bachelor Degree in Civil Engineering in 2008, highly motivated and intrigued by soils complex behavior. A year later I awarded a Fulbright Scholarship. I had the chance to carry out a Master of Science at MIT, with Prof Andrew Whittle as my advisor. I had the opportunity to carry out laboratory and numerical research. I wrote my thesis in the implementation and evaluation of an elasto-visco-plastic constitutive model in Abaqus.

In 2016, I returned to Argentina and I am currently working at SRK Consulting Buenos Aires with Alejo Sfriso. My expertise is numerical modeling of civil structures and we are currently working on a R&D programme which includes the development of constitutive models to be implemented in Plaxis.

Hot News

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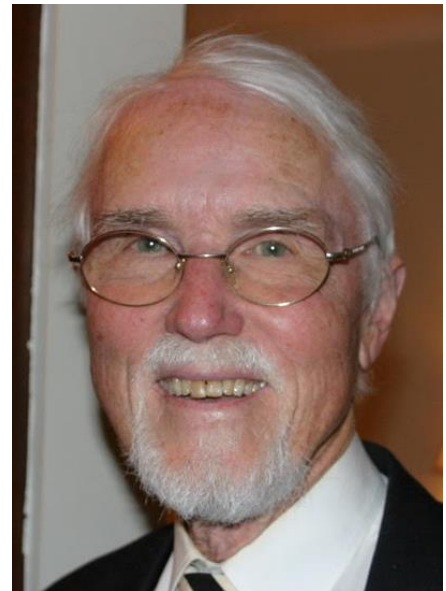
Obituary

Prof. Soven Hansbo, 1924 – 2018

It is with great sadness that we have to inform that Professor Sven Hansbo, Stockholm, died peacefully on January 8, 2018, shortly after having celebrated his 93rd birthday.

Sven Hansbo was a monumental figure in Swedish geotechnical engineering. He was an unusually gifted man, appreciated for his warmth and professional competence by many colleagues and friends. He was a brilliant researcher and scientist, innovative and bold in his approach to the solution of problems, always with a positive attitude, especially encouraging younger colleagues. Sven also had a deep interest in, and talent for, art and especially literature. He appreciated social life and delivered on many occasions - by heart - famous Swedish poetry.

Sven Hansbo was born in the small village of Nyed in Värmland, was brought up under simple circumstances in a family of peasants and became the first in his family to take a college degree. After graduation from Chalmers University of Technology, Sven wanted to pursue a scientific career in mathematics, which became one of his major interests in life. However, by coincidence, he was offered a research position at the newly formed Swedish Geotechnical Institute, where he conducted his ground-breaking research on vertical drains, for which he was awarded a doctoral degree.



Sven Hansbo became the first professor in geotechnical engineering in Sweden and established with great enthusiasm the geotechnical department at Chalmers. As a professor and scientific leader of the department, he was enthusiastic but at the same time thoughtful, innovative and full of new ideas. He was always available for discussions with graduate students and researchers, who benefitted from his wisdom, critical comments and advice.

In the early 1960's, Sven joined a leading Swedish consulting firm and expanded its geotechnical division to become the leading private geotechnical consultancy. During many years, he shared his time between consulting, research and teaching. He was involved in many large and complex foundation projects, where he had the opportunity to introduce new ideas. Long beyond his retirement age, he was active as a consultant, mentor and lecturer in Scandinavia and abroad. One of his specialties was deep foundation solutions on very soft, compressible clay. He became internationally recognized for his work on prefabricated drains, lime cement columns, dynamic compaction and, in particular, his invention of "creep piles" well before others realized the potential of load sharing between foundations and floating piles.

In spite of his scientific background, Sven Hansbo remained a genuine engineer with the ambition to challenge established technical solutions, always striving for better and more cost-effective solutions. Within his area of expertise, ground treatment and piled foundations, he became recognized as a world leader and became part of an international network of leading experts, with whom he generously shared his ideas.

Of particular interest to Sven was the development of international and European standards, especially in the area of ground improvement (vertical drainage, deep mixing and soil nailing). But in his opinion, standards were not to be a limitation of innovative thinking, recognizing the risk of limiting new ideas or innovative solutions.

Obituary (Con't)

Prof. Sven Hansbo, 1924 – 2018

Besides geotechnical engineering, Sven Hansbo was deeply engaged in developing geotechnical engineering in particular, and the construction industry in general. He was chairman of the Swedish Geotechnical Society for 8 years and vice chairman of the Swedish Construction Association for 5 years. He was also chairman of the organizing committee of the highly successful, 19th International Conference on Soil Mechanics and Foundation Engineering, held in Stockholm in 1981. In recognition of his many contributions to geotechnical engineering, Sven Hansbo was made honorary member of SGF and awarded the SGF honorary prize. In connection with Sven's ninetieth birthday, SGF established the "Sven Hansbo" prize acknowledging his outstanding contributions to Swedish geotechnical engineering. In 1973, Sven Hansbo was also awarded by the Stockholm construction association an honorary prize for the innovative application of load compensation in connection with floating pile foundations.

