SIMSG ISSMGE

ISSMGE Bulletin

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International Society for Soil Mechanics and Geotechnical Engineering
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TABLE OF CONTENTS

EDITORIAL BOARD (NEW)

Message from the President

Vote of thanks to Professor Ikuo Towhata and his Editorial Board
Welcome to Professor Charles Ng and the new Editorial Board

Dear readers of the ISSMGE Bulletin,

I would like you to join me for an immense vote of thanks to Professor Ikuo Towhata who undertook the role of Editor-in-Chief of the ISSMGE Bulletin from the December 2009 (Vol 3, Issue 4) until the June 2014 issue (Vol 8, Issue 3), that is for 26 issues over 4 and a half years. We are truly grateful for his great devotion. Under his efficient leadership the ISSMGE Bulletin is now published 6 times per year. Our warmest thanks also go to all the members of the Editorial Board during these years: Pedro Sêco e Pinto, Jean-Louis Briaud, Neil Taylor, John Carter, Deepankar Choudhury, Marcelo Gonzalez, Erdin Ibraim, Osamu Kusakabe, Andre Lima, Susumu Nakajima, Makoto Namba, Pongsakorn Punrattanasin, Cholachat Rujikiatkamjorn, Imen Said, Fernando Schnaid and António Topa Gomes. I am also very grateful to some of those former members who have kindly agreed to continue to serve the Editorial Board.

Join me, as well, to welcome Professor Charles Ng as the new Editor-in-Chief, who prepared the current issue of the ISSMGE Bulletin with the new Editorial Board, whose names are printed at the bottom left, on the front page of this Bulletin. We wish them great success in the difficult task they accepted and for devoting themselves to the ISSMGE.

Roger Frank Paris, 16th August 2014

Message from the New Editor-in-Chief

It is my great honour to be able to serve the ISSMGE. In addition to the existing contents of the Bulletin, I have created three new and exciting items to increase the scope of our coverage. **"Research Highlights"** will report on advanced research activities and outstanding accomplishments from reputable research groups around the world. Young members will be able to share their joys, activities and achievements with us in the new **"Young Members' Arena"**. Finally, **"Major Projects"** will feature interesting and significant projects from different parts of the world. To ensure this Bulletin meets your needs, please send your suggestions, comments and criticisms to me via e-mail at charles.ng@ust.hk.

Report from Austrian Member Society of ISSMGE

50th Anniversary of Danube-European Conferences on Geotechnical Engineering, Vienna 2014 and other activities of the Austrian Member Society of ISSMGE

On September, 9-11, 2014 the 15th Danube-European Conference on Geotechnical Engineering (DECGE) will take place in Vienna, hosted by the Austrian Member Society of ISSMGE. This is a Jubilee Event celebrating the 50th Anniversary of DECGE. In the year 1964 this conference series was founded in Austria as a Memorial Conference, after Prof. K. Terzaghi had passed away on October 25th, 1963. K. Terzaghi had been Full Professor at the Vienna University at Technology (1929 – 1938), thus founding the first University chair of Soil Mechnics worldwide. The success of this first Conference in 1964 finally initiated a series of DECGEs until now. Since then the DECGE has been held in different countries of the "Danube-European Region". Meanwhile the Geotechnical Community is represented there in 20 countries, from Germany to the Black Sea, and its influence radiates far beyond this wide area. Accordingly, delegates from about 45 countries have already registered for the 15th DECGE.

On occasion of this Jubilee Event the Austrian Postal Authorities will edit two special postal stamps (see Figs. 1, 2). They underline the importance of Geotechnical Engineering for the Public, which is frequently underestimated. One stamp shows the main building of the OIAV (Austrian Society of Engineers and Architects, founded in 1848), where the first DECGE took place in 1964. The other stamp shows the main building of the Vienna University of Technology (TU Wien), where the 15th DECGE will take place in 2014. Next year this University celebrates its 200th Anniversary.

Figures 1 and 2. Special post stamps at the 15th DECGE.
Vienna University of Technology (left) and OIAV-Palais (right)

The postal stamps will be available for the conference participants during the 15th DECGE and later on from the OIAV (g.forster@oiav.at).

Report from Austrian Member Society of ISSMGE (Continued)

The special postal stamps of 2014 are not the first Austrian postal stamps referring to Geotechnics. Already in 1983 a special K. Terzaghi stamp was edited by the Austrian Postal Authorities, commemorating the centenary of his birth on October 2nd, 1983. It was distributed together with special postmarks and envelopes on occasion of the 11th ICSMFE in San Francisco, 1985. Figure 3 shows a special first day envelope, with the Terzaghi stamp and special postmarks commemorating K. Terzaghi's 100th birthday.

Figure 3. “Terzaghi Postal Envelope”

It has the following features:

- The official postmark of the Austrian Postal Direction with the first day mark on the upper stamp. The letters mean: "Terzaghi, the founder of scientific foundation engineering".
- A semi-private postmark of the "Philatelic Club of Graz", which franks the lower stamp. It shows the Terzaghi oedometer.
- The picture shows the old "Wiener Reichsbrücke" ("Vienna Empire Bridge"), crossing the River Danube in Vienna, near the UNO-City. The foundation was designed by K. Terzaghi in the 1930ies. The technical drawing is taken from his original publication.
- Between the Terzaghi stamps: The official seal of the Institute for Foundation Engineering (including Soil Mechanics), Geology and Rock Engineering at the Vienna University of Technology, chaired by Prof. H. Brandl.

Report from Austrian Member Society of ISSMGE (Continued)

After the Jubilee Event “50th Anniversary of Danube-European Conferences on Geotechnical Engineering” the 10th Austrian Geotechnical Conference will be held on 29-30 January 2015, also in Vienna. This Austrian Conference Series always takes place in connection with a large exhibition on Geotechnics, thus attracting conference participants from 15 to 20 countries and about 500 delegates. Its highlight is the "Vienna Terzaghi Lecture", always delivered by internationally renown personalities (former speakers were, e.g. Prof. W. Van Impe - Past President of ISSMGE; Prof. Robert Mair, University of Cambridge; Dr. J.P. Giroud - Past President of IGS; Prof. R. Katzenbach, Germany). In 2015 Prof. R. Szépesházi from Hungary will deliver this prestigious lecture.

Finally, a Geotechnical-Geological Park was created three years ago by the Vienna Municipal Authority and the Austrian Member Society of ISSMGE (within the OIAV). It is located in a most distinguished district of Vienna close to the Austrian Radio and Television Center. The ways through this wide area are named after the Austrian Pioneers of Soil Mechanics Karl Terzaghi, Arthur Casagrande, Karl Otto Fröhlich; Rock Mechanics (Leopold Müller) and Engineering Geology (Josef Stini) are also presented. At the beginning and end of each way large boards are installed, informing in detail about these outstanding personalities and their profession. This park is always open to visitors, thus making the Public aware of the importance of Geotechnical Engineering.

Prof. Heinz Brandl, PhD
President of the Austrian Member Society of ISSMGE

Report from Malaysian Geotechnical Society (MGS)

Inaugural 1-Day Short Course on

"Soil-Structure Interaction in Geotechnical Design" for the new MGS

Over 90 Engineers from the Geotechnical Field took time away from their routine work on 27th of March 2014, to take part in a seminar at Tan Sri Prof. Chin Fung Kee Auditorium, Wisma IEM. "Soil-Structure Interaction in Geotechnical Design" was the first seminar jointly organized by the newly established Malaysian Geotechnical Society (MGS) and Geotechnical Engineering Technical Division, The Institution of Engineers, Malaysia (GETD IEM). This particular topic was chosen as Engineers are exposed to more complex infrastructure development especially in urban setting, where both Geotechnical and Structural Engineers have to understand the principals of soil and structural design and how they interact with each other.

Prof. Charles W.W. Ng from Hong Kong University of Science and Technology was one of the speakers for the short course. He inspired the participating Engineers with results from series of three-dimensional centrifuge model tests and numerical simulations carried out to investigate the effects of twin tunnel construction on existing single pile & pile group. He also presented responses of perpendicularly crossing two-tunnel interaction and the effects of shielding on three-tunnel interaction. He demonstrated that university research can have very practical application in real construction.

The other speaker was Prof. Leung C.F. from National University of Singapore and he shared on the phenomena and causes of negative skin friction. He highlighted research findings on single piles and pile groups subject to negative skin friction using centrifuge modelling technique. Besides, he also presented research studies to examine the effects of excavation on adjacent single piles and pile groups in sand and in soft clay.

Photo taken during lecture by Prof. Charles Ng

Photo taken during question & discussion (Professors C.F. Leung and Charles W. W. Ng)

During the question & discussion session, there were lively questions from the floor on application of the research findings to real construction problems. The seminar ended at 5.00pm with momento presentation to both speakers and a big round of applause from the participants.

Ir. Yee Yew Weng
Secretary General, MGS

Report from Geotechnical Society of Singapore (GeoSS)

Education Trip to Kuala Lumpur on 18th and 19th April 2014

GeoSS organized an education trip to Kuala Lumpur on 18th and 19th of April, supported and hosted by the Malaysian Geotechnical Society (MGS). Their objective for this trip is to cultivate good relationships and extend networking with Malaysian geotechnical counterparts; learn about contracting and consultancy practices; appreciate Malaysia ground condition and geotechnical equipment and technology; understand our regulator-industry players' relationship; and to explore business opportunities.

On 18th of April, GeoSS members visited the Klang Valley Mass Rapid Transit (KVMRT) Exhibition Centre located at Jalan Cochrane. The members attended a KVMRT underground construction briefing presented by MMC-Gamuda KVMRT tunnel team representatives and visited the Cochrane tunnel boring machine (TBM) launching shaft and station.

Photos Taken During KVMRT Exhibition Centre Visit

Later on the same day, GeoSS held a sharing session on Eurocode 7 (EC7) with committee members from MGS and Geotechnical Engineering Technical Division, The Institution of Engineers and few invited guests. The main objective was to share about the development, policy, implementation and challenges of EC7 in Singapore and Malaysia.

Report from Geotechnical Society of Singapore (Continued)

Education Trip to Kuala Lumpur on 18th and 19th April 2014

Photos Taken During EC7 Sharing Session

Right after the sharing session, an evening talk on "Development Challenges in Singapore MRT Projects" was given by Dr. Ng Tiong Guan, President of GeoSS. It was jointly organized by MGS and GETD IEM. More than 100 Geotechnical Engineers attended the talk. This particular topic was chosen as there are common challenges in designing and constructing deep foundations, tunnels and underground structures for MRT system.

Dr. Ng explained to the participating Engineers the relatively complex geological setting in Singapore and the challenges when tunnels or underground structures are to be constructed in close proximity to the existing building and structures (which is inevitable in this relatively built-up city-state). He also shared and discussed details of a recent case history involving excessive ground movement due to water ingress.

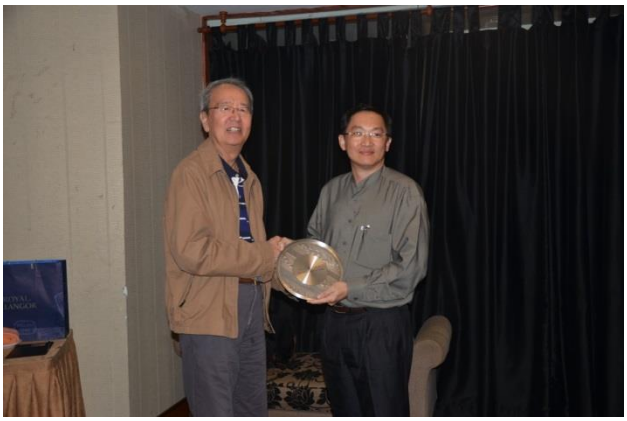
Photos Taken During Evening Talk by Dr. Ng Tiong Guan

A Welcome Dinner was held in the evening, hosted by MGS at a nearby restaurant.

Report from Geotechnical Society of Singapore (Continued)

Education Trip to Kuala Lumpur on 18th and 19th April 2014

Group Photo of MGS and GeoSS Committee Members Taken During Welcome Dinner



A Symbolic Friendship Momento from MGS Chairman Handed Over to the President of GeoSS

On the 19th of April, GeoSS members visited the remedied slope project by Jabatan Kerja Raya (JKR) at Bukit Antarabangsa. Dr. Che Hassandi, the Director of JKR slope department presented the historical setting of the tragedy and explained the types of remedial works subsequently carried out on the slope. The delegation also stopped over at Highland Towers.

Photos Taken During Bukit Antarabangsa Site Visit

Photos Taken During Stopped Over at Highland Tower

Report from Geotechnical Society of Singapore (Continued)

Education Trip to Kuala Lumpur on 18th and 19th April 2014

Subsequently, GeoSS members visited the IKEA job site at Jalan Cochrane. The main contractor presented the challenges faced and techniques they used in construction on challenging limestone formation, including down-the-hole hammer technology for constructing bored piles.

Photos Taken During IKEA Site Visit

Ir. Yee Yew Weng
Secretary General, MGS

Report from Board-level Committees

AWAC – ISSMGE Awards

During his term as ISSMGE president, Prof Jean-Louis Briaud became aware that the ISSMGE offered limited recognition to its members in terms of awards when to compared to similar organisations. He subsequently created a committee to examine the frequency of awards offered by the ISSMGE to its members and investigate the frequency of awards per member offered by other similar professional societies. The membership of the ISSMGE at the time amounted to approximately 19000 members worldwide and the only awards offered by the ISSMGE were the following:

- Three ISSMGE Young Member Awards
- The Terzaghi Oration
- The Kevin Nash Gold Medal

This implies that only five awards were on offer to the 19000 ISSMGE members and only once every four years. (Awards are traditionally handed over at the ISSMGE's quadrennial conferences.) The award frequency amounted to only one award per 15200 members per year.

Data obtained from a several comparable professional societies were examined to determine their frequencies of awards per person per year. When compared to this data, it was clear that there existed considerable scope for the introduction of additional awards to recognise the achievements of ISSMGE members. Figure 1 below illustrates the number of awards per person per year as a function of the membership size of the organisations. Organisations for which data were collected are listed in Table 1.

