



International Society for Soil Mechanics and Geotechnical Engineering

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Message from the ISSMGE President

Dear colleagues,



Following my announcement of the presidential plan on Education, Innovation and Diversity in September 2017 in Seoul which was also published in the October issue of our Bulletin last year, I am delighted to report to you the significant progress we have made with the help and support of many board members such as Professors

Mounir Bouassida and Kok Kwang Phoon and board-level committee chairs including Ms Lucy Wu, Professors Pierre Delage and Dimitrios Zekkos, and Mr Sukumar Pathmanandavel.

1. Education

The proposed “ISSMGE virtual university” has begun to take shape. Under the leadership of Professors Mounir Bouassida and Kok Kwang Phoon, existing ISSMGE webinars were reviewed and categorised into three “themed series of webinars or postgraduate courses”. The themes are (a) Risk Mitigation, Monitoring & Observational Methods; (b) In Situ Testing; and (c) Earthquake Engineering. Each series is comprised of three to four webinars giving students and engineers up to five hours of viewing. Details will be announced on our ISSMGE website (under Education) by Professors Mounir Bouassida and Neil Taylor soon.

About nine other courses have been identified. However, there are gaps that need to be filled to form coherent courses with a total not less than five hours of viewing. All VPs and chairs of technical committees are encouraged to nominate webinar speakers. Moreover, “Lectures in French” will be developed.

Message from the ISSMGE President (Con't)

2. Innovation

The open access policy in the ISSMGE initiated by Professor Roger Frank during his presidential term has been continued and expanded. Naturally, the open access materials and information would form the “ISSMGE virtual library” as a part of the “ISSMGE virtual university”. Professors Dimitrios Zekkos and Kok Kwang Phoon have started to explore how best to create this “virtual library”. Even more exciting is that the Innovations and Development Committee has begun to explore the possibility of creating our own publisher, “ISSMGE virtual publisher,” for reviewing conferences and publishing papers online.

I am also very pleased to inform you that a new technical committee (TC) called TC309 – “Machine Learning and Big Data” has been created. The chair of this new TC is Dr Zhongqiang Liu from the Norwegian Geotechnical Society. The Vice-chair and Secretary are Dr Mohammad Rezanian from the United Kingdom and Dr Zenon Medina-Cetina from the United States, respectively. More details of this new TC can be found at <https://www.issmge.org/committees/technical-committees/impact-on-society/machine-learning>.

3. Diversity

Boosting Corporate Associates to narrow the gap between academics and practitioners

Under the leadership of Mr Sukumar Pathmanandavel, significant progress has been made since September 2017. Four new Corporate Associates were recruited. They are Geoharbour Group from China, GDS Instruments from Malaysia, AOSA SA, and SRK Consulting from Argentina. In addition, CAPG have been working closely with various conference organising committees to mobilise geotechnical engineers around the world to consider, debate and have dialogue on matters that directly impact the welfare of the profession. The main purpose is to narrow the gap between academics and practitioners to find shared meaning and understanding, as well as to take collaborative actions. Our mid-term focal points for this exercise are the forthcoming CAPG plenary session, and CAPG workshops, at the five 2019 Regional conferences of the ISSMGE. Topics for debate and dialogue are in the process of being finalised. More details of the significant progresses made can be found in the CAPG report published in this Bulletin.

Creating key lecturing opportunities for young members

As our young members (less than 36 years of age) have been under-represented in major lectures for many years, I have created the ISSMGE Bright Spark Lecture series to enable more young members to take the main stage at conferences. Thanks to the Young Members Presidential Group (YMPG) who came up with the title of this young members’ lecture series. The first Bright Spark Lecture was delivered by Dr Lin Dong at the 7th Technical Conference in Eastern Asia on Geo-Natural Disasters in Chengdu (China). I was very pleased to attend that lecture and present a certificate to the lecturer. The conference was organised by ATC3.

Other ISSMGE Bright Spark Lectures are being planned by the YMPG and various organising committees at different conferences such as the 7th International Conference on Unsaturated Soils, the 16th Asian Regional Conference and the 16th Pan-American Conference on Soil Mechanics and Geotechnical Engineering.

Under the leadership of Ms Lucy Wu, the YMPG has been increasing its reach via Google Groups, LinkedIn and GeoWorld. Also there have been increasing collaboration opportunities via the proposed CAPG-YMPG workshops, the ISSMGE Virtual University and the recently launched ISSMGE Bright Spark Lecture. The YMPG has planned to participate in more meetings via the Corresponding Member Forum, to encourage more Young Geotechnical Engineers Conferences at national or sub-regional level, to investigate the Road to Professional Registration and to seek ways to engage younger members in the committees of Member Societies.

Have a nice summer break.
Charles W.W. Ng



Dr Lin Dong from the Lanzhou Institute of Seismology of China Earthquake Administration receives the first “ISSMGE BRIGHT SPARK LECTURER” certificate

Report from Corporate Associates Presidential Group (CAPG)

Boosting Corporate Associates to narrow the gap between academics and practitioners

Contribution of Corporate Associates to the ISSMGE

I would like to acknowledge and thank the 36 Corporate Associates, who provide significant financial support to the ISSMGE budget. More importantly, through the leadership and activities of the Corporate Associates Presidential Group (CAPG), the Corporate Associates (CAs) work to narrow the gap between academics and practitioners.

This link (<https://www.issmge.org/corporate-associates/listing>) provides the full listing of the companies who are Corporate Associates of the ISSMGE. There is great diversity in the locations of the Corporate Associates (numbers in brackets denote number of CAs in the named countries) - Argentina (2), Australia (7), Belgium (1), Canada (1), China (1), Egypt (1), France (5), Germany (4), HK (1), Italy (2), Malaysia (1), Nigeria (1), USA (1), Norway (1), Republic of Kazakhstan (1), The Netherlands (3), Turkey (1) and the UK (2).

I extend our warm welcome to the new Corporate Associates from China (Geoharbour Group), Malaysia (GDS Instruments), and Argentina (AOSA SA, and SRK Consulting).

This link, <https://www.issmge.org/corporate-associates/why-how-to-join>, provides details on how to join, and the benefits of being a Corporate Associate.

Global survey on state of the art and state of practice - dissemination of results

In early 2017, about 1300 geotechnical engineers from 68 countries took part in a global survey on the state of the art and state of practice in geotechnical engineering. This survey was initiated by the CAPG with the support of the Chair of the Technical Oversight Committee (TOC), Professor Pierre Delage, and all the Technical Committees of the ISSMGE. 70% of the survey responses were from practitioners, showing good traction with industry, and all experience and age groups were well represented. 84% of the respondents were male and 16% were female.

The CAPG has been engaged in disseminating the results of the survey and we have achieved the following outcomes:

- A well-attended CAPG/TOC workshop was held at the Seoul conference in September 2017, with presentation of the survey results by representatives from the Corporate Associates, and a technical discussion outlining the survey findings by Professor Pierre Delage. This was then followed by a comprehensive debate and dialogue session by the attendees of the workshop.
- Communication to the broader geotechnical community of the survey findings and floor discussion was undertaken through the publication of a technical paper authored by Hugo Acosta-Martinez, Pierre Delage, Jennifer Nicks, Kim Chan and Peter Day. Many national and global technical journals have taken up this publication, including
 - Ground Engineering (UK) News item & e-newsletter (Feb 2018)
 - Australian Geomechanics (March 2018)
 - South African Civil Engineering (April 2018)
 - ISSMGE Bulletin (April 2018), http://issmge2014.ust.hk/apr2018/2.CAPG_report.pdf
 - NZ Geomechanics (June 2018)
 - Revue Française de Géotechnique, 2018, 154, 3 (in French)

Publication possibilities in Germany, Greece, USA, South America are being explored. The links below allow access to PDF files of the presentations at the Seoul workshop, with the last link to a 197-page PDF document of the complete survey results arranged in a user-friendly manner.

Report from Corporate Associates Presidential Group (CAPG) Boosting Corporative Associates to narrow the gap between academics and practitioners (Con't)

- https://www.issmge.org/filemanager/article/17/CAPG_Seoul_Workshop_presentation.pdf
- https://www.issmge.org/filemanager/article/17/Seoul_Survey_feedbackV1a.pdf
- https://www.issmge.org/filemanager/article/13/Survey_Results_Rev_2.pdf

Opportunity in 2018 & 2019 for geotechnical engineers to join and work with ISSMGE on the new initiatives of the CAPG

CAPG have launched a major exercise in this term (2017 -2021) to mobilise geotechnical engineers around the world to consider, debate and have dialogue on matters that directly impact the welfare of the profession. In particular, we hope to bring academics and practitioners together to find shared meaning and understanding, as well as take action.

Our mid-term focal points for this exercise are the forthcoming CAPG plenary session, and CAPG workshops, at the five 2019 Regional conferences of the ISSMGE (<https://www.issmge.org/news/issmge-regional-conferences-2019>).



ISSMGE Regional Conferences 2019

Details available from
websites



Topics for debate and dialogue are in the process of being finalised, and CAPG arrangements are well in hand for the April 2019 Perth (Australia) conference, which will be a plenary session on “Collaboration in Geotechnical Engineering - Impact on Research and Project Delivery”. The workshop sessions for the regional conferences later in 2019 are also progressing very satisfactorily.

CAPG offers all geotechnical engineers the opportunity to work with members of the ISSMGE Board Members, Board Level Chairs, Corporate Associates, and members of the YMPG on the various planned activities leading up to the 2019 regional conferences, and subsequently to our work leading to the 2021 Sydney ICSMGE international conference.

Report from Corporate Associates Presidential Group (CAPG)

Boosting Corporative Associates to narrow the gap between academics and practitioners (Con't)

CAPGs overriding aim is to ensure that ISSMGE accesses a diverse range of thoughts and views that are crucial to the future of our industry, from professionals from all stages of their careers, genders, and institutions. We are looking for indications of interest from geotechnical engineers with one or more of the following strengths:

- Innovative
- Analytical
- Connector
- Public Face

Those interested should contact the Chair of the CAPG, Sukumar Pathmanandavel (sukumar.pathmanandavel@gmail.com), and include in your email your primary and secondary strengths, affiliation, and full contact details.

Sukumar Pathmanandavel
Chair CAPG

Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile

The frequent occurrence of large magnitude earthquakes and the existence of an important mining industry have been driving, to a high degree, much of the progress in the field of soil mechanics and geotechnical engineering in the last decades in Chile. Most of this progress can be associated with two Geotechnical centers that form a part of the civil engineering schools at the Pontificia Universidad Católica de Chile and the Universidad de Chile. A brief description of the capabilities, faculty members, and research topics of these two centers is presented below.



UNIVERSIDAD DE CHILE

Pontificia Universidad Católica de Chile (PUC)

The Pontificia Universidad Católica de Chile was founded on June 21, 1888 by Monsignor Mariano Casanova, Archbishop of Santiago. His goal was to create an institution capable of blending academic excellence and training based on the Christian doctrine. In 1889, the Faculty of Legal Sciences was created, along with the San Juan Evangelista Academy and two professional schools: the San Rafael Commercial and Literary Academy, and the Nuestra Señora del Carmen Industrial School. In 1892 the University offered the first civil engineering courses, which served as a starting point for the discipline in Chile. The first graduates of the Pontificia Universidad Católica completed majors in civil engineering, architecture, and law.

Faculty members



Prof. Carlos Ovalle
Assistant Professor
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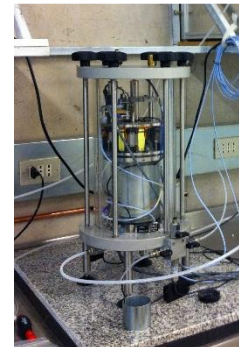
Civil Engineer, Universidad Técnica Federico Santa María, Chile
Master of Science, École Centrale Paris, France
Doctor in Engineering Sciences, École Centrale Nantes, France

Motivated by the environmental challenges of large-scale rockfill dams and mine waste deposits composed by mixtures of fines, sands and rock aggregates, professor Ovalle has been interested in the mechanical behavior of granular materials and the degradation of their hydro-mechanical properties.

Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile (Con't)

The source of the material behavior can be found at meso- and micro-scales, and is strongly affected by environmental conditions. In other words, it depends on mineralogical, structural, geometrical and mechanical characteristics of individual grains, and on their loading conditions through particle contacts. Therefore, a multi-scale approach is needed in order to develop physical-based predictive methods.



Observations through the scales have allowed professor Ovalle to contribute for a better understanding of the hydro-mechanical degradation of different granular materials, such as natural soft soils, tailings and rockfills experiencing large compressibility, softening and creep deformation, which could be responsible for several pathologies in civil works.



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Doctor of Philosophy, École Centrale Paris, France

Soil characteristics can completely define the perception and effects of seismic movement in different areas of a city. In seismic-active countries such as Chile, these site effects are particularly relevant as they influence the design of every building project nationwide. However, estimating these effects is not a simple problem.

On one hand, it is essentially a blind problem as it is not possible to obtain a full description of the soils characterizing a particular site because their properties naturally vary from one point to another. On the other hand, during seismic events the behavior of soils is inelastic, making the task of mathematical modeling more difficult. Moreover, there may be complex phenomena of interaction between solid particles of the soil and the water that often inundates its pores. Finally, there is no certainty regarding the precise characteristics of the next seismic event, which adds even more uncertainty to the problem.

Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile (Con't)

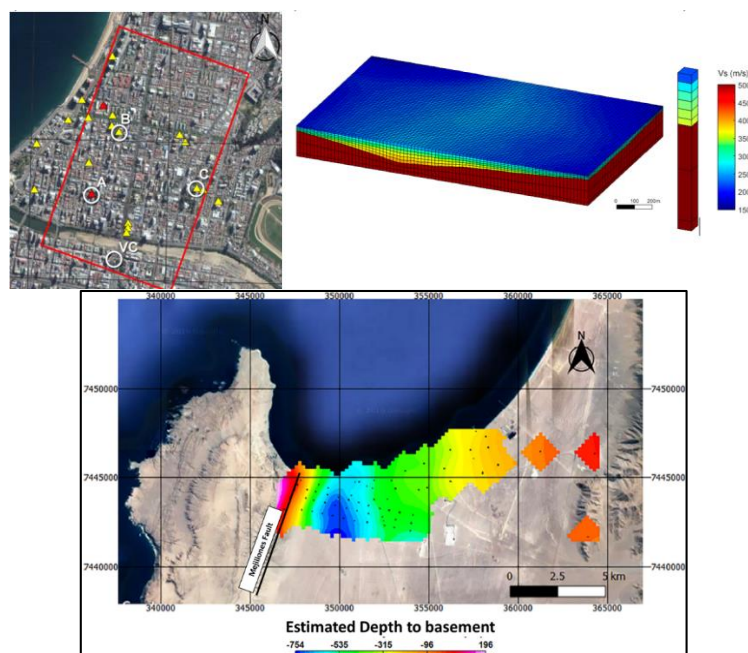
Geotechnical laboratory equipment

- Standard triaxial and direct shear tests
- WF/Controls Cyclic triaxial
- WF/Controls Resonant column
- WF/Controls Torsional shear
- Unsaturated GDS triaxial and oedometric cells
- Axis translation technique
- Relative humidity loop control technique
- Tensiometer
- High pressure GDS triaxial cell (4 MPa) including bender elements
- On triaxial sample small-strain measurement
- 1D transparent laminar shear box



Professor Sáez's research addresses the various aspects of this problem using different experimental and computational strategies. With respect to the in-situ characterization of soils, he uses geophysical techniques based on micro vibrations and surface wave dispersion to make in-depth characterization and identification of the natural properties of soils. This has allowed him to develop several maps for soil amplification and seismic micro-zoning in different parts of the country, particularly in the north of Chile.

Once the natural distribution and basic properties of soils have been characterized, the generation of computer models needs to be calibrated using the stress-strain curves of the materials. To do this, professor Sáez is supported by a complete experimental laboratory for soil dynamics which uses samples collected in the field to reproduce the load they will be subjected to during a seismic event.



Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile (Con't)

Current research

Once their behavior has been characterized, micro and macro mechanical models are calibrated, allowing for the understanding and reproduction of the fundamental aspects that characterize the seismic response of each soil type and define the effects of seismic wave amplification.

Finally, based on the description of the field and laboratory results, high-performance, large-scale computer models are generated for entire cities or neighborhoods that take into account all of the data and allow quantitative estimates to be made of the effects of seismic amplification for different parts of a city, identifying singularities or defining areas that are potentially more exposed than others to complex seismic site effects.

According to prof. Sáez, although this research will not necessarily conclude with modifications to regulatory plans, it will provide recommendations that may encourage the authorities to review the standards.