Professor Hansbo received several international awards, such as the Golden Award of Merits of the Academic Senate of the Warsaw Agricultural University 1986, the Polytechnica Gdanska Medal for promoting the scientific cooperation between Chalmers University of Technology and Polytechnica Gdanska 1995, and the prestigious Kevin Nash Gold Medal from the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) 2009.

While being a widely recognized and respected authority in his field by colleagues and clients from all over the world, he was at the same time unpretentious and could speak in the language of the everyday man: "talking to farmers on farmers' way", a clear link to his upbringing on a farm under humble circumstances. At festive occasions, for example at the Swedish Foundation Day or the memorable celebration of his 90th birthday, he recited by heart many verses of the famous Swedish poet Fröding.

Many of his former students, colleagues, members of SGF and long-standing friends in Sweden and abroad feel the great loss of an extraordinarily gifted yet humble man, always friendly, positive and with a twinkle in his eyes. The passing of Prof. Sven Hansbo leaves a large void in the geotechnical community in Sweden and abroad.

*On behalf of the Swedish Geotechnical Society
Gunilla Franzén, President, SGF
K. Rainer Massarsch
Göran Sällfors*

ISSMGE Foundation Reports

The 2017 year edition of the quadrennial International Conference on Soil Mechanics and Geotechnical Engineering was held by Korean Geotechnical Society (KGS) and took place in Seoul, Republic of Korea. The event consisted of 2-days International Young Geotechnical Engineers' Conference (iYGEC6) and 5-days 19th International Conference on Soil Mechanics and Geotechnical Engineering (19th ICSMGE). These two conferences covered all main issues of geotechnical engineering and soil mechanics through Plenary reports, Discussion sessions and meetings organised by technical committees.

Participation in the international conference provides an incomparable experience not only in public speaking, but also gives leaders of academia, consultancy and industry a chance to get together and discuss the changes that are going on in their field. Two conferences (9 lectures, 734 oral presentations and 320 posters in total) revealed the actual problems that geotechnical engineers around the world are engaged in, namely: slope stability analysis, soil-structure interaction, risk assessment, deep-foundations and retaining structures, physical modelling and testing, etc.

Additionally to the scientific benefits of the conference, I want to mention the lecture on Ethic and Leadership presented by Dr. Za-Chieh Moh (MAA Droup, Taiwan). In this outstanding lecture questions were raised that are rarely discussed at technical events, namely the responsibility of the engineer for the decisions made, professional ethics and human morality, confidence and the role of the leader in team as a keystone to successful work. I am convinced that such discussions are very important especially for young engineers, so we do not forget that all our work is aimed at performing safe, reliable and comfortable life conditions.

The ICSMGE offers a unique opportunity to communicate with professors, senior engineers, leaders of academia, industry and consultancy as well as numerous young engineers from all over the world. The first YMPG workshop provided an opportunity for younger members and senior engineers to discuss the role of younger members in the profession, their member societies, and the ISSMGE. As a member of the YMPG, I was fortunate to be involved in the organisation and moderation of the first workshop.

I would like to express my appreciation to ISSMGE Foundation in general and prof. J-L Briaud personally for the opportunity to attend such first-class conferences and for the grant.

Many thanks to the entire Organizing Committee for leading-up and holding the conferences at such a high level, for an individual approach and attention to details. Everything was very stylish and innovative (especially the Opening Ceremony).



Photo 1. During my presentation

Aleksandra Chepurnova
NIIOSP - JSC Research Centre of Construction, Moscow, Russia

ISSMGE Foundation Reports (Con't)

The 6th International Young Geotechnical Engineers' Conference (iYGEC6) was held on 16 to 17 September 2017 in Seoul. iYGEC is a platform for young engineers to share and discuss the current research and projects over the world. The conference consisted of two keynote lectures and sixteen parallel discussion sessions.

First keynote lecture is about application of GIS in earthquake hazard assessment provided by Professor Choong-Ki Chung while the second keynote lecture is Ethics and Leadership provided by Za-Chieh Moh. The keynote lectures cover from application of new technology to code of conduct of an engineer.

The presentations of the delegates were categorized in different topics, including in-situ investigation and characterization, foundation, excavation, ground improvement, etc. Thanks to the organizing committee for offering me an opportunity to present my paper "Prediction of ground settlement of deep excavation works adjacent to operating railway tracks in Hong Kong". I am glad to share my knowledge and lesson learnt in my deep excavation project in Hong Kong and get feedback from other young engineers. Their comments and queries provided me with new ideas for future work of the project.

The 19th International Conference on Soil Mechanics and Geotechnical Engineering was held on 18 to 21 September 2017 in Coex Convention Centre, Seoul. The main theme of the conference was "Unearth the Future, Connect Beyond []". The conference included a welcome reception, opening ceremony, Honours and Special Lectures, and parallel discussion sessions and workshops organized by technical committees.

One of the most inspiring lectures was "Challenges and shortcomings in geotechnical engineering practice in the context of developing country" provided by Professor Peter Day. Professor Peter Day mentioned one of the challenges is how to apply available knowledge in practice, and the gap between theory and practice. He discussed the process of transferring of new knowledge to industry, and collaboration between academics and practitioners which is an important topic in our industry. Effort from both academia and industry professionals are required to bridge the gap. The lecture made me think how I can contribute to applying knowledge to practice.