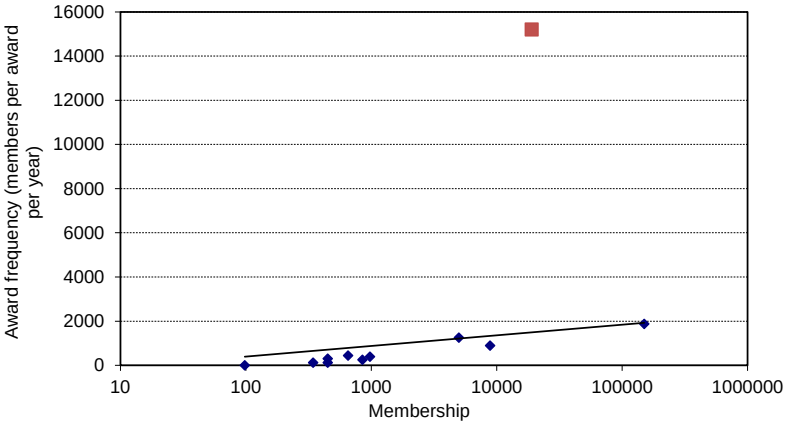


Figure 1 Award frequencies offered by various professional societies compared with the ISSMGE prior to 2013

Table 1 Award frequencies offered by several professional societies

Organisation	Membership	Members per award per year
ISSMGE (prior to 2013)	19000	15200
French Association of Civil Engineering	850	243
French Committee on Soil Mechanics	450	300
South African Institution of Civil Engineers (SAICE)	8855	886
SAICE Geotechnical Division	344	115
American Society of Civil Engineers	150000	1875
Brasilian Soil Mechanics and Geotechnical Engineering Association	978	391
Polish Committee on Geotechnics	450	113
Polish Association of Civil Engineering	5000	1250
Austrian Association of Geotechnics	98	1
German Association of Geotechnics	654	436

Report from Board-level Committees (Continued)

AWAC – ISSMGE Awards

To address the imbalance illustrated above and to better recognise the achievements of ISSMGE members, the following new awards were instituted:
Awards for:

- Outstanding Technical Committee
- Outstanding Geotechnical Project
- Outstanding Innovator
- Outstanding Member Society
- Outstanding Paper in the I.J.G.E. Case Histories
- Outstanding Public Relation Award
- Outstanding Young Geotechnical Engineer Award

The guidelines for nomination and the criteria used for the evaluation of nominations are summarised in a document which can be accessed from the ISSMGE website at http://www.issmge.org/en/awards. The introduction of the new awards significantly increased the award frequency from one award for every 15200 members per year to 6333. The new ratio of 1:6333 is a conservative number and is based on the assumption of only one person being awarded in each of the newly introduced categories. As several of the new awards are made to groups of individuals, the actual statistics become more favourable and comparable with the award frequencies offered by other professional societies.

The 18th International Conference on Soil Mechanics and Geotechnical Engineering held in Paris in September 2013 presented the first opportunity where the newly created awards were handed over. Calls for nominations were enthusiastically answered by the ISSMGE national member societies and many nominations were received as summarised below:

- Eight nominations for an Outstanding Technical Committee Award.
- Eight nominations for an Outstanding Geotechnical Project Award.
- Five nominations for an Outstanding Member Society Award.
- Three nominations for an Outstanding Innovator Award
- Ten nominations for Young Members Award (academic)
- Six nominations for Outstanding Young Geotechnical Engineer (non-academic)

The award for Outstanding Public Relations was introduced at a late stage and was the prerogative of the President. In the case of the award for outstanding papers in the Case Histories Journal, the Editorial Board members of this journal were requested to send nominations to the Secretary General. Two nominations were sent to the ISSMGE Board for a decision.

Report from Board-level Committees (Continued)

AWAC – ISSMGE Awards

The 2013 ISSMGE Award presentations are summarised below (Briaud, 2013):

The Kevin Nash Gold Medal:

The Kevin Nash Gold Medal is given every four years to a member of ISSMGE who has distinguished herself or himself through Service to the Society. The selection committee is made of all former Presidents of the Society who actually cannot receive that award. Professor Pedro Seco e Pinto as Past President organized a group comprising William van Impe, Kenji Ishihara, Mike Jamiolkowski, Norbert Morgenstern and Bengt Broms. This former presidents council selected as 2013 recipient Professor Heinz Brandl of Austria.

Prof Heinz Brandl

President Jean-Louis Briaud presented the following address:

"When I think of Heinz Brandl the first thing that comes to my mind is class and distinction. Professor Heinz Brandl has made a significant number of remarkable contributions to the advancement of our field; compaction, geosynthetics, geothermal energy are but a few examples. But the main reason why I believe he was selected is because he helped the ISSMGE and many member societies in Eastern Europe to develop, to become prominent, to set up regional conference, and to talk to each other at a time where political tension did exist between countries in this part of the world. So it gives me great pleasure to give the 2013 Kevin Nash Gold Medal to Professor Heinz Brandl. Congratulations."

The Terzaghi Oration:

The Terzaghi Oration is the highest honor that our society bestows on one of its members for her or his contributions to the advancement of our field. The selection is the sole decision of the President after consultation with the members.

The Terzaghi Orator at the Paris Conference was Dr Suzanne Lacasse. Born in Canada, she got degrees from the University of Ottawa, Ecole Polytechnique in Montreal and a PhD from the Massachusetts Institute of Technology. She then taught at MIT and headed the soil mechanics laboratory for several years. She moved to the Norwegian Geotechnical Institutes and became NGI Director in 1991. Dr Suzanne Lacasse was President of CGS, the Member Society in Canada, and is a Member of the National Academy of Engineering in the USA.

Dr Suzanne Lacasse

President Jean-Louis Briaud presented the following address:

"Suzanne Lacasse worked in three different countries Canada, USA, Norway and every time rose to the top of the geotechnical world. She truly exemplifies the very best we have in geotechnical engineering. Suzanne represents the ideal blend of academician and practitioner, the perfect mix of theories and experiments, a demonstrated devotion to her profession, and all this with a friendly and approachable attitude. In my opinion, the Terzaghi Oration is the Nobel Prize of geotechnical engineering. Please help me congratulate the ISSMGE 2013 Terzaghi Orator Suzanne Lacasse."

Report from Board-level Committees (Continued)

AWAC – ISSMGE Awards

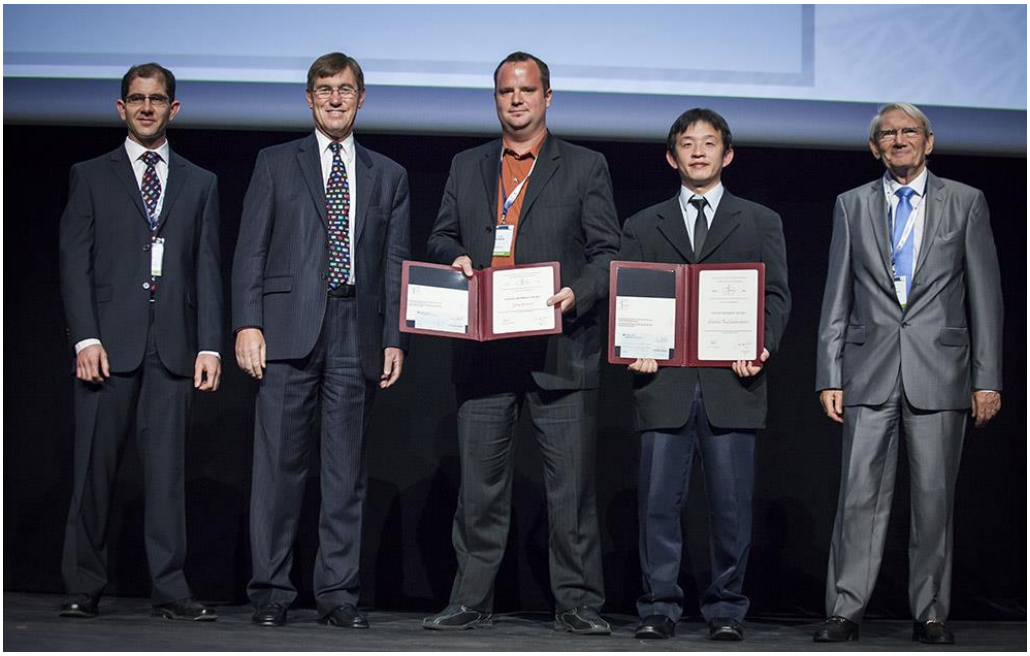
ISSMGE Young Member Award

The ISSMGE Young Member Award is presented to up to 3 young members who are less than 36 years old on 31 Dec 2013, and have made outstanding contributions to the development of geotechnical engineering through their scientific and technical work. The selection is made in part on the basis of a paper published in the proceedings of the quadrennial conference.

Two young geotechnical engineers were selected to receive this award. They are Dr Cholachat Rujikiatkamjorn (Thailand-Australia) and Dr Greg Siemens (Canada).

Dr Rujikiatkamjorn is from Thailand originally but obtained his PhD from the University of Wollongong in Australia in 2006. He received the Australian Geomechanics Society Thesis Award for his dissertation and later the 2012 Trollope Medal from the Australian Geomechanics Society. He has published extensively already and his work is in the area of soil improvement in general and wick drains for soft soils in particular. He is a Senior Lecturer at the University of Wollongong in Wollongong, Australia.

Dr Siemens received all his degrees including his PhD from the University of Manitoba in Canada. His work is actually quite varied but it always has a hydraulic or hydration component. He has been cited several times for the quality of his refereed journal contributions. While his home base duties are at the Royal Military College in Ontario he has adjunct appointments at the University of British Columbia, the University of Manitoba and Queen's University.



Dr Siemens (centre) and Dr Rujikiatkamjorn (right of centre) receiving the ***young members awards***

Report from Board-level Committees (Continued)

AWAC – ISSMGE Awards

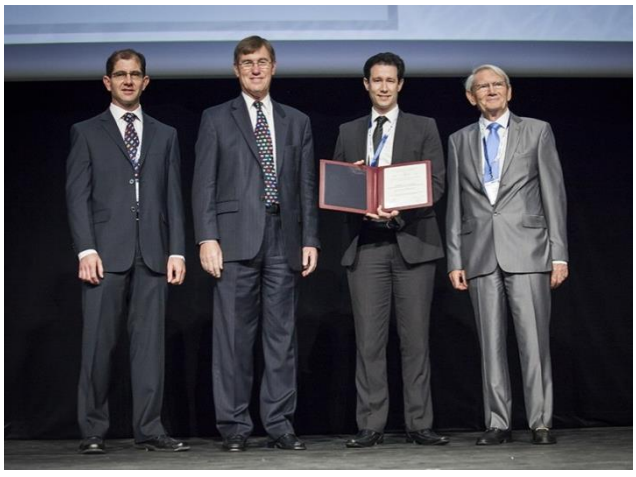
ISSMGE Outstanding Young Geotechnical Engineer Award

The ISSMGE Outstanding Young Geotechnical Engineer Award is given to a young individual or to a team of young individuals who have made outstanding contributions to the practice or research in geotechnical engineering through one or more research or industrial projects. "Young" is defined as less than 36 years of age on 31 December 2013.

The recipient of the 2013 ISSMGE Outstanding Young Geotechnical Engineer Award is Dr Guillermo Narsilio (Argentina-Australia). Dr Narsilio received his Bachelors degree from the University of Cordoba in Argentina and his PhD degree from Georgia Tech in the USA. He has already won a number of awards including the 2009 Jack Morgan Award from the Australian Geomechanics Society. He has published already significantly for his age and is a Senior Lecturer at the University of Melbourne in Australia.

ISSMGE Outstanding Member Society Award

This international recognition in Geo-Engineering is awarded to recognize the most outstanding ISSMGE Member Society and to reward young and smaller Member Societies who are active.
The recipient of the outstanding Member Society Award is the New Zealand Geotechnical Society. Mr Gavin Alexander from NZGS received the award on behalf of his member society. NZGS members regularly organize a number of conferences and workshops and seminars, they write guidelines and standards for their practitioners and they contribute to various ISSMGE technical committees. They are 597 members for a population of some 4.5 million, making it one of the highest ratios in ISSMGE.



Dr Narsilio (second from right) receiving the ***Outstanding Young Geotechnical Engineer Award***

Mr Alexander (second from right) receiving the award for ***Outstanding Member Society*** on behalf of the New Zealand Geotechnical Society

Report from Board-level Committees (Continued)

AWAC – ISSMGE Awards

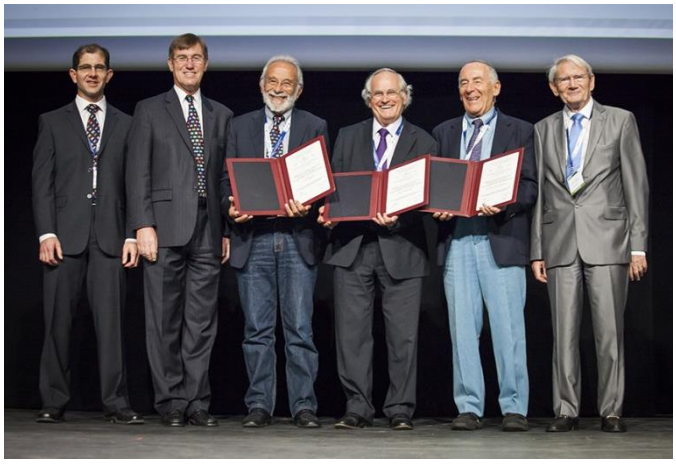
ISSMGE Outstanding Technical Committee Award

The ISSMGE Outstanding Technical Committee Award is given to an ISSMGE TC which has demonstrated excellence in disseminating knowledge, establishing guidelines, supporting conferences and interacting with other groups. There has been very tight competition for this award with ten nominations received. The recipient of the ISSMGE Outstanding Technical Committee Award is the TC on Risk and Reliability (Chaired by Prof K.K. Phoon). This committee truly excelled in each one of the award categories and was very active throughout the last 4 years. The host country is Singapore.

ISSMGE Outstanding Paper in the International Journal of Geo-Engineering Case Histories Award

The criterion for this award is the best paper in the on-line ISSMGE Case Histories Journal during the last four years. The recipients were Prof John Burland, Prof Mike Jamiolkowski and Prof Carlo Viggiani for their excellent paper on the Tower of Pisa.

Professor Gordon Fenton (second from right) receiving the award for ***Outstanding Technical Committee*** on behalf of the TC on risk and reliability



Prof Viggiani (third from left), Prof Burland (third from right) and Prof Jamiolkowski (second from right) receiving the award for ***best paper in the Journal of Case Histories***

Report from Board-level Committees (Continued)

AWAC – ISSMGE Awards

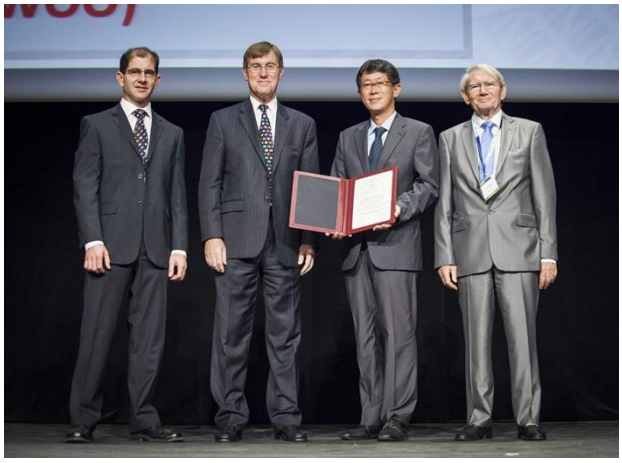
ISSMGE Outstanding Geotechnical Project Award

This international recognition in Geo-Engineering is awarded to a project that best illustrates superior geotechnical engineering skills and represents significant contributions to geotechnical engineering progress and society.

Projects from Australia, Hong Kong, Ireland, Kazhakstan, Korea, Tunisia and the USA were submitted and the competition was very stiff. The winner is the Korean project entitled "Busan-Geoje Fixed Link Immersed Tunnel". Mr Keunyoung Kim, Managing Director of Daewoo Engineering & Construction Co. Ltd was responsible for this huge project with connection to the Korean Geotechnical Society, chaired by Professor Yeon-Soo Jang. This impressive immersed tunnel, 3.3 km long, is part of a very large project connecting the city of Busan to the Island of Geoje. The soil was 20 m of very soft marine clay which had to be improved by different methods to minimize the differential settlement. The tunnel was completed in 2010.

