



International Society for Soil Mechanics and Geotechnical Engineering

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A Message from the Vice President

By Professor Madhira R. Madhav

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I am delighted to reach through this bulletin all the members of the prestigious ISSMGE. I have been blessed to represent a very vibrant region of the world that accounts for a major part of the world's population. I am also aware that I am following the footsteps of eminent Geotechnical Engineers who have preceded me and thus consider this responsibility as onerous. It is also a fact that the Asian region is going through rapid development in all its facets and thus providing immense challenges to all of us pursuing a career in Geotechnical Engineering.

One of the most remarkable developments has been the creation of lands to which Geotechnical Engineers can be rightfully proud. Several new airports have been and are being built on reclaimed land. Starting with the Changi Airport in Singapore, similar developments took place in Japan (Kansai International Airport), Hong Kong (Chek Lok Kok), Korea (Incheon), etc. The construction of Suvarnabhumi International Airport on soft Bangkok clay threw up equally challenging geotechnical tasks. Lands are being reclaimed to meet the ever-increasing demands for industrial, commercial and recreational needs of land-starved countries. Putting a man on the Moon or sending a rocket to far-flung planets are considered as engineering feats and catch the imagination of our societies. Reclaiming land and building a vital infrastructure facility such as an airport with its concomitant stringent requirements and tolerances in terms of its long-term performance is an equally challenging feat. We should proudly take credit for the same and appraise the societies of the same.

Developments associated with the Three Gorges Project in China, the 2020 development in Pusan, Korea, the Golden Quadrilateral and the East-West and North-South corridor highway project in India, the new capitol at Astana in Kazakhstan, the hydro-electric dam projects in Pakistan and Iran, the mitigation of Tsumani affected lands in Indonesia, are some of the many significant projects that are giving impetus to growth of Geotechnical Engineering in our region. It is a proud and significant event that a new institute exclusively for Natural Hazard Mitigation is being set up in Semarang, Indonesia shortly.

The Asian region comprises of eighteen national societies. I am glad to welcome Uzbekistan in to our fold from the coming month. Amongst forty-one technical committees of ISSMGE, the Asian region is hosting five very important committees, viz., TC3 Geotechnics of Pavements, TC4: Earthquake Geotechnical Engineering and Associated Problems, TC23: Limit State Design in Geotechnical Engineering, TC34: Prediction Methods in Large Strain Geomechanics, TC35 Geo-Mechanics from Micro to Macro, TC39: Geotechnical Engineering for Coastal Disaster Mitigation and Rehabilitation, and TC40: Forensic Geotechnical Engineering. Asian Technical Committees are examining several topics such as ATC3 Geotechnology for Natural Hazards, ATC7 Deltaic Deposits, ATC8 Groundwater Environment and Quality Management, ATC9 Protection of Cultural Heritage from Landslides and Weathering, ATC10 Urban Geo-Informatics, ATC12 Land Reclamation and Coastal Structures in Asia, ATC15 Geotechnical Engineering of Collapsible Soil/Ground ATC17 Waste Management in Geo-Environmental Engineering, ATC18 Mega Foundations etc. The list is not exhaustive and considerable scope exists for study several other topics or areas.

The Asian region buzzes with activities at some part or the other. GeoShanghai 2006 is an important milestone in our region as it is held conjointly with Geoinstitute, ASCE and several organizations from USA and Europe. Recently the 16th Southeast Asian Geotechnical Conference was held at Kuala Lumpur during May, 2007. The Sri Lankan Geotechnical Society celebrated the 20th Anniversary of its founding with the First International Conference on Soil and Rock Mechanics during August. All the National Societies conduct their annual or half-yearly conferences. Two countries, China and India have been bidding to host the 6th International Conference on Environmental Geotechnics in 2010. All the members of the Asian region are looking forward to meet in Kolkata for the 13th Asian Regional Conference on SM&GE in Dec. 2007. Preparations are in full swing and participants may expect once again magic carpet a they did in 1994 during the 13th IC SMGE. India is the venue also for the 6th Asian Young Geotechnical Engineers conference to be held in Dec. 2008 at Bangalore during the centenary year of the premier Indian Institute of Science there.

It is a great pleasure and honor to greet all the members of the International Society for Soil Mechanics & Geotechnical Engineering.

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Case History

A Case History of Grouting in Limestone for Tunnel Project in Kuala Lumpur

By Ir. Yew Weng¹ and Dr. Raju V.R.²

1. Introduction

Stormwater Management and Road Tunnel Project (SMART) involved the construction of a 13m diameter bored tunnel over approximately 10km in Kuala Lumpur. The tunnel will function mainly as a stormwater storage and diversion channel but also incorporates a 3 km motorway in a triple deck arrangement. For further details, the reader is referred to Ng et al., 2006 and Sivalingam & Klados, 2006. The SMART tunnel was constructed through Kuala Lumpur Limestone, home to cavernous and karstic features with highly permeable subterranean solution channels. This presented one of the most challenging geological terrains for the construction team. Construction activities during initial construction of the launch shaft led to higher than expected groundwater inflow into the excavation through these solution channels. Systematic grouting was carried out which mitigated the situation. Subsequently, the Main Contractor, MMC-Gamuda JV implemented a grouting program primarily aimed at minimising water inflow into open excavations and also involved ground treatment along the tunnel corridor at areas identified to be prone to ground subsidence. This paper demonstrates that the grouting program was successful in reducing ground disturbance due to the tunneling activities (see also Raju and Yee, 2006 for more details).