I would like to thank ISSMGE Foundation to support my participation in both conferences.



Photo 1. During my presentation



Photo 2. Participants from Hong Kong and China

Chung Man Yui
Hong Kong Geotechnical Society (HKGES)

ISSMGE Foundation Reports (Con't)

The 6th International Young Geotechnical Engineers' Conference took place at the National University of Seoul, South Korea from September 16 to 17, 2017. During the conference, about 120 presentations were delivered by young participants from all over the world. The sessions were divided into Energy Geotechnics and Sustainability, Engineered Soil, Excavation, Foundations, Geotechnical Practices, Ground Improvement, In-situ Investigation and Characterization, Liquefaction, Rock Mechanics & Tunneling, Slope Stability, Soil Behaviors & Characterization and Soil Dynamics.

Since the conference covered a large number of geotechnical topics, I had a comprehensive understanding on what issues are the participants, universities and research institutions, dealing with nowadays. I had also the great opportunity to present my research on "Prevention of liquefaction of transported ores in bulk carriers". It was a great opportunity to discuss my on-going research and share my experience.

The 19th International Conference on Soil Mechanics and Geotechnical Engineering was held at the COEX from September 17 to 22, 2017. The conference venue was absolutely appropriate as there were more than a thousand participants registered. All the keynotes and invited lectures were very informative and educational. Various parallel discussion sessions were arranged after the lunch in all day of conference. Also, poster presentation was organized during coffee and lunch breaks.

As a young geotechnical engineer and student, participation in these great events was a brilliant way for me to make contacts with leading and rising scholars in the geotechnical engineering society. Apart from paper presentation, this conference gave me an opportunity to know various industrial organization, software developers and companies working in the field of geotechnical engineering.

As a nominee member of the Association Tunisienne de Mécanique des Sols (ATMS), I was very privileged to represent this society in an International event of greater importance as was the 6th IYGEC. The participation in this important event was a great success and an achievement for my professional career in the geotechnical engineering field. I believe that this kind of experience helped me to grow professionally and personally.

Finally, I would like to thank all the people that helped me to attend this event. I am really grateful to the International Society of Soil Mechanics and Geotechnical Engineering Foundation (ISSMGE Foundation) for providing me with this great opportunity to build network and exchange beneficial knowledge.



Photo 1. During my presentation

Samar Daoud
Tunisienne de Mécanique de sol

ISSMGE Foundation Reports (Con't)

The two conferences (sixth international Young(er) Geotechnical Engineering Conference (6th iYGEC) and nineteenth International Conference of Soil Mechanics and Geotechnical Engineering (19th ICSMGE)) were prestigiously organized. Their diversified themes covered almost all domains of the profession. Engineers, professors, researchers, and students from all over the world attended the conference. Having the 6th iYGEC held just before the 19th ICSMGE offered a precious opportunity for young geotechnical engineers to attend both conferences given the low-priced registration fees. It should be noted that the majority of the young attendees were nominated by their corresponding local geotechnical societies. The choice of Seoul, which is an extremely developed city with an outstanding transportation system, as the location of the conference made attending the conference events and having touristic visits inside the city an easy mission.

The 6th iYGEC was a worthwhile opportunity to:

- Meet colleagues with comparable professional backgrounds and expertise.
- Interact and express common concerns, experience, and visions.
- Discuss on-going research and practice advancements in the domain.

Keynote lecture 1 by professor Choong-Ki Chung from Seoul National University, Korea included a work related to spatial variability and spatial interpolation. This lecture provided a wider and a more detailed view to this domain and it was an opportunity to compare the approach I used in one of my works. Keynote lecture 2 related to the ethics and leadership given by Professor Za-Chieh Moh, MAA Group, Taiwan was extremely important particularly with the presence of huge challenges in the profession nowadays.

The conference allowed me/us to get a deeper insight about the International Society of Soil Mechanics and Geotechnical Engineering specifically its role, structure, objectives and technical committees. As a result, I decided to join as a young member in the society.

In the two conferences, I got in contact with geotechnical engineers within leading geotechnical engineering companies and testing-machines manufacturers. This could be a window for new job offers and to a wider range of alternatives.

In the 19th ICSMGE, all keynote lectures were heavily informative, however, the lecture by Professor Peter Day from the university of Stellenbosch, South Africa was inspiring and stated realistically the current limits of research and practice in the profession.

I believe that attending the 6th iYGEC and 19th ICSMGE was a thrilling experience for me and all other attendees in all aspects. The conferences were ultimately fruitful and endlessly beneficial. They were a valuable chance to create relationships with people from all regions covering almost the entire world. The ISSMGE and the Korean Geotechnical Society (KGS) are highly accredited for their tremendous efforts in organizing these undoubtedly successful geotechnical conferences and achieving the main objective: “**Unearth the Future, Connect beyond []**”. Finally, I would like to express my sincere thanks to the ISSMGE Foundation for providing financial support without which I wouldn't be able to attend both conferences that I recommend for every young(er) geotechnical engineer.