ISSMGE Outstanding Public Relation Award

This international public relations recognition in Geo-Engineering is awarded to an individual or an organization who contributed outstandingly in promoting geotechnical engineering and showing its importance as a profession in life. The 2013 ISSMGE Outstanding Public Relation Award goes to Dr Marc Ballouz of Lebanon. Dr Ballouz got his Bachelor's degree in Lebanon and his Master and PhD degrees from Texas A&M University. He started his own geotechnical consulting and construction company in the mid 1990s and it has grown remarkably. He has also contributed in many ways to impact the image of geotechnical engineering worldwide through general magazine articles, YouTube videos, brochures, web site development, the time capsule, all this with his members of the Public Relations Committee.



Mr Sunghwan Choi, who is the representative of the Korean project team (second from right), receiving the award for ***outstanding geotechnical project***

Dr Ballouz (second from right) receiving the ***Outstanding Public Relations award***

Report from Board-level Committees (Continued)

AWAC – ISSMGE Awards

ISSMGE Outstanding Innovator Award

This international recognition is awarded to an individual ISSMGE member (researcher, consultant, contractor) for innovations that have had a pronounced impact on geo-engineering practice, research and education. The term "innovation" is used broadly to describe any major, unprecedented achievements that led to a significant advancement in our profession.

The 2013 ISSMGE Outstanding Innovator Award goes to Professor Dimitris Zekkos of Greece-USA. Dimitris Zekkos received his Bachelor degree in Greece and his PhD from the University of California at Berkeley. He worked with Geosyntech for several years and became a professor at the University of Michigan where his specialty is geoenvironmental engineering. As a student at Berkeley he started Geoengineer.org which has become the go-to site for getting information on geotechnical engineering. Then he started the International Journal of Geoengineering Case Histories and GeoWorld, a professional exchange network for all geotechnical engineers worldwide.

Dr Zekkos (second from right) receiving the award for Outstanding Innovator

Dr Esve Jacobsz
Secretary of AWAC

Report from Board-level Committees (Continued)

Young Member Presidential Group (YMPG)

Formerly named the Student and Young Member Presidential Group (SYMPG), the YMPG has been around since 2009, under the inception of Past-President Jean-Louis Briaud. With the aim of increasing the attractiveness of the ISSMGE for younger generations of geotechnical engineers, the YMPG works to develop and foster initiatives for Board consideration. Key accomplishments from the first term (2009-2013) include:

- Initiation of an unlimited Corresponding Members grade to ISSMGE Technical Committees to foster younger member involvement. If interested in becoming involved in a particular technical committee as a corresponding member, please contact your national society.
- Establishment of the "Outstanding Young Geotechnical Engineer Award" which was first presented at the 18th ICSMGE in Paris, France in September 2013. The award was established to recognize the contribution of young members to the profession and to the society.
- Development of the YMPG Geo-World webpage. Please visit our site to learn more.
- Student and Younger Member (S/YM) activities and events were included in the proposals for the 19th ICSMGE in 2017. Seoul, Korea won the bid and featured S/YM activities, so look forward to those!

A progress report detailing the work of the YMPG during their first term can be downloaded to learn more.

Membership

Consisting of a Chair, appointed for a 4-year term by the ISSMGE President, and 3 members from each region, nominated by the Regional Vice Presidents, the YMPG has 19 members total representing a broad global reach. Membership is restricted to ISSMGE members 35 years of age or younger at the time of appointment, and members serve 2-year terms, renewable for an additional 2 years depending on activity level and eligibility.

Amongst the members, elections were held for the Vice-Chair and Secretary to round out the YMPG Executive Leadership Team. As of 2013, the Executive Leadership Team includes:

Chair: Jennifer Nicks (USA)
Vice-Chair: Aleksandra Chepurnova (Russia)
Secretary: Juan Ayala (Chile)

Integral to the success of the YMPG is its membership. For 2013-2015, the YMPG membership includes:

Africa:
Sherif Adel Yahia Akl (Egypt)
Mohamed Elbyhagi Elfadil (Sudan)
Abdou Xaadir Gaye (Senegal)

Asia:
Ilhan Chang (Korea)
Janaka J. Kumara (Japan)
Lucy Wu (Hong Kong)

Australasia:
Martin Barrientos (New Zealand)
Ross Kristinof (Australia)
Darshan Leckraz (Australia)

Europe:
Aleksandra Chepurnova (Russia)
Sabatino Cuomo (Italy)
Felix Jacobs (Germany)

North America:
Julian McGreevy (Canada)
Mehdi Omidvar (USA)
Cassandra Rutherford (USA)

Report from Board-level Committees (Continued)

Young Member Presidential Group (YMPG)

South America: Juan Ayala (Chile)
Marcelo Heidemann (Brazil)
Marcos Montoro (Argentina)

Three ISSMGE Board Liaisons also sit on the YMPG membership, and include President Roger Frank, Fatma Baligh (Vice President for Africa), and Paul Mayne (Vice President for North America). Prior to her departure from the Board, appointed member Nicoleta Radelascu also participated as a liaison on the YMPG. Their involvement is integral to the YMPG to ensure the work will be applicable within the ISSMGE mission and procedures.

Initiatives

There are currently four task forces within the YMPG, established to focus on specific initiatives. Ranging from creating and maintaining a solid web-presence, to enhancing younger member networking opportunities, to developing motivation mechanisms, to communicating and marketing activities and events of interest to younger members, the YMPG really works not only for the Board, but for all ISSMGE members interested in advancing the profession and retaining bright young minds to help.

Communications & Marketing:
The Communications & Marketing (C&M) task force was created with the aim of developing mechanisms to reach out and inform students and younger members (S/YMs) of activities and events of interest, including the work of the YMPG. This group will be charged with developing content for the new Young Members' Arena of the ISSMGE Bulletin and establishing potential webinars focused on S/YM issues. If you have any ideas to help promote YM activities, please contact Marcos Montoro, the Chair of the C&M task force.

Membership:
The Membership task force is tasked with developing initiatives to increase the number of corresponding members (CMs) within the YMPG and promote participation amongst YMs. One of their first tasks is to look

Report from Board-level Committees (Continued)
Young Member Presidential Group (YMPG)

into avenues for free student membership across the globe for national societies and the ISSMGE. While some national societies already have free membership for students, others do not. Quantifying the benefit of free membership for students may help inspire societies or corporate sponsors to support students at this early stage in their career.

In addition, the task force is developing a first-contact mentor list for YMs interested in specific topics within geotechnical engineering. Young geotechnical engineers that have a first project in a specific geotechnical area or have to write a seminar paper about a new topic might have difficulties to start off. Contacting a professor or professional expert from that specific area directly is not always easy. The YM mentor list should help alleviate this problem while providing a means to network with fellow colleagues. YMPG members serve as the first-line, but other YMs with expertise will be encouraged to participate in the future as well. Once finalized, the mentor list will be posted to the ISSMGE website.

Along those same lines, a map of all CMs will be developed with various layers to identify location, technical skills, resumes, etc. for anyone interested in participating. This will allow easy visualization of YMs across the world that may have similar interests or just be very close to you. The intent is to highlight our younger members while providing avenues to disseminate information and promote networking.

If you have any suggestions related to existing or potential motivation mechanisms, please contact Julian McGreevy, the Chair of the Membership task force.

Motivation Mechanisms:
The Motivation Mechanisms (MM) task force is responsible for developing motivation mechanisms to encourage students and younger member involvement in the ISSMGE. Members from this group will work with the organizers of the 19th ICSMGE in 2017 in Seoul, Korea to ensure S/YM activities and events are planned. This will help increase participation and serve as a means for younger members to better network at the conference.

In addition, the MM task force is working with the ISSMGE's Awards Committee and the YMPG's C&M task force to refine the awards specifically for younger members and help develop content for the new Young Members' Arena of the ISSMGE Bulletin, respectively. If you have any suggestions related to existing or potential motivation mechanisms, please contact Mehdi Omidvar, the Chair of the MM task force.

Website Task Force:
As the name suggests, the Website task force is charged with updating and maintaining the web-presence of the YMPG. The primary objectives are to:

- Provide a source for up-to-date information related to activities and events of interest to S/YM;
- Prepare an archive of SYMPG/YMPG work products;
- Develop a platform for members and interested parties to suggest content, help edit web pages, and a mechanism for review before officially publishing onto the ISSMGE pages.

There are three locations for S/YM content: (1) ISSMGE Younger Members webpage, (2) YMPG Board Level Committee webpage, and (3) the YMPG page on Geo-World. While the task force has already incorporated some information on these sites, much more is planned. Before making any content live, the task force has a test website to ensure any changes will be useful and relevant to YMs. Keep a look out for future changes to the websites! If you have any suggestions related to website content, please contact Lucy Wu, the Chair of the Website task force.

Report from Board-level Committees (Continued)

Young Member Presidential Group (YMPG)

Working Structure

The YMPG operates as a Board Level Committee (BLC) within the ISSMGE. Because of the overlap of younger member interests in all aspects of the ISSMGE operation, liaisons to all other BLCs within the ISSMGE were established. The role of YMPG liaisons will be to communicate between the committees and ensure younger member interests are considered and pursued. The YMPG liaisons to each BLC are:

BLC	YMPG Liaison
Innovation and Development Committee	Lucy Wu
Technical Oversight Committee	Jennifer Nicks
Professional Image Committee	Janaka Kumara
Corporate Associates Presidential Group	Julian McGreevy
Awards Committee	Cassie Rutherford

How to get involved!

While formal YMPG membership is limited to three members from each region, there are an unlimited number of Corresponding Members (CMs). As of July 2014, the YMPG has 109 CMs!

As a CM, you will receive e-mails about the work of the YMPG, learn about student and young member (YM) events around the world, and have opportunities to get involved! In addition, YMPG initiatives and task forces are determined based on the feedback from our CMs, so don't miss your chance to have a voice in the ISSMGE! Participation is not limited only to YMs; anyone in the geotechnical community interested in the activities of S/YM can join. CMs can opt out at any time, so there is no risk in your participation. Sign-up today or contact the YMPG Chair for more information!

Get to know your YMPG Members!

Who are the members of the YMPG? Besides being interested in advancing student and younger member interests, each member brings their own background and experiences. Want to learn more about each member? Check out the YMPG website!

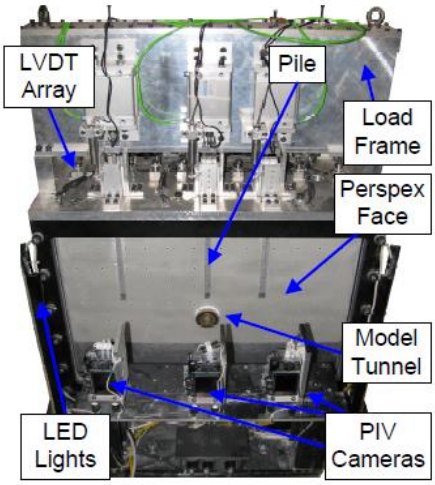
Jennifer E. Nicks
Chair of YMPG

Research Highlights

Cambridge University – *Professor Robert Mair*

Robert Mair is Head of Civil Engineering at Cambridge, and although geotechnical engineering remains his primary interest, he leads research at Cambridge involved with developing new technologies for streamlining construction and for condition assessment and monitoring of ageing infrastructure. The research focuses on the development of innovative fibre optic technology, wireless sensor networks, and MEMS (Micro-Electrical-Mechanical Systems) technologies. Collaborating closely with Professor Kenichi Soga and Dr Mohammed Elshafie, he is Principal Investigator for the recently awarded Innovation and Knowledge Centre on Smart Infrastructure and Construction, funded by EPSRC/TSB and industry to a total value of £17m. CSIC is developing new sensor technologies that will allow the condition of civil engineering infrastructure to be monitored in unprecedented detail. Considerable savings are possible if the performance of new infrastructure, both during and after construction, can be monitored, analysed and interpreted. Further details can be found on CSIC's website http://www-smartinfrastructure.eng.cam.ac.uk/.

Cambridge CSIC researchers taking measurements of soil-structure interaction in newly constructed Crossrail tunnel in London using fibre optics



Centrifuge modelling of tunnel/pile interaction in stiff clays

He also leads research activities in connection with underground construction for urban transport tunnels, soft ground tunnelling being a major research interest. Recent research areas include the influence of tunnelling on pipes and other tunnels, excavation-induced ground movements, forepoling and face reinforcement in tunnelling, and effects of deep excavations and tunnel construction on pile foundations. A recently completed PhD by Michael Williamson, sponsored by EPSRC and Arup, focused on tunnelling effects on bored piles (centrifuge model tests and analysis of field measurements on the London Crossrail project). A PhD student, Njemile Faustin, sponsored by EPSRC and GCG concerns the design and construction of shafts, the subject of a major research project in collaboration with Crossrail, which is currently the largest construction project in Europe.

The Civil Engineering Division has recently been successful in its bid for a new Centre for Doctoral Training in Future Infrastructure and the Built Environment. This will provide 50 PhD students over the next 5 years fully funded by EPSRC to a value of around £5m; the bid was in collaboration with 18 major Industry Partners in the construction industry. Many of these PhDs will be in geotechnical engineering.

Research Highlights (Continued)

Cambridge University – *Professor Malcolm Bolton*

Malcolm Bolton retired from Cambridge University in December 2013, but he remains active in giving lectures, writing papers, conducting industry courses, and as a geotechnical consultant.

His mission remains to elucidate the behaviour of granular materials, to characterise the performance of geo-structural systems, and thereby to extract and promulgate practical design procedures. One avenue is through running occasional short courses at a variety of venues. He is also contributing to the Masters in Research course created to serve the new Centre for Doctoral Training in Future Infrastructure and the Built Environment that has been established in the Engineering Department at Cambridge.

The Mobilizable Strength Design (MSD) method, developed over the last 30 years by Malcolm Bolton and his research students and colleagues, continues to evolve into a repertoire of techniques for the practical prediction of ground movements, and thereby the achievement of deformation control in geo-structural systems. Look for the latest papers published with his recently graduated PhD research students Paul Vardanega (characterizing clay stress-strain behaviour), Sidney Lam (braced excavations in clay), Brendan McMahon (spread foundations on clay), and Yuchen Li (excavations in sand).

Find details on http://www-geo.eng.cam.ac.uk/directory/mdb8@cam.ac.uk.

These developments encourage him to continue pushing the agenda of Performance-Based Design in Geotechnical Engineering put forward in his 52nd Rankine Lecture, and which should be available to read in Geotechnique next year. He is now contributing to the work of ISSMGE TC205 Safety and Serviceability in Geotechnical Design (http://www.geotech.group.shef.ac.uk/tc205/) and hopes also to be of assistance to CEN through their TC250/SC7 concerned with the Eurocode 7 evolution process, especially by proposing practical rules for the assurance of serviceability.