2. Geological Features of Kuala Lumpur Limestone

2.1 General

According to Gobbett & Hutchinson (1973), Kuala Lumpur Limestone comprises Upper Silurian marble, finely crystalline grey to cream thickly bedded, variably dolomitic rock. Karstic features are prevalent in the limestone formed by movement of water containing carbonate acid (dissolved carbon dioxide). As water flows downwards, the bedrock profile near the surface is eroded to form sharply varying pinnacles, cliffs and ravines. Cavities in the rock (infill or empty) seldom exist in isolation but as part of a complex matrix of solution channels. Over time the roof of some cavities may dissolve or collapse which may trigger sinkholes or depressions on the ground surface. Under some conditions, the soil overburden may arch around the cavity (slump zone) and a quasi-stable condition may persist for years (see Fig. 1). The occurrences of ground subsidence and formation of sinkhole in limestone are frequently associated with construction activities i.e. when the ground water is lowered, rock/ soil is removed or triggered by vibrations (Tan, 2005).

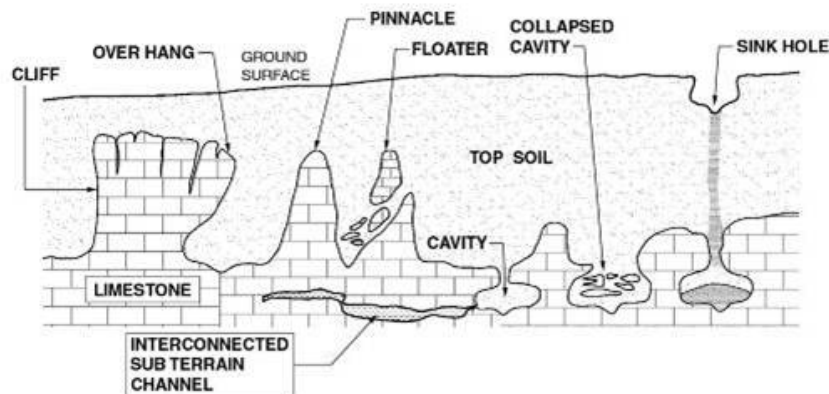


Fig. 1 Limestone rock profile

2.2 The Tunnel Path

The SMART tunnel is located approximately between 10m and 16m below existing ground level. In most areas along the tunnel corridor, the TBM bored almost entirely within the rock mass. Tunneling activities were hence, largely shielded from disturbing the ground surface by the relatively strong rock mass. However, where cavities or rock fissures are of significant proportions or where the rockhead is at greater depths, drilling activities could trigger ground movement. Significant ground displacement could lead to the formation of sinkholes at the surface. Geotechnical aspects of the tunnel are described in detail by Tan (2006). Subsoil conditions consist of very variable mixed soil, comprising mainly loose silty sand and sandy silt. SPT blowcounts typically vary from 0 blows/ft (especially along "slump zones" above rockhead) to 20 blows/ft. Historically, mining activities took place at some sections of the site and may explain the varying nature of the soil. Most of the rock "cavities" encountered are in-filled with silts and organic material. Groundwater was generally at about 3m to 4m below ground. Typically, such mixed soils were highly permeable. Various interesting geological features were exposed during the construction works including steep cliffs, potholes and cavities (see Fig. 2). They underline the complex ground conditions in which the tunnel had to be built.

¹ General Manager, KELLER (M) SDN BHD, Malaysia

² Regional Director, KELLER FOUNDATIONS (S E Asia) Pte. Ltd., Singapore

Case History (continued)

A Case History of Grouting in Limestone for Tunnel Project in Kuala Lumpur



Fig. 2 Variable features in limestone

3 Objectives of Drilling and Grouting Works

Grouting works were initially commissioned to reduce water inflow into the excavated launch shaft. Thereafter, a program of “preventive” grouting works was designed and purposefully implemented by the Main Contractor. The objectives of preventive grouting works were mainly to reduce groundwater lowering and minimize disturbance to the overburden soil. In addition, the Main Contractor set up “emergency grouting teams” which were on-call to quickly carry out any remedial works due to ground movement.

4 Particular Areas Requiring Grouting Treatment

The rockhead level was generally found to be about 5m to 10m below ground. Hence, grout treatment for these open excavation pits mainly comprised of rock fissure grouting to form “grout curtain” around the excavation shafts (Fig. 3). The spacing between grout holes was typically 4m and the depth of drill holes were normally taken to 2m below the depth of the excavation.

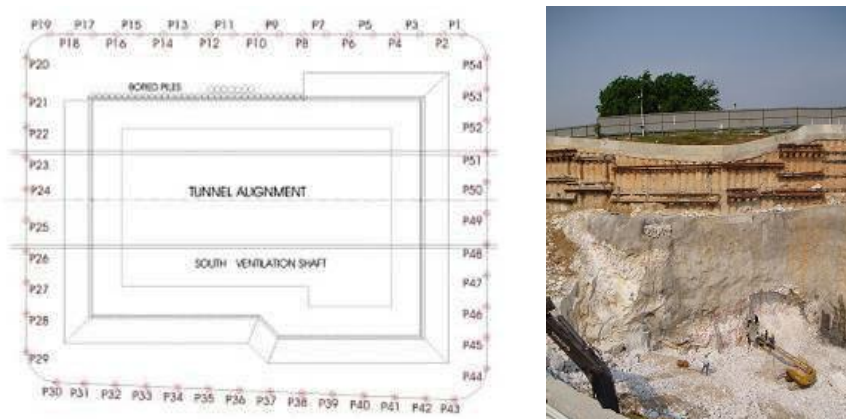


Fig. 3 Typical grout holes around excavation shaft and dry walls of excavated shaft

4.1 Subterranean Excavation

The tunnel also required the construction of nine Cross Passages as safety exit points along the 3km stretch of traffic tunnel. All Cross Passages were formed by excavation in rock, dug underground from within the tunnel shaft. Ground treatment consisted of rock fissure grouting to form “grout curtain” around the sides and roof of the proposed box-like underground excavation (Fig. 4). The spacing between grout holes was typically 4m. Where fracture rock was encountered or where grout-take was high, drill holes were added in between holes.