*Ahmad Kahiel
American University of Beirut
Lebanese Geotechnical Engineering Society*

ISSMGE Foundation Reports (Con't)

The 19th ICSMGE conference “Unearth the Future, Connect Beyond []”, was held in Seoul, Korea from 17th until 22th September 2017. The aim of this conference was about bridging the gaps between past and future, between young and senior engineers, and between developing and developed nations among others.

Participating at the 19th ICSMGE was really an exciting experience from personal and professional point of view. Meeting personalities in the field and other young geotechnical engineers was really like a dream. What I noticed was that one doesn't need to speak the same language to unite to the same problems and challenges in our profession. It was a good feeling to know that there were no borders and if you can manage to be one of the top leaders in geotechnical engineering in your country, you can be comparable and your knowledges can be valuable all over the world. At this point I think that the aim of the conference was accomplished.

The main features were Honour Lectures, Plenary Session, Parallel Sessions, Discussion sessions, iYGEC, Technical visits, and posters exhibitions. The topics of the Honours Lectures were: unsaturated soils, soil-structure interaction, earthquake geotechnics, soft ground stabilization, laboratory testing, historical heritage and environmental geotechnical and risk management. The Special Lectures were about municipal solid waste, historical heritage, geophysical characterization, and landslides. The last two day comprised a variety of discussion sessions, with the papers of invited presenters, and special workshops. Two technical tours were also provided.

The discussion session was a platform where participants, researchers, authors and presenters from all the national societies and technical committees had the chance to meet, present and discuss their works on practical and scientific aspect.

Finally, I would like to thank the ISSMGE Foundation Awards Committee for supporting my attendance and all the participants for their excellent effort and work in engineering field.



Photo 1. Albanian Geotechnical engineers, (left- Mr. Skender Allkja the first author of our presentation)

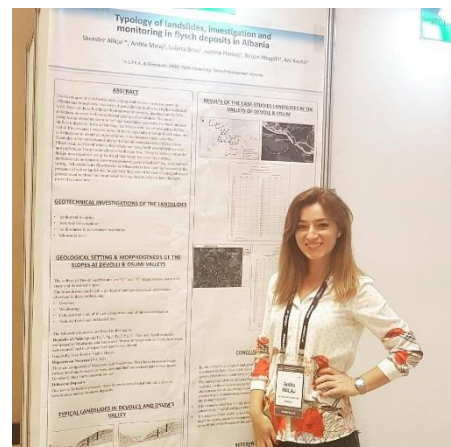


Photo 2. During poster presentation

Ardita Malaj
AGS

ISSMGE Foundation Reports (Con't)

The 19th ICSMGE (19th International Conference on Soil Mechanics and Geotechnical Engineering) was very well organized with scientifically interesting presentations. There was a lot of TC (Technical Committee) sessions about different topics in the Geotechnical Engineering. I presented two papers in TC 202 “Transportation”, namely “Frost depth monitoring of pavement and evaluation of frost susceptibility at soil ground of Kazakhstan” and “Impact of subgrade freezing on pavement deformation”, which were interesting to the audience. They asked questions related to moisture content change in the winter season and so on.

There was also a Workshop 216 “Frost” which I attended since the research of mine is close to it. Discussions consisted of 2 questions: Common design codes for infrastructures in cold regions and artificial ground freezing technique. A lot of ideas was conveyed during this session and amazing opinions of the participants was heard. The chairman of the Workshop was Prof. Takashi Ono, chaired this event very well. The next meeting of TC216 was chosen as The 5th European Conference on Permafrost (EUCOP 2018) in Chamonix-Mont Blanc, France, 22 June - 1st July 2018.

On 22th September, I attended Technical Visits to Sihwa Lake Tidal Power Plant + Gwangmyeong Tunnel. Sihwa Lake Tidal Power Plant is the largest power plant in the world which produces energy through tidal action. Gwangmyeong Tunnel is deep tunnel with a depth of 200 meter. It was amazing experience for me to see constructions like as this, I had got a lot of impression according to this visit.



Photo 1. During presentation



Photo 2. Delegates from Kazakhstan

*Zhanbolat Shakhmov
LN Gumilyov Eurasian National University,
Kazakhstan Geotechnical Society*

ISSMGE Foundation Reports (Con't)

The Korean Geotechnical Society hosted the 6th International Young Geotechnical Engineers' Conference (iYGEC6) at Seoul National University (Global Education Center for Engineers) from 16-17 Sept, 2017 and the 19th International Conference on Soil Mechanics and Geotechnical Engineering (19th ICSMGE) at COEX from 17-22 Sept, 2017. The two-day iYGEC6 started with the welcoming addresses by Prof. Moonkyung Chung, Prof. Roger Frank and Prof. Sangseom Jeong. There were two keynote lectures during conference by Professors Choong-Ki Chung (Korea) and Za-Chieh Moh (Taiwan) followed by the technical presentations by the young engineers. The KGS hosted a dinner for young engineers after the presentations. The conference ended on 17th Sept, 2017 with 19th ICSMGE Welcome Reception at COEX.