Professor Bolton remains the Chairman of the International Press-in Association (http://www.press-in.org/) which was established in 2006 following the successful long-term collaboration, still active today, between Cambridge University and the Giken company of Japan. Giken have been advancing eco-friendly “silent piling” technology for 50 years. Their latest press-in machines enable contiguous large diameter steel tubular piles to be inserted into the ground using servo-hydraulic machines that can apply axial jacking in association with twisting. Sacrificial cutting teeth enable the piles to core through existing ground of any hardness, including old concrete foundations, ultimately forming a watertight composite “implant structure”. The recent IPA Symposium held in Kochi, Japan, in July 2014 was attended by an audience of 700, and focussed on the challenge of providing coastal protection in the context of a mega-earthquake offshore generating a tsunami. The East Japan Great Earthquake of 11 March 2011, with the destruction and terrible death toll inflicted by its mega-tsunami, stands as a warning to South Japan which is expected to have to face the consequences of a similar subduction event along the Nankai Trough sometime in the next 30 years. A combination of measures, including pressed-in wave-resistant sea defences already under construction, has been approved under a Japan Government 10-year plan aimed at reducing the possible 300,000 casualties by 90%. The 5th IPA International Workshop will take place in Ho Chi Minh City, Vietnam, in December 2014: http://www.press-in.org/events/workshop05/outline/en.

Research Highlights (Continued)

Cambridge University – *Professor Kenichi Soga*

Kenichi Soga is Professor of Civil Engineering and the Head of the Geotechnical and Environmental Research Group, which hosts more than 60 PhD students at present (www-geo.eng.cam.ac.uk). He is the Secretary of the Technical Oversight Committee of ISSMGE. At Cambridge, he is an executive member of the Cambridge Centre for Smart Infrastructure Construction (CSIC, www-smartinfrastructure.eng.cam.ac.uk) and a Deputy-director of the EPSRC Centre for Doctoral Training in Sensor Technologies and Applications (Cambridgesens, cdt.sensors.cam.ac.uk). Working together with his research associates, he leads a research team of more than 20 PhD students working in the various areas of geotechnical engineering.

Kenichi has strong research interest in fundamental soil behaviour and its application to geotechnical engineering problems. He was the Chair of the recently successful International Symposium on Geomechanics from Micro to Macro (IS-Cambridge 2014, is-cambridge.eng.cam.ac.uk), as part of ISSMGE TC105's activities. The recent research work of his research team members includes (i) modelling the plastic to liquid state transition of sensitive clays using the Critical State Soil Mechanics and its application to submarine landslide run-out simulations using the Material Point Method (MPM) (Takaaki Kobayashi), (ii) finding the micro-macro relationship of granular particles-pore fluid interaction using a coupled DEM-Lattice Boltzmann Method (LEM) code and its application to understand the hydro-mechanical processes occurring in submarine landslides (Krishna Kumar), (iii) understanding the mechanism of seepage-induced large deformation failure of embankments using a coupled soil deformation and fluid MPM code (Samila Banda), (iv) constitutive modelling of unsaturated sand and its application to large deformation soil-pipeline interaction and landslide problems (James Fern), (v) simulating hydraulic fracture process in heterogeneous geological media using a fluid coupled Lattice Element Method (LEM) code (John Wong) and (v) investigating the process of Microbial Induced Calcite Precipitation for soil improvement (Osama Dawoud, Ningjun Jiang). Many of the computational codes used for the research (MPM, DEM-LBM, LEM, THM-FEM) are in-house developed; GPU implementation is one of the recent initiatives in the group to perform large scale simulations.

Kenichi is the Vice-Chair of the newly established TC308 on Energy Geotechnics. His research projects in the deep-sea energy sector include (i) methane gas production from hydrate bearing sediments (Carter Zhou, Hao Luo), (ii) wellbore integrity considering the construction process of oil/gas producing wells (Ermao Xu), (iii) wellbore cementing (Shyamini Kularathna), and (iv) sand production and its mitigation (Ningjun Jiang). There are also research activities in the area of geothermal energy, which include (i) assessment of the thermo-hydro-mechanical (THM) interaction in energy piles and walls (Rui Yi, He Qi), (ii) evaluation of city- and district-scale implementation of ground source heat pump systems (Yi Zhang) and (iii) thermo-hydro modelling of a deep geothermal reservoir for low grade heat recovery (Xiaoyu Lu).

His recent research projects in underground structures are associated with engineering performance assessment (short-and long-terms, nearby construction effects, etc) of cast-iron tunnels (Zili Li, Matthew Wilcock), concrete segmental lining tunnels (Matthew Wilcock), sprayed concrete lined tunnels (Masanari Nakashima) and deep large diameter circular shafts (Tina Schwamb). These research projects aim to understand the real performance of large scale underground structures by actual field measurements coupled with detailed numerical modelling using advanced soil constitutive models. These students and his CSIC research associates (Drs Loizos Pelecanos, Xiaomin Xu, Michael Williamson and Sinan Acikgoz) have been engaging in many field monitoring projects, which demonstrate the applicability of innovative sensor technologies such as fibre optics, microelectromechanical systems (MEMS) and wireless sensor network. They are developing methodologies to evaluate the actual performance of geotechnical structures from various monitoring tools. Kenichi's team in CSIC also develops new innovative sensor systems for infrastructure monitoring. Along with his research associates (Drs Jize Yan, Cedric Kechavarzi, David Rodenas Herráiz, Sarfraz Nawaz, Simon Hartley, Ankur Handa and Yunfei Gu), he leads several sensor projects that include PhD projects on (i) a low cost fibre optics distributed strain measurement system (Yifei Yu, Ying Mei, Bo Li and Linqing Luo), (ii) wireless sensor systems (Heba Bevan, Tao Feng) and (iii) a computer vision system coupled with a dashboard tool that aids engineering interpretation (Mehdi Alhadadd). Further details of the developments in this area can be found from www-smartinfrastructure.eng.cam.ac.uk.

Research Highlights (Continued)

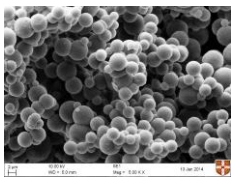
Cambridge University – *Professor Abir Al-Tabbaa*

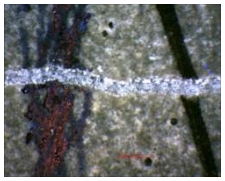
Abir Al-Tabbaa is Professor of Civil & Environmental Engineering and a Director of the newly established Centre for Doctoral Training in Future Infrastructure and Built Environment. She leads a large research group currently working on a range of topics including soil mix technology (SMT), ground improvement, land remediation and low carbon and self-healing materials. She led the largest research field trials in the UK using SMT at a contaminated site in Yorkshire as part of the £1.24M project SMiRT (Soil Mix Remediation Technology). Different SMT equipment, installation methodologies and binders were used to implement a number of ground improvement and remediation strategies followed by in-situ testing, monitoring and coring over the last 3 years. Current PhD students are focusing on the performance of different elements: Ziyad Abunada on the permeable reactive barriers and developing monitoring sensors; David O'Connor on the reactive low permeability walls and their self-healing capabilities; Tiffany Wang on the time performance of the stabilised/solidified ground and Zhengtao Shen on the impact of biochar on contamination and soil carbon.

Another area of current research is the development of low carbon and resilient materials for civil & environmental applications including cements and binders, sorbents and CO_2 storage materials. A particular focus is on magnesium oxide (MgO) boosted with recent international funding of >£1M. Current PhD students include Fei Jin on characterisation and performance of MgO in clinkerless binder systems; Yuk Lau on the use of MgO as expansive additive for concrete shrinkage reduction; Adel Abdollahzadeh on novel cements for pervious concrete, Ahmed Abdalqader on MgO in alkali activated cements; Geane Freitas on MgO application in nuclear waste encapsulation, Funmi Alayaki on novel binders in the ground improvement of Niger Delta soils for road construction; Rui Hao on the sustainable production of MgO from reject brine and low grade magnesite and Mingzhi Wang on the numerical modelling of the carbonation of porous MgO systems.

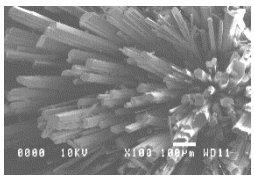
Abir leads the geotechnical research in the recent nature-inspired multi-institutional £3.1M EPSRC funded project Materials for Life (M4L) developing self-healing cementitious materials for structural and geotechnical applications for enhanced durability and sustainability. Different scale self-healing components, namely microencapsulation, bacterial healing, shape memory polymers and vascular networks, will be embedded in cement, concrete, soil and soil-grout systems and will culminate in a field application in collaboration with industry. The researchers include Dr Antonis Kanellopoulos and PhD studies with particular focus: Chrysoula Litina on self-healing grout with microcapsules; Tanvir Qureshi on self-healing concrete with mineral additives; Petros Giannaros on the performance of self-healing concrete; Livia Souza on the production of self-healing microcapsules using microfluidics and Rami Alghamri on the self-healing with pelletisation of mineral admixtures.

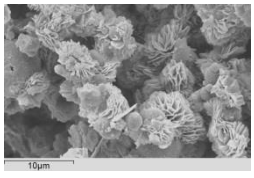
Project SMiRT field trials





Self-healing capsules and healed cement





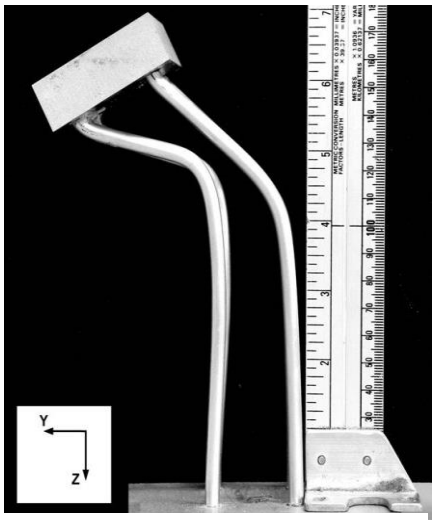
Microstructure of novel cements

Research Highlights (Continued)

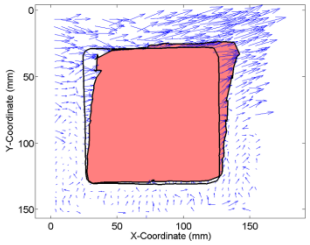
Cambridge University – *Professor Gopal Madabhushi*

Gopal Madabhushi is a Professor of Civil Engineering at the University of Cambridge and the Director of the Schofield Centre. He has over 25 years of experience in the area of Soil Dynamics and Earthquake Engineering. His expertise extends from dynamic centrifuge modelling to the time domain finite element analyses of earthquake engineering problems. Gopal is a leading expert in the areas of soil liquefaction, soil-structure interaction and liquefaction resistant measures and their performances. He has an active interest in the biomechanics of hip replacement surgeries. He has acted as an expert consultant to the industry on many geotechnical and earthquake engineering problems e.g. Mott MacDonald, Royal Haskonig and Ramboll-Whitby, UK. He has an active interest in post-earthquake reconnaissance work and has led engineering teams from UK to 921 Ji-Ji earthquake of 1999 in Taiwan, the Bhuj earthquake of 2001 in India and many other missions. He served as the Chairman of Earthquake Engineering Field Investigation Team (EEFIT) that runs under the auspicious of Institution of Structural Engineers, London. He has supervised over 20 PhD students and numerous MPhil and MEng students. He was awarded the TK Hsieh award in 2005, 2010 and 2013 by the Institution of Civil Engineers, UK, the BGA medal in 2010 given by British Geotechnical Association, the Shamsher Prakash Research Award in 2006, Medical Innovations Award in 2007 the IGS-AIMIL Biennial award in 2008 and the Bill Curtin Medal in October 2009 by the Institution of Civil Engineers, UK, for his contributions in the area of Soil Dynamics, Tsunami's and Earthquake Engineering. He has 105 Journal Publications and 240+ papers in International conferences and workshops to date. He has authored a very successful book on the *Design of Pile Foundations in Liquefiable Soils* (Imperial College Press) and Geotechnical Chapters in the book on *Designing to Eurocode 8* (Taylor & Francis). His new book on *Centrifuge Modelling for Civil Engineers* has recently been published by Spon Press/Taylor and Francis publishing group.

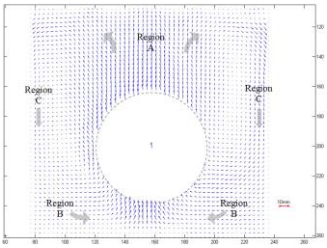
New Servo-Hydraulic Earthquake Actuator, Madabhushi et al (2012), IJPMG



Buckling of piles in liquefied soils, Knappett & Madabhushi (2009), Geotechnique



PIV analysis showing deformations of a shallow, square tunnel under earthquake loading, Cilingir & Madabhushi, (2011), Soils & Foundations



PIV analysis showing floatation of tunnel in liquefied soil, Chian & Madabhushi, (2012), SDEE

Gopal has developed new equipment to help centrifuge testing. One example of this is the servo-hydraulic earthquake actuator seen above. Using dynamic centrifuge testing, new and interesting failure mechanisms have been identified for a wide variety of problems following earthquake induced liquefaction. In the area of pile foundations in laterally spreading soils, it led to identification of buckling of piles as a failure mechanism as seen above and culminating in the publication of his book on design of pile foundations. More recently PIV analyses were used for earthquake problems to investigate seismic behaviour of tunnels in dry and saturated soils. Tunnel and soil deformation for both these cases can be seen in figures above.

Research Highlights (Continued)

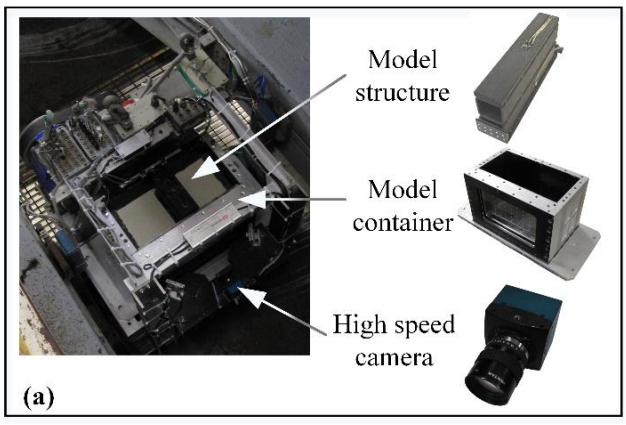
Cambridge University – *Dr Stuart Haigh*

Stuart Haigh is a Senior Lecturer in Geotechnical Engineering and Assistant Director of the Schofield Centre for Geotechnical Process and Construction Modelling. The major focus of his work is on the use of centrifuge modelling to investigate the behaviour of geotechnical systems under both dynamic and static loading. Together with Gopal Madabhushi he was co-Investigator on the recently completed European Union FP7 project SERIES on "Seismic Engineering Research Infrastructures for European Synergies", as part of which Cambridge University carried out research on seismic isolation of shallow foundations by allowing them to rock. The project also funded the use of the Cambridge Centrifuge by a wide number of European partners as part of a trans-national access programme.

Stuart's interests in soil dynamics during earthquakes has also widened into other areas of dynamic and cyclic loading. This has led to the investigation of many problems in offshore geotechnics, including ongoing research projects on the impact of long-term cyclic loading on monopole foundations for wind turbines. As wind-turbine design is dominated by system dynamics in order to avoid resonance, softening or stiffening of the foundation with prolonged cyclic loading can lead to failure. This has been investigated as part of an EPSRC funded project with the collaboration of Dong Energy, RES, KW Ltd and McAlpine, using numerical and centrifuge modelling to look at long-term cyclic behaviour.