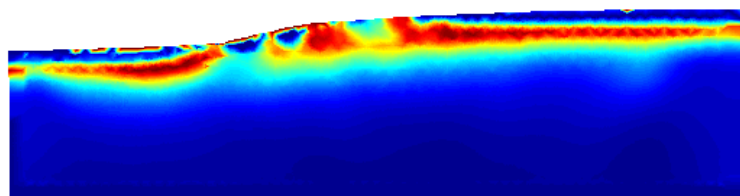
Prof. Christian Ledezma

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Civil Engineer, Pontificia Universidad Católica de Chile
Master of Science in Engineering, Pontificia Universidad Católica de Chile
Master of Science, University of California, Berkeley, United States
Doctor of Philosophy, University of California, Berkeley, United States

Most people do not feel comfortable acknowledging risk. Professor Ledezma believes that the perception of society on engineering should include this awareness. This is exacerbated in soil mechanics, where risk is not as easily quantifiable as in other areas, such as structural engineering.

Facilities, i.e. structures, are supported by soils, which may have a certain probability of experiencing adverse effects as a result of, for instance, an earthquake. The soil is a given foundation and is not always fully understood or controllable.



Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile (Con't)

Current research

Liquefaction-induced lateral spreading

Prof. Ledezma researches the relationship between soil lateral spreading and deformations in pile-supported structures such as bridges or ports. During an earthquake “large portions of a pile-supported structure, and its corresponding backfill, which are supported on liquefiable soils, may begin to shift, applying very high loads and eventually affecting the structure.” The supporting piles and the structure will try to resist, “but it is a phenomenon that we still know little about, which is difficult to quantify.”

Ultimately, he wants to identify quantifiable recommendations and provide better design tools. “My interest is to help minimize the impacts; it is not just an issue of human lives, which are certainly very important, nor just an economic cost, but also the country’s operating costs, insofar as hospitals, bridges and communication lines are concerned,” he explains.

He combines design with uncertainty. The design of bridges, for instance, should consider performance requirements. A bridge that needs to be operational the day after an earthquake requires higher standards than one that can wait for a month.

“Given the characterization of an earthquake, with all of its uncertainty, and given the model, which also has uncertainties, as well as a particular level of prediction of damages and costs, the ideal scenario would integrate all relevant aspects in a given location and provide a certain degree of foresight.”

Universidad de Chile

The Geotechnical Engineering Group (GEG) is part of the Department of Civil Engineering of the University of Chile, the largest public university in the country. The group is among the most active research groups in Chile and focuses on solving geotechnical problems related to the development of infrastructure in the country in an environment influenced by natural and anthropic hazards.

The group participates at a postgraduate level in the Master Program on Structural, Seismic, and Geotechnical Engineering, and very soon in the PhD Program on Civil Engineering (starting 2019). Our graduates develop their professional careers in several areas of geotechnical engineering, such as public repartitions, consulting companies, and academia. The group also offers a Diploma on Applied Soil Mechanics, which is oriented to professional engineers who want to improve in the geotechnical field.

The geotechnical engineering group actively collaborates with other units of the Faculty of Physical and Mathematical Sciences at the University of Chile, such as the Advanced Mining Technology Center, the National Seismological Center, the Geophysics, the Geology and the Mining Engineering Departments, as well as governmental and private institutions.

Faculty members



Prof. Felipe Ochoa-Cornejo

Assistant Professor

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Prof. Felipe Ochoa-Cornejo is a geotechnical engineer and assistant professor at the Department of Civil Engineering. He obtained his M.Sc. from University of Chile, and Ph.D. from Purdue University. His research focuses on liquefaction phenomena, seismic site response, and soil behavior.

Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile (Con't)

Research topics

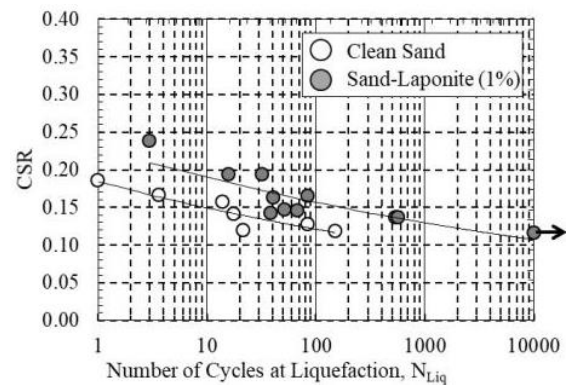
1. Liquefaction of sands with nanoparticles

In this research topic we examine the effect of the presence of small percentages of Laponite (1-5% by dry mass of the sand), a synthetic nanoclay with plasticity index exceeding 1000%, on the cyclic response of sand with $D_r \sim 20\%$. Experimental testing considers cyclic triaxial tests performed on specimens prepared by pluviating sand and laponite under dry conditions and then permeated with water. It has been observed that 1% of Laponite impacts all stages of the cyclic tests, from the response during the first loading cycle to liquefaction, increasing the cyclic resistance.

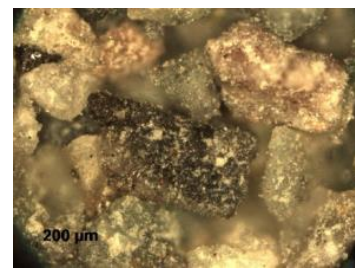
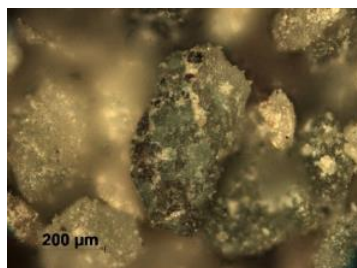
Further benefits are observed with a longer pre-shear aging period for higher dosages (3-5%) of laponite. The observed behavior is associated with reduced mobility of the sand particles during cyclic loading, which can be ascribed to two mechanisms: (1) bonding/bridging at the particle contacts due to the charged laponite fines which are attracted to the sand grains; and (2) formation of a pore fluid with solid-like properties. The first mechanism appears to control the behavior with 1% laponite, while it is proposed that the second mechanism is responsible for the response with higher dosages of laponite.

2. Particle crushing under isotropic and anisotropic conditions of loading under large stresses

Our research in this field focuses on experimental investigations on the effects of the confinement and fine content in the drained and undrained monotonic behavior of the sands of tailings dams. We work with a wide range of pressures that vary between 0.1 MPa to 5 MPa. The content of non-plastic fines varies between 1%, 5%, 10% and 20%. The context that motivates this research is the large production and low grade of mining deposits in Chile, which impacts the construction of tailings dam over 150 m, inducing loads that exceed 1 MPa, inducing potential particle breakage, increasing compressibility, and loss of strength. Our results show that the compressibility increases with increasing the fine content at low confining pressures, since they contribute to the sliding of coarse grains of sand. As the effective confinement increases, the differences in volumetric deformation disappear, tending to the formation of a meta structure. On the other hand, the peak angle of internal friction decreases with the presence of fines at low confining pressures. The increase in confinement causes the loss of peak friction angles, and a polishing of angular particle edges, resulting in a decrease in the internal friction angle. Finally, observations suggest that the sands of tailings in the steady state of deformation do not suffer an explosive breaking of particles up to confinements of 5 MPa, but rather a polishing of the angular edges. It is observed that this polishing is greater, and is accentuated, during shearing stages, rather than in isotropic consolidation.



Cyclic stress ratio (CSR) of sand-laponite mixture compared with clean sand (Ochoa-Cornejo et al. 2016)



Reference: Ochoa-Cornejo, F., Bobet, A., Johnston, C. T., Santagata, M., & Sinfield, J. V. (2016). Cyclic behavior and pore pressure generation in sands with laponite, a super-plastic nanoparticles. *Soil Dynamic and Earthquake Engineering*, 88, 265 - 279.

Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile (Con't)



Prof. César Pastén
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Prof. César Pastén is a geotechnical engineer and assistant professor at the Department of Civil Engineering. He was awarded his Ph.D. from the Georgia Institute of Technology. His research focuses on earthquake engineering, particularly on the seismic site characterization of soil deposits with non-invasive methods and the analysis of basin seismic site response. His research interests also include the long-term effects of mechanical and thermal loading on geotechnical systems, and the physical stability of tailings deposits.

Research Topic:

1. Earthquake Engineering

Chile is one of the most seismically active countries in the World. The GEG develops research on several aspects of the earthquake engineering relevant to the resilience of civil infrastructure in the country.

- Definition of the Santiago sedimentary basin structure using ambient seismic noise tomography and modelling of the basin seismic response (Fig. 1a)
- Estimates of intensity and site effects caused by large mega-earthquakes, such as the 2015 Mw 8.3 Illapel and the 1960 Mw 9.5 Valdivia earthquakes (Fig. 1b)
- Seismic characterization of seismic stations of the Chilean National Seismic Network using surface waves methods (Fig. 1c)
- Impact of earthquake input motions on rockslides in the Andes Range (Fig. 1d)

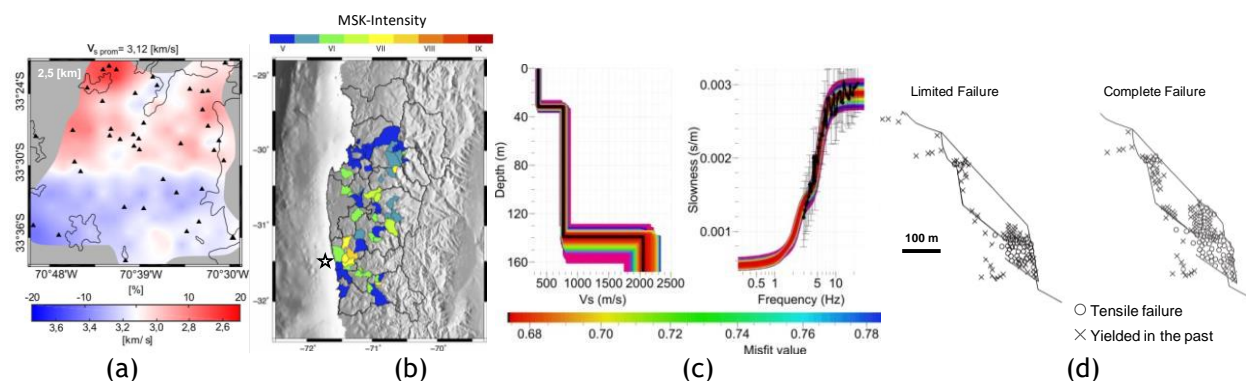


Figure 1. Research on earthquake engineering. (a) Shear wave velocity map of the Santiago basin at 2.5 km depth obtained with ambient seismic noise tomography, (b) MSK intensities of the 2015 Mw 8.3 mega-thrust Illapel earthquake, (c) shear wave velocity and dispersion curves of one of the seismic stations of the Chilean National Seismic Network, (d) seismic behavior of a stepped planar rock-slope in central Andes range subjected to different earthquake input motions.

Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile (Con't)

2. Stability of tailings deposits

The operation of tailings deposits is crucial for ensuring operational continuity and strengthening the industry's relationship with the environment and the communities. In recent years, international incidents have highlighted the relevance of preventive controls of physical stability. Chile has more than 700 tailings deposits in different stages of operation and closure. Examples of the research that the GEG develops are:

- Methods to improve the slimes properties and water recovery from tailings ponds, such as the vacuum preloading method (Fig. 2a)
- Definition of a physical stability indices that assess the stability of tailings deposits against the main mechanisms of failure
- Development of technology to monitor tailings deposit online and in real time (Fig. 2b)
- Dynamic numerical modeling of tailings deposits subjected to subductive earthquakes (Fig. 2c)
- Laboratory characterization of tailings hydro-mechanical properties

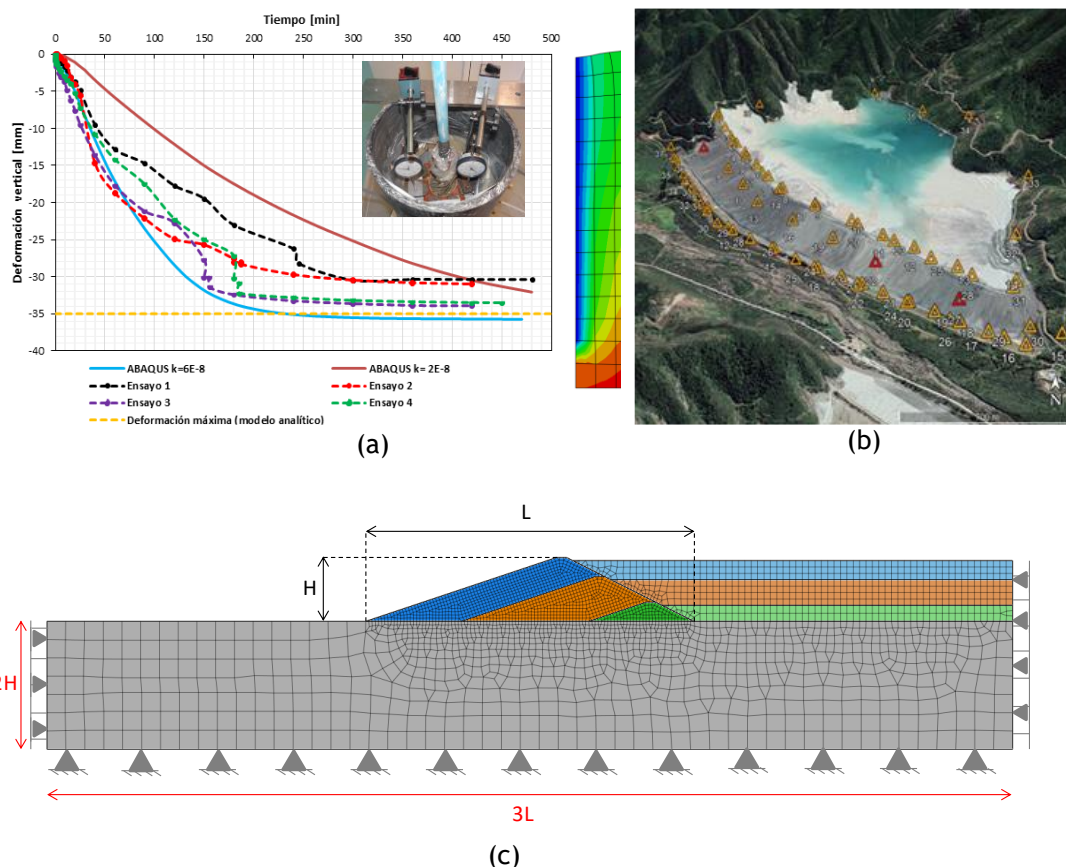


Figure 2. Research on stability of tailings deposits. (a) Proof of concept of the vacuum preloading method to improve the properties of slimes, (b) seismographs network deployed to monitor the dynamic behavior of a tailing deposit, and (c) numerical modelling of the tailing deposit subjected to earthquake loading.

Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile (Con't)

3. Long-term effects of thermo-mechanical loading on geosystems

Extended service life of infrastructure requires evaluation of the long-term performance of geomaterials and the interaction with other construction materials when several cycles are applied. In many cases, both mechanical and temperature cycles are applied simultaneously. Research that the GEG performs includes:

- Development of constitutive models to assess the long-term behavior of foundations (Fig. 3a)
- Thermo-mechanical ratcheting mechanism in interfaces subjected to temperature changes (Figs. 3b and c)
- Changes in properties of volcanic soils subjected temperature changes
- Monitoring of crack formation in fine-grained soils and displacements in coarse grained soils (Fig. 3d)

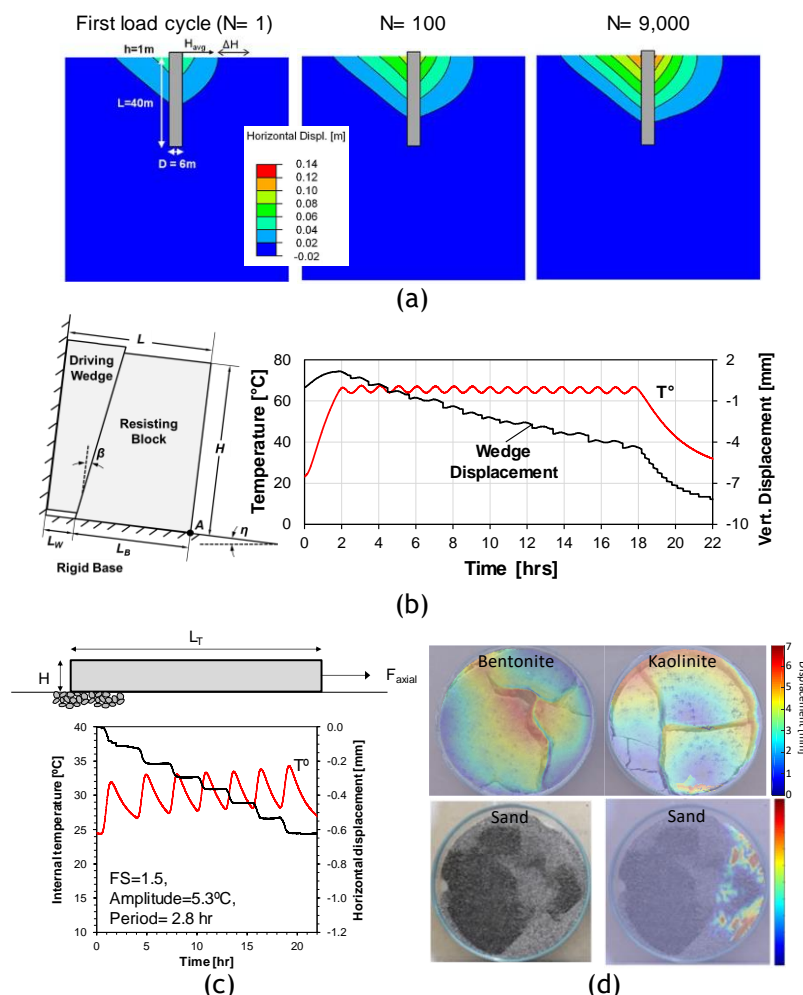


Figure 3. Research on long-term effects of thermo-mechanical loading on geosystems. (a) Long-term monopile foundation response subjected to cyclic horizontal load analyzed with an explicit constitutive model for cyclic loading. (b) Thermally-induced wedging mechanism in jointed rock masses. (c) Thermo-mechanical ratcheting of soil-continuum interfaces. (d) the use of photogrammetry for detection of desiccation cracks in fine grained soils and sand movement.

Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile (Con't)



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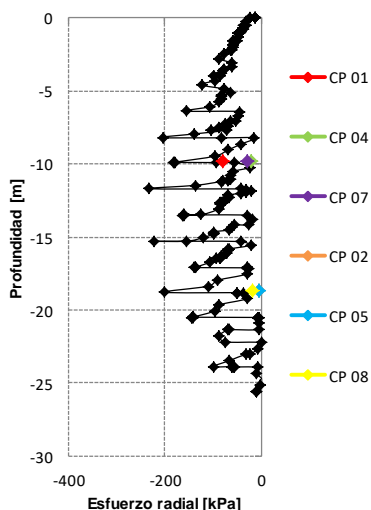
Prof. Roberto Gesche is a geotechnical engineer and adjunct professor who works part-time at the Department of Civil Engineering. He obtained his M.Sc. degree in Geotechnics and Infrastructure from the Leibniz Universität Hannover. His research focuses on geotechnical and structural instrumentation and monitoring of port infrastructure, underground structures and tailings deposits. Roberto has worked in the industry as a geotechnical consultant for the last 16 years, both in Europe and in South America.

Research Topic:

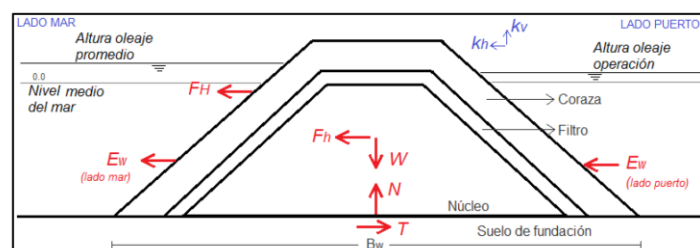
1. Instrumentation and monitoring

The instrumentation and monitoring of infrastructure enables the engineers to assess the behavior of structures and confirm that the design was satisfactory or that remedial actions should be implemented. Effective instrumentation and monitoring could also modify the design philosophy from worst-case scenario to most probable case scenario provided that a contingency plan exists, as per the observational method. Adequate instrumentation and monitoring should be used to provide an indication on the safety condition of a structure.

- Monitoring of underground circular shafts to determine the actual earth pressure distribution with depth (Fig. 4a)
- Monitoring methods for shallow urban tunnels
- Development of monitoring of abandoned tailings deposits



(a)



(b)

Figure 4(a) Comparison of readings from load cell pressures (CP) with results of numerical model of lateral earth pressure distribution for a circular shaft with top-down construction method (24,4 m total depth). (b) Conceptual diagram for the stability assessment against horizontal displacement of a breakwater. (W: self-weight, F_h : Seismic horizontal force, E_w : water seismic pressure, N: normal force, T: shear resistance at foundation level, F_H : negative wave load, $K_{v/h}$: seismic coefficient horiz./vert.).

Research Highlights

Geotechnical Research group at Pontificia Universidad Católica de Chile (PUC) and the Universidad de Chile (Con't)

2. Port infrastructure

Chile has an extensive coast that extends from latitude $18^{\circ}28'S$ in Arica to latitude $53^{\circ}9'S$ in Punta Arenas. Our main exports, mining and agriculture products, in addition to our increasing demand on imports, generate an ongoing need for port infrastructure. This infrastructure faces two main challenges. These are: (a) deep waters, (b) earthquakes and tsunamis. From a geotechnical viewpoint, the soil investigation in deep waters and open sea areas requires large equipment which is expensive. Earthquakes and tsunamis could generate loading conditions that could exceed the typical worst storm scenarios. Therefore, site specific ground investigation methods and techniques should be developed to better characterize the seabed. On the other hand, breakwaters and other protective infrastructure should include seismic verifications (Fig. 4b).

Research Facilities of the center

The GEG maintains a research laboratory for graduate and undergraduate programs. The main equipment in the laboratory are:

- High-pressure triaxial device with confining pressures up to 6 MPa.
- Unsaturated triaxial device.
- Monotonic and cyclic triaxial devices.
- Direct shear device for 30 cm x 30 cm specimens.
- Simple shear device.
- Strain-controlled consolidation cell.
- Microscopes.



High-pressure triaxial device

Major project

Hong Kong Theme-based project on landslide mitigation

Words from the Project Coordinator (Prof. Charles W. W. Ng)

Hong Kong has a population of about 7 million and a small area of only 1100 km², of which 70% is hilly terrain. Every year, the city is drenched by torrential rainfalls. On average, 300 landslides occur every year. Fortunately, with the systematic landslide risk management in Hong Kong, fatalities caused by landslides have not happened over the last two decades. However, the scale and frequency of landslides in Hong Kong could nonetheless grow as climate change continues to intensify.



The devastating consequences of intense rainfalls are best illustrated by a severe rain-storm that bombarded Hong Kong in June 2008. This storm triggered over 2,400 landslides on Lantau Island. A landslide at Cafeteria Old Beach in Tuen Mun resulted in two fatalities and a landslide on Lantau Island blocked the sole access to the Hong Kong International Airport for up to 16 hours causing severe economic disruption. Also, a landslide blocked Keung Shan Road, the only access to Tai O, for several days. Had the rainstorm hit a more densely-populated area of Hong Kong, the consequences would have been immeasurable.

The Department of Civil and Environmental Engineering of The Hong Kong University of Science and Technology (HKUST), was recently awarded a landmark grant from the Research Grants Council of Hong Kong for a Theme-based Research Scheme project named “*Understanding Debris Flow Mechanisms and Mitigating Risks for a Sustainable Hong Kong*”. This collaborative five-year project is coordinated by HKUST. Collaborating institutions include the University of Hong Kong, City University of Hong Kong, the Institute of Mountain Hazards and Environment of the Chinese Academy of Sciences, and the Hong Kong Institution of Engineers.

The project mission is to advance our scientific understanding of debris flows and their interaction with state-of-the-art multiple flexible barrier systems. Flexible barriers are steel-net structures that can deform and allow some material to pass through. Both features are instrumental in attenuating the resisting forces. This means that fewer resources are needed to provide greater protection to citizens.

The success of this project will have an immediate effect on local industry practice. It will lead to sustainable mitigation measures, enhanced cost-effectiveness and more environment-friendly works in Hong Kong and elsewhere in the world.

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

New paradigm of landslide mitigation

With the increasing availability and the decreasing costs of smartphones, scientists need to embrace this technology to better mitigate and manage landslide disasters. Smartphone-based approaches for mitigating and managing disasters are a relatively new concept, and have only recently been adopted for earthquakes. Crowdsourcing relies on developing smartphone applications that acquire measurements from built-in smartphone sensors, such as acceleration, temperature, and GPS coordinates. Data collected can then be used to enhance early-warning systems, manage landslide disasters, and to help scientists to better understand natural hazards.

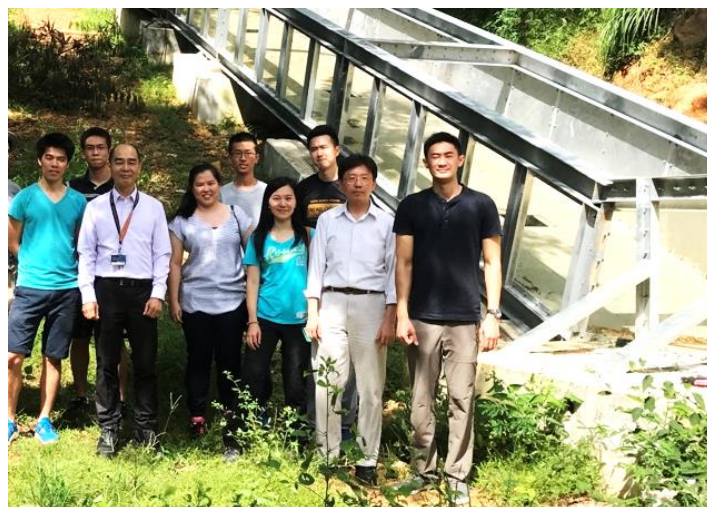
A pertinent example of how the management of large-scale landslide disasters can benefit from crowdsourcing is the 7.8 magnitude earthquake that hit Kaikoura, New Zealand, in November 2016. This earthquake triggered more than 100,000 landslides. Some landslides blocked off entire towns. For instance, Kaikoura, with a population of about 2,000, was completely cut-off. Furthermore, numerous landslides were triggered by aftershocks as debris flows posed significant threats. Clearly, the scale of such disasters warrants a new approach to enhance the existing state of landslide mitigation and management.



Landslide Information System (LIS)

A recently developed landslide information system (LIS) between the Hong Kong Jockey Club Disaster Preparedness and Response Institute (HKJCDPRI) and HKUST leverages crowdsourcing and location-based GPS technology to provide real-time landslide information to the public.

The LIS comprises a smartphone app for users and a database and interface for administrators. The mobile app is developed for iOS and Android platforms. Experience has shown that this kind of mobile system enhances their situation awareness and emergency responses to landslides.



Visit to the HKUST large-scale debris flow flume facility by HKUST and HKJCDPRI

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

The smartphone app interface is powered by the highly-customizable Google Maps™ platform. Google Maps™ information is overlaid with real-time landslide locations and blocked transportation lines. On the main app interface, users can choose between visualising 'known sites' and 'contribution' of landslide data. The visualisation option shows where landslides have occurred, as well as where they might occur in the future.



Cheung Tung Road Landslide, Lantau Island, Hong Kong

When contributing landslide data, users need to log in with a Google email account. After authentication, users have the option to select their current GPS coordinates or manually select any location on Google Maps™. Furthermore, users can report landslide incidents as photos or videos. This multimedia approach allows geotechnical engineers to better assess the validity of landslide reports as well as deliver an appropriate response. After a photo or video has been uploaded, the user can provide additional personal details and description of the incident. Once the user saves the report, the incident is sent to the administrative database for review.

The current version of the smartphone app runs silently in the background and only reports data that the user allows. Settings can also be adjusted so that data is only sent when the phone is connected to a Wi-Fi network. Also, the user can choose whether the app can access their location and modify notification settings.

Outlook

There are further improvements that can be made to the LIS. The LIS is currently being developed to serve as a global landslide database for the debris flow and steep creek hazards. Furthermore, the LIS can be coupled with instruments to enhance early-warning systems and to improve the management of debris-resisting structures. The prospect of crowdsourcing for geo-hazards is not only limited by what smartphones can do in the future.

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

Connecting with industry

The immediate-past head of the Hong Kong Geotechnical Engineering Office (GEO) of the Civil Engineering and Development Department (CEDD), Ir. H. N. Wong (JP), was kind enough to share a few thoughts with us on the current state of landslide mitigation and management in Hong Kong.

Chao Wang: (PhD student in the Department of Civil and Environmental Engineering at HKUST): As we all know, GEO has done a great job keeping our slopes safe in Hong Kong. As a member of the public, it appears that slope safety is fully under control in Hong Kong. From an expert's point-of-view, do you think there are any fundamental challenges that still need to be resolved in terms of slope stability?

H.N. Wong: The GEO has been making an effort to control the landslide risk in Hong Kong at a low level. Yet, the battle is not yet over. Although no landslide casualties occurred in the past nine years, there are still on average about 300 man-made slope failures and another 300 natural terrain landslides every year. We continue to face three key challenges:

1. We have many man-made slopes that were built in the old days without proper geotechnical design, which are yet to be upgraded.
2. The growth in population and urban development encroaching on steep natural hillsides will increase landslide risk. There is also a need to address natural terrain landslides.
3. Climate change will increase both the frequency and intensity of extreme rainfall. As the likelihood of slope failure increases exponentially with rainfall intensity, we have to brace ourselves against the challenges from climate change.

Chao Wang: Climate change is currently expected to pose a significant threat to slope safety in Hong Kong. It is expected that debris flows may occur more frequently. As young geotechnical researchers, what are your suggested topics to invest our time to make high-impact contributions to the world?

H.N. Wong: With regards to slope safety, natural terrain landslides are very vulnerable to the effects of climate change. Our young researchers will be the ones to tackle the problems, they should gear up their knowledge of natural terrain landslides and the geo-science and management practices involved in dealing with natural terrain landslide risk. Examples of key subjects are: assessing vulnerable terrains (e.g. susceptibility analysis) and their responses to severe rainfall, modelling debris movement, analysing debris-barrier interaction, optimising the structural capacity of debris-resisting barriers, and so on. These subjects are not conventionally covered in tertiary education and are relatively new fronts of research. Studying these subjects would also call for partnering with the geological and other professions.

Chao Wang: In the past, Hong Kong mainly used rigid barriers to resist debris flows, which are expensive and use a lot of space. Are there any other drawbacks?

H.N. Wong: Finding suitable space to construct rigid barriers could be a problem in built-up areas. Also, rigid barriers tend to be visually intrusive. There is a need for using flexible barriers and exploring other innovative mitigation schemes. However, rigid barriers still play an important role, particularly in dealing sizeable debris flows. The mechanisms of rigid barriers in resisting debris movement are reasonably well understood, and their performance is robust. Also, they do not require extensive maintenance.



Interview with Ir. H.N. Wong (left) by Mr. Chao Wang (right)

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

Chao Wang: Scientific research should bring benefits to the public. This can be achieved by transferring our knowledge to the industrial practice. Could you please give us some suggestions so that we can apply our understanding of debris flow impact mechanisms to practical design?

H.N. Wong: I really expect something practical and useful to come from our ongoing comprehensive and in-depth research on the subject. One of the key areas of development is to advance our current understanding and modelling of debris-barrier interaction, so as to enhance the design of flexible barriers and thereby render their use in dealing with sizable debris flows more practical, reliable and cost-effective. To facilitate transfer of the research findings into practical applications, researchers should collaborate with practitioners. On the one hand, this will promote awareness among the researchers of the industry's needs and constraints. On the other hand, practitioners will appreciate the latest technological development and hence its possible application to their work. For flexible barriers, maintenance and the associated components, such as brake elements, is critical to the long-term performance of the barriers. There are major implications to the cost, reliability and applicability of the barriers. Not adequately addressing such practical issues will seriously constrain the scope of the use of flexible barriers, despite technological advances made in analysing the debris-barrier interaction.

Chao Wang: Technology is booming now and has changed our life substantially. Will the government try to incorporate those new technologies, such as artificial intelligence, to monitor and stabilise the slopes?

H.N. Wong: Yes, we are benefitting a lot from the technology boom. For instance, advances in electronic and remote sensing technology have brought about new capability and opportunities in geotechnical instrumentation and monitoring. As a result of IT and telecommunication development, continuous, real-time data acquisition and transmission have become routinely available for geotechnical application.

Chao Wang: Do you have any overall suggestions for this project?

H.N. Wong: It is my privilege to have taken part previously in the formulation of the project and currently in its technical review. This theme-based project is an invaluable opportunity for research into multiple related subjects. I look forward to seeing useful outcomes that will advance our understanding and improve professional practice.

Given the scale and complexity of the project with tasks taken up by different research groups, effective coordination among the groups is crucial to ensure that the work is undertaken in an integrated manner and achieving the intended objectives of the theme-based project.

The project also provides an excellent opportunity for nurturing a new generation of researchers. If Hong Kong can retain this pool of expertise and offer a suitable environment for their continual development, we will further excel in our leadership in geotechnical research and make an impact to advancing technology and state of good practice for dealing with landslides and debris flows.