The 19th International Conference on Soil Mechanics and Geotechnical Engineering (19th ICSMGE) was a 6 days (17-22 Sept, 2017) conference which consisted of Welcome Reception, Opening Ceremony, Terzaghi Oration, Bishop, James K. Mitchell, Gregory Tschobotarioff, Blight, Heritage, Schofield, Proctor, Ishihara, Louis Menard, R.K. Rowe, Kerisel, Suzanne Lacasse Lectures, Technical Committees discussions, Closing Ceremony and Technical Visit. During the first two days, honorary lectures were provided by Professors viz. David Muir Wood (UK), John Powell (UK), Mark Randolph (Australia), Delwyn G. Fredlund (Canada), Chris Haberfield (Australia), Antonio Gomes Correia (Portugal), Carlo Viggiani (Italy), Jonathan D Bray (USA), Buddhima Indraratna (Australia), Mario Manassero (Italy), Farrokh Nadim (Norway).

At the Closing Ceremony, the new President of ISSMGE, Professor Charles Ng and his new team were introduced. This International Conference ended the next day on September 22, 2017 after a technical tour. Overall, the both Conference were full of technical discussions, meetings and greeting new friends, exchanging business cards, smiles and laughters. The fruitful exchange of ideas and discussions between all participants of iYGEC6 and 19th ICSMGE was indeed a positive sign in the development of Geotechnical Engineering profession. I would like to thank ISSMGE Foundation for their award, thereby giving me the opportunity to participate in such elite conferences. This exposure will surely give my research abilities a clear direction and purpose.



Photo 1. Photo with Prof. Ikuo Towhata



Photo 2. Photo with the new ISSMGE President, Prof. Charles Ng

Menal Zaheer
National Engineering Services Pakistan (NESPAK)

Event Diary

ISSMGE EVENTS

Please refer to the specific conference website for full details and latest information.

2018

International Symposium on Geotechnics for Transportation Infrastructure

Date: 07-08 April 2018

Location: Indian Institute of Technology, Delhi, India

Language: English

Organiser: Indian Geotechnical Society

Contact person: Dr. Altaf Usmani

Address: ISGTI Secretariat, Department of Civil Engineering, IIT Delhi

Email: ictg2018@gmail.com

Website <http://www.isgti2018.org/index.html>

Urban Planning Below The Ground Level: Architecture And Geotechnics

Date: 06-08 June 2018

Location: The House of Architects, Saint Petersburg, Russia

Language: English, Russian

Organiser St. Petersburg Council of Architects, ISSMGE TC 207 "Soil-Structure Interaction and Retaining Walls"

Contact person: Eugene Dubinin

Address: Russia, Izmaylovsky prosp. 4, of. 414

Phone: +7-812-3393587

Fax: +7-812-5753625

Email: georeconstruction@gmail.com

Website: <http://tc207ssi.org>

XVI Danube-European Conference on Geotechnical Engineering: Geotechnical Hazards and Risks: Experiences and Practices

Date: Thursday 7 June 2018 - Friday 9 June 2018

Location: Skopje, Macedonia, Former Republic of Yugoslav, Skopje

Language: English and German

Organizer: Macedonian Association for Geotechnics

Contact person: Jovan Br. Papić

Address: blvd.Partizanski odredi No.24

Phone: +389 2 3116 066 ext.157

Fax: +389 2 3 11 88 34

Email: mag@gf.ukim.edu.mk

Website: <http://www.decge2018.mk>

Event Diary (Con't)

4th International Symposium on Cone Penetration Testing (CPT'18)

Date: Thursday 21 June 2018 - Friday 22 June 2018

Location: Delft University of Technology (TUD), Delft, Netherlands

Language: English

Organizer: Delft University of Technology (endorsed by TC102)

Contact person: Prof. Michael Hicks, Dr. Federico Pisanò and Ir. Joek Peuchen

Address: Faculty of Civil Engineering and Geosciences, Section of Geo-Engineering, Building 23, Stevinweg 1, 2628 CN Delft, The Netherlands

Phone: +31 70 31 11299

E-mail: info@cpt18.org

Website: <http://www.cpt18.org>

9th International Conference on Physical Modelling in Geotechnics

Date: 17-07-2018 - 20-07-2018

Location: City, University of London, United Kingdom

Language: English (UK)

Organiser: City, University of London

Contact person: Dr Andrew McNamara

Address: City, University of London, Northampton Square, London, UK

Phone: 02070408149

Email: a.mcnamara@city.ac.uk; ICPMG2018@city.ac.uk

Website: <http://www.ICPMG2018.London>

Geotechnical Construction of Civil Engineering & Transport Structures of the Asian-Pacific Region

Date: 04-07 July 2018

Location: Yuzhno-Sakhalinsk, Russia

Language: English

Organiser: Far Eastern State Transport University

Contact person: Tatyana Valtseva

Address: 47 Serisheva st., Khabarovsk, Russia

Phone: +7 (4212) 407-502

Email: geotexsimposium2018@bk.ru

Website: <http://www.dvgups.ru/images/main/files/Obyvleniy/11-01-2017/Information%20about%20the%20Symposium%20in%20English.pdf>