Stuart also has interests in the fundamental mechanics of soils, having recently been involved with Dr Paul Vardanega, (Bristol University), in an extensive investigation of the Atterberg limits of soils. Whilst provoked by our teaching interests in basic geomechanics, this research has led to new insights into the physics behind these tests which are fundamental to much of Geotechnical Engineering practice.

Installation of monopole foundations for the London Array



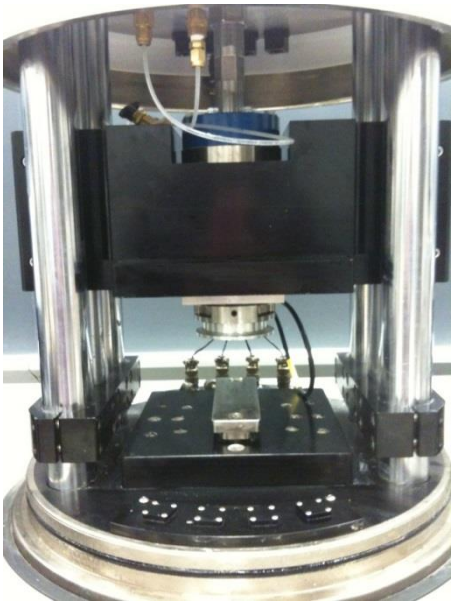
Centrifuge modelling of rocking foundations (Heron, 2014)

Research Highlights (Continued)

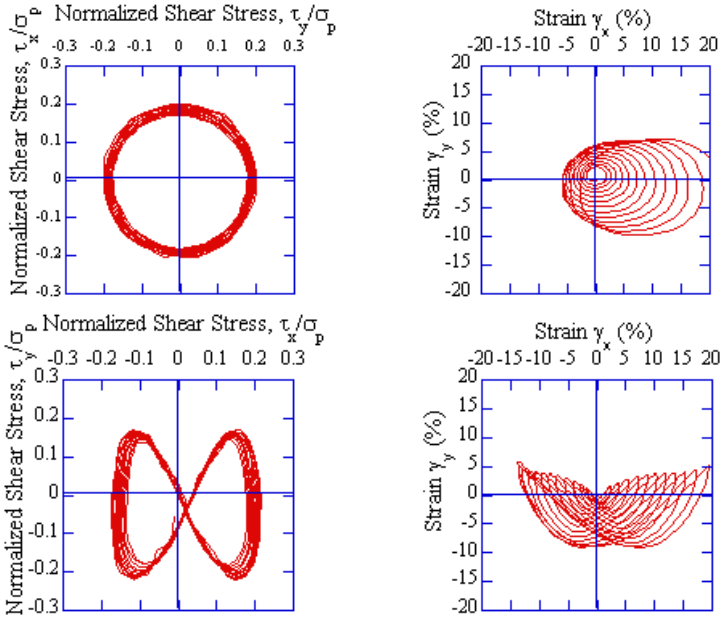
Cambridge University – *Dr Giovanna Biscontin*

Dr Biscontin joined the Geotechnical Group at the University of Cambridge in 2013, after several years as an academic in the United States. Her work focuses on characterizing and modelling the response of soils, especially when subjected to cyclic loading, such as earthquakes. Her interests are also related to offshore deposits and soft marine clays in particular. She was awarded the CAREER Award from the US National Science Foundation in 2004 on "Characterizing and Modelling of Marine Clays for Submarine Slope Stability". Her experimental research is related primarily to simple shear testing and especially the effects of anisotropy and multi-directional loading. With the help of her students, she developed a new three-dimensional simple shear apparatus, which is able to apply any load or displacement path in the horizontal plane. The device is also provided with a chamber, which allows saturation of specimens and measurement of excess pore pressures directly. The results from the experimental program are leading into constitutive and numerical modelling of soil response for the study of the seismic triggering of submarine landslides to evaluate the effect of gentle slopes on the response to shaking. More recently, she has extended her research into discrete element modelling as a way to gain insight on granular material response to multi-directional cyclic loading.

Thanks to the Centre for Smart Infrastructure and Construction at Cambridge, she now has access to large sets of monitoring data from excavations. Working in collaboration with Professor Kenichi Soga, she is using probabilistic methods to assess soil properties from measurements of deformations. She is currently also heading a project on design of foundations for offshore wind towers, sponsored by the National Science Foundation, in collaboration with Dr Charles Aubeny at Texas A&M University.



View of the cell of the multi-directional simple shear (Rutherford. 2012)



Examples of multi-directional simple shear tests on Gulf of Mexico Clay device (Rutherford, 2012)

Research Highlights (Continued)

Cambridge University – *Dr Mohammed Elshafie*

Mohammed is the Laing O'Rourke Lecturer in Construction Engineering and Technology and a member of the Geotechnical Research Group at Cambridge. Dr Elshafie's research covers both large scale underground infrastrcuture assets and small-scale centrifuge modelling of underground construction activities and focuses on understanding the performance of newly built underground structures, segmental and sprayed concrete tunnel linings, piles and diaphragm walls, during and after construction. The research also focuses on the performance of existing underground structures when subjected to ground movements assocaited with adjacent underground construction activities. Mohammed currently leads the Fibre Optic Sensing Group which has been applying fibre optic sensing in a large number of applications (more than 40 field deployments) including piles, diaphragm walls, tunnels, slopes, etc… over the last 8 years. As a result, the Group has accumulated extensive expertise in the deployment of these FO sensors and the interpretation of the data they generate. Mohammed collaborates closely with Professor Robert Mair and Professor Kenichi Soga and he is co-Investigator on the Centre on Smart Infrastructure and Construction.

Instrumenting a new SCL tunnels with fibre optics

Understanding the performance of existing tunnels

Recent research projects include:

(1) ***The influence of tunnelling on existing cast iron tunnels***: This project investigates the performance of existing tunnels when subjected to ground movements resulting from the construction of a new tunnel underneath. The project, funded by Laing O'Rourke, Crossrail and the CSIC, uses a combination of centrifuge modeling and field data to study the existing tunnel response in detail. (PhD student: Chang Ye Gue)

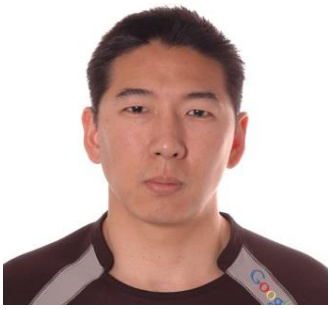
(2) ***Understanding the performance of concrete segmental tunnel linings***: This project uses field case studies employing fibre optic sensing in Crossrail's tunnel segments at Plumstead site in combination with detailed numerical modelling to investigate the problem in more detail. This project is funded by Crossrail, Hochtief, CH2MHILL, and CSIC. (PhD student: Saleta Gil Lorenzo)

(3) ***Evaluating pile integrity and pile mechanical performance using fibre optic sensing***: This project studies the use of distributed fibre optic sensors to monitor the quality and structural performance of bored reinforced concrete piles using strain and temperature metrics. The objective is to combine thermal profiles generated during curing to strain measurements in load tests. This could provide a complete picture of pile integrity and performance using one sensor system rather than the multiple systems currently applied. This project is funded by Arup and the CSIC. (PhD student: Musa Chunge)

(4) ***The behaviour of geosynthetic-reinforced soils when subjected to subsidence***: The study will be conducted by studying the behaviour of scaled models in the geotechnical centrifuge and looking at the arching effect in soils when subterranean voids occur, as well as the soil deformation at the surface. The use of geosynthetic-reinforced soils and impact on the degree of arching and soil deformation will be investigated. (PhD student: Talia da Silva)

Research Highlights (Continued)

Cambridge University – *Dr Matthem Kuo*



Matthew's research interests lie in the interaction of structures with natural sediments. He is interested in the large-strain behaviour of offshore foundation distribution systems, particularly the axial movement of hot-oil pipelines and installation behaviour of suction caissons. The interface material used to coat these structures may exhibit a range of roughness values, which control the micromechanical shearing behaviour and hence, the resulting interface friction value (μ). For pipelines, μ will influence the generation of axial resistance to sliding. For suction caisson installation, μ will dictate the resistance to caisson penetration. The μ value is strongly linked to the microstructure of natural offshore sediments, particularly where relatively low overburden stresses are present. Under operational conditions, hot-oil pipelines may impart only between 2kPa and 8kPa axial stress on the seabed sediments. It is therefore of great importance to understand 1) the existing sediment microstructure, 2) the possible changes in microstructure during the lifetime of the pipeline, and 3) the evolution of at representative stress levels.

To achieve these research goals, Matthew utilises specialised imaging techniques and advanced laboratory testing methods and equipment. He uses a novel torsional interface shear testing device that he designed and commissioned with Professor Malcolm Bolton to test interfaces of varying roughnesses against remoulded, reconsolidated and natural offshore soil samples. Deep-water soils from the West coast of Africa exhibit high undrained shear strengths within the top 2m, often referred to as a 'crust'. Matthew's research has focused on understanding the origin and behaviour of these sediments. His interface shear testing of natural soil samples have highlighted the propensity for unexpected shear behaviour. He observed that when testing natural soil samples, rough pipeline interfaces may at times, generate lower interface friction values than smooth interfaces under the same axial stress conditions and shear rates. This unintuitive observation led to an investigation into the microstructure of natural soil samples.

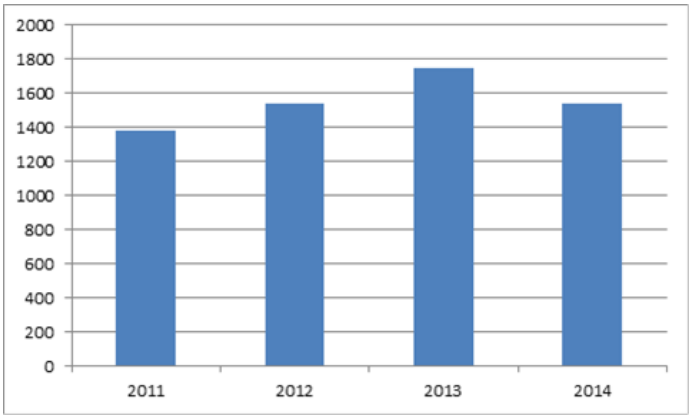
Matthew developed a new technique of wet sieving natural offshore sediments to improve particle size distribution characterisation of samples and in doing so, discovered that natural seabed sediments from offshore Angola and the Gulf of Guinea contain between 20% and 70% faecal pellets derived from burrowing invertebrates. These pellets are significantly stronger than the surrounding normally-consolidated silty clay, and the crust-like shear strengths are attributed to their presence. Though robust in compression, Matthew has discovered that during shearing against rough interfaces, these pellets are crushed and destroyed. When sheared against smooth interfaces, pellets remain intact. The complicated micromechanical process of shearing on rough interfaces involves crushing, generation of pellet fragments and agglomerates and is likely to generate positive excess pore pressures. These factors are likely to contribute to the unexpected shearing behaviour of rough/smooth interfaces. Research into this phenomenon is continuing, with a focus on imaging the shearing process at the interface to quantify the micromechanical shearing process. Other research themes of interest are the disturbance of seabed structure during pipe-laying, influence of bacterial extracellular polysaccharides on interface friction and the microstructure and behaviour of salt bridges between silica grains and structural interfaces.

Matthew's research highlights the complicated nature of soil-structure interface in offshore locations, and demonstrates the importance of a multidisciplinary approach to geomechanics in this area. The influence of burrowing invertebrate pellets is only one small factor to consider in developing a holistic, multidisciplinary approach to the safe and economical design of offshore foundations and distribution systems.

Regional Report from Australasia

Membership

The AGS retains strong membership. As at the date of this report, the total membership of the society was 1537. This is a slight decrease on 2013, probably reflective of tight market conditions in Australia at the current time. Our membership numbers over time are plotted in the below chart.



Current breakdown:

- Full Member - 1253
- Student Membership – 143
- Postgrad Student – 143
- Retired – 25

A key focus in 2014 is increasing membership and raising awareness of the AGS. We will focus on:

- Member benefits, members only website page, seminars, training.
- Promotion in universities.
- Maintain professional image.
- Cooperation with other societies.

Members can now sign up to the AGS through an online membership portal administered by Engineers Australia.

Awards and Prizes

The AGS is pleased to announce that the winner of the 2013 E.H. Davis Memorial Lecture is Professor Malek Bouazza of Monash University. Professor Bouazza is recognised nationally and internationally as a leading expert in gas flow in soils, geosynthetics and their application in geotechnical and geoenvironmental engineering. His contributions to the science of geomechanics in these fields is documented in over 200 referred publications which he has authored or co-authored, as well as numerous invited and keynote lectures at academic institutions and local and international conferences. He is also active in organising and participating in seminars and workshops.

Conference Report

The 6th International Conference on Unsaturated Soils - UNSAT 2014, Sydney, Australia, 2-4 July 2014.

The best and brightest geotechnical engineering scholars and engineers visited Sydney during 2-4 July 2014 to take part in UNSAT 2014: the Sixth International Conference on Unsaturated Soils. The conference was held under the auspices of Technical Committee 106 on Unsaturated Soils of the International Society for Soil Mechanics and Geotechnical Engineering. The event was organised by Professor Nasser Khalili (Conference Chair), Dr Arman Khoshghalb (Secretary) and Associate Professor Adrian Russell (Secretary) of UNSW Australia. Emeritus Professor Somasundaram Valliappan was the Honorary Chair.

The event showcased the latest research on unsaturated soils from around the world on topics including unsaturated soil behavior, experimentation, modeling, case histories, multidisciplinary problems and emerging research areas.

Regional Report from Australasia (Continued)

The 266 conference delegates came from 32 countries and authored 247 papers presented at the conference. The papers are contained in a 2 volume peer reviewed proceedings entitled, "Unsaturated Soils: Research and Applications", published by CRC Press.

Professor Mary O'Kane, the New South Wales Chief Scientist and Engineer, delivered the opening address and highlighted the importance of unsaturated soil mechanics in the building of infrastructure in Australia and internationally to meet new challenges and increasing levels of urbanisation.

A highlight of the conference was the delivery of the first Blight Lecture by Professor Antonio Gens of UPC, Spain. This lecture, which acknowledges Professor Gens' sustained and outstanding contributions to unsaturated soil mechanics, is named after the late Professor Geoffrey E. Blight, a great engineer, pioneer and scholar, who passed away in 2013. Professor David Toll, Chair of TC106 and of Durham University, UK, presented Professor Gens with a certificate and medallion featuring an image of Professor Blight.

Other notable speakers included Professor Eduardo Alonso of UPC, Spain, Professor Ning Lu of the Colorado School of Mines, USA and Professor Daichao Sheng of the University of Newcastle, Australia, who each delivered plenary lectures.

Also, the first of a new series of awards offered by TC106 were presented at the conference. These included three International Awards for Best Journal Papers by Early Career Researchers (less than 40 years of age), for papers published between 2010 and 2014. The recipients were:

- In the category of Theory, Associate Professor David Masin of Charles University, Czech Republic, for the paper "Double structure hydromechanical coupling formalism and a model for unsaturated expansive clays" published in Engineering Geology, Volume 165, pp. 73-88, 2013.
- In the category of Experimentation, Dr Byeong-Su Kim for the paper "Application of suction stress for estimating unsaturated shear strength of soils using direct shear testing under low confining pressure" published in the Canadian Geotechnical Journal, Volume 47, pp. 955–970, 2010.
- In the category of Application, the award was to Associate Professor John McCartney of the University of Colorado at Boulder, USA, and Dr Majid Ghayoomi of the University of New Hampshire, USA for the paper "Empirical methodology to estimate seismically induced settlement of partially saturated sand" published in the Journal of Geotechnical and Geoenvironmental Engineering, Volume 139(3), pp. 1-10, 2013.