Case History (continued)

A Case History of Grouting in Limestone for Tunnel Project in Kuala Lumpur

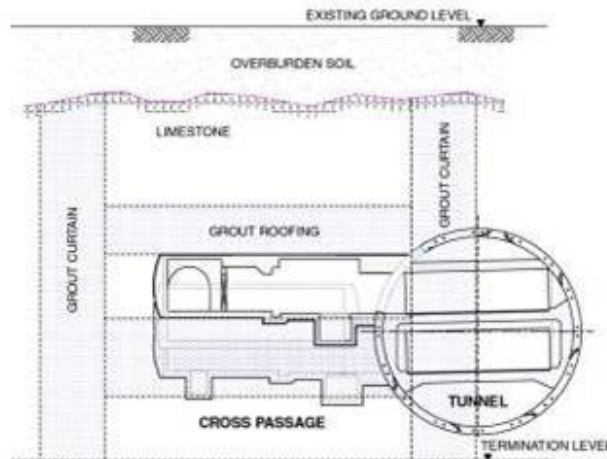


Fig. 4 Typical "grout curtain" around cross passage

4.2 Settlement Sensitive Areas

The TBMs also traveled beneath some settlement sensitive areas e.g. rail crossing (Fig. 5), bridge crossing, important highway, beside buildings, etc. These sites were firstly investigated by "exploratory drilling" to ascertain the depth and quality of rock. Depending on the findings, grouting works were carried out, primarily to fill cavities and seal large solution channels.

4.3 Cutter-head Intervention Locations

The TBM cutter-head required maintenance at regular intervals. At such TBM stops, there was a risk of ground disturbance. These locations were carefully selected by the Main Contractor based on known soil data. Compaction and Jet Grouting works were usually specified as a precautionary measure to form a "grout block" where the cutter-head could be parked whilst maintenance was carried out (Fig. 6).

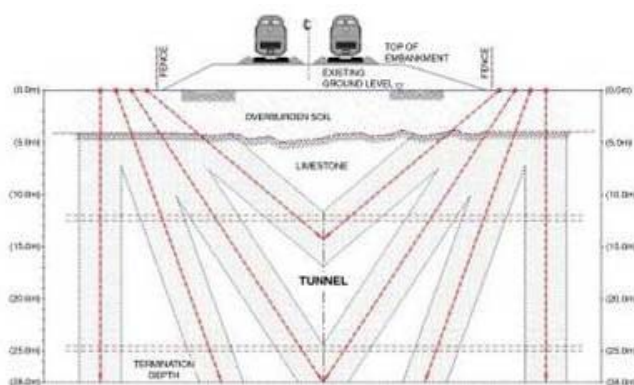


Fig. 5 Grouting treatment beneath the "live" rail track

Case History (continued)

A Case History of Grouting in Limestone for Tunnel Project in Kuala Lumpur

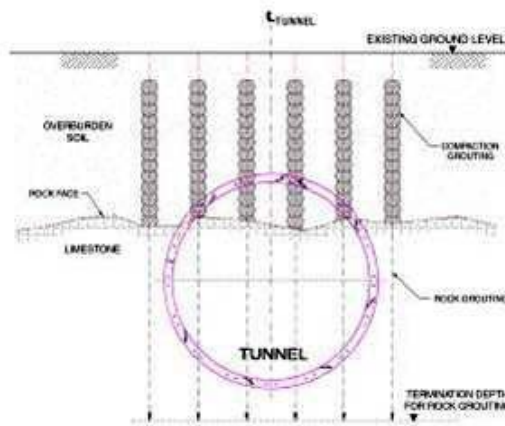


Fig. 6 Typical grout treatment of cutter-head intervention locations

4.4 Areas of Deep and Cavernous Rock

The Main Contractor carried out detailed geophysical survey and soil investigation ahead of the TBM, along the proposed tunnel path. Particular features which were deemed to pose certain risks to the tunnel mining activities were identified, e.g. area of deep rockhead (or thick soil overburden), especially where soft/ loose soil is found within the tunnel path; area where there is high density of fractured rock and area where sizeable caverns in the rock mass are detected. Rock fissure grouting and compaction grouting were then instituted (Fig. 7).

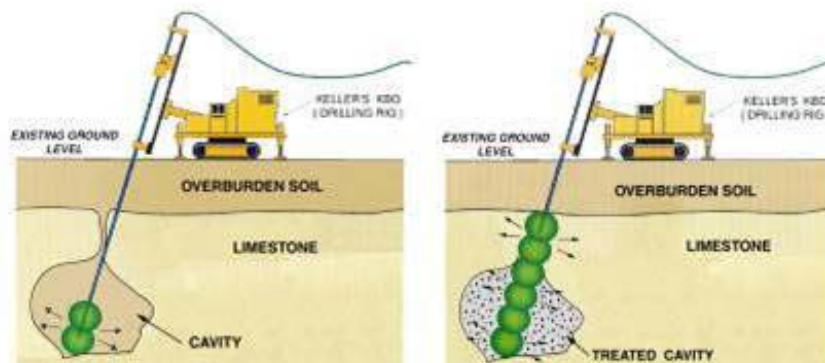


Fig. 7 Artist impression of cavity treatment

4.5 Grouting Behind Retaining Walls

The construction of some of the deep excavation shafts required retaining piled wall (usually contiguous bored piles). Jet grouting was instituted behind some of these walls to minimize water seepage and also to reduce lateral active earth pressures.