9th European Conference on Numerical Methods in Geotechnical Engineering

Date: 25-27 June 2018

Location: University of Porto. Faculty of Engineering, Portugal

Contact person: Prof. António Silva Cardoso

Address: Department of Civil Engineering

Phone: 22508 1469

Fax: 22508 1446

Email: scardoso@fe.up.pt

Event Diary (Con't)

5th GeoChina International Conference-Civil Infrastructures Confronting Severe Weathers and Climate Changes: From Failure to Sustainability

Date: 23-25 July 2018

Location: Hangzhou -China

Contact person: Dr. Dar Hao Chen

Address: 13208 Humphrey Dr

Phone: +86 5127056263

Email: GEOCHINA.ADM@GMAIL.COM

Website: <http://geochina2018.geoconf.org/>

7th International Conference on Unsaturated Soils (UNSAT2018)

Date: Friday 03 August 2018 - Sunday 05 August 2018

Location: The Hong Kong University of Science and Technology (HKUST), Hong Kong, China

Language: English

Organizer: The Hong Kong University of Science and Technology (HKUST)

Contact persons: Prof. Charles W. W. Ng (Chair), Miss Shirley Tse (Administrative Secretary) or Dr Anthony Leung (Technical Secretary)

Address: Geotechnical Centrifuge Facility, The Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, HKSAR, China

Phone: (852) 2358-0216

Fax: (852) 2243-0040

E-mail: unsat2018@ust.hk

Website: <http://www.unsat2018.org>

China - Europe Conference on Geotechnical Engineering

Date: 13-08-2018 - 16-08-2018

Location: Institute of Geotechnical Engineering, BOKU, Vienna, Austria

Language: English

Organiser: Institute of Geotechnical Engineering, University of Natural Resources and Life Sciences Vienna (BOKU) and University of Leeds, UK

Contact person: Secretariat of the Institute of Geotechnical Engineering, BOKU

Address: Feistmantelstrasse 4

Email: geotech@boku.ac.at

Website: <https://china-euro-geo.com/>

26th European Young Geotechnical Engineers Conference

Date: 11-09-2018 - 14-09-2018

Location: Hotel Klugbauer, Austria

Language: English

Organiser: Dr. Franz Tschuchnigg & Prof. Helmut F. Schweiger

Contact person: Dr. Franz Tschuchnigg

Address: Computational Geotechnics Group, Institute of Soil Mechanics and Foundation Engineering, Graz University of Technology, Rechbauerstrasse 12

Phone: +43(0)316-873/6729

Email: franz.tschuchnigg@tugraz.at

Website: <http://soil.tugraz.at/eygec2018>

Event Diary (Con't)**International Symposium on Energy Geotechnics**

Date: 26-28 September 2018

Location: Swiss Tech Convention Center, Lausanne, Switzerland

Language: English

Organiser: Swiss Federal Institute of Technology in Lausanne (EPFL)

Contact person: SEG-2018 Organizing Committee

Address: EPFL - ENAC - LMS Station 18

Phone: +41 21 693 23 15

Fax: +41 21 693 41 53

Email: seg2018@epfl.ch

Website: <http://seg2018.epfl.ch/>

International Scientific-Technical Conference "Geotechnics of Belarus: Science and Practice "

Date: 23-26 October 2018

Location: Minsk, Republic of Belarus

Language: Russian, English

Organiser: Belarusian National Technical University, Belarusian geotechnical society, Department "Geotechnics and Ecology in Construction"

Contact person: Tamara Ulasik

Address: Department "Geotechnics and Ecology in Construction", Belarusian National Technical University

Phone: +375 29 329 70 83

Email: tamaraul@mail.ru; geotechnika2018@gmail.com

Website: <http://geotech.by>

4ème Colloque International Sols Non Saturés & Construction Durable UNSAT Oran 2018

Date : 30-31 October 2018

Location : Oran, Algeria,

Language : French, English

Organiser : Université des Sciences et de la Technologie M. Boudiaf d'Oran Faculté d'Architecture et de Génie Civil, Laboratoire Matériaux, Sols et Thermique (LMST) et le réseau UNSAT-DZ

Contact person: Secrétariat Unsat Oran 2018

Address: Faculty of Architecture and Civil Engineering USTO-MB

Phone: (+213) (0) 41 62 71 77

Fax: (+213) (0) 41 62 71 77

Email: unsatoran2018@gmail.com

Website : <http://www.unsat-dz.org/index.php>

GEOMEAST 2018 International Congress and Exhibition

Date: 24-11-2018 - 28-11-2018

Location: Cairo, Egypt

Organizer: Soil-Structure Interaction Group in Egypt (SSIGE) and Housing & Building National Research Center (HBRC)

Contact person: Dr. Eng. Hany Farouk Shehata

Email: hanyfarouk808@gmail.com,

Website: <http://www.geomeast2018.org/>

Event Diary (Con't)