Finally, the International Innovation Award was presented to Associate Professor Adrian Russell of UNSW Australia for a body of work including physical modeling and analysis of the cone penetration and retaining wall-unsaturated soil interaction problems.

Photos from UNSAT 2014 can be downloaded from http://www.unsat2014.com/ until 30 September 2014.

Regional Report from Australasia (Continued)

Professor David Toll (L) of Durham University, UK, and Chair of TC106, presents the Blight Lecture medallion to Professor Antonio Gens (R)

Professor Mary O'Kane delivers the opening address

Dr Arman Khoshghalb (L, Secretary), Professor Nasser Khalili (C, Chair) and Emeritis Professor Somasundaram Valliappan (R, Honorary Chair) relax at the conference banquet

Associate Professors David Masin (L) and Adrian Russell (R, Secretary) at the conference banquet

Regional Report from Australasia (Continued)

Delegates enjoying a technical presentation. Award winner Associate Professor John McCartney is fourth from the right.

During the TC106 meeting at the end of the first day of the conference, Hong Kong was selected by TC members to host UNSAT2018 in the Hong Kong University of Science and Technology.

Darren Paul
National Chair
Australian Geomechanics Society

Major Project

1st runner up of the ISSMGE's Outstanding Geotechnical Project Award

Hong Kong Geotechnical Engineering Office

The 10-year Extended Landslip Preventive Measures Project in Hong Kong

Introduction

Hong Kong has a population of over 7 million. It has a small land area of about 1,100 km^2, about 60% of which comprises hilly terrain. The scarcity of flat land had led to dense urban development on hillsides in the past. At the time of rapid economic expansions in the 1960s to 1970s, the little statutory control in regulating slope formation works had led to a large stock of substandard and potentially unstable slopes in the territory. Coupled with high seasonal rainfall, there were frequent landslides claiming many lives. In particular, two disastrous landslides occurred on 18 June 1972 making it the darkest day in the history of landslides in Hong Kong. One of these landslides involved the collapse of a 40 m high road embankment in a resettlement estate, killing 71 people. The other occurred on a steep hillside in a residential area. The debris demolished a 13-storey building, killing 67 people.

Since its establishment in 1977, the Geotechnical Engineering Office (GEO) has developed and operated a comprehensive Slope Safety System to manage the acute landslide problem in Hong Kong. One of the key components of this System was the implementation of the Landslip Preventive Measures Programme (LPMP) from 1977 to 2010 to systematically study and retrofit old substandard man-made slopes.

The Project

The LPMP had undergone various stages of evolution to cope with the growing demand and expectation of the public for slope safety. In the period 2000-2010, the GEO launched a project entitled **"10-year Extended LPM Project"** under the LPMP. The Project targeted to upgrade 2,500 substandard slopes. These were selected from a pool of 60,000 slopes and the most deserving ones were selected by means of a risk-based priority ranking system. The locations of the slopes are shown in Figure 1. The total expenditure of the Project was about US$ 1200 million.

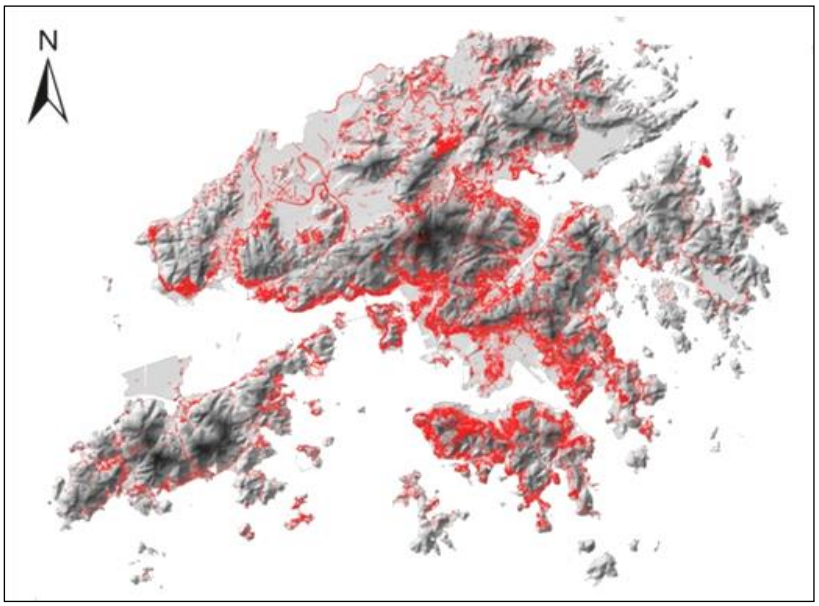


Figure 1. Location of Man-made Slopes in Hong Kong

Figure 2. Slopes Close to Existing Developments and Busy Roads

Major Project (Continued)

1st runner up of the ISSMGE's Outstanding Geotechnical Project Award
Hong Kong Geotechnical Engineering Office

Challenges of the Project

The Project involved upgrading a large number of slopes, the majority of which are located close to existing buildings and busy roads (Figure 2). There were over 150 active construction sites, scattered around the territory, at any one time throughout the project period. The scale and potential impact of the works called for close liaison with the stakeholders affected, effective project management, careful selection of design options, thorough planning of site logistics and good construction control. The increasing public expectation on aesthetically-pleasing slope appearance also posed a great challenge.

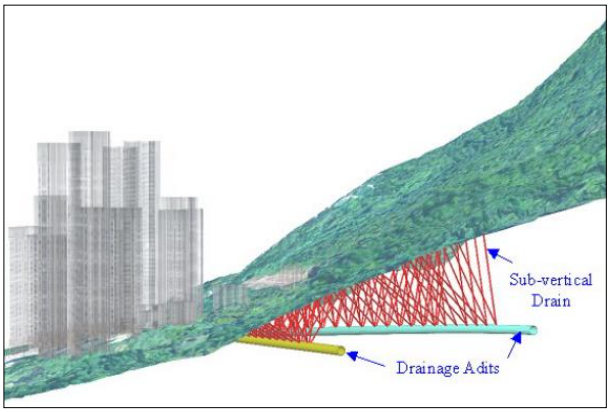
Application of Innovative Ideas and Technology

The challenges of the Project were overcome through innovative application of technology, engineering skills and practices in the project delivery, as illustrated by the following examples.

Pioneering design options

Up to the late 1980's, substandard soil cut slopes in Hong Kong were commonly treated by trimming back to a gentle angle. However, it was recognized that there were uncertainties inherent in a slope design such as the geological model, selection of slip surfaces, groundwater conditions and shear strength of the groundmass. With growing number of sites with space limitation and occurrence of several massive failures of some of these "trimmed-back" slopes, a pioneering approach was adopted in the Project by using soil nailing as the common engineering solution for improving the stability of cut slopes. The soil nailing technique is simple and versatile, rendering it adaptable to the physical constraints usually encountered in typical slope sites. In addition, because soil nails are usually installed at close spacing, they can reduce the vulnerability of the slope to undetected weak geological zones and unfavourable relict joints by binding the soil together to form an integral mass. That means soil-nailed cut slopes are more robust and reliable. More than 2,000 cut slopes were upgraded by soil nailing under the Project, and the track record has been excellent in that no major failures have occurred on the soil-nailed cut slopes so far. In order to improve the soil nailing technology, studies comprising field tests, site trials, laboratory tests, numerical modeling and physical modeling were conducted, which culminated in the publication of a technical standard on soil nailing works (GEO 2008).

For some large slopes exceeding 100 m in height, novel schemes such as hand-dug caissons and drainage tunnels had been adopted respectively in addition to the typical stabilization measures (Figures 3 and 4).



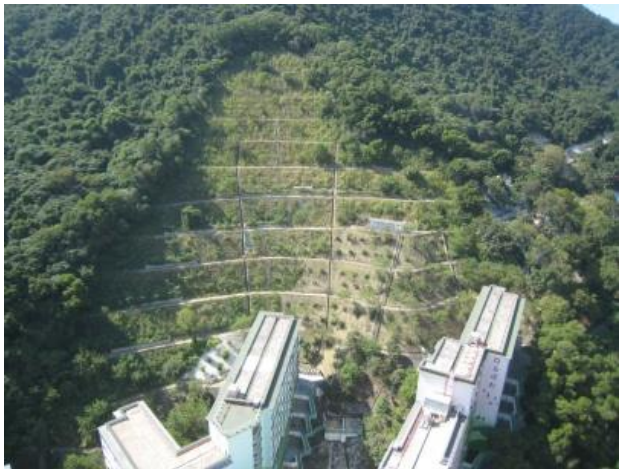


Figure 3. Hand-dug Caissons

Figure 4. Drainage Tunnels

Major Project (Continued)

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Hong Kong Geotechnical Engineering Office

Loose fill slopes were traditionally stabilized by removing and recompacting the upper few metres of loose material. The construction involved extensive earthworks and clearance of the vegetation on the slopes. To minimize the disturbance to the environment, various innovative stabilization methods had been developed and tried out, including grouting, installation of displacement piles, pit-by-pit fill replacement and installation of soil nails. The latter two design options have proved to be effective in enhancing the stability of fill slopes and involve relatively simple works for common site settings in Hong Kong, and they have now become a common practice. The use of soil nails and concrete grillage to stabilize loose fill slopes is a cutting edge technology (Figure 5).

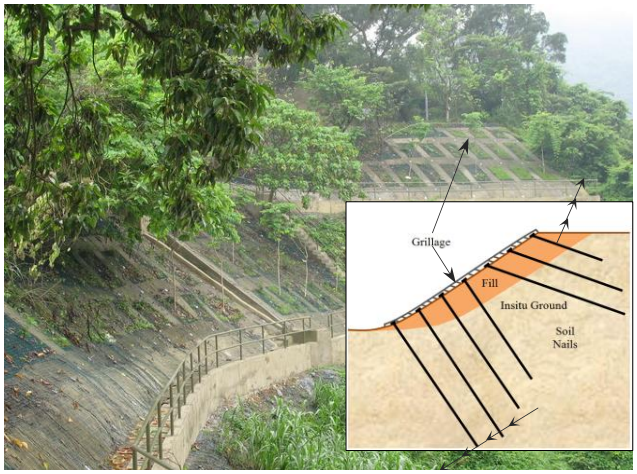

Figure 5. Use of Soil Nails to Stabilize Fill Slopes

Novel construction materials

To enhance the effectiveness and efficiency of the works, our project engineers always look for opportunities to apply novel construction materials. An example is the application of numerous novel proprietary products for greening of steep slopes that are protected by hard covers (Figure 6). This improved the appearance of the slopes. Another example is the trial use of carbon fibre soil nails, which is a lightweight and corrosion-free material.

Innovative construction processes

Soil nail installation requires the erecting of a working platform. In the upgrading of slopes along some busy roads which could not be closed for more than a few hours a day, the erection of a permanent working platform was not possible. To overcome the site constraint, mobile platforms were used, which could be put in place quickly and removed at the end of work every day (Figure 7).

New technology for quality control

Like other buried works, it is difficult to verify the quality of soil nails once installed in the ground. The GEO pioneered the use of the time domain reflectometry (TDR) testing technique to check the length and grout integrity of installed soil nails (Cheung & Lo 2011). The TDR test is simple, economical and reliable. This provided additional assurance on the quality of soil nails.

Figure 6. Proprietary Products for Greening on Hard Surface

Figure 7. Mobile Platform for Soil Nailing Works

Advances in Slope Engineering Practice

Besides the implementation of slope upgrading works, systematic landslide investigations were carried out as part of the 10-year Extended LPM Project, which have led to a better understanding of the nature of slope safety problems in Hong Kong. Through diagnosis of landslide incidents, areas for improvement in further enhancing the reliability and robustness of engineered slopes were identified. Guidance on improved slope engineering practice arising from the findings of landslide investigations was promulgated

Major Project (Continued)

1st runner up of the ISSMGE's Outstanding Geotechnical Project Award
Hong Kong Geotechnical Engineering Office

to the profession through the publication of GEO Reports, Geoguides and Technical Guidance Notes, all of which are available for free downloading from the departmental website.
www.cedd.gov.hk/eng/publications/geo/index.htlm

Sustainability Considerations

Sustainability considerations from the environmental, social and economic perspectives were incorporated in all aspects of the Project.

Environmental perspective

An integrated management system complying with ISO 14001 was in place. Contractual provisions were also incorporated in works contracts requiring contractors to develop an environmental management plan at an early stage to identify the potential environmental impact of the works and propose necessary mitigation measures. Audits were regularly conducted to ensure compliance with the requirements.

(a) Before LPM Works (b) After LPM Works

Figure 8. Landscape Treatment for an Upgraded Slope

A holistic approach in slope greening was adopted. Special emphasis was placed in making the appearance of the slopes, after the upgrading works, as natural as possible and blending with their surroundings. In this regard, existing vegetation on slopes would be preserved wherever possible. The surface of the upgraded slopes would be vegetated with native tree or shrub species for developing an eco-friendly environment (Figure 8). Where a hard surfacing was required, landscape treatments would be applied to minimize the visual impact. Under the Project, more than two million trees and shrubs were planted. The slope greening efforts had not only won the general approval of the public but also recognition from professional bodies (Figure 9). The experience gained in the Project has helped establish good practices on slope greening and landscape treatment.

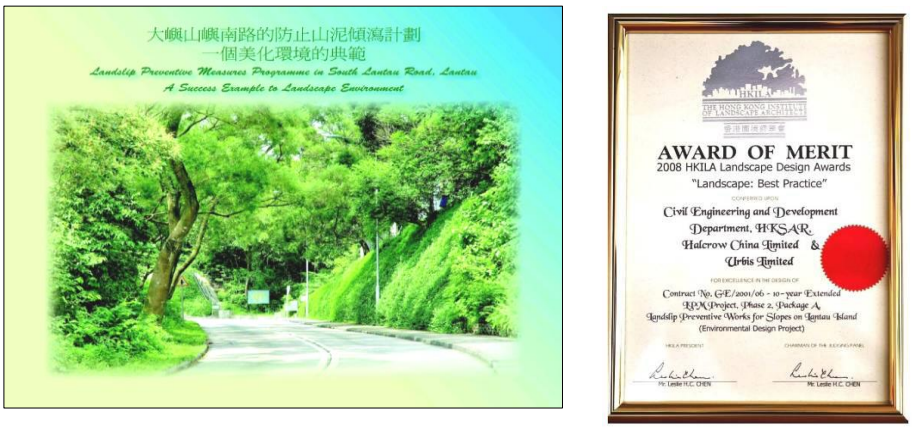

Figure 9. A Booklet Showing Successful Landscape Measures on Slopes (on the Left) and Achievement in Slope Appearance Appreciated by Landscape Professionals (on the Right)

Major Project (Continued)

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Hong Kong Geotechnical Engineering Office

Social perspective

Due to close proximity of the works to urbanized areas, it was imperative to solicit supports from the local community to ensure smooth implementation of the Project. Public engagement activities in the form of public forums or meetings were conducted at an early stage, to collect feedback and views from the community affected by the works. Their views and opinions would be incorporated in the design and construction process as far as possible. Close partnering with the community helped earn people's trust, which is essential for smooth delivery of the Project.