5 Grouting Techniques

5.1 Rock Fissure Grouting

Rock fissure grouting (Figs. 8 and 9) was used widely across the site. It was primarily used to form "grout curtain" around excavations to minimize water seepage and was applied at the excavation shafts and Cross Passages.

Case History (continued)

A Case History of Grouting in Limestone for Tunnel Project in Kuala Lumpur



Fig. 8 Depiction of fissure grouting and end product

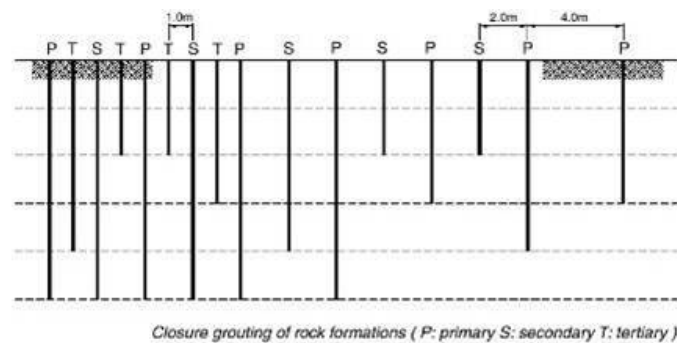


Fig. 9 Grouting using closure method

5.2 Compaction Grouting

Compaction grouting (Fig. 10) was implemented mainly to fill cavities and compact very loose soil overburden on site. Ground improvement using this method helps to reduce risk of sinkhole type collapse of sub-surface slump zones. Traditional slurry grouting tends to result in extensive grout travel, often to a distance far beyond the treatment zone and normally wastes large volumes of expensive grout; and whether the targeted soil zone is repaired or not, is uncertain. Compaction grouting process can be better controlled and was proven to be effective from post-treatment tests (Fig. 11).

5.3 Jet Grouting

Jet Grouting is a well-established type of cement soil stabilization (Essler and Yoshida, 2004). For the SMART project, the method was applied to seal gaps between retaining wall piles, reduce lateral earth pressures acting on the walls and to form grout blocks at some cutterhead interventions. Up to 3.0m diameter columns have been installed.

6 CONCLUSIONS

Like most ground improvement works, grouting works are mainly carried out by specialists and involve more than just simply drilling a hole in the ground and injecting grout slurry. The design of the treatment (e.g. spacing between grout holes, pumping pressure and appropriate mix for the given soil, etc.) needs to be given sufficient consideration. The requirements of existing standards should be adhered to, especially with regards to quality control procedures (e.g. BS_EN12715 (2000)). The SMART project afforded ground engineers with the unique challenge of mitigating ground disturbance associated with construction work in Limestone, using grouting technology. Experience from nearly 3 years of grouting for this project has shown that the available technology is effective in minimizing water seepage and ground disturbance. It has demonstrated that the success of grouting depended on proper identification of the problem by experienced engineers and subsequent implementation of appropriate mitigating measures (using suitable type of grout, grout parameters, etc.). Proper equipment and tools have to be used and such specialised works required close supervision by experienced personnel. Since grouting works cannot be assessed visually, a strict quality control system was essential to ensure the desired end result was achieved.

Case History (continued)

A Case History of Grouting in Limestone for Tunnel Project in Kuala Lumpur

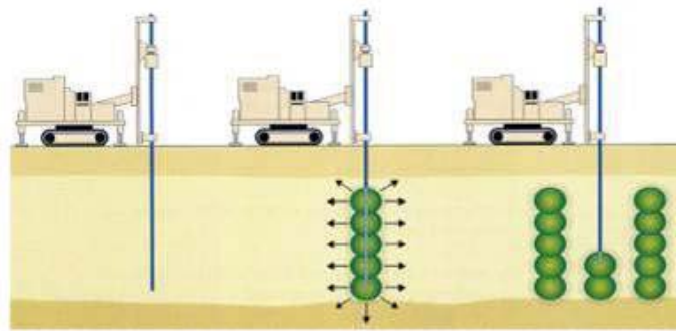


Fig. 10 Schematic drawing of compaction grouting process

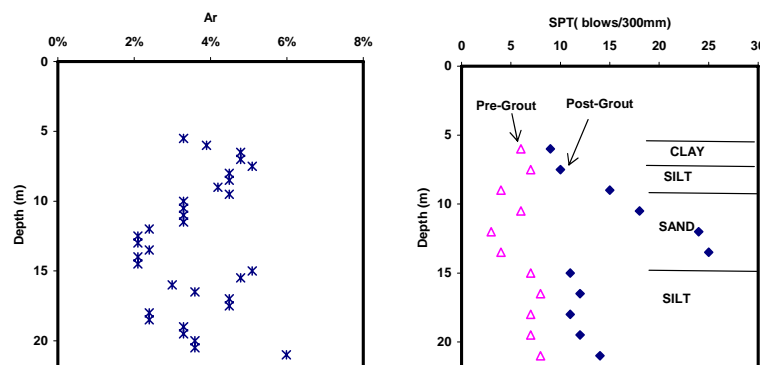


Fig. 11 Plot of depth versus area replacement ratio and pre & post compaction grouting SPT blowcounts