Second JTC1 Workshop on Triggering and Propagation of Rapid Flow-Like Landslides

Date: 03-05 December 2018

Location: Hong Kong University of Science and Technology, Hong Kong

Language: English

Organiser: Joint Technical Committee on Natural Slopes and Landslides (JTC1)

Co-organiser: The Hong Kong Geotechnical Society; The Geotechnical Division of the Hong Kong Institution of Engineers; The Hong Kong University of Science and Technology

Contact person: Professor Clarence Choi

Address: Hong Kong University of Science and Technology, Clear Way Bay, Kowloon

Email: ceclarence@ust.hk

2019

7 ICEGE 2019 - International Conference on Earthquake Geotechnical Engineering

Date: Monday 17 June 2019 - Thursday 20 June 2019

Location: Rome, Italy

Language: English

Organizer: TC203 and AGI (Italian Geotechnical Society)

Contact person: Susanna Antonielli

Address: AGI - Viale dell' Università 11, 00185, Roma, Italy

Phone: +39 06 4465569

Fax: +39 06 44361035

E-mail: agi@associazionegeotecnica.it

ISDCG 2019 - 7th International Symposium on Deformation Characteristics of Geomaterials

Date: Wednesday 26 June 2019 - Friday 28 June 2019

Location: Technology and Innovation Centre (TIC) of the University of Strathclyde, Scotland, UK,

Language: English

Organizer: TC101

Website: *in construction*

ECSMGE 2019 - XVII European Conference on Soil Mechanics and Geotechnical Engineering

Date: Sunday 01 September 2019 - Friday 06 September 2019

Location: Harpa Conference Centre Reykjavik, Iceland

Language: English

Organizer: The Icelandic Geotechnical Society

Contact person: Haraldur Sigursteinsson

Address: Vegagerdin, Borgartún 7, IS-109, Reykjavik, Iceland

Phone: +354 522 1236

E-mail: has@road.is

Website: <http://www.ecsmge-2019.com>

Event Diary (Con't)

XVII African Regional Conference on Soil Mechanics and Geotechnical Engineering

Date: 07-10 October 2019

Location: Cape Town Convention Centre, South Africa

Language: English

Organiser: SAICE

Contact person: Dr Denis Kalumba

Email: denis.kalumba@uct.ac.za

XVI Asian Regional Conference on Soil Mechanics and Geotechnical Engineering

Date: Monday 21 October 2019 - Friday 25 October 2019

Location: Taipei, China

Contact person: 16th ARC Secretariat

Phone: 886-2-27988329 ext.35

Fax: 886-2-27986225 (fax)

Email: secretariat@16arc.org

Website: <http://www.16arc.org>

XVI Panamerican Conference on Soil Mechanics and Geotechnical Engineering

Date: Monday 18 November 2019 - Friday 22 November 2019

Location: Cancun, Quintana Roo, Mexico

Organizer: SMIG

Phone: +(52) 1 55 5677-3730, +(52) 1 55 5679 3676

E-mail: support@panamerican2019mexico.com

Website: <http://panamerican2019mexico.com>

2020

Nordic Geotechnical Meeting

Date: 27-29 May 2020

Location: Finlandia Hall, Finland, Helsinki

Contact person: Prof. Leena Korkiala-Tanttu

Address: SGY-Finnish Geotechnical Society,

Phone: +358-(0)50 312 4775

Email: leena.korkiala-tanttu@aalto.fi

6th International Conference on Geotechnical and Geophysical Site Characterization

Dates: 07-09-2020 - 11-09-2020

Location: Budapest Congress Center, Hungary, Budapest English

Organizer: Hungarian Geotechnical Society

Contact person: Tamas Huszak

Address: Muegyetem rkp. 3.

Phone: 0036303239406

Email: huszak@mail.bme.hu

Website: <http://www.isc6-budapest.com>

Email: info@isc6-budapest.com

Event Diary (Con't)

NON-ISSMGE SPONSORED EVENTS

2018

International Foundations Congress & Equipment Expo

Dates: 05-03-2018 - 10-03-2018

Location: Hilton Orlando Buena Vista Palace, United States

Organizer: DFI, ADSC, Geolnstitute of ASCE and PDCA

Contact person: Jan Hall

Address: 8445 Freeport Parkway Suite 325

Phone: +1 469-359-6000

Fax: +1 469-359-6007

Email: jhall@adsc-iafd.comWebsite: <http://www.ifcee2018.com>**EUROROCK 2018 Geomechanics and Geodynamics of Rock Masses**

Date: 22-05-2018 - 26-05-2018

Location: Saint-Petersburg Mining University, Russia

Language: Russian and English

Organiser: International Society for Rock Mechanics, Saint-Petersburg Mining University, Russian Geomechanics Association

Contact person: Vladimir Noskov

Address: 2, 21st Line

Phone: +7 909 588 31 47

Email: post@eurorock2018.comWebsite: http://www.eurock2018.com/index_en.html#**4th GeoShanghai International Conference**

Date: May 27-30, 2018

Location: H Ming Hotel Shanghai (<http://www.whminghotel.com/default-en.html>), China , Shanghai

Organizer: Tongji University, China

Contact person: Ming Xiao

Address: Department of Civil and Environmental Engineering, Pennsylvania State University

Phone: 1-814-865-8056

Email: mxiao@engr.psu.eduWebsite: <http://geo-shanghai.org>**5th Italian Workshop on Landslides (IWL 2018) - "Rainfall-Induced Landslide Nowcasting for Early Warning"**

Date: 28-20 May 2018

Location: Centro Congressi Federico II , Naples, Italy ,

Language: English

Organiser: Promoters/Editors: Luciano Picarelli, Thom Bogaard, Roberto Greco, Gianfranco Urciuoli

Contact person: Technical Secretary: Luca Comegna, Ph.D.