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

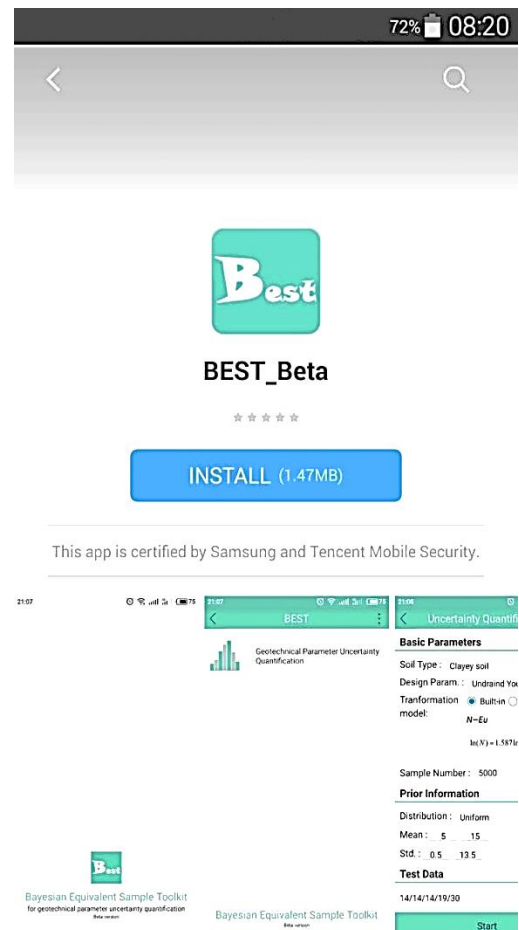
Smartphone apps for managing engineering data

In 2017 the world was amazed by AlphaGo when it beat Ke Jie, the world's top-ranked human Go player at the time, with a straight 3:0 in a three-game match. The victory of AlphaGo has demonstrated the rapid development of artificial intelligence and machine learning, which now seem mature enough to outperform human beings. They are ready to make a real difference to the well-being of society - including assessment and mitigation of landslide risk. A research team led by Dr Yu Wang at the City University of Hong Kong has been exploring the potential of machine learning in geotechnical engineering during the last few years and has developed a suite of Bayesian methods for analytics and simulation of geo-data. The research team has collaborated with Wuhan University and recently launched a smartphone app called BEST, an acronym of Bayesian Equivalent Sample Toolkit, for estimation of soil and rock properties as input to geotechnical analyses, such as landslide risk assessment and mitigation.

Soils and rocks are natural geo-materials. Their properties are affected by their parent materials, weathering and erosion processes, transportation agents, and sedimentation conditions. Soil and rock properties vary for every project site. Site-specific measurement data are, however, often limited in engineering practice, particularly for natural terrain, and it is difficult to properly determine the characteristic values of soil and rock properties for geotechnical analysis from limited data.

The Bayesian equivalent sample method and BEST smartphone app aim to address this difficulty and leverage existing data from diverse sources, such as prior information on the site (e.g., existing data on sites with comparable site conditions, local experience and engineering judgment).

The BEST app provides geotechnical practitioners with a user-friendly tool of Bayesian machine learning for fusion of limited site-specific measurements with data from diverse sources.



Snapshot of smartphone app "BEST"

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

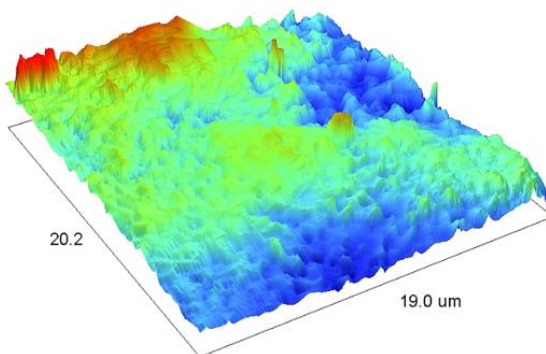
Characterisation of debris flow materials

Debris flows involve the movement of a large volume of fragments and soil grains. This is a very complex phenomenon to be simulated, understood and predicted and it depends on the physical characteristics and properties of the fragments and grains. At the City University of Hong Kong (CityU), advanced facilities and experimental techniques have been developed, which allow us to study the properties of the individual fragments and grains from real debris flows in Hong Kong and many other local geological materials which may potentially be involved in a new landslide.

We scale down landslides to the size of individual grains involved and study their properties and interactions. This output from CityU is then utilised in larger-scale simulations by other collaborating research teams to try to fully understand this phenomenon. Examples are given in the following images on the way the debris-flow problem is scaled down and studied at the level of individual fragments and grains in the laboratories at CityU. The features of the grains at this small scale can affect the whole debris flow as massive movement.



Two weathered volcanic grains under uniaxial compression



Microstructure of an individual grain (width of captured part of the grain equal to 20×10^{-3} mm, means it is 100 times smaller than the size of the real

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

Plant growth on landslide trails in Hong Kong

Landslides destroy vegetation that grows on hillsides or natural terrain, and with it seed banks, nutrients and microbial communities. Of course, this means that there is a chance for new biological communities to grow!

Disturbance to hillside ecological systems has attracted more attention in recent decades, especially in wet, mountainous regions such as Hong Kong. Apart from research on preventing and mitigating the impact of landslides on humans and dwellings, ecological restoration of damaged landscapes is also required.



Dicranopteris pedata



Blechnum orientale

The two dominating fern species during early successional stage on natural terrain landslides

The research team at the University of Hong Kong (HKU) has been documenting the establishment and change of vegetation on nine landslide trails for more than eight years after each landslide event. They conducted surveys to measure the survival and height of all woody vegetation on the sites. They found that there was little variation in the density of the stems or the variety of species. However, most of the individual trees died after a short period of time. Landslide zones became dominated by fern thickets, which tended to stop woody plants from growing in the area.

The HKU team has identified fast-growing trees and shrub species with the highest survival rates. These can potentially be used for future ecological restoration. They may allow seeds to be distributed by birds, and prevent fern thickets from spreading. They suggest that given the difficulties in clearing ferns from landslides zones, it is vital to plant tree and shrub seeds directly on landslide trails soon after landslides occur.



2011



2016

Natural terrain landslides were mostly occupied by herbaceous plants 8 years after a landslide hit the area. Woody plants were not able to thrive because of fast-growing ferns, which took over the area

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

Smart barriers

There are barriers all over Hong Kong that intercept debris flows before they can reach human settlements. Their capacities are designed based on previous landslide events. Climate change is a critical issue for Hong Kong, since it may increase the size and number of landslides that happen each year. This means that under exceptionally heavy rainfall, debris flows might be able to overflow. It is vital that Hong Kong be even better prepared, and for engineers to be able to respond even faster to these threats.

The “Landslide Detection System” (LDS), which is being developed by the Geotechnical Engineering Office (GEO), will allow barriers to instantly alert engineers if they are hit by debris flows. This will allow a faster response to the event, allowing extra time for emergency action and evacuating nearby residents. Trials of the LDS are currently being run at Sham Tseng San Tsuen.

The LDS uses a simple, energy-saving design. It includes a wireless impact switch, a laser debris depth gauge and a digital camera, all of which are widely available.

The wireless impact switch triggers the laser debris depth gauge and digital camera if it is physically impacted by a debris flow. The laser debris depth gauge then measures the thickness of the flow at regular intervals, whilst the camera captures photographic images of the barrier retention zone.



Pilot test of Landslide Detection System in Sham Tseng San Tsuen

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

This information is then transmitted to the GEO via a mobile network and is displayed on applications installed on desktop computers and mobile devices. The GEO can then immediately deploy geotechnical engineers to inspect the site if necessary.

There are other benefits to the LDS. For example, engineers in Hong Kong have traditionally relied on routine inspections, or reports from the public, to see how much soil has been intercepted by barriers. However, since many barriers are in remote areas, it is possible to underestimate the retention volume, leading to potential overflow later.

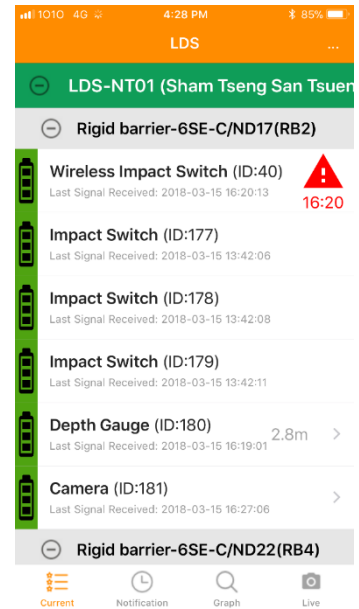
With the use of the LDS, real-time surveillance and monitoring of the barrier retention zone become practical and cost-effective. The LDS enables prompt notification of debris flows, shortening response time for emergency operations and minimising potential consequences. If the trials show that the setup is durable and reliable, the GEO will consider installing it on barriers around Hong Kong.

Simulating debris flows in the laboratory

The team at University of Hong Kong (HKU) has been simulating debris flows using a “ring-shear” apparatus.

Using this apparatus, the HKU team has been able to identify the changes that grains of soil in debris flows undergo when travelling over long distance. Their laboratory tests have revealed how the size, shape and surface characteristics of grains of soil change during flow. The team are now expanding their work to include coarser grains of soil.

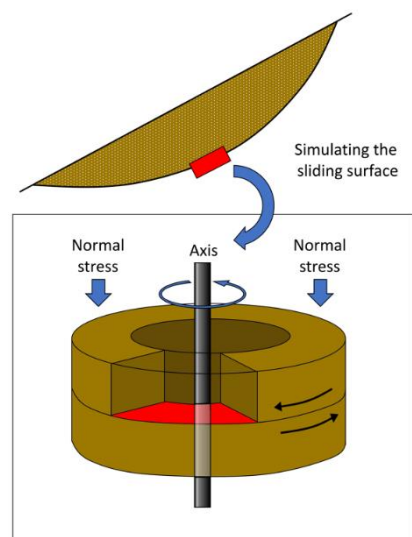
The use of the ring-shear apparatus has been facilitated by collaboration between teams at HKU, the Chengdu Institute of Technology, the Disaster Prevention Research Institute of Kyoto University and University College London.



Screen shot of LDS app in Sham Tseng San Tsuen



The grain of soil above has a hexagonal shape. This suggests it's a fragment of quartz, which is a very common mineral in Hong Kong's soils. The relatively intact shape also suggests that it has not been heavily damaged during the flow.



The ring-shear apparatus is split in two halves rotating in opposite directions. The sliding surface in the ring-shear simulates debris flows moving over the ground

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

On the world stage

Two papers by project members from the Department of Civil and Environmental Engineering at the HKUST and their collaborators from the Hong Kong GEO were honoured by best paper awards by leading international journals in geotechnical engineering. This marks the first time the awards were given to teams with members all from Hong Kong!

Two papers by professors and PhD students in the Department of Civil and Environmental Engineering at HKUST and their collaborators from the Hong Kong Government were honoured with best paper awards from leading international geotechnical journals. The paper titled “Large-Scale Successive Boulder Impacts on a Rigid Barrier Shielded by Gabions” received the Prix R. M. Quigley Award (Honourable Mention) by Canadian Geotechnical Society. The authors were CLP Holdings Professor of Sustainability Prof. Charles W. W. Ng, Chair Professor and HKUST Associate Vice-President for Research and Graduate Studies, Prof. Clarence Edward Choi, Research Assistant Professor, PhD graduate Andy Yuchen Su, and collaborators from the Civil Engineering and Development Department (CEDD) of the Hong Kong SAR Government. The paper was rated the second best out of 296 peer-reviewed papers in 2016 in the Canadian Geotechnical Journal, which recognises considerable contributions and achievements to the advancement of the geotechnical field. Prof. Ng is the third-time recipient of this award and had gained it previously in 2013 and 2008. However, this is the first time that a team with members all from Hong Kong won this annual award since it was established in 1973.

Another paper titled “Coarse Granular Flow Interaction with Slit Structures” received the Telford Premium Award 2017 presented by the Institution of Civil Engineers, UK. The authors are Prof. Charles W. W. Ng, Prof. Clarence Edward Choi, PhD students George Robert Goodwin and Desmond Ka Ho Cheung, as well as collaborators from GEO Hong Kong government. This is the first time that the award was given to a Hong Kong team - and all members were from Hong Kong.

Their paper was the best paper in 2016 in *Géotechnique Letters*. The award recognises authors from both industry and academia who have produced work of exceptional quality and which benefits civil engineering, construction and materials science.



Prix R. M. Quigley Award (Honourable Mention) from the Canadian Geotechnical Society on 2nd October 2017 in Ottawa, Canada (Middle: Prof. Charles W. W. Ng; 2nd from right: Prof. Clarence E. Choi)



Telford Premium Prize from the Institution of Engineers of the United Kingdom on 7th October 2017 in London (From the left: Prof. Charles W.W. Ng; Prof. Clarence E. Choi; Right: Mr. Desmond K.H. Cheung)

Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

The next generation

I am Nicol, a final year civil engineering student and a member of the WISE (Women in Science and Engineering). My experience at HKUST has been very positive. The most memorable event that I participated in was the model building competition in 2018, which was organised by the Institution of Civil Engineers of the United Kingdom. This competition enabled me to apply what I have learnt in the classroom to solve real-life problems.

In between semesters, HKUST provided me with the opportunity to work for one of the top Hong Kong-based consultant companies, C M Wong & Associates Ltd, as an intern. I was a member of the geotechnical team and learned how to carry out numerical simulations to model complex geotechnical problems. This internship helped me to interact with my mentors and to develop a sense of pride. Now I have an urge to quickly graduate so that I can also be an inspiring geotechnical engineer!



My final year project involves the investigation of debris flows impacting a rigid barrier. I feel excited to be involved in this project because it is very much relevant to the challenges that practitioners are facing in Hong Kong. My research and knowledge will be able to directly improve the current state of design of mitigation measures against debris flows. I hope that upon graduation, I can serve as a mentor and outreach to foster new female talents and to inspire young engineers to contribute back to society by being great civil engineers.

I am Desmond Cheung. Before becoming a research student, I worked in industry at Gammon Construction Ltd. for four years. I was fortunate enough to take part in two mega infrastructure projects in Hong Kong, specifically the West Kowloon Terminus for the Express Rail Way Link and Tuen Mun-Chek Lap Kok Link-Southern Connection. I returned to University in 2016 as a full-time PhD candidate in geotechnical engineering at HKUST.

I was fortunate enough to join the theme-based project where I have been able to meet so many bright minds. I was also provided with opportunities to visit many places around the world to learn more about debris flows. One of the highlights was being a co-author of a prestigious award-winning paper in 2016, where I got to travel to London to receive the award.

I am always asked whether the transition from industry to becoming a research student is difficult. The answer is yes! But the satisfaction in carrying out world-leading research with my peers outweighs the stress and struggles of learning how to be a full-time student again.



Major project

Hong Kong Theme-based project on landslide mitigation (Con't)

I'm Usman Majeed. My current research topic is on the mitigation of debris flow using rigid and flexible barriers. I am focusing on how large boulders break during impact, to enable the optimisation of barrier designs. Hopefully, my findings will lead to more sustainable and cost-effective designs.

Upon graduation, my goal is to return to industry where I can make the greatest impact. Through my participation in the theme-based project, I will be able to not only help improve the geotechnical industry in Hong Kong, but also to the one-belt-one-road initiative, and eventually developing countries around the world.

After obtaining my bachelor degree in 2014, I worked as a geological engineer in the northern part of Pakistan. During my time spent there, I was surprised that I could still see the remnants of a catastrophic earthquake that occurred in 2005. This earthquake triggered several debris flows that buried entire villages. I was particularly fascinated by the destructive nature of debris flows. I learnt that dealing with debris flows requires a technical background in geotechnical engineering and that the mitigation of this type of hazard is a particularly new research area that still requires a lot of work. This realisation inspired me to better equip myself to contribute and help my country deal with this devastating natural hazard in the future.

With my newfound motivation, I decided to pursue a PhD in the Department of Civil and Environmental Engineering at HKUST, which is spearheading a global research initiative against debris flows. Working under the theme-based research project, which aims to develop understanding of debris flows mechanisms and developing new countermeasures for such hazards, is an important step forward for my goal of helping my country. I have spent more than a year studying at HKUST, and I can attest that HKUST is everything that I expected, and even more.



News from the Canadian Geotechnical Society



THE CANADIAN GEOTECHNICAL SOCIETY

LA SOCIÉTÉ CANADIENNE DE GÉOTECHNIQUE

GeoEdmonton 2018

<http://www.geoedmonton2018.ca/>

The Geotechnical Society of Edmonton and the Canadian Geotechnical Society (CGS), in collaboration with the Canadian National Chapter of the International Association of Hydrogeologists (IAH-CNC), invite you to **GeoEdmonton 2018**, the 71st Canadian Geotechnical Conference and the 13th Joint CGS/IAH-CNC Groundwater Conference. The conference will be held at the Shaw Conference Centre in Edmonton, Alberta, Canada from Sunday, September 23 to Wednesday, September 26, 2018.