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View of Young Geotechnical Engineers

Report of XVIII EYGEC (18th European Young Geotechnical Engineers' Conference)

The XVIII EYGEC was held in Italy from 17 to 20 June 2007. The conference venue was the Excelsior Hotel La Fonte, where all delegates were also hosted. The conference was organised by the Technical University of Marche (UPM) in Ancona and the Italian Geotechnical Association (AGI), under the auspices of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). The event was organised according to the usual familiar style, in order to enable free discussions and exchange knowledge and information among participants. Participation of the European countries was the largest in the history of the European Young Geotechnical Engineers' Conferences: 29 countries were represented by one or two delegates, for a total of 51 delegates nominated. 50 of them sent their papers and 47 attended the conference and gave their presentation. Most of delegates (about 70%) came from Universities or Research Institutes, whereas the others from professional world.

Conference programme and contents

The conference was structured in opening session, keynote lectures, delegates' sessions and closure. In the opening ceremony, Prof. Erio Pasqualini of the Technical University of Marche welcomed all participants also on behalf of the President of AGI. Then both the ISSMGE President, Prof. Pedro Seco e Pinto and the ISSMGE Vice-President for Europe, Prof. Roger Frank, gave their welcome and illustrated the role and terms of reference of ISSMGE and of international and regional technical committees, as well as the main conferences programmed for the near future. Four keynote lectures were given by Eminent Professors. All of them gave a fundamental contribution to the scientific and technical knowledge of participants. Prof. Michele Jamiolkowski (Technical University of Torino - Italy, ISSMGE Past President) delivered his lecture on "Safeguarding Venice Lagoon against High Tides"; in particular, he showed the selected solution against tides and discussed the geotechnical characterization of the heterogeneous subsoil of Venice lagoon and the main foundation problems (construction and settlements) of the anti-flood mobile barriers. Prof. William Van Impe (Ghent University - Belgium, ISSMGE Immediate Past President), illustrated a case of "Underwater Ground Improvement", as an earth dam foundation; after some considerations on the stage construction principles, the research activities for the optimising of the cement type of binders and the mixing method were deeply analysed, as well as the results of the monitoring of the dam structure. Prof. Pedro Seco e Pinto (LNEC Lisbon - Portugal, ISSMGE President) delivered his lecture on "New developments of tunnelling engineering", in which he clearly summarised critical aspects of design, construction, monitoring and performance of tunnels also in seismic conditions. The lecture by Prof. Roger Frank (ENPC Paris - France) titled "A few aspects of Eurocode 7 - Geotechnical Design", was mainly devoted to the significance of characteristic values of geotechnical parameters, ultimate limit states design approaches and serviceability limit states and deformations of structures. Presentations of the delegates were collected in six sessions: Landslides and Slope Stability (6 contributions), Dikes and Embankments (5), Foundations (13), Soil Behaviour and Modelling (13), Environmental Geotechnics (5), Soil Improvement (5). Contributions on Soil Behaviour and Modelling and on Environmental Geotechnics were almost only by delegates from academic world. At the end of each session a fruitful discussion was always held, with full participation of delegates and lecturers, and good interaction between theoretical and practical aspects. The closure of the conference by Prof. Seco e Pinto, Prof. Frank and Prof. Fratolocchi was the occasion to recognise that delegates had presented original works or researches of high level, both in traditional and innovative fields of geotechnical engineering. The organising committee, lecturers, chairmen and all delegates were warmly thanked.



Delegates, lecturers and organising people

Despite the busy conference schedule, the organising committee did not neglect social activities. A welcome dinner was organised the first day of the conference, during which delegates and lecturers could meet and enjoy together the atmosphere of the Portonovo Bay. The conference dinner was held on the beach, enjoying local fish cuisine, wines and music. All delegates, lecturers and organisers actively participated to this event, dancing and singing till late in the night.

Final remarks

All delegates and lecturers warmly recognised that the XVIII EYGEC was a successful event as it gave them the opportunity to exchange views and information, form new friendship and keep pleasant memories of the event. I would sincerely thank all of them for their active presence during the conference, which was the real key for this successful event. ISSMGE, AGI, UPM and Trevi Group are also sincerely thanked for their financial support.

Reported by Evelina Fratolocchi, chair of the XVIII EYGEC Organising Committee

TC Activity

TC 4: Earthquake Geotechnical Engineering and Associated Problems

More than 20 years TC4 has provided the main forum for ISSMGE members in the area of earthquake geotechnical engineering and made significant contributions in responding to the hazards and challenges posed by the major earthquakes. Considering recent significant damage by natural and man-made hazards in the Asian or other regions, TC4 activities have been expanded to cover not only earthquake geotechnical engineering in its narrow sense but also to embrace a wider spectrum of earthquake-associated geotechnical problems. These may include earthquake-induced slope failures influenced by rainfalls, ground motion-related building damage, ground devastation by tsunami, or their even socio-economic aspects. World-wide collaboration and cooperation should be directed to mitigate such complex hazards through the efforts in geotechnical engineering.