Address: Via Roma 29

Phone: +39 081 5010384

Fax: +39 081 5037370

Email: luca.comegna@unicampania.itWebsite: <https://www.facebook.com/iwl2018>

Event Diary (Con't)

micro to MACRO mathematical modelling in soil mechanics

Date: 29 May - 01 June 2018
Location: Reggio Calabria Italy
Organiser: DICEAM, University of Reggio Calabria
Contact person: Giuseppe Mortara
Address: Via Graziella, Feo di Vito
Phone: +39 0965 1692 271
Fax: +39 0965 1692 201
Email: giuseppe.mortara@unirc.it
Website: <http://www.microtomacro2018.unirc.it/>

DFI-EFFC International Conference on Deep Foundations and Ground Improvement

Dates: 06-06-2018 - 08-06-2018
Location: Sapienza University, Rome, Italy
Organizer: DFI and EFFC
Contact person: Theresa Engler
Address: 326 Lafayette Avenue
Phone: 19734234030
Fax: 19734234031
Email: tengler@dfi.org
Website : <http://www.dfi.org/dfieventlp.asp?13310>
Email: staff@dfi.org

Geotechnical Earthquake Engineering and Soil Dynamics V

Dates: 10-06-2018 - 13-06-2018
Location: AT&T Executive Education and Conference Center, Austin, United States
Organizer: American Society of Civil Engineers (ASCE) Geo-Institute
Contact person: Ellen M. Rathje, Ph.D., P.E., F.ASCE
Address: 1900 University Ave
Phone: +1 800 548 2723
Email: e.rathje@mail.utexas.edu
Website: <http://www.geesdconference.org>
Email: registrations@asce.org

11th International Conference on Geosynthetics

Date: 16-21 September 2018
Location: Coex, Seoul, Korea
Contact person: 11ICG Secretariat
Address: Haeoreum B/D (1F), 16 Yeoksam-ro 17-gil, Gangnam-gu
Phone: +82-2-566-6031
Fax: +82-2-566-6087
Email: secretariat@11icg-seoul.org
Website: <http://www.11icg-seoul.org/>

Event Diary (Con't)

DFI 43rd Annual Conference on Deep Foundations

Dates: 24-10-2018 - 27-10-2018
Location: Hilton Anaheim, United States
Organizer: Deep Foundations Institute
Contact person: Theresa Engler
Address: 326 Lafayette Avenue
Phone: 19734234030
Fax: 19734234031
Email: staff@dfi.org
Website: <http://www.dfi.org/dfieventlp.asp?13325>

2019

DFI 44th Annual Conference on Deep Foundations

Dates: 15-10-2019 - 18-10-2019
Location: Hilton Chicago, United States
Organizer: Deep Foundations Institute
Contact person: Theresa Engler
Address: 326 Lafayette Avenue
Phone: 19734234030
Fax: 19734234031
Email: tengler@dfi.org
Website: <http://www.dfi.org>
Email: staff@dfi.org

2020

DFI Deep Mixing 2020

Dates: 15-06-2020 - 17-06-2020
Location: TBD, Gdansk, Poland
Organizer: Deep Foundations Institute
Contact person: Theresa Engler
Address: 326 Lafayette Avenue, Hawthorne, NJ 07506, USA
Phone: 19734234030
Fax: 19734234031
Email: tengler@dfi.org
Website: <http://www.dfi.org>
Email: staff@dfi.org

DFI 45th Annual Conference on Deep Foundations

Dates: 13-10-2020 - 16-10-2020
Location: Gaylord National Resort & Convention Center, Oxon Hill, MD, USA
Organizer: Deep Foundations Institute
Contact person: Theresa Engler
Address: 326 Lafayette Avenue, Hawthorne, NJ 07506, USA
Phone: 19734234030
Fax: 19734234031
Email: tengler@dfi.org
Website: <http://www.dfi.org>
Email: staff@dfi.org

Event Diary (Con't)

Fifth World Landslide Forum

Dates: 02-11-2020 - 06-11-2020

Location: Kyoto International Conference Center, Kyoto, Japan

Organizer: International Consortium on Landslides

Contact person: Ryosuke Uzuoka

Address: Gokasho

Phone: +81-774-38-4090

Email: uzuoka.ryosuke.6z@kyoto-u.ac.jp

Website: <http://wlf5.iplhq.org/>

Email: secretariat@iclhq.org

FOR FURTHER DETAILS, PLEASE REFER TO THE WEBSITE OF THE SPECIFIC CONFERENCE

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