The theme for **GeoEdmonton 2018** is *Transportation Geotechnique - Moving Forward*. Much of Canada's prosperity is founded on its vast network of railways, pipelines, highways, and waterways. This conference intends to highlight recent achievements in transportation development and their associated geohazards. The technical program will cover a wide range of geotechnical and hydrogeological topics, including specialty sessions that are of local and national relevance. In addition to the technical program and plenary sessions, the conference will include a complement of distinguished keynote speakers, high calibre short courses, social events, and technical tours.

Edmonton was founded on the banks of the North Saskatchewan River and served as a Hudson's Bay Company trading outpost that grew to become Canada's Gateway to the North and Alberta's Capital City, with a population of over 1.3 million people. Edmonton has an open and welcoming atmosphere and is home to one of the most diverse populations in Canada. Also known as the Festival City, Edmonton showcases its local and international talent and diversity through various festivals like its annual Heritage Festival and the second largest Fringe Theatre Festival in the world. Boasting the longest stretch of connected urban parkland in North America, Edmonton is also a wonderful place to get outside and enjoy nature without leaving the city's limits.

The Shaw Conference Centre is not only one of Canada's premier conference venues, but is itself a geotechnical achievement, being constructed on the flank of an active landslide overlooking Edmonton's beautiful river valley in the heart of downtown.

Please browse the website for complete details on the [Technical Themes](#), the [Call for Abstracts](#) and [Key Dates](#). We look forward to hosting you at **GeoEdmonton 2018!**

Geohazards 7

<http://geohazards7.ca/>

The Canadian Geotechnical Society (CGS) held a very successful **Geohazards 7**, (7th Canadian Geohazards Conference) June 3-6, 2018 at the Coast Canmore Hotel & Conference Centre in Canmore, Alberta. The CGS's Geohazards conferences are the premiere forums in Canada for the sharing and dissemination of scientific and engineering knowledge related to geohazard assessment and risk management.

News from the Canadian Geotechnical Society (Con't)

Heavy rainfall in June 2013 resulted in the worst floods in Alberta's history. Landslides, debris floods and debris flows cut off highway and rail access to Banff and Canmore, and many homes constructed on alluvial fans were destroyed. Municipal governments, the Province and the engineering and geoscience community have since carried out aggressive programs to quantify geohazard risk and increase public awareness of hazards and are in the process of constructing mitigation measures to reduce future risk. Canmore was a terrific venue to showcase the results of some of these initiatives, which were featured in the conference program of 5 Keynote, 30 Oral and 21 Poster presentations. A few highlights were the technical field trip on Tuesday and the dinner and social night at Sulphur Mountain in Banff. Delegates took the gondola up the mountain and enjoyed a fabulous dinner with breathtaking scenery. It even snowed after dinner to complete the experience, especially for our international guests!

Engineering Resiliency in a Changing Climate was the theme for **Geohazards 7**. An understanding of the history and current status of geohazard management practice in Canada, along with the adaptation challenges associated with a changing climate, will allow for continued innovation in this field.

CCLT Spring Speaker - Tom O'Rourke

Dr. Thomas O'Rourke of Cornell University started his 10-city Cross Canada Lecture Tour in Montréal on May 14 and finished it in Winnipeg on May 25. The feedback from our members has been very positive.

The CCLT lecture series is generously sponsored by the **Canadian Foundation for Geotechnique** - corporate sponsors of the spring lecture include **Klohn Crippen Berger**, **Thurber Engineering**, **TetraTech Canada**, and **Clifton Associates**.

CGS Names in the News

Dr. Kerry Rowe



www.queensu.ca

At the end of 2017, Canada's Governor General announced the newest members of the Order of Canada www.gg.ca/document.aspx?id=17061. That list included **Dr. Kerry Rowe** of Queen's University who has been appointed as an Officer of the Order of Canada "for his seminal contributions to the field of geoenvironmental engineering, notably for his pioneering research in waste barrier systems".

Dr. Serge Leroueil



www.lesoleil.com

Dr. Serge Leroueil of Université Laval was recently awarded with a **Senate 150th Anniversary** medal recognizing his over 35-year career as a professor and researcher in the area of soil mechanics and soil behavior analysis, particularly as it pertains to the problems of sensitive clay and its geohazard risk.

News from the Canadian Geotechnical Society (Con't)

CGS 2017 Stermac Award Winners: Alex Baumgard, Andrea Lougheed, and Mustapha Zergoun



Dr. Alex Baumgard receiving the Stermac Award from CGS President Dr. Dharma Wijewickreme at GeoOttawa 2017



Andrea Lougheed receiving the Stermac Award from CGS President Dr. Dharma Wijewickreme at GeoOttawa 2017

Alex Baumgard

CGS-Geotechnical Info Net is pleased to feature the CGS 2017 Awardees. In this issue, **Alex Baumgard**, past-chair of the Soil Mechanics and Foundations Division and recipient of CGS's **2017 Stermac Award**, is featured. Alex's citation from the October 2017 award ceremony reads:

"An active participant in the Canadian Geotechnical Society for many years, Dr. Alex Baumgard's commitment to the organization is marked by his willingness to go the extra mile to support all manner of tasks - many on short notice.

His recent contributions include chairing the Soil Mechanics and Foundation Division of the Canadian Geotechnical Society for more than 4 years. Alex has been directly involved with a number of CGS initiatives, including most recently the selection and review of the papers submitted by CGS members to the 19th International Conference on Soil Mechanics and Geotechnical Engineering held September 2017 in Seoul, Korea.

As a principal engineer in BGC Engineering's Vancouver office, he brings a wealth of experience in the assessment of geohazards, especially related to both onshore and offshore pipelines, as well as traditional geotechnical and geo-environmental areas. Alex is also a member of the Federal Government's Canada Task Force-1 Heavy Search and Rescue team, responding to landslides and other disasters in times of need, including this past summer's landslide near Salmon Arm, BC.

The Canadian Geotechnical Society is pleased to recognize **Dr. Alex Baumgard** with a **2017 A.G. Stermac Service Award**."

News from the Canadian Geotechnical Society (Con't)

Andrea Lougheed and Mustapha Zergoun

CGS-Geotechnical Info Net is pleased to feature the CGS 2017 Awardees. In this issue, **Andrea Lougheed and Mustapha Zergoun**, co-chairs of GeoVancouver 2016 and recipients of CGS's **2017 Stermac Award**, are featured. Their citation from the October 2017 award ceremony reads:

"This year **Andrea Lougheed and Mustapha Zergoun** are being honoured for their dedication and outstanding service to the Canadian Geotechnical Society. Andrea currently serves as the CGS Director for the Vancouver Section and Mustapha served in that role from 2006 to 2008.

Most recently, they co-chaired and acted as the driving force on the local organizing committee for the very successful 2016 Canadian Geotechnical Conference - **GeoVancouver 2016**. The conference's theme "History and Innovation", recognized historical achievements and lessons learned while highlighting innovation in the field of geotechnique.

Attracting over 800 registrants, attendees were treated to west coast hospitality and to one of the great CGS annual conferences, punctuated by the inaugural awards for Best Case History paper and Best Student paper.

Leadership and volunteer activities and duties aside, both Andrea and Mustapha are busy working in Vancouver at BGC and Thurber Engineering, respectively, and can now add the Canadian Geotechnical Society's **2017 A.G. Stermac Award** to their impressive list of accomplishments."

Prepared by:
Greg Siemens
Regional Editor of ISSMGE Bulletin (North America)

Lisa McJunkin
Director, Communications and Member Services, Canadian Geotechnical Society

Michael Aubertin
Executive Director, Canadian Geotechnical Society

Conference reports

ISSMGE International Seminar in Belarus, 27 – 28 April 2018

Introduction

The theme of the International Seminar that took place in Belarus was “Foundations Design-Theory and Practice of implementing Eurocodes in European countries and Republic of Belarus”.

The idea was given the utmost attention by Belarus Society to develop geotechnical activities in Belarus. The Seminar held from 27 and 28 April 2018 and took place at the University of Brest.

Organization of the Seminar

The following lecturers have participated:(i) from overseas: Prof. Roger Frank, Dr. Liudas Furmanovich and Prof. Pedro Seco e Pinto; (ii) from Belarus: Prof. Nikitenko Mikhail and Prof. Sernov Vyacheslav.

The lectures covered Piles Design based in Eurocode 7 “Geotechnical Design” and Eurocode 8 “Design Structures for Earthquakes” and applications for Baltic countries and Belarus.

The written versions of the lectures were compiled in a Volume that was distributed to all the participants.

Each lecture had a duration of 45 minutes followed by a period of discussion of 20-30 minutes. The participants were actively engaged in questions, answers and comments about the content of the materials presented during the seminar.

On 28 April morning in 3 separate classrooms Prof. Roger Frank, Prof. Pedro Seco e Pinto and Dr. Liudas Furmanovich had an interactive conversation with the students about geotechnical engineering, namely past, present and future and their challenges.

Social programme

An official dinner was offered by the Organizing Committee on the evening of 27 April.

Thanks

Special thanks are due to Dr. Tamara Ulasik, Secretary of BELGS and to Prof. Petr Poita, Rector of Brest State Technical University, for their great support for the organization of the Seminar and for the warm hospitality. The co-operation of the lecturers was highly appreciated.



Photo 1 - Classroom discussion



Photo 2 - View of seminar audience

Conference reports

ISSMGE International Seminar in Belarus, 27 – 28 April 2018 (Con't)



Photo 3 - Main table



Photo 4 - Discussion

Pedro Seco e Pinto
Coordinator of the Seminar

Conference reports

Days of Geotechnics, Saint-Petersburg State University

At the end of April 2018, two important events dedicated to geotechnics took place at Saint-Petersburg State University of Architecture and Civil Engineering (SPSUACE). On April 25-26, 2018, the Russian-Japan-Kazakhstan scientific and technical seminar on topical issues of geotechnics and the solemn awarding ceremony of conferment the title of "Honorary doctor of SPSUACE" to Professor Yoshinori Iwasaki were held within the Academic Council Session (Fig. 1). The International Geotechnical Seminar was held under the auspices of the Scientific and Technical Council of the Russian Academy of Architecture and Civil Engineering Sciences (RAACES) for Geotechnics of under the guidance of Corresponding Member of RAACES, Head of the Department of Geotechnics of the SPSUACE, Doctor of Technical Sciences, Professor Rashid Mangushev; under the auspices of Japan Geotechnical Association, under the guidance of the Chairman of the Asian Technical Committee 19 ISSMGE on "Geo Engineering for Conservation of Heritage Monuments and Historical Sites", General Director of the Geo-Research Institute (Osaka, Japan), Dr.Eng., Professor Yoshinori Iwasaki; under the auspices of President of Kazakhstan Geotechnical Society, Head of the Department "Design of buildings and structures" L.N.Gumilyov ENU, academician of National Engineering Academy of the Republic of Kazakhstan, Doctor of Technical Sciences, Professor Askar Zhussupbekov.



Figure 1. Group photo after Awarding Ceremony

(from left to right: Prof. Askar Zhussupbekov - President of KGS (Kazakhstan), Veronika Artemeva - Head of Department of international education and cooperation SPSUACE, Irina Lugovskaia - First Vice Rector SPSUACE, Honorary doctor of SPSUACE, Prof. Yoshinori Iwasaki - General Director of Geo-Research Institute (Japan), Prof. Rashid Mangushev - Head of Department of Geotechnical Engineering SPSUACE, Prof. Akitoshi Mochizuki - Emeritus Professor of Tokushima University, invited Professor of L.N. Gumilyov Eurasian National University, Prof. Aleksandr Panin - Dean of the Faculty of Civil Engineering SPSUACE, Elena Selezneva - Deputy head of Department of international education and cooperation SPSUACE)

Conference reports

Days of Geotechnics, Saint-Petersburg State University (Con't)

The participants of the seminar were about 100 Students and Professors from the Department of Geotechnics, as well as members of the North-West Branch of the Russian Society for Soil Mechanics, Geotechnics and Foundation Engineering. It should be noted that the international geotechnical seminar was held in English at the request of the Students of the Department of Geotechnical Engineering, which indicates that students are fluent in this international language.

The following lectures were heard:

- "Authenticity of Foundations of Heritage Structures". Invited Lecturer - Prof. Yoshinori IWASAKI (Geo-Research Institute, Osaka, Japan)
- "What we learn from the Centrifuge Model tests?". Invited Lecturer - Prof. Akitoshi MOCHIZUKI (Tokushima University, Japan and L.N.Gumilyov Eurasian National University, Astana, Kazakhstan)
- "The research of Damb in SPB". Lecturer - Prof. Rashid MANGUSHEV (Saint-Petersburg State University of Architecture and Civil Engineering, Russia)
- "Geotechnical Construction and Testing of Piles of Megastructures on problematical soil ground of Kazakhstan". Invited Lecturer - Prof. Askar ZHUSSUPBEKOV (L.N. Gumilyov Eurasian National University, Astana, Kazakhstan).

Professor Yoshinori Iwasaki showed in his lecture that the foundation of the heritage structure has been ignored for preservation. The foundation is to be studied if any special characteristic is found as the authenticity to be preserved. It refers to the preservation of not only the upper structures, but also the ground foundations of historic buildings. This is evidenced by the study of the high rise stone masonry Tower of Angkor Wat based upon shallow direct stone on thick manmade filled mound, whose secret has not yet been fully disclosed.

Of particular interest were the scientific developments obtained in the centrifuge. Japanese Professor Akitoshi Mochizuki specifically noted that the centrifuge was created for the first time in the USSR by Russian scientists G.I. Pokrovsky and I.S. Fedorov (1936). However, later, due to various reasons, this design did not develop in Russia. In the developed countries of the world, such as Japan, the United States, Singapore, Hong Kong, South Korea, England, and other countries, intensive scientific research has been being carried out in this direction.

Professor Rashid Mangushev also noted that the construction of new facilities and the reconstruction of buildings and structures near historical sites in Saint-Petersburg should be conducted exclusively with the scientific support of scientists-geotechnicians.

Professor Askar Zhussupbekov in his presentation reflected advanced and quick methods for testing pile foundations in difficult engineering and geological conditions in Kazakhstan, and also showed modern geotechnologies for the construction of foundations in special ground conditions in the West Kazakhstan (Caspian Sea coast).

After the lectures Professor Rashid Mangushev showed the geotechnical laboratory of the technical research center "Geotechnology" to foreign scientists from Japan and Kazakhstan, organized a geotechnical tour to the hydraulic structure (dam), which protects the city of Saint-Petersburg from floods, as well as historical monuments of architecture: St. Nicholas Cathedral of the Sea (Kronshtadt) and Saint Isaac's Cathedral (Saint-Petersburg) with a demonstration of settlement foundations, caused by the consolidation of weak soils depending on the time. Foreign guests were acquainted with other historical objects of Saint-Petersburg during the technical tour (Kazan Cathedral, Rostral Columns).

Conference reports

Days of Geotechnics, Saint-Petersburg State University (Con't)

Professor Anna Shidlovskaya organized a technical tour to Saint-Petersburg Mining University, where she showed foreign visitors a museum of geominerals, as well as modern equipment of the geotechnical and geological laboratories and a program of work on these instruments in the study of soft soils in Saint-Petersburg.

Professor Aleksey Shashkin (General Director of Design institute "Geo-Reconstruction" Ltd) told international participants of the seminar about the experience of his design institute in developing projects for the reconstruction of historical monuments of architecture and numerical modeling of the new high-rise structure "Lakhta Center" on soft soil grounds in the city of Saint-Petersburg.

Foreign scholars noted that the city of Saint-Petersburg has a very beautiful architecture and unique historical buildings and structures, behind which it is necessary to constantly conduct geomonitoring (not only of the upper structure, but also the underground part) of these historical objects of cultural heritage.

On April 26, 2018 the solemn awarding ceremony of conferring the title of "Honorary doctor of SPSUACE" to Prof. Yoshinori Iwasaki was held within the Academic Council Session at Saint-Petersburg State University of Architecture and Civil Engineering.

Y. Iwasaki graduated from Kyoto University in 1964 (Bachelor of Geophysics). In 1969 he received a master's degree in Geotechnical Engineering at the University of California at Berkeley (USA). In 2001 he received the degree of PhD in Geotechnical Engineering at Karaganda Industrial University in Temirtau (Republic of Kazakhstan). In 2002 he defended his Dr.Eng. dissertation at the University of Kyoto (Japan), from 2005 to the present he works as a visiting professor at L.N.Gumilyov ENU on the special schedule of stay in Astana.

The scientific interests of Professor Yoshinori Iwasaki are the geotechnical aspects of historical monuments of architecture, the study of the influence of earthquakes on the foundations of buildings and structures, the development of the geoinformational database of the new capital of the Republic of Kazakhstan in Astana, as well as Yekaterinburg, Yuzhno-Sakhalinsk, the study of the historical monument of architecture Angkor Wat (Cambodia), which is under the protection of UNESCO.