Slope works are intrinsically dangerous due to the need to work at height, which is exacerbated by the steepness of the slopes, difficult access and lack of working space. The price of site accidents to the society was high. To address this problem, a number of safety initiatives had been incorporated in the Project, such as a "Pay for Safety Scheme" which comprised separate pre-priced payment items on safety provisions in all works contracts to encourage contractors to enhance site safety (Tang et al. 2007). To foster and sustain a safety culture, Site Safety Management Committee meetings with the top management of contractors were held regularly and surveillance safety inspections were frequently conducted. Through the concerted effort, the accident rate of the Project had remained low, being less than 0.3 accidents per 100,000 man-hours and with no fatal accident.

Economic perspective

The Project created about 18,000 jobs (in man-years) for professionals, technical staff and construction workers, providing stable employment. Training courses and experience sharing among the stakeholders were conducted regularly to facilitate skill development and technology transfer among the industry. Improvement in slope safety reduced disruption to the society and economic losses arising from landslides.

Project Planning and Delivery

Engagement of Consultants and Contractors

Due to the large amount of design and construction works involved, the GEO partnered with the geotechnical profession to provide leverage on their resources for project implementation. At peak production, there were more than 40 consultancy agreements and 40 works contracts. For quality assurance, a list of consultants and a list of contractors meeting specified financial, technical, and management criteria were established. Only those consultants and contractors on the lists would be engaged for the Project. Regular liaison meetings were held with the consultants and contractors to share experience and address general issues of concern. Almost all the consultancy agreements and work contracts were completed satisfactorily with little contractual dispute.

Financial management

The GEO exercised stringent financial management for the Project. Management meetings at different levels were regularly conducted to closely monitor the expenditure to avoid over or under spending. The annual fund allocation (budget) was generally around US$ 110 million. The Project was successfully completed within budget, with the annual expenditure kept within 95% to 99% of the allocation.

Programme management

In order to ensure that the overall project target would be met, milestone output in terms of number of slopes upgraded was set each year. The programme management team planned ahead, taking into account the lead time required for consultants selection, site investigation, design and construction. The output of the Project was monitored closely through regular management meetings at different levels. An information management system which records budget, nature and progress of the works at each slope site was developed to facilitate efficient programme management. Through the concerted efforts, the annual target output was achieved consistently throughout the 10-year project period. The Project was successfully completed in 2010. A total of 3,080 slopes were upgraded, which exceeded the target by more than 20%.

Major Project (Continued)

1st runner up of the ISSMGE's Outstanding Geotechnical Project Award
Hong Kong Geotechnical Engineering Office

Contribution to the Well-being of People and Communities

Upon the completion of the Project in 2010, the landslide risk arising from slopes was assessed by state-of-the-art quantitative risk assessment to have been reduced to less than 50% of that in 2000. This is reflected by the substantial decrease in the number of people killed by landslides in recent years (Figure 10). The improvement in slope safety is also a pre-requisite to land development and infrastructure construction, and one of the key success factors enabling Hong Kong to develop into one of the most vibrant economies in the world.

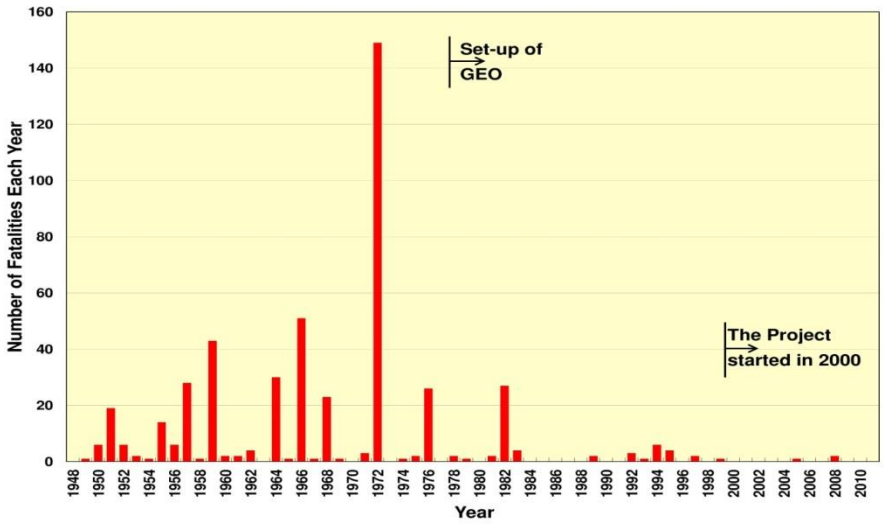

Figure 10. Landslide Fatalities in Hong Kong from 1948 to 2010

Epilogue

Despite the achievements of the LPM Project, there are still residual landslide risks which would pose a threat to the community of Hong Kong. Therefore, a long-term Landslip Prevention and Mitigation Programme (LPMitP) was rolled out by the GEO in 2010 to dovetail with the LPMP. Apart from man-made slopes, the Programme also mitigates landslide risk from natural terrain. A natural terrain hazard study (NTHS) is carried out to formulate the geological and geomorphological model for the hillside and evaluate the hazards involved. Technical development work has been instrumental in formulating Quantitative Risk Assessment (QRA) and Design Event methodology for application to NTHS (Ng et al, 2003). Significant advances have also been made in the application of digital and remote sensing technologies, such as digital photogrammetry, Geographic Information System (GIS) and terrestrial and air-borne LiDAR, to enhance the capability and efficiency of NTHS (Wong, 2007).

The strategy of the LPMitP is to contain the remaining landslide risks to within an as low as reasonably practicable level through rolling enhancement of man-made slopes and systematic mitigation of natural terrain hazards.

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Conference Report

2nd International Conference on Information Technology in Geo-Engineering (ICITG 2014), Durham, UK, 21 – 22 July 2014

The 2nd International Conference on Information Technology in Geo-Engineering (ICITG 2014) was held in Durham, UK on 21-22 July 2014. It followed the first successful conference held in Shanghai in 2010. The conference was co-organised by Durham University and Tongji University under the auspices of Joint Technical Committee JTC2 of the Federation of International Geo-Engineering Societies (FedIGS), representing the International Society for Rock Mechanics (ISRM), International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) and the International Association for Engineering Geology and the Environment (IAEG). The conference was run with support from the Institution of Civil Engineers (ICE), the Association of Geotechnical and Geoenvironmental Specialists (AGS) and the Northern Geotechnical Group of the British Geotechnical Association (BGA).

Professor Xia-Ting Feng, President of the International Society for Rock Mechanics (ISRM), opens the ICITG 2014 Conference

Professor António Gomes Correia delivers his Keynote Lecture

The conference covered a full range of information technology applications in geotechnical, geo-environmental engineering and engineering geology. The first day of the conference focused on "Geotechnical Data", dealing with issues related to data standards and data exchange. There was a particular focus on the AGS format for data exchange which is widely used in the UK and increasingly internationally. Wider issues of managing "big data" and data sharing through global web portals were also addressed. Consideration was given to new developments in data acquisition and monitoring for slope stability and tunnelling applications in the field (using Gigapan photography, LiDAR terrestrial scanning and wireless sensors).

The second day focused on Artificial Intelligence applications. The use of expert (knowledge-based) systems, artificial neural networks and data mining techniques all featured, particularly for identification of properties of geo-materials. The use of web-based materials for education was discussed, targeting both university students and public bodies. Data acquisition and control systems for use in the laboratory were also discussed.

Conference Report (Continued)

2nd International Conference on Information Technology in Geo-Engineering (ICITG 2014), Durhum, UK, 21 – 22 July 2014

Keynote lectures were presented by Dr Fang Liu (on behalf of Professor Jean-Pierre Bardet) on "An overview of geotechnical and geoenvironmental data exchange"; Dr Angus Maxwell on "Management of data for underground infrastructure development in Asia"; Professor Xia-Ting Feng on "A review of twenty years of development in intelligent rock mechanics" and by Professor António Gomes Correia on "Use of data mining in design of soil improvement by jet grouting".

The conference proceedings were published by IOS Press (Millpress) and are available on-line at http://ebooks.iospress.nl/volume/information-technology-in-geo-engineering-proceedings-of-the-2nd-international-conference-icitg-durham-uk .

Delegates have discussions before the start of a session

Professor David Toll & Professor Hehua Zhu
Conference Co-Chairs

Dr Ashraf Osman
Conference Secretary

Hot News

Obituary – Professor Charles C. Ladd

In honour of Professor Charles C. Ladd

Charles (Chuck) Cushing Ladd III age 81 passed away peacefully at his home on Monday, August 4th, 2014 surrounded by his loving family. He was a devoted husband of 55 years to the late Carol Ballou Ladd and leaves his fiancée Elaine Burkley of Sudbury, MA. He is survived by his children, Melissa Northrup of Boxborough, MA, Charles C. Ladd IV and his wife Marcia of Mountain Top, PA, Ruth McGraw and her husband James of Essex, MA, Matthew Ladd and his wife Annette of Little Compton, RI, nine grandchildren and three great-grandchildren. He also leaves a brother, Richard Ladd and his wife Linda of Albuquerque, NM.

Chuck was the patriarch of a large and tightly knit family. He enjoyed bringing his family on winter cruises and treating his extended family to yearly summer vacations. While he had many professional accomplishments, he was also famous for hosting Christmas parties where he would serve his signature 'punch' concoction. He loved his students and colleagues, often inviting them to attend family functions, celebrations and holidays. Chuck was a diehard Patriots fan and would frequently host his family for football Sundays. An avid tennis player when he was younger, Chuck picked up golf in his later years with an engineering approach to the game.

He received a Bachelor of Arts (cum laude) in mathematics and physics from Bowdoin College in 1955, and in the same year a Bachelor of Science in building engineering and construction from M.I.T. He continued on at M.I.T. to earn a Master of Science in civil engineering in 1957 and Doctor of Science in soil engineering in 1961. Chuck joined the M.I.T. faculty in 1961 and served until he retired in 2001 as the Edmund K. Turner Professor of Civil and Environmental Engineering. He was internationally known for his outstanding contributions to the teaching, research and practice of geotechnical engineering. Professor Ladd was renowned as a gifted teacher (with a style emulated by many former students who became faculty members) and innovative researcher on advanced technical topics. He was internationally sought after as a consultant working on large, complex and difficult civil projects. Among his numerous professional achievements, Professor Ladd was elected in 1983 to the US National Academy of Engineering and was the recipient of many research awards from the American Society of Civil Engineers (ASCE); including the Walter L. Huber Civil Engineering Research Prize, the Croes Medal, the Norman Medal and the Terzaghi Lecture Award. In 1995, he was elected as a distinguished member of ASCE and received the Hogentogler Award from the American Society for Testing and Materials. In 2012, Professor Ladd was awarded the ASCE Outstanding Project and Leaders lifetime achievement award for his contributions to engineering education. Professor Ladd leaves a lasting legacy and tribute to his life's work with his commitment to his students at M.I.T. and significant contributions to geotechnical engineering.

A memorial service celebrating Chuck's life will be held on Friday, August 22nd, 2014 at 3:00 pm at the West Concord Union Church, 1317 Main St, Concord, MA 01742. A reception will follow at the Concord Country Club, 246 Old Road to Nine Acre Corner, Concord, MA 01742. Relatives, friends, and colleagues are kindly invited.

Hot News (Continued)

Obituary – Professor Charles C. Ladd

In lieu of flowers, gifts in his name may be made to the following organizations:
National Academy of Engineering
www.nae.edu/giving

Trinitarian Congregational Church
54 Walden Street
Concord, MA 01742

Emerson Hospital
133 Old Road to Nine Acre Corner
Concord, MA 01742

Don J. DeGroot
Professor
Civil and Environmental Engineering
20 Marston Hall
University of Massachusetts Amherst
Amherst, MA 01003

Hot News (Continued)

NEWS from ICE Publishing:
Issue 2 of open access journal Geotechnical Research - free to ALL to read online now

Issue 2 2014 of international peer-reviewed journal Geotechnical Research is now free to all to read online here http://www.icevirtuallibrary.com/content/serial/gr. As the first fully open access journal in its field, Geotechnical Research provides access to the latest geotechnics research regardless of reader's ability to pay for a subscription.

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If you would like to write for the Open Access journal, please contact me. For full details, visit http://www.icevirtuallibrary.com/content/serial/gr

Ben Ramster, Journals Manager, ICE Publishing

NEWS from TC 203:
Call for nominations sought for *2014 Young Researcher Award*

Technical Committee 203 (TC203) "Earthquake Geotechnical Engineering and Associated Problems" of the ISSMGE, presents a Young Research Award to recognize early-career scientists and engineers (not having exceeded the age of 40) who have exceptional promise of excellence in research and significant contributions in the field of Geotechnical Earthquake Engineering. The award is presented biennially at Conferences organized by TC203 of the ISSMGE.

Nominations are being accepted for the 2014 Young Researcher Award. The 2014 Young Researcher Award will be presented at the next TC203 conference, the 6th International Conference on Earthquake Geotechnical Engineering in Christchurch, New Zealand on 2-4 November 2015.

Please submit nominations by 30 September 2014 to:
Professor Ellen Rathje
University of Texas at Austin
E-mail: e.rathje@mail.utexas.edu

Age criterion: Candidates must not exceed the age of 40 by December 31, 2014.

Nomination requirements: A nomination package must consist of a letter of nomination, a CV containing a synopsis of the candidate?s achievements and contributions to the field and a list of refereed publications. Nominations will be evaluated by a committee of five members of the Technical Committee TC203 and the recipient will be announced by November 30, 2014.