In June 25-28, 2007, we have had 4th International Conference on Earthquake Geotechnical Engineering in Thessaloniki, Greece. In the 4 days conference, totally 485 papers were submitted and more than 600 people from 47 countries participated, surprisingly large number as a specialized theme conference. The chairman of the Organizing Committee, Prof. Kyriazis Pitilakis said "TC4 is getting strong and powerful". To substantiate his statement, although the number of core members are limited, the total members of TC4 exceed 50, still increasing because of new applications from many national societies. This indicates how earthquake related problems draw great attention of geotechnical engineers all over the world. In the TC4 meeting during the Conference, it was unanimously decided that the next TC4 Conference, 5th ICEGE, will be held in Chile hosted by Chilean Geotechnical Society (President: Prof. Ramon Verdugo) in January 2011.



Opening ceremony of 4ICEGE in Thessaloniki,



Panel members in closing ceremony of 4ICEGE

TC4 will be publishing Case History Volume accommodating earthquake-induced geotechnical failures with well-instrumented geotechnical and earthquake data of good qualities from all over the world. It would serve as a benchmark for international researchers to rely on in developing performance-based design methodologies in earthquake geotechnical engineering.

In July 2009, at the occasion of publishing the case history volume, TC4 will hold IS-Tokyo: "International Conference on Case History and Performance-based Design in Earthquake Geotechnical Engineering" near Tokyo. The details of the conference will be finalized in a few months and announced in website.

Reported by Takaji Kokusho, chairman of TC4

TC Activity

TC 29: Laboratory Stress Strain Strength Testing of Geomaterials

Technical Committee TC-29 covers the Laboratory Stress Strain Strength Testing of Geomaterials. It was first set up in 1995, following the IS-Sapporo Conference held in Hokkaido, Japan on the Pre-failure Deformation Behaviour of Geomaterials, reflecting rising research interest in the measurement of 'small-strain' characteristics and practical appreciation the implications of the measured steep stiffness non-linearity on field behaviour; Professor Fumio Tatsuoka was the first Chairman. While Professor Richard Jardine of Imperial College London took the chair from 2001, Professor Satoru Shibuya from Kobe University, Japan, has acted as Secretary for the last 12 years.

The main 'TC-29' International Symposia (IS) organised over this period include the Geotechnique Symposium in Print in London (1997), IS-Torino (1999) and IS-Lyon (2003), with other half, or single, day workshops held at other times. Our committee offered a workshop session at the Osaka (2005) ICSMGE and our Chairman produced a General Report on the Conference's laboratory based papers. The next major meeting will be IS-Atlanta, to be held in Georgia (USA) in September 2008.

The current TC-29 core members are Professors David Airey (Australia), Matthew Coop (UK), Herve Di Benedetto (France), Jun-Ichi Koseki (Japan), Diego Lo Presti (Italy), Glen Rix (USA), Abraham Dias-Rodriguez (Mexico) and Alberto Sayao (Brazil); our other committee members are listed on our website: <http://www.jiban.or.jp/e/tc29/index.htm>.

TC Activity (continued)

TC 29: Laboratory Stress Strain Strength Testing of Geomaterials

The Committee now covers a broader range of topics and its current Terms of Reference are as follows:

1. To promote co-operation and exchange of information concerning research and developments in advanced laboratory geotechnical testing, including apparatus, techniques, data acquisition and interpretation.
2. To encourage the application of advanced laboratory testing in research in integrated site characterisation studies and in ground modelling.
3. To explore how advanced testing can be used most constructively in practical geotechnical engineering.
4. To advance the above aims through collaboration with specialists working in laboratory and field testing, sampling, theoretical and numerical analysis, and in project engineering and full scale observation. This will involve close liaison with other ISSMGE Technical Committees.

Activities since Osaka ICSMGE

TC- 29 has held three short symposia since the Osaka Conference. The first was given at Imperial College on 20th March 2006 and covered the advanced laboratory testing of stiff clays. This involved seven presentations covering aspects from micro-fossils, to establishing anisotropy through advanced HCA and stress path triaxial techniques, and field studies including the prediction of failure times in slopes made from the same materials. Photographs of some of the equipment used in the research and results obtained are shown opposite. An international audience of around 100 academics and practical engineers attended and the session preceded the Rankine Lecture (given by Professor Robert Mair) and the Rankine dinner. Much of the material presented was published formally in the February 2007 Geotechnique volume, which formed a substantial part of the May 2007 Geotechnique Symposium in Print.



Hong Kong Symposium Question and Answer session - Professor KT Chai (left), Professor Richard Jardine (the middle) and Professor J. Carlos Santamarina.

A second one-day International Symposium covering Advances in Laboratory Testing of Geomaterials was held on 3 June 2006 at the Hong Kong Polytechnic University. This event was jointly organized by Hong Kong Geotechnical Society and the Hong Kong Polytechnic University, under the auspices of TC-29. The symposium provided a forum for researchers and practicing engineers to meet together and share ideas, achievements and experience, with the accent on New Developments and Applications. Richard Jardine gave the first of the invited talks, followed by 11 further specialists drawn from the world and the local geotechnical community. There were approximately 200 attendees, mostly from the local community and the event was followed by a wonderful Chinese dinner.

Our third TC-29 symposium was held at Imperial College on 21st March 2007. The theme was New Perspectives on the Element Testing of Particulate and Discontinuous Geomaterials. Six presentations were offered by speakers from the UK, Italy and the USA with some interesting discussion that continued as the 100 plus audience moved from the Civil Engineering Department to take up their seats in the Great Hall for the excellent 2007 Rankine Lecture delivered by Professor Antonio Gens, which was followed by the Rankine dinner.