More than 10 Russian, Kazakh and Japanese PhDs in the scientific field of Geotechnical Engineering successfully defended their theses under scientific guidance and scientific advice of Professor Yoshinori Iwasaki. Professor Yoshinori Iwasaki has the following awards:

- Award for contribution to the study of geophysics in Japan (2002);
- Award "International Geotechnical Medal of Academician T.Zh.Zhunusov " (2010);
- International Geotechnical Medal of Academician Sh.M. Aitalyev (2013);
- Medal "Honorary builder of Kazakhstan" (2015);
- Medal of N.M. Gersevanov, Russian Society for Soil Mechanics, Geotechnics and Foundation Engineering, Moscow, Russia (2016);
- Medal of the Ministry of Transport and Communications of the Republic of Kazakhstan (2016);
- Medal of Kultegin, L.N. Gumilyov ENU (2017).

Professor Yoshinori Iwasaki is a member of the Japan Geotechnical Society; a member of the American Society for Civil Engineering; the head of the geotechnical group of the Government of Japan on the problems of Angkor (Cambodia) with the support of UNESCO, the chairman of the ATC-19 ISSMGE on "Geo Engineering for Conservation of Heritage Monuments and Historical Sites", as well as a participant in other organizations and societies.

Conference reports

Days of Geotechnics, Saint-Petersburg State University (Con't)

Together with other scientists, including the head of the Department of Geotechnical Engineering SPSUACE Professor Rashid Mangushev, Japanese Professor Yoshinori Iwasaki organizes and conducts international seminars. The Japanese scientist consists in the editorial board of the international peer-reviewed scientific journal "Architecture and Civil Engineering", which is published in SPSUACE. His article "Dismantling and Reconstruction of Prasat Suor Prat, Angkor Tom, Cambodia" was published in this journal. In the field of scientific interests of Professor Y. Iwasaki includes the study of the foundations of historical monuments of Saint-Petersburg, as well as scientific research in geotechnical engineering, infrastructure in Astana, Yekaterinburg, Yuzhno-Sakhalinsk, and other cities.

In his speech at the Academic Council on his scientific and pedagogical activities, the new Honorary Doctor of the SPSUACE Yoshinori Iwasaki noted: "Saint-Petersburg is a unique city of Russia, the historical part of which is protected by UNESCO and we, scientists-geotechnics, should do everything to preserve the authenticity of the ground foundations of the unique historical objects of Saint-Petersburg...".

The scientific activities of Professor Yoshinori Iwasaki makes a significant contribution to geotechnical engineering and the protection of historical monuments of architecture.

Currently, Dr. Yoshinori Iwasaki together with the Department of Geotechnical Engineering of SPSUACE intensively preparing an international geotechnical conference on the geotechnical infrastructure for mega cities and new capitals, which will be held in February 2019 in Saint-Petersburg at SPSUACE.

*Prof. Askar Zhussupbekov
Honorary Doctor of SPSUACE
Saint-Petersburg, Russia*

Young members arena

9th South African Young Geotechnical Engineers Conference #Geotech#Innovate Highlights

by Frans van der Merwe, Chairman SAYGE 2017, GaGE Consulting, frans@gageconsulting.co.za

Overview

The 9th session of the South African Young Geotechnical Engineers Conference (SAYGEC) was held in Salt Rock, KwaZulu-Natal, from 13 to 15 September 2017, with 129 geo-professionals attending. The theme of the event was #Geotech #Innovate as “#” is now the indicator for popular culture and all that moves it.

The conference brought together geotechnical engineers, engineering geologists, geologists, mining engineers, tailings engineers, and academia under the age of 35 years to discuss the latest developments in ground engineering and geotechnical projects and concepts. The conference featured technical presentation sessions, with discussions on analysis and modelling, mining and environmental, site investigation and testing, construction and case studies, foundations, ground improvement, slope stability and lateral support. Gavin Byrne from Franki (A Keller Company) was the godfather of the conference, overseeing the proceedings and providing feedback on all the presentations.

Technical Papers

Call for abstracts were sent to members of the SAICE Geotechnical division in early January 2017 and 99 abstracts were received by 31 January 2017. The abstracts were reviewed by the technical committee and a total of 68 papers were submitted by April 2017. The papers went through a rigorous review process by committee members and papers were allocated into the various presentation sessions. 58 papers were presented to the delegates, and 10 papers were presented in electronic poster formats. Top papers were nominated by the technical committee members which were reviewed by Gavin Byrne. The proceedings were published in a book, provided to all delegates attending, containing 718 pages.

About the Godfather

Gavin Byrne from Franki, 70 years old, was the godfather for the 9th SAYGEC. Gavin finished his BSc in Civil Engineering at the University of Witwatersrand in 1971 and a graduate diploma at the University of Stellenbosch in 1981. He has four kids and is married to Sue whom also attended all the presentations. Gavin worked for Ove Arup from 1972 -1986 and registered as a professional engineer in 1987. He has worked for Franki for over 30 years now, since 1987. With his vast knowledge in both structural engineering and geotechnical engineering, it was really an honour to have him overseeing the 9th SAYGEC. Gavin is presently busy compiling the 5th edition of the popular “Franki Blue Book”, a guide to practical geotechnical engineering in Southern Africa.

Awards

The best paper award was given to Scott Gover for his paper titled “*Linking Safety Factor to Probability of Failure*” as shown in Picture 1, while Sachin Ravjee from University of Pretoria was awarded as the best presenter with his presentation titled “*The Effect of Cyclic Thermal Loads Behind Integral Bridge Abutments Using DEM*” (Picture 2). Scott will attend a course in Brisbane, Australia and Sachin will be at the next international YGEC in Sydney, Australia, in 2021 as part of their prizes. The best poster award was given to Charles MacRobert from the University of Witwatersrand who submitted two papers (Picture 3). The conference proceedings can be found on the geotechnical division’s website in the following link: <http://www.geotechnicaldivision.co.za/continuing-professional-development>

Young members arena (Con't)



(a)



(b)

Picture 1. (a) Best presenter: Frans van der Merwe (left), Sachin Ravjee (middle), and Gavin Byrne (right)
(b) Best paper by Scott Gover (middle)



Picture 2 Best poster by Charles MacRobert (right)



Picture 3. Group photo of 9th SAYGEC

Young members arena (Con't)

Social Activities

Social activities were held at the Salt Rock Hotel and was lots of fun, with events such as Minute-to-win-it and MasterChef Potjie Competition. Both the events ensured that the delegates and fellow geo-professional got to know one another much better with delegates asking one another out about their presentations.



Minute-to-win-it



Masterchef (Potjiekos)

Statistics

Statistics are what excites us as engineers, and therefore some statistics relating to the technical presenters (first authors) are given below and also the summary is given in Figure 1 through 5.

- 92% of the presenters came from South Africa, with international presenters from Uganda, Poland, and Switzerland.
- 84% of the South African presenters came from the Gauteng province (Pretoria = 44% and Johannesburg = 66%), 8% from KwaZulu-Natal and 3% from both the Western Cape and North-West.
- Most of the presenters (47%) came from consulting firms, with the largest contributors shown below, followed by academic institutions (Predominantly University of Pretoria).
- Majority of the presenters are qualified as Civil Engineers (62%), and mostly with a Bachelor's degree.
- 55% of the presenters completed their last degree at the University of Pretoria, with the University of Cape Town, University of KwaZulu-Natal and University of Witwatersrand tied in the second place at 6% each.
- Compared to the 2011 and 2014 YGE conferences the presenters are almost constantly representative of a 70:30 split between male and female delegates. With focus on women in geotechnical engineering at the African Regional Conference to be held in Cape Town in 2019 we would like to see the ratio improve.
- The number of black delegates increased by 15% from the 2014 to 2017 YGE conference. The committee is glad to see a more representative statistic and hope to see this improve at future YGE conferences.

Young members arena (Con't)

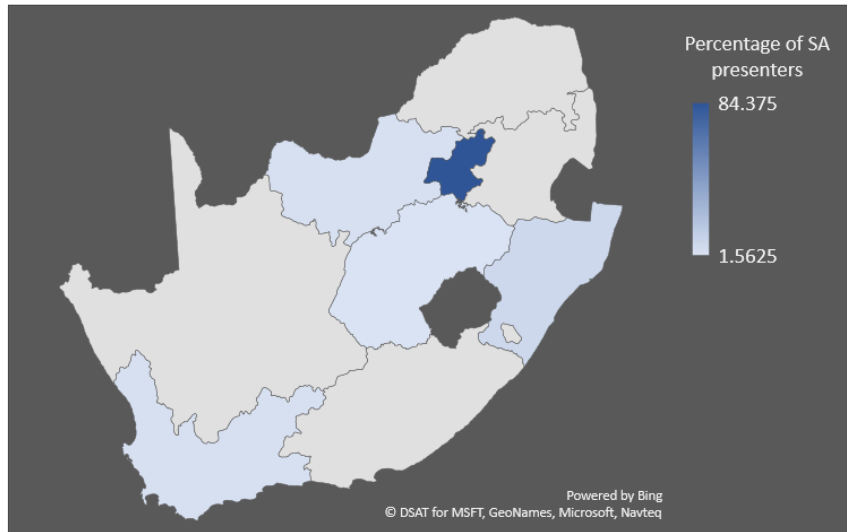


Figure 1. Presenters' province of work

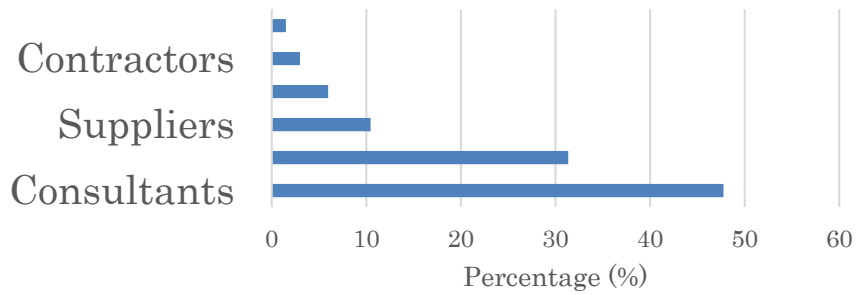


Figure 2. Presenters' place of work

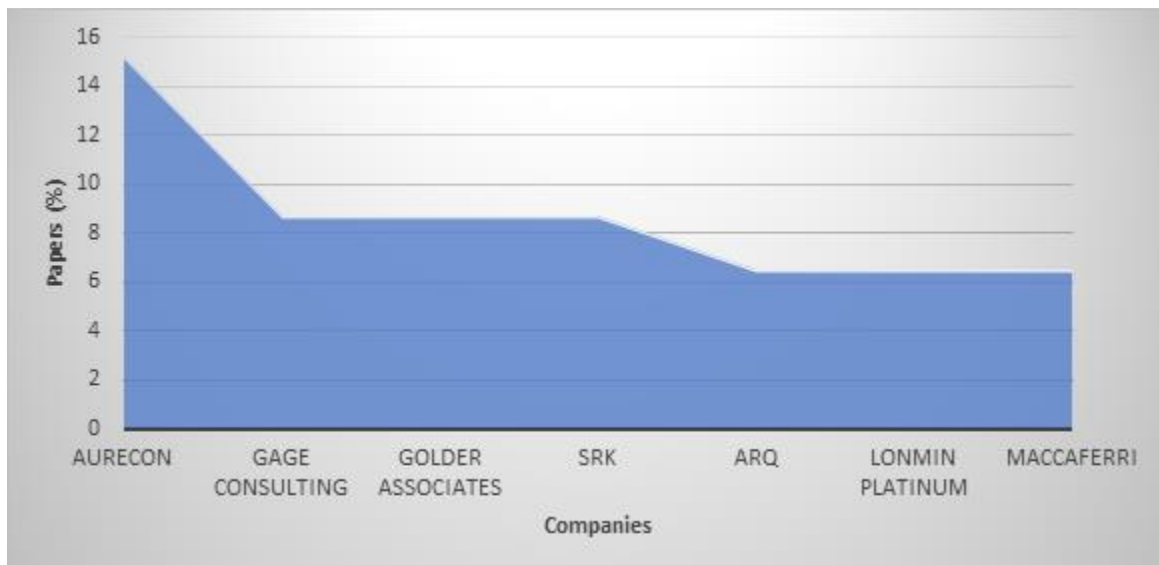


Figure 3. Presenters' companies

Young members arena (Con't)

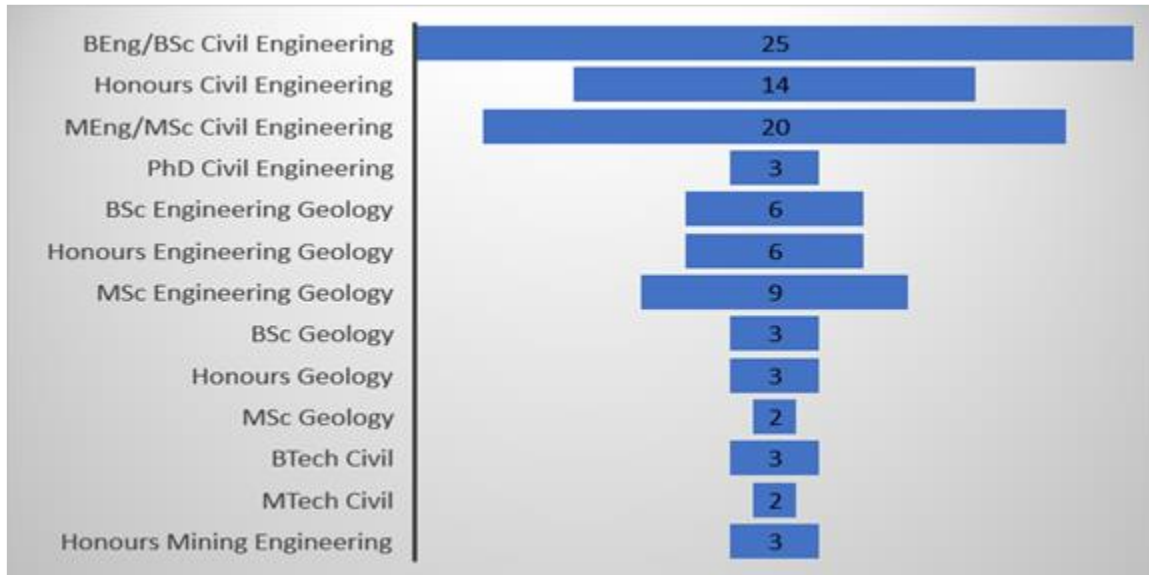


Figure 4. Presenters' qualifications

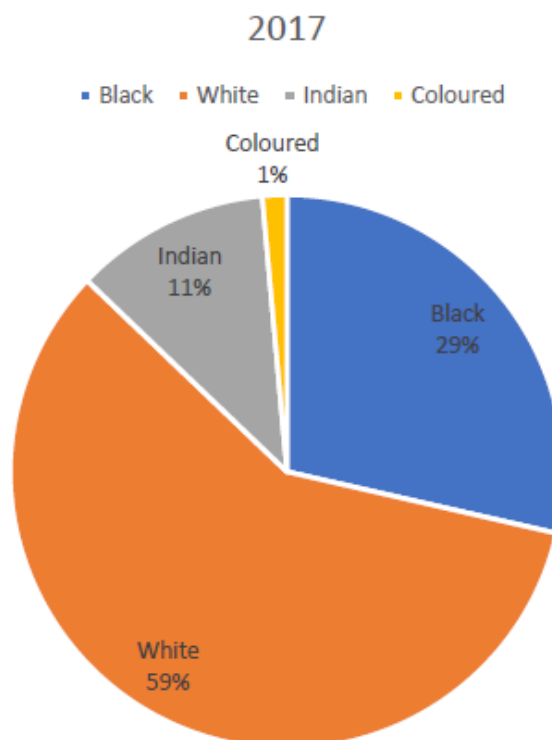


Figure 5. Demographics of presenters

Young members arena (Con't)

Sponsors and Organising Committee

Without sponsors an event such as the SAYGE will not be possible and the SAICE Geotechnical Division would like to thank the following companies for their sponsorship:

- Terrastrata (Platinum Sponsor)
- ArcelorMittal (Gold Sponsor)
- Franki (A Keller Company) (Gold Sponsor)
- Fibertex (Gold Sponsor)
- Reinforced Earth (Gold Sponsor)
- Aveng Ground Engineering
- Bauer
- Geobruigg
- Gundle GeoSynthetics
- GeoExplore Store
- Geopractica
- Guncrete Geotechnical
- Kaytech
- Jones & Wagener
- Knight Piésold
- Titan
- Soillab
- Maccaferri Africa
- VSL

We also would like to thank Yolandé van den Berg from Selah Productions for all her valuable input and acknowledges that without her input this conference would not have been possible. I would also like to thank my fellow committee members for all their help in reviewing papers and organising such a wonderful event. Please join us for the 7th African Young Geotechnical Conference in Cape Town in 2019.