Event Diary

ISSMGE EVENTS

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

2014

TC204 ISSMGE International Symposium on "Geotechnical Aspects of Underground Construction in Soft Ground" - IS-Seoul 2014
Date: Monday 25 August 2014 - Wednesday 27 August 2014
Location: Sheraton Grande Walkerhill, Seoul, Korea
Language: English
Organizer: TC204 of ISSMGE and Korean Geotechnical Society
Contact person: Prof. Chungsik Yoo
Address: 300 Chun-Chun Dong, Jang-An Gu,440-746,Suwon,Kyoung-Gi Do,Korea
Phone: +82-32-290-7518
Fax: +82-32-290-7549
E-mail: csyoo@skku.edu

International Symposium on Geomechanics from Micro to Macro (TC105)
Date: Monday 01 September 2014 - Wednesday 03 September 2014
Location: Cambridge University, Cambridge ,United Kingdom
Language: English
Organizer: TC105
Contact person: Professor Kenichi Soga
Address: University of Cambridge, Department of Engineering, Trumpington Street, CB2 1PZ, Cambridge, U K
Phone: +44-1223-332713
Fax: +44-1223-339713
E-mail: ks207@cam.ac.uk

XV Danube-European Conference on Geotechnical Engineering
Date: Tuesday 09 September 2014 - Thursday 11 September 2014
Location: Vienna University of Technology, Vienna, Austria
Language: English and German
Organizer: ASSMGE & Vienna University of Technology, Institute of Geotechnics
Contact person: Armin Steurer, Gerda Pfleger
Address: Vienna University of Technology, Institute of Geotechnics, Karlsplatz 13/220-2,A-1040, Vienna, Austria
Phone: +43 1 58801 22101
Fax: +43 1 58801 22199
E-mail: igb@tuwien.ac.at
Website: http://www.decge2014.at

Event Diary (Continued)

COBRAMSEG 2014
Date: Tuesday 09 September 2014 - Saturday 13 September 2014
Location: Goiania Convention Center, Goiania, GO, Brazil
Language: Portuguese / English
Organizer: ABMS
Contact person: Qualidade Eventos Especiais Ltda
Address: Rua 3, 800 Salas 805 e 808 – Setor Oeste, 74.115-050, Goiania, GO, Brazil
Phone: +55 (62) 3214-1005
Website: http://www.qeeventos.com.br/qeeventos/site/cobramseg-2014-en.aspx

10th International Conference on Geosynthetics (10ICG)
Date :Sunday 21 September 2014 - Thursday 25 September 2014
Location: Estrel Convention Center,Berlin,,Germany
Language: English
Organizer: DGGT / German IGS Chapter
Contact person: Gerhard Braeu
Address: Baumbachstrasse 7, 81245, Muenchen, Germany
Phone: +49 89 289 27139
Fax: +49 89 289 27189
E-mail: g.braeu@bv.tum.de

XIV Colombian Geotechnical Conference-XIVCGC and IV South American Young Geotechnical Engineers Conference -IVCSIGJ
Date: Wednesday 15 October 2014 - Friday 17 October 2014
Location: Universidad Nacional de Colombiaia,Bogota,BOGOTA D.C.,Colombia
Language: Spanish, Portuguese, English
Organizer: Colombian Geotechnical Society-SCG
Contact person JUAN MONTERO O.
Address: Calle 12C No.8-79 Of. 512,11001000, BOGOTA D.C.,COLOMBIA
Phone: 57-1-3340270
Fax: 57-1-3340270
E-mail: scg1@etb.net.co ; scg1@colomsat.net.co
Website: www.scg.org.co
Correspondence and information Ángela Vázquez (Spanish only), scg1@etb.net.co, scg1@colomsat.net.co
Organizing Committee /Juan Montero-Olarte, juanmontero170@gmail.com

7th International Congress on Environmental Geotechnics
Date: Monday 10 November 2014 - Friday 14 November 2014
Location: Melbourne Convention and Exhibition Centre, Melbourne, Victoria, Australia
Language: English
Organizer: Engineers Australia
Contact person: Hayley Le Gros
Address: WSM, 119 Buckhurst Street, Vic 3205,Melbourne, Victoria, Australia
Phone: 61 3 9645 6322
E-mail: 7iceg2014@wsm.com.au
Website: www.7iceg2014.com

Event Diary (Continued)

XXVII National Meeting of Geotechnical Engineering
Date: Wednesday 19 November 2014 - Friday 21 November 2014
Location: Puerto Vallarta, Jalisco, Mexico
Language: Español-ingles
Organizer: Sociedad Mexicana de Ingeniería Geotécnica A.C.
Contact person: Eduardo Botero Jaramillo
Address: Valle de Bravo 19 Col. Vergel de Coyoacán Del. Tlalpan, 14340, Distrito Federal, México
Phone: 0155 56773730
Fax: 0155 56793676
E-mail: smmsgerencia@prodigy.net.mx
Website: http://www.smig.org.mx/en/rnig-en

Geohazards 2014 International Symposium on Geohazards: Science, Engineering and Management
Date: Thursday 20 November 2014 - Friday 21 November 2014
Location: Kathmandu, Nepal
Language: English
Organizer: Nepal Geotechnical Society
Contact person: Dr. Netra Prakash Bhandary
Address: Dept. Civil Environmental Eng, Ehime University, 790-8577, Matsuyama, Ehime, Japan
Phone: +81-89-927-8566
Fax: +81-89-927-8566
E-mail: netra@ehime-u.ac.jp
Website: http://www.ngeotechs.org/ngs/index.php/geohazards-2014

VIII Chilean Congress in Geotechnical Engineering
Date: Wednesday 26 November 2014 - Friday 28 November 2014
Location: Centro de Convenciones Hotel Intercontinental Santiago - Av. Vitacura 2885, Las Condes, Santiago, Chile
Language: Spanish
Organizer: Pontificia Universidad Catolica de Chile
Contact person Christian Ledezma
Address: Vicuna Mackenna 4860, Macul, 7820436, Santiago, Chile
Phone +56(2)2354-4207
E-mail: cledezma@ing.puc.cl
Website: www.sochige2014.cl

7th International Conference on Scour and Erosion (ICSE-7)
Date: Tuesday 02 December 2014 - Thursday 04 December 2014
Location: Rendezvous Grand Hotel Perth, Scarborough, Perth, Western Australia
Language: English
Organizer: ISSMGE TC213 / University of Western Australia
Contact person: Liang Cheng
Address: M051, 35 Stirling Highway, 6009 Perth, Wesern Australia
Phone: +61 8 6488 3076
Fax: +61 8 6488 1018
E-mail: liang.cheng@uwa.edu.au
Website: http://www.2014icse.com/index.html

Event Diary (Continued)

2015

Sixth International Geotechnical Symposium 2015
Date: Wednesday 21 January 2015 - Friday 23 January 2015
Location: IIT Madras,Chennai,Tamilnadu,India
Language: English
Organizer: IIT Madras and IGSChennai
Contact person: Dr. R.G. Robinson
Address: Department of Civil Engineering, IIT Madras, 600036, Chennai, Tamil Nadu ,India
Phone: 914422574286
E-mail: robinson@iitm.ac.in
Website: http://igschennai.in/6igschennai2015

12th Australia and New Zealand Conference on Geomechanics – The Changing Face of the Earth: Geo-Processes & Human Accelerations
Date: Sunday 22 February 2015 – Wednesday 25 February 2015:
Location: Wellington, New Zealand
Contact person: Amanda Blakey
E-mail: secretary@nzgs.org

XVI African Regional Conference on Soil Mechanics and Geotechnical Engineering - Innovative Geotechnics for Africa
Date: Monday 27 April 2015 - Thursday 30 April 2015
Location: Hammamet, Tunisia
Language: English and French
Organizer: ATMS
Contact person: Mehrez Khemakhem
Phone: +216 25 956 012
E-mail: organisation@cramsg2015.org
Website: www.cramsg2015.org

ISP7 - PRESSIO 2015
Date: Friday 01 May 2015 - Saturday 02 May 2015
Location: Hammamet, Tunisia
Organizer: Tunisian Association of Soil Mechanics (ATMS)
Contact person: Dr Wissem Frikha
Address: Enit BP37, 1000 Le Belvedere, Tunis, Tunisia
Phone: +21698594970
E-mail: Isp7_organisation@cramsg2015.org
Website: http://www.cramsg2015.org/isp7-pressio2015/?lang=en

ISFOG 2015
Date: Wednesday 10 June 2015 - Friday 12 June 2015
Location: Holmenkollen Park Hotel Rica, Oslo, Norway
Language: English
Organizer: NGI
Contact person: Vaughan Meyer - NGI
Address: PO Box 3930 Ullevaal Stadion,N-0806,Oslo,,Norway
Phone: +47 22 02 30 00
Fax: +47 22 23 04 48
E-mail: isfog2015@ngi.no
Website: www.isfog2015.no

Event Diary (Continued)

3rd International Conference on the Flat Dilatometer DMT'15
Date: Monday 14 June 2015 - Wednesday 16 June 2015
Location: Parco dei Principi Grand Hotel & SPA , Rome, Italy
Language: English
Contact person: Simona Rebottini - Studio Prof. Marchetti
Address: via Bracciano 38, 00189 Rome, Italy
Phone: 0039 06 30311240
Fax: 0039 06 30311240
E-mail: simona@marchetti-dmt.it
Website: www.dmt15.com

XVI European Conference on Soil Mechanics and Geotechnical Engineering
Date: Sunday 13 September 2015 - Thursday 17 September 2015
Location: Edinburgh International Conference Centre, Edinburgh, Scotland, United Kingdom
Language: English
Organizer: British Geotechnical Association
Contact person: Derek Smith
Address: Coffey Geotechnics Limited, The Malthouse, 1 Northfield Road, Reading, Berkshire, RG1 8AH, Reading, UK
Phone: +44 1189566066
Fax: +44 1189576066
E-mail: derek_smith@coffey.com
Website: http://www.xvi-ecsmge-2015.org.uk/

Workshop on Volcanic Rocks & Soils
Date: Thursday 24 September 2015 - Friday 25 September 2015
Location: Isle of Ischia, Italy
Language: English
Organizer: Associazione Geotecnica Italiana (AGI)
Contact person: Ms. Susanna Antonielli
Address: Viale dell'Università 11, 00185, Roma, Italy
Phone: +39 06 4465569 - +39 06 44704349
Fax: +39 06 44361035
E-mail: agi@associazionegeotecnica.it
Website: www.associazionegeotecnica.it

6th International Conference on Earthquake Geotechnical Engineering
Date: Monday 02 November 2015 - Wednesday 04 November 2015
Location: Christchurch, New Zealand

The 15th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering -New Innovations and Sustainability-
Date: Monday 09 November 2015 - Friday 13 November 2015
Location: Fukuoka International Congress Center, Fukuoka, Kyushu, Japan
Language: English
Organizer: The Japanese Geotechnical Society
Contact person: Toshifumi Mukunoki
Address: 2-39-1 Kurokami, Chuou-ku, Kumamoto, JAPAN,860-8555,Kumamoto,,Japan
Phone: +81-96-342-3535
Fax: +81-96-342-3535
E-mail: 15tharc@kumamoto-u.ac.jp
Website: http://www.jgskyushu.net/uploads/15ARC/

Event Diary (Continued)

XV Pan American Conference on Soil Mechanics and Geotechnical Engineering
Date: Sunday 15 November 2015 - Wednesday 18 November 2015
Location: Hilton Hotel, Buenos Aires, Buenos Aires, Argentina
Language: Spanish - Portuguese - English (simultaneous translation)
Organizer: Argentinean Society for Soil Mechanics and Geotechnical Engineering
Contact person: Dr. Alejo Oscar Sfriso
Address: Rivadavia 926 Suite 901,C1002AAU, Buenos Aires, Buenos Aires, Argentina
Phone: +541143425447
Fax: +541143423160
E-mail: presidente@saig.org.ar
Website: www.panam2015.com.ar

2016

NGM 2016, The Nordic Geotechnical Meeting
Date: Wednesday 25 May 2016 - Saturday 28 May 2016
Location: Harpan 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
Fax: +354 522 1259
E-mail: has@vegagerdin.is
Website: http://www.ngm2016.com

3rd ICTG International Conference on Transportation Geotechnics
Date: Sunday 04 September 2016 - Wednesday 07 September 2016
Location: Vila Flor Cultural Centre and University of Minho, Guimaraes,, Portugal
Language: English
Organizer: Host: Portuguese Geotechnical Society and University of Minho
Secretary:
Contact person: Prof. A. Gomes Correia (Chair)
Address: University of Minho, School of Engineering, 4800-058, Guimarães, Portugal
Phone: +351253510200
Fax: +351253510217
E-mail: agc@civil.uminho.pt
Website: http://www.webforum.com/tc3

Event Diary (Continued)

NON-ISSMGE SPONSORED EVENTS

2014

5th International Forum on Opto-electronic Sensor-based Monitoring in Geo-engineering (5th OSMG-2014)
Date: Sunday 12 October 2014 - Tuesday 14 October 2014
Location: Nanjing University, Nanjing, China
Language: English and Chinese
Organizer: Nanjing University
Contact person: Hong-Hu Zhu
Address: Mailbox 645. Nanjing University (Xianlin Campus), 163 Xianlin Avenue, 210046, Nanjing, China
Phone: +86-25-83597888
E-mail: osmg2014@nju.edu.cn
Website: http://www.osmg2014.com

Geosynthetics 2015
Date: Sunday 15 February 2015 - Wednesday 18 February 2015
Location: Oregon Convention Center, Portland, Oregon, USA
Language: English
Organizer: Industrial Fabrics Assocation International / Geosynthetics Materials Association
Contact person: Barbara Connett
Address: 1801 County Road B West, 55113 Roseville, Minnesota, USA
Phone: 651 225 6914
Fax: 651 631 9334
E-mail: bjconnett@ifai.com
Website: http://www.geosyntheticsconference.com

International Conference in Geotechnical Engineering - ICGE-Colombo 2015
Date: Monday 10 August 2015 - Tuesday 11 August 2015
Location: Colombo, Colombo, Sri Lanka
Language: English
Organizer: Sri Lankan Geotechnical Society
Contact person: Eng. K. L. S. Sahabandu
Address: Central Engineering Consultancy Bureau, 415, Bauddhaloka Mawatha, Colombo 7,Sri Lanka
Phone: +94 11 2668803
Fax: +94 11 2687369
E-mail: gm@cecbsl.com ; sahabandukls@gmail.com
Website: www.slgs.lk

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

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News from Corporate Associates

Golder Associates Launches Foundation

Golder Associates Launches Foundation to Further Knowledge, Learning (August 13, 2014)
The not-for-profit Golder Foundation has been established to enable Golder Associates to preserve and strengthen our commitment to technical excellence and broad employee ownership, and to further our purpose of engineering earth's development and preserving earth's integrity.

The Foundation (www.golderfoundation.org) has **three key areas of focus:**

- **Technical archives** to enable current and future generations to explore the technical knowledge developed by Golder professionals
- **An annual awards program** to recognise students who have undertaken research on important topics in Golder's core service areas
- **Golder's business legacy story**, in particular to share the story of our broad employee ownership structure that distinguishes us in the consulting industry and marketplace.

"*The origin of our Foundation stems from our desire to preserve, enrich, and impart our technical expertise,*" said **John Westland**, Principal at Golder who serves on the board of directors for the Foundation. "*We are excited to expand our archives in the ground engineering, environmental, and other sciences, salute bright students who are performing key research in our fields of endeavor, and tell the ownership story that has helped build our success over 50-plus years,*" he said.

The archives act as a technical resource for Golder employees, as well as academics and professionals who are interested in the history and best practices within the disciplines of ground engineering, environmental, and other sciences linked to the services provided by Golder. The archives have been seeded with collections of reference material, presentations, speeches, and the bibliographies of published papers from six retired and semi-retired Golder professionals, including Golder founders Dr. H.Q. Golder and Victor Milligan. We also welcome potential additions from external sources.

The annual awards will encourage technical excellence among graduate students who have completed or are nearing the end of their studies. The initial awards cycle will be announced in September 2014, and entries will be solicited from students globally. The first two awards topics are ***Ground Engineering*** and ***Contaminated Site Assessment and Remediation*** – two of Golder's main areas of consulting practice.

The business legacy component of the Foundation will focus on assisting other organisations considering employee ownership, by making available knowledge and lessons from our ownership and development history.

Contact Info@golderfoundation.org for more information, including what documents are available in the technical archives and how they can be accessed. The Golder Foundation was incorporated in 2013 under the Canada Not-for-Profit Corporations Act by Industry Canada.

Karen Raihill (MS)
Global Marketing Writer, Golder Associates Inc.

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The Foundation of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) was created to provide financial help to geo-engineers throughout the world who wish to further their geo-engineering knowledge and enhance their practice through various activities which they could not otherwise afford. These activities include attending conferences, participating in continuing education events, purchasing geotechnical reference books and manuals.

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