IS Atlanta - 2008

Our key activity for 2008 will be the 4th International Symposium on the Deformation Properties of Geomaterials, which will be held from 22nd to 24th September at the Georgia Institute of Technology. The intention is to attract some 200 participants to Atlanta for this premier event. Details are found at: <http://www.isAtlanta2008.org/>

The broad themes of the conference will be on advances on field and laboratory characterization, with focused themes including:

- Small-strain stiffness of geomaterials, including effects of anisotropy, strain rate, ageing, lab-field comparisons, and modulus reduction behavior.
- Influence of discontinuities on deformation properties - shear bands, compaction bands, desiccation fractures, ice lensing, and polygonal faults
- Influence of spatial variability on deformation properties - the effects of spatial variability and anisotropy on the deformation response of soils
- Deformation properties of improved soils - the deformation properties of treated soils or soils with man-made inclusions
- Performance-based geotechnical engineering - design approaches and case studies focusing on performance-based geotechnical engineering

The local Organizing Committee consists of Professors Paul Mayne, J. Carlos Santamarina and Glenn Rix. A distinguished international Organizing Committee has also been formed. The event is being organized in cooperation with TC 16 (Ground Property Characterization by In-Situ Tests: www.geoforum.com/tc16) and TC-35 (Geomechanics from Micro- to Macro: <http://www.issmge.org/home/page.asp?sid=296&mid=2&ld=399>) The Proceedings will be published in two hard-bound volumes with CD versions by Millpress, edited by Susan Burns of Georgia Institute of Technology.

Reported by Richard Jardine, chairman of TC29

Activity of Member

The CFMS (Comité français de mécanique des sols et de géotechnique), France



JNGG Conference in Lyon (2006)

The "Comité français de mécanique des sols et de géotechnique" (CFMS) was created in 1948. At the end of 2006 the CFMS was composed of approximately 500 members including 50 collective members. The CFMS is organised with a Board, a Council and a Technical Commission. The main national activities include the organization of approximately five technical meetings per year, half or full day. One or two of them is held in cooperation with neighbours committees (Belgium, Spain, UK, etc.). In addition, a two days National Conference named JNGG ("Journées Nationales de Géotechnique et de Géologie de l'Ingénieur") is organised every two years since 2002 in co-organisation with the CFGI (Engineering Geology) and CFMR (Rock Mechanics), the French branches of IAEG and ISRM.

The CFMS, together with CFMR and CFGI, publishes the French Geotechnical Journal called "Revue Française de Géotechnique" (RFG, four issues per year). This is one of the actions carried out by CFMS for the promotion of the francophone culture in Geotechnics, together with its

active participation in the "Commission for the Coopération and the Francophonie" supported by the ISSMGE.

Two other specific events can be pointed out:

- From 2008, the KERISEL prize, a special prize dedicated to young geotechnical researchers to be handed every two years during the JNGG Conference
- Since 2001, the COULOMB Conference, a special conference given every year by a recognized professional engineer or professor in soil mechanics, alternatively from France and from abroad.

Many French representatives of CFMS are active in most of the Technical Committees of ISSMGE. In addition the CFMS created some local committees that are active for a few years.

The active ones are presently:

- legal aspects of geotechnical practise,
- numerical modelling,
- geotechnical teaching,
- foundations for wind turbines and cranes.



Jean Kerisel
Former President of CFMS (1969-73)
and of ISSMGE (1975-79)

News

ISSMGE Touring Lectures in Croatia

ISSMGE Touring Lectures were held in Cavtat-Dubrovnik on 17-20 May 2007 with the theme of Eurocode 7 on Geotechnical design. The intention was to gather a forum of designers from Croatia and the neighboring countries, who would attend lectures delivered by European most prominent experts on Eurocode 7, as well as a lecture delivered by the President of ISSMGE on geotechnical aspects of Eurocode 7. The invited lectures were held by Roger Frank (Vice-President of ISSMGE for Europe, past Chairman of the European Committee for Eurocode 7), Tomislav Ivšić from Croatia, Trevor Orr (Chairman of ISSMGE/ European Technical Committee ETC10 on Evaluation of EC7), Bernd Schuppener (Chairman of the European Committee for Eurocode 7), Pedro Seco e Pinto (President of ISSMGE), Brian Simpson (Past Vice-Chairman of the European Committee for Eurocode 7), and Antun Szavits-Nossan from Croatia. There were 81 participants, 63 from Croatia, 12 from Slovenia, and 1 from Bosnia-Herzegovina. It was a very important event for Croatian geotechnical engineers, who received a general overview of Eurocode 7 and its implementation in European countries, detailed information on the implementation of Eurocode 7 in France, Germany, Ireland, Portugal and UK, as well as some very interesting examples related to the application of Eurocode 7. The participants actively participated in discussions in order to be able to make the preparations for the Croatian National Annex for Eurocode 7.

The Croatian Geotechnical Society is grateful to ISSMGE and its President for making it possible for Croatia to host ISSMGE Touring Lectures on Eurocode 7, and its Vice-President for Europe for initiating the participation of invited lectures from abroad, who made the ISSMGE Touring Lectures in Croatia a great success.

News

4th International Conference on Geotechnical Earthquake Engineering 4ICEGE, Thessaloniki 2007



Prof. K. Pitilakis (right), Chairman of the 4ICEGE receives the symbol of ICEGE from Prof. R. Seed (left), Chairman of the 3ICEGE.