ISSMGE Bright Spark Lecture

The 7th Technical Conference in Eastern Asia on Geo-Natural Disasters (7TCEAGND) was held in Chengdu, China from 12-14 May 2018. This series conference is organized under the auspices of the Asian Technical Committee 3 (ATC3) on Geotechnology for Natural Hazards of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). The Lanzhou Institute of Seismology of the China Earthquake Administration was responsible for the local organizing affairs. The current ISSMGE President, Professor Charles W.W. Ng, the former ISSMGE president, Professor Kenji Ishihara as well as two past VPs for Asia, Professors Ikuo Towhata and Askar Zhussupbekov all attended the conference. During his opening address, Prof. Ng introduced the ISSMGE and presented his visions and missions for the Society, including his plans for the ISSMGE in the coming three and a half years. Subsequently, he delivered his keynote lecture on *“Impact Mechanisms between Debris Flow and Barriers”*.

A highlight of the conference was the first ISSMGE Bright Spark Lecture. Prof. Ng created the ISSMGE Bright Spark Lecture, for young members of the ISSMGE age 36 or under, to encourage young engineers, scholars and academics to devote themselves to soil mechanics and geotechnical engineering. As recommended by local organizing committees and ATC3, Dr Lin Dong delivered the first ISSMGE Bright Spark Lecture titled: *“Liquefaction discrimination methods for fines-containing sandy soils”* (Photo 1). Prof. Ng awarded the ISSMGE Bright Spark Lecture certificate to Dr. Lin Dong at the conference (Photo 2).



Photo 1. Dr Lin Dong delivering the first ISSMGE Bright Spark Lecture



Photo 2. Prof. Charles W.W. Ng awarding the ISSMGE Bright Spark Lecture certificate to Dr Lin Dong

*Professors Ikuo Towhata, Motoki Kazama and Lanmin Wang
Organising committee of the 7th Technical Conference in Eastern Asia on Geo-Natural Disasters*

Hot news

News report on the 16th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering (16ARC)

The 16ARC is to be held on October 14-18, 2019, in Taipei, Taiwan. The main theme of the 16ARC is “*Geotechnique for Sustainable Development and Emerging Market Regions*”. Chinese Taipei Geotechnical Society (CTGS) is the organizer of the 16ARC under the auspices of the ISSMGE. For the conference program, 2-day pre-conference short courses, 4-day in-house plenary/parallel/poster sessions and exhibitions, and a 1-day technical tour are planned. The conference will provide a nice platform for knowledge sharing and exchanging of the geo-technologies facilitated in the Asian regions.

Important Dates of 16ARC:

- Abstract Deadline - 2018.03.31 (for ATC/TC session planners, abstracts are due on 2018.05.31)
- Notification of abstract acceptance - 2018.06.30
- Full paper submission deadline - 2018.10.01
- Full paper review - 2018.10.01-2018.12.01
- Final paper received - 2019.02.015
- Notice of oral/poster presentation after overview - 2019.03.15

Conference speakers

Lecture	Speakers	Affiliation	Country/Society	Lecture
Keynote I	Prof. Charles W.W. Ng	The Hong Kong University of Science and Technology	ISSMGE	Debris-Barrier Interaction: Physical and Numerical Modelling
Keynote II	Prof. Mark Randolph	The University of Western Australia	Australia	Geotechnical Considerations Associated with Offshore Renewable Energy Installations
Keynote III	Prof. Ikuo Towhata	Japanese Geotechnical Society	Japan	Construction Engineer Should Play More Major Roles in Sustainability of Urban Environment
Keynote IV	Prof. Jianye Ching	National Taiwan University	Chinese Taipei GS	Role of Generic Soil Database in Site-Specific Decision Making
Mentoring Lecture	Dr. Za-Chieh Moh	Moh and Associates	Chinese Taipei GS	Integrated Solutions for Geotechnical Projects
Invited Lecture I	Prof. Eun Chul Shin	Incheon National University	Korea	Stability Analysis of Soil bag Retaining Wall under Seismic Loading
Invited Lecture II	Prof. Meei-Ling Lin	National Taiwan University	Chinese Taipei GS	Long Term Effects of Landslides Induced by Catastrophic Events
Invited Lecture III	Prof. Jian-Min Zhang	Tsinghua University	China	to be announced
Invited Lecture IV	Prof. Harianto Rahardjo	Nanyang Technological University	Singapore	Unsaturated Soil Mechanics for Sustainable Urban Development
Invited Lecture V	Prof. Deepankar Choudhury	Indian Institute of Technology at Bombay	India	Sustainable Foundation Solutions for High-Rise structures under Earthquake Conditions - Theory to Practice
Theme Lecture I	Prof. Askar Zhussupbekov	L.N. Gumilyov Eurasian National University	Kazakhstan	Geotechnical Considerations of Piling Construction and Testing in Problematical Soils of Kazakhstan
Theme Lecture II	Dr. Noppadol Phienwej	Asian Institute of Technology /SEAGS	Thailand	Geotechnical Challenges in the Bangkok MRTA Underground Structures Construction
Theme Lecture III	Prof. Masyhur Irsyam	Indonesian Society for Geotechnical Engineering	Indonesia	Development of Seismic Source and Hazard Maps Indonesia 2017
Theme Lecture IV	Ir. Dr. Tan Yean Chin	G & P Professional	Malaysia	to be announced
Theme Lecture V	to be announced		Iran	to be announced

Hot news

News report on the 16th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering (16ARC) (Con't)

Pre-conference short course program is scheduled with five subjects, including: 1. *Statistical estimation of soil properties* (supported by TC304), 2. *State of the art in geomechanics and associated numerical simulation*, 3. *Deep excavation and ground improvement in urban area*, 4. *Modern monitoring for geotechnical engineering*, and 5. *Deep-seated catastrophic landslides-mechanisms, precursors, and hazard evaluation* (supported by ATC3). The short courses will be offered at no charge to two representatives from each of the Asian societies. For others who are interested to participate, a minimal fee will be collected. Detailed information of the short courses and their registration will be available soon at the conference website.

Young Geotechnical Engineer Session (YGES) is planned for young scholars/engineers/students who are under the age of 36 (35 or younger by December 31, 2019). The submitted papers should not be presented for any other sessions, and they need registration. Presenters of selected papers will give oral presentations at the YGE session(s) which are scheduled in the first two days of the 16ARC. Among the YGES participants who are nominated by Asian Societies as the candidates of **Young Member Presidential Group (YMPG)**, a select group of candidates will give oral presentations and compete for the official member of YMPG. The selected two official members of YMPG will deliver **ISSMGE Bright Spark Lecture** at 16ARC.

Technical Tours: On the fifth day (Oct. 18), technical tours are offered. Participants can choose among three tours which are all in the region of Northern Taiwan. The tours will cover engineering projects that have been accomplished or are still under construction. Geotechnical works of deep excavation, tunneling, slope engineering, cofferdam foundation, earth dam, and airport construction will be visited. Minimal charge will be collected to control the number of participants.

Social Program: Welcome Reception and Gala Dinner are scheduled respectively on Monday (Oct. 14) and Wednesday (Oct. 16) evening. Welcome reception is open to all conference participants who have successfully registered (including the invitees). Gala dinner is offered with a minimal charge to control the number of attendees. The International Advisory Board (IAB) members of the 16ARC, invited lecturers and two representatives from each of the Asian Societies who attend the Asian Council Meeting on Tuesday (Oct. 15) will be invited to a private dinner hosted by CTGS after the council meeting.

Registration: Registration fee includes welcome reception, conference program book, proceedings in flash disc, free entries to plenary/parallel/poster sessions and exhibitions, souvenirs, refreshment and lunch during the 4-day in-house program.

Registration Type and fee	
Author (ISSMGE Member)	US\$ 450
Author (Non-ISSMGE Member)	US\$ 500
Early-Bird (ISSMGE Member)	US\$ 500
Early-Bird (Non-ISSMGE Member)	US\$ 550
Regular (ISSMGE Member)	US\$ 550
Regular (Non-ISSMGE Member)	US\$ 600
Student (w/ valid student ID)	US\$ 250
On-site	Regular/Student fee + US\$100

NOTE: Please note that the registration fees above are only for reference, the formal fee will be available soon on the conference website

Accommodation: Rates of the hotels (3~5 stars) in Taipei are in the range of US\$60-US\$400 (single room per night, with breakfast and wifi internet). Detailed hotel information will be available soon on the conference website.

Hot news

News report on the 16th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering (16ARC) (Con't)

Spouse program: information will be provided by the contracted travel agency through the 16ARC Secretariat. 1/2-day or 1-day city tours in the vicinity of Taipei, or 2- to 4-day tours to other astonishing scenic spots (e.g., Sun-Moon Lake, Kentin National Park, Taroko National Park) in Taiwan are available. To sign up for the tours in the spouse program, conference attendees must first register their spouses/guests during registration. Rational tour cost will be charged to the registrants and must be paid in full before the conference. More detailed information will be available soon at the conference site.

Sponsorship and Exhibitions: Please visit <http://www.16arc.org/Sponsorship&Exhibition.html> for more details.

Contact information for conference secretariat:

Email (Secretariat@16arc.org)

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

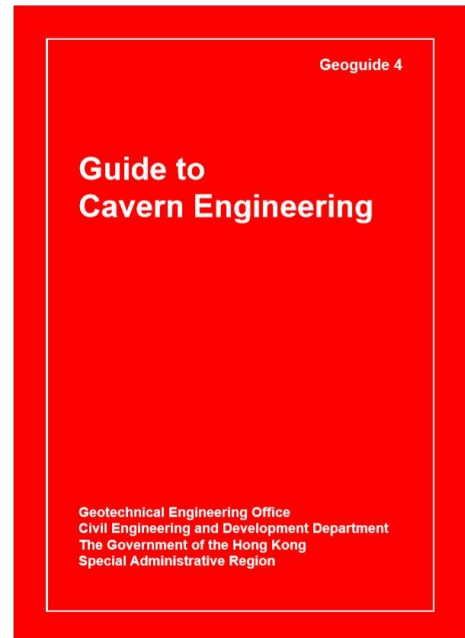


Hot news

Second Edition of Geoguide 4 – Guide to Cavern Engineering

The Geotechnical Engineering Office of the HKSAR Government has recently published the **Geoguide 4 - Guide to Cavern Engineering (Second Edition)**, which is free for download via the link [http://www.cedd.gov.hk/eng/publications/geo/geo_g4.html].

This Geoguide was first published in 1992 and served the city well in the early days of cavern development. Over the years various elements of best practice in Cavern Engineering and Rock Mechanics have changed and needed to be updated. The second edition has pulled together various key references, experience and publications that are in typical use in Hong Kong and other countries, which are practiced by regulators, designers and practitioners in the art of tunnel and underground rock cavern development. It consolidates some of the most relevant technological advances and experience gained over the years and now provides an updated reference of good practice for rock cavern development. The updated edition has also been expanded to cover other associated elements not covered in the previous Geoguide such as how to plan caverns and consider the long term impacts and performance of the underground spaces and support elements formed.



Obituary

In Memoriam: Professor Dr.-Ing. Habil. Tom Schanz (1962 – 2017)

It is with great sadness that we inform you of the much too early passing of Tom Schanz, Head of the Institute of Foundation Engineering, Soil and Rock Mechanics at Ruhr-University Bochum, Germany.

Tom Schanz was born on May 2, 1962 in Darmstadt, Germany. He studied Civil Engineering (October 1982 - October 1988) and Geology at the University of Stuttgart, graduating with a diploma in Civil Engineering. After his graduation, he was working from November 1988 - May 1989 on the "Kinematical Element Method" as a research assistant of Professor Peter Gußmann (Institute of Geotechnical Engineering, University of Stuttgart). In June 1989, he started to work as a research assistant of Professor Hans-Jürgen Lang in Zurich, Switzerland. He graduated in April 1994 as Dr. Sc. Tech. from ETH Zurich with a thesis entitled "Investigations of the mechanical behavior of granular mixtures using the example of concrete recycling material". During his PhD, he received a scholarship from Kagoshima University, Japan, where he worked together with Professor R. Kitamura (May 1991 - November 1991). In October 1993, he moved back to the University of Stuttgart starting to work first together with Professor Hans-Ulrich Smolczyk (till April 1994) and afterwards with Professor Peter Vermeer (till September 1994). In June 1998, he obtained his habilitation ("venia legendi") in "Geotechnical Engineering" from the University of Stuttgart with a thesis on the topic "Modelling the mechanical behavior of frictional materials".

In October 1998, Tom Schanz was appointed at the Bauhaus-University, Weimar, Germany. At that time, he was the youngest Professor in Germany in the field of Geotechnical Engineering.

He was setting-up an internationally well-recognized and cross-linked research group being active in various fields of soil mechanics and geotechnical engineering. From April 2009 on, he was appointed as a Professor for Foundation Engineering, Soil and Rock Mechanics at the Ruhr-University Bochum, Germany.

Tom Schanz's influence on the national and international scientific community was tremendous. He published more than 200 publications about various scientific topics. He was a member of the Editorial Board of "Environmental Geotechnics", "Geotechnical Testing Journal", and the "International Journal of Civil Engineering". Furthermore, he was also an editorial advisor at the editorial board of the journal of "Geomechanics for Energy and the Environment" and had served "Canadian Geotechnical Journal" as one of its associate editors. He organized various international and national conferences and symposia on different topics. The state-of-the-art content of the international conferences on unsaturated soils was summarized in a series of books published in the series "Springer Proceedings in Physics". Together with Professor Achim Hettler and under the auspices of the German Geotechnical Society (DGGT), he established the national soil mechanics conference as a forum for scientific exchange of senior and junior researchers in the field.

Under his supervision, 25 doctoral students graduated and several students were and are presently working with a scholarship in the modern and well-equipped laboratories in Bochum. He always supported his doctoral students and Post-Docs and motivated them to jointly work together with international researchers abroad. Furthermore, international researchers from all over the world joined the hospitality and open-minded scientific atmosphere of his group.

One of his latest efforts to gather scientists to discuss open problems and make further progress on the ongoing debates was organizing a summer school titled "Effective Stress in Multiphase Porous Media" in September 2016 in Bochum where leading scientists from around the globe working on unsaturated soil mechanics attended. Thereby, recent advancements were introduced and many interesting discussions were held. He also built long lasting collaborations with the young scientists of developing countries on various problems of interest. As such and so, he had also an important impact on developing countries. One can note, for instance, him being a great force behind bilateral Indian-German workshops on "New Generation Sensors for Unsaturated Soils and Water technology" where together with Dr. Snehasis Tripathy, Tom made a great platform to bring scientists of India and Germany, and to improve knowledge transfer on unsaturated soils and soil-water technology.

Obituary

In Memoriam: Professor Dr.-Ing. Habil. Tom Schanz (1962 – 2017) (Con't)

His research interests were related to constitutive modelling and soil parameter identification, to theoretical, experimental as well as technical aspects of unsaturated soils, to liquefaction problems, consolidation theories, inverse problems in paleontology and biomechanics (e.g. “calculating the weight of dinosaurs from their footprints”), engineering geology, tunneling and innovative numerical methods in soil mechanics and geotechnical engineering.

Besides his professional research interests, Tom Schanz has been an enthusiastic teacher and a lively interlocutor. If a problem in soil mechanics and related fields was coming-up to him, e.g. in a discussion with students or well-respected researchers from abroad, it was not uncommon, that an intensive and long-lasting discussion at the black-board was following. In such discussions, he liked to bring together young master students and senior scientists sharing their ideas and expertise.

Tom Schanz has been greatly appreciated by his colleagues, his co-workers, and his national and international doctoral students and Post-Docs coming from various regions all over the world. For his students, his doors have been always open and he supports them to overcome scientific but also personal problems.

His early death leaves a deep void in the hearts of many. Our deepest sympathy is with his family.

*Holger Steeb
Institute of Mechanics
University of Stuttgart*

Obituary

In Memoriam: Professor Tien H. Wu (1923 – 2018)



We are saddened to relay that Dr. Tien H. (T.H.) Wu passed away on Thursday, June 7, 2018. He served as a faculty member at The Ohio State University from 1965 to his retirement in 1994. Professor Wu taught undergraduate and graduate classes in geotechnical engineering on topics such as soil mechanics, rock mechanics, soil properties, advanced soil mechanics, seepage, foundations and earthwork design, and probability and statistics. He remained an active professor emeritus, collaborating with other geotechnical engineers on books and journals.

His research included the topics of strength properties of soil and rock, glaciology in Alaska and Antarctica, stability of embankments and natural slopes, groundwater and seepage, soil-structure interaction of buried tubes, risk and reliability assessment for foundations and slopes, safety of dams, and biotechnical reinforcement of slopes. He had over 90 technical publications resulting from his research and published several books on Soil Mechanics and Soil Dynamics.

Professor Wu's professional service has included several committees and/or panels of the American Society of Civil Engineers, the National Research Council (Transportation Research Board, Geotechnical Board), the International Society of Soil Mechanics and Geotechnical Engineering, and the National Science Foundation.

His many awards include the U.S. Antarctica Service Medal in 1967, the College of Engineering Research Award in 1988, the ASCE State-of-the Art Award in 1990, the Earnest Award from the ASCE Cleveland Section in 2000, and the Ralph B. Peck Award from the American Society of Civil Engineers Geo-Institute in 2008. Professor Wu was elected an ASCE Honorary Member in 2003.

From United States Universities Council on Geotechnical Education and Research (USUCGER)

ISSMGE Foundation Reports

The 6th International Young Geotechnical Engineers' Conference (iYGEC6) and the 19th ICSMGE conference were held in Seoul from 16-22 September, 2017. Both conferences were very exciting and very insightful in all aspects. The main conference theme was "Unearth the Future, Connect Beyond []". Solidarity messages delivered by invested guest were well in line with the chosen theme.

The quality of the speakers for the Plenary sessions, Honours lectures and Oration sessions were amazing. This offered me the opportunity for the first time to listen to a presentation by Professor David Muir Wood as I have used his textbooks during my postgraduate studies. Beyond these presentations, the conference offered a unique opportunity of meeting professors, senior colleague engineers, engineers in academia, industry and consultancy as well as numerous young engineers from all the continents. On a non-technical basis, which is very crucial to our development as young engineers was the presentation delivered by Dr. Za-Chieh Moh on the final day of 6th International Young Geotechnical Engineers' Conference. The focus of the lecture was centered mainly on Ethic and Leadership. I find this more useful as the responsibility of the engineers, professional ethics and human morality, the role of the leader in a team among others were discussed. The presentation was very educational as young engineers were made to understand engineering goes beyond just designing for safe and reliable structures but morality is a major in succeeding. During the main conference, exhibition stands which was set up by the invited companies and organizers introduced participants to the modern technologies that industry is developing.

Finally, I would like to express my sincere appreciation to ISSMGE Foundation and my academic supervisor Prof. SIK Ampadu for the opportunity to attend this conference. In conclusion, both conferences were well organized and the organizers were very helpful.



Photo 1. Meeting Dr. Delwyn G. Fredlund and the Ghanaian delegation



Photo 2. During a meeting of the African chapter of ISSMGE

Augustine Korli Lawer
Civil Engineering Department, Kwame Nkrumah University of Science
Kumasi-Ghana

ISSMGE Foundation Reports (Con't)

I attended both the 6th International Young Geotechnical Engineer's Conference (6iYGEC) and the 19th International Conference on Soil Mechanics and Geotechnical Engineering (19ICSMGE) in Seoul, Korea with the support of the ISSMGE Foundation and as a nominated representative of the Hong Kong national society. It was simply amazing to be able to attend the conferences. As a practitioner, I think we spend a lot of our time dealing with approval authorities, contract agreements, and invoices. It was refreshing to attend a conference that focuses on our industry and improvements on the global knowledge of geotechnical engineering. For a week, I was able to forget about the politics of work and really dive into the technical aspects of our work.

I felt the sincerity and passion for our industry from people all over the world, some of whom I have emailed and/or talked to through Skype. I have been a committee member of the Young Members Presidential Group (YMPG) for the past four years and it has been a privilege to work with young members from all over the world. It was amazing, to say the least, to finally meet some of the other committee members in person. I was also able to catch up with friends and mentors from the industry.

I feel extremely fortunate to be able to attend both conferences. The collective knowledge of the ISSMGE community is more important than any of us working alone. The state-of-the-art cannot improve without connecting hand-in-hand with the state-of-the-practice. I hope that I can continue to contribute to the society through publishing and sharing my work at future conferences as well as making use and building upon other people's work. This conference will undoubtedly have an enormous effect on the direction of my career. I am forever grateful to the Foundation and the ISSMGE community.

Lucy Wu
WSP

ISSMGE Foundation Reports (Con't)

The Second Geo-Institute - Kazakhstan Geotechnical Society Joint Workshop on TC 305 “Geotechnical Infrastructure for Megacities and New Capitals” was held in Orlando, Florida, and New York City, USA, on March 5-11, 2018. The main goals of this forum were to exchange scientific ideas, as well as studying advanced technologies in the field of design, installation, testing of foundations and basis in complex engineering-geological conditions.

There were 4 Keynote Lectures, 1 Special Lecture, 1 Burmister Lecture and 11 Technical Reports. I delivered a presentation titled “Features of using control equipment for pile test according American and Kazakhstan standards” during a technical session at Columbia University (New York, USA). A very important fact is that I visited the technical exhibition of the International Foundation Congress and Equipment Exhibition-2018 in Orlando. During breakout working group sessions I could discuss with scientists from USA and other countries. It was a great experience. Also I participated at the Ceremony of the 2018 Ben C. Gerwick Award for Innovation in the Design and Construction of Marine Foundations to Mr. Akio Kitamura, founder and president of Giken (Japan). It was a pleasure for me to attend this historical event. I visited Donald M. Burmister and Robert A. W. Carleton Laboratories (Columbia University) under auspices of Prof. Hoe Ling and Dr. Liming Li and also took part in a technical tour to the construction sites of high-rise buildings and structures in New York. It was a great experience for my future work. The Seminar finished with a New York City Lights Dinner Cruise.

It was a secular refined reception, delicious food, and memorable.



Photo 1. During my visit of the technical exhibition of the International Foundation Congress and Equipment Exhibition-2018, Orlando, Florida



Photo 2. the Ceremony of the 2018 Ben C. Gerwick Award for Innovation in the Design and Construction of Marine Foundations to Mr. Akio Kitamura (Giken, Japan)

Assel Tulebekova

L.N. Gumilyov Eurasian National University, Researcher of Geotechnical Institute

Event Diary

ISSMGE EVENTS

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

2018

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>

Granular Matter Workshop - CEGD Workshop

Date: 12-06-2018 - 13-06-2018

Location: June 12 : Hungarian Academy of Sciences (HAS), Main Building, June 12, Budapest, Széchenyi István tér 9, Hungary ; June 13,: Department of Engineering Geology and Geotechnics BME, Budapest, 1111 Muegyetem rkp 3.

Organiser: Óbuda University and Hungarian Academy of Sciences - BME Morphodynamics Research Group, Hungary

Contact person: Imre Eموke

Address: Obuda University

Email: imre.emoke@kvk.uni-obuda.hu

Website : <http://vei.kvk.uni-obuda.hu/index.php?o=7>

9th European Conference on Numerical Methods In Geotechnical Engineering

Date: Porto 25-06-2018 - 27-06-2018

Location: University of Porto. Faculty of Engineering, Portugal

Organizer: University of Porto

Contact person: Lurdes Catalino

Phone: +351 22 204 3573,

Email: lurdes.catalino@abreu.pt,

Website : <http://www.numge2018.pt>;

Email: scientific@numge2018.pt,

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: geotexsimpozium2018@bk.ru

Website: <http://gccets.com/>

Event Diary (Con't)

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>

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/>

Event Diary (Con't)

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>

Urban Planning Below The Ground Level: Architecture And Geotechnics

Date: 19 - 21 September 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>

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/>

Event Diary (Con't)**Geo-Expo 2018 Scientific and Expert Conference**

Date: 18-10-2018 - 19-10-2018

Location: Hotel Sunce, Neum, Bosnia & Herzegovina

Language: English, Bosnian, Croatian and Serbian

Organiser: Geotechnical Society of Bosnia and Herzegovina

Contact person: Sabrina Salkovic

Address: Univerzitetska 2

Phone: +387 61 451 701

Email: geotehnika@geotehnika.ba

Website: <http://www.geotehnika.ba>

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>

8th International Symposium on Environmental Vibration and Transportation Geodynamics

Date: 26-10-2018 - 28-10-2018

Location: Xiandai Grand Gloria Hotel, Changsha, China

Language: English

Organizer: Central South University

Contact person: Prof. Yuanjie Xiao, Prof. Xiaobin Chen

Address: Central South University, School of Civil Engineering. 22 South Shaoshan Road Changsha, Hunan

Phone: (+86) 731-8265-5177

Email: ISEV2018@yahoo.com

Website : <http://www.isev2018.cn/>

8th International Congress on Environmental Geotechnics

Date: 28-10-2018 - 01-11-2018

Location: Sheraton Hangzhou Wetland Park Resort, Hangzhou, China

Language: English

Organiser: MOE key Laboratory of Soft Soils and Geoenvironmental Engineering; CISMGE; HKGES

Contact person: Bate Bate

Address: 866 Yuhangtang Road, B428 Anzhong Building, Hangzhou, China

Phone: +86-18757582046

Fax: +86 (0)571-88208793

Email: batebate@zju.edu.cn

Website : <http://www.iceg2018.org>

Email : iceg2018@zju.edu.cn

Event Diary (Con't)

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>

16th World Conference of the Associated Research Centers for the Urban Underground Space

Date: 05-11-2018 - 07-11-2018

Location: S421 - S430, Hong Kong Convention and Exhibition Centre (HKCEC), Hong Kong

Language: English

Organiser: The Hong Kong Institution of Engineers - Geotechnical Division, Hong Kong Geotechnical Society and Associated Research Centers for the Urban Underground Space

Contact person: Tony Ho

Phone: (852)27625400

Email: tonyykho@cedd.gov.hk

Website: <http://www.acuus2018.hk>

Email: enquiry@acuus2018.hk

6th African Young Geotechnical Engineering Conference (6TH AYGEC)

Date: 24-11-2018 - 27-11-2018

Location: University of Khartoum, Sudan

Organiser: Sudanese Society for Soil Mechanics and Geotechnical Engineering

Contact person: Prof Ahmed El Sharief

Phone: 00249912144181

Email: aelsharief@hotmail.com

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

Email: info@sssmge.org

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**13th Australia New Zealand Conference On Geomechanics 2019**

Date: 01-04-2019 - 03-04-2019

Location: Perth Convention and Exhibition Centre, Australia

Language: English

Organiser: Australian Geomechanics Society

Contact person: Conference Managers Arinex Pty Ltd

Address: 3/110 Mounts Bay Road

Phone: +61 8 9486 2000

Fax: +61 8 9486 2000

Website : <http://geomechanics2019.com.au/>

Email: anzgeomechanics2019@arinex.com.au

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*

Event Diary (Con't)

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>

3rd International Conference “Challenges in Geotechnical Engineering” CGE-2019

Date: 10-09-2019 - 13-09-2019

Location: University of Zielona Gora (Poland),

Language: English

Organiser: University of Zielona Gora (Poland) and Kyiv National University of Construction and Architecture (Ukraine)

Contact person: Co-Chairmen of the Organising Committee: Volodymyr Sakharov, Waldemar Szajna

Address: 1, Prof. Zygmunta Szafrana str

Fax: +48 (68) 328 47 23

Email: info@cgeconf.com

Website : <http://www.cgeconf.com>

3rd International Conference on Information Technology in Geo-Engineering (3RD ICITG2019)

Date: 29-09-2019 - 02-10-2019

Location: Cultural Centre of Vila Flor, Guimarães, Portugal

Language: English

Organiser: University of Minho and Portuguese Geotechnical Society under the auspices of JTC2 of FedIGS)

Contact person: 3rd ICITG Secretariat

Address: University of Minho/ School of Engineering/ Civil Engineering Department, Campus de Azurem

Phone: (+ 351) 253 510 750

Fax: (+ 351) 253 510 217

Email: 3rd-icitg2019@civil.uminho.pt

Website: <http://www.3rd-icitg2019.civil.uminho.pt/>

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

Event Diary (Con't)

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

14th Baltic Sea Geotechnical Conference 2020

Date: 25-05-2020 - 27-05-2020

Location: Clarion Hotel Helsinki, Finland

Language: English

Organiser: Finnish Geotechnical Society

Contact person: Leena Korkiala-Tanttu

Email: leena.korkiala-tanttu@aalto.fi

Website: <http://www.ril.fi/en/events/bsgc-2020.html>

Email: ville.raassakka@ril.fi

18th NGM Nordic Geotechnical Meeting

Date: 25 - 27 May 2020

Location: Helsinki, Finland

Contact person: Ville Raassakka

Email: ville.raassakka@ril.fi

Website : <http://www.ril.fi/en/events/ngm-2020.html>

TC204: Geotechnical Aspects of Underground Construction In Soft Ground - TC204 Cambridge 2020

Date: 29-06-2020 - 01-07-2020

Location: University of Cambridge, United Kingdom

Language: English

Organiser: University of Cambridge

Contact person: Dr Mohammed Elshafie

Address: Laing O'Rourke Centre, Department of Engineering, Cambridge University

Phone: +44(0) 1223 332780

Email: me254@cam.ac.uk

Event Diary (Con't)

6th International Conference on Geotechnical and Geophysical Site Characterization

Date: 07-09-2020 - 11-09-2020

Location: Budapest Congress Center, Hungary , Budapest

Language: 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

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2018

Geotechnical Earthquake Engineering and Soil Dynamics V

Date: 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

Natural Hazards Reconnaissance Facility Workshop

Date: 24-07-2018 - 27-07-2018

Location: University of Washington, Seattle, United States

Organiser: RAPID Experimental Facility

Contact person: Jake Dafni

Address: 3760 E Stevens Way NE

Phone: 206-616-3318

Email: dafnij@uw.edu

Website : <https://www.designsafe-ci.org/learning-center/training/workshops/rapid-ef/intensive-workshop/>

International Symposium on Seismic Performance and Design of Slopes

Date: 18-08-2018 - 19-08-2018

Location: Sino-French Center, Tongji University, 1239 Siping Road, Shanghai, P.R. China, China , Shanghai

Language: English

Organiser: Tongji University

Contact person: Chongqiang ZHU

Address: 1239 Siping Road, Shanghai, P.R. China

Phone: +86-21-65982384

Email: cqzhu@tongji.edu.cn; yhuang@tongji.edu.cn

Website: http://geotec.tongji.edu.cn/show.aspx?info_lb=328&flag=190&info_id=1424

Event Diary (Con't)**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/>

DFI 43rd Annual Conference on Deep Foundations

Date: 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>

The First Vietnam Symposium on Advances in Offshore Engineering

Date: 01-11-2018 - 03-11-2018

Location: National University of Civil Engineering, Hanoi, Vietnam

Language: English

Organiser: Association of Vietnamese Scientists and Experts

Contact person: DOAN, Dinh Hong

Phone: +33 1 40 97 38 03

Email: DinhHong.DOAN@Subsea7.com

Website: <https://vsoe2018.sciencesconf.org/>

Email: vsoe2018@sciencesconf.org

3rd South American Symposium on Rock Excavations

Date: 19-11-2018 - 21-11-2018

Location: Santiago, Chile

Language: Spanish and English

Organiser: Chilean Society of Rock Mechanics (SCMR, Chilean Group of the ISRM)

Contact person: Alejandra Villouta

Address: Av. Apoquindo 6750, Piso 21, Las Condes, Santiago, Chile

Phone: +56 2 2718 7500

Email: secretario@scmr.cl

Website : <https://www.scmr.cl/eventos>

Event Diary (Con't)**2019****2nd International Intelligent Construction Technologies Group Conference**

Date: 23-04-2019 - 25-04-2019

Location: Beijing Hotel, Beijing, China

Language: English and Mandarin

Organiser: International Intelligent Construction Technologies Group (IICTG)

Contact person: George Chang (President of IICTG)

Address: 6111 Balcones drive

Phone: 5124516233

Email: gkchang@TheTranstecGroup.com

Website: <http://www.iictg.org/2019-conference/>

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

16th International Conference Of The International Association For Computer Methods And Advances In Geomechanics - IACMAG

Date: 29-06-2020 - 03-07-2020

Location: Politecnico di Torino Conference Centre, Torino, Italy

Language: English

Organiser: Politecnico di Torino

Contact Information

Contact person: Symposium srl

Address: via Gozzano 14

Phone: +390119211467

Email: info@symposium.it, marco.barla@polito.it s

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

Event Diary (Con't)**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

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

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- f. Chinese Taipei Geotechnical Society www.tgs.org.tw

- g. Prof. Zuyu Chen
<http://www.iwhr.com/zswenglish/index.htm>



- h. East China Architectural Design and Research Institute *ECADI*
<http://www.ecadi.com/en/>

- i. TC 211 of ISSMGE for Ground Improvement
www.bbri.be/go/tc211

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- k. TC302 of ISSMGE for Forensic Geotechnical Engineering
<http://www.issmge.org/en/technical-committees/impact-on-society/163-forensic-geotechnical-engineering>

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