The Fourth International Conference on Geotechnical Earthquake Engineering was held in Thessaloniki - Greece, from 25-28 June 2007. The Conference was organized by the Technical Committee of Earthquake Geotechnical Engineering (TC4) of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE), the Hellenic Scientific Society of Soil Mechanics and Geotechnical Engineering and Aristotle University of Thessaloniki - Laboratory of Soil Mechanics, Foundation and Geotechnical Earthquake Engineering. More than 600 participants attended the Conference from 47 countries. The attendees included a vast majority of world experts in soil dynamics, earthquake engineering, geotechnical engineering, earthquake geotechnical engineering and other related topics. The conference covered numerous state-of-the-art topics.

In the 4ICEGE THESSALONIKI 2007 earthquake and geotechnical engineers, geologists and seismologists, researchers, academia and professional engineers from all over the world found an excellent forum for sharing and discussing the most recent advances in soil dynamics, earthquake and geotechnical engineering, as well as their interaction with geology and engineering

seismology. Twenty invited keynote and theme lecturers were presented and discussed recent and ongoing developments, addressing unresolved issues and projecting ideas for the future. The second Ishihara Lecture was delivered by Professor Izzat M. Idriss of the University of California at Davis (UCD) on the SPT- and CPT-Based procedures for estimating residual strength of liquefied soils. Keynote lectures were given by Professors D.Muir-Wood (UK), E. Faccioli (Italy), G. Gazetas (Greece), R. Dobry (USA), S. Iai (Japan), and Professor Th.O'Rourke (USA). State of the art and theme lectures were delivered by Professors T. Kokusho (Japan), A. Ansal (Turkey), K. Stokoe (USA), F-J. Chavez-Garcia (Mexico), M.Pender (New Zealand), G. Bouckovalas (Greece), P.Dakoulas (Greece), R.Boulanger (USA), J. Bray (USA), I.Towhata (Japan), A. Kiremidjian (USA), S.Yasuda (Japan), R. Paoluci (Italy) and K. Pitilakis (Greece). Invited lectures were also given by Professor M. Jamiolkowsky (Italy) on the Behavior of the leaning Tower of Pisa after stabilization works and by Professor R.Seed (USA) on Lessons from disaster: New Orleans and hurricane Katrina.

420 papers from 40 countries have finally been accepted for publication after a thorough reviewing process. One third of the papers have been presented orally and the rest in special poster sessions. Poster papers have been summarized and discussed by the panelists of the sessions. Four workshops on selected topics of particular engineering and societal interest included in parallel sessions on the fourth day of the conference and followed by round table discussions, aiming to broaden the horizons of the earthquake and geotechnical engineering community, to discuss specific important subject of professional interests and to reinforce cooperation links: The titles of the workshops are following:

- Workshop 1: "Large scale facilities, geotechnical strong ground motion arrays and experimental sites", coordinated by Professor Ahmed Elgamal (USA).
- Workshop 2: "Geotechnical earthquake engineering related to monuments and historic centres", coordinated by Professor Kyriazis Pitilakis (Greece) and Dr Christos Tsatsanifos (Greece).
- Workshop 3: "Recent advances in codes", coordinated by Professor A.Pecker (France).
- Workshop 4: "How can earthquake geotechnical engineering contribute to safer design of structures to resist earthquakes?" coordinated by Professor P. Seco e Pinto, President of ISSMGE (Portugal).



From the Gala dinner

The plenary meeting of TC4 was held in Thessaloniki where the chairmen of TC4 Professors T.Kokusho and A.Ansal presented the progress report on the past activities. Professor R.Verdugo from Chile presented the candidacy of Santiago in Chile for the next 5th International Conference on Earthquake Geotechnical Engineering which has been voted in unanimity. On the occasion of 4ICEGE a special session was also devoted to the Annual Shamsheer Prakash Research Awards. The winners were Jonathan Stewart (USA) and Mitsuo Okamura (Japan). A commercial exhibition displayed some of the most important and active companies with geotechnical equipment and services available for researchers and professional engineers. The proceedings of the conference include (a) a book published by Springer (ISBN 978-1-4020-5892-9) containing the invited keynote and theme lectures, (b) an abstract volume and a CD-ROM with the 420 papers of the conference, and (c) an extra CDROM with papers of the workshops, and other delayed papers. In summary the conference was a very successful event of worldwide importance. Further information is available at www.4icege.org.

Reported by Kyriazis Pitilakis, Chairman of 4ICEGE

News

Ralph B. Peck- Educator and Engineer. The Essence of the Man by John Dunnycliff and Nancy Peck Young

Book Review by Alain Pecker



How can the title of a book be more appropriate and self explanatory? Everything about Prof. Peck's personality is contained in this title. Every geotechnical engineer knows Prof. Peck as the author of the most famous book "Soil Mechanics in Engineering Practice" co-authored with Prof. Terzaghi and has used it as a text book in his soil mechanics courses. Doubtless he still has it on his bookshelves, as I do and more than often browses through it when he is facing an unusual and difficult situation. However this only refers to one aspect of Dr Peck's personality and will not give full credit to the man; Dr Peck was not only a respected professor but also an outstanding engineer in the full meaning of the word and this corresponds to his early wishes as we learn from an essay written when he was 19 years old: "Why I prefer to be an engineer". He considered that imagination and leadership are two essential attributes of the engineer who is rewarded by solving difficult problems. All these qualities are those that Dr Peck has continuously shown during his professional career. But even more surprisingly for such a young man is the pre-eminence he gave to physics over engineering calculations. This way of thought has guided him during his entire professional career; "No theory can be considered satisfactory until it has been adequately checked by actual observations" and "simple calculations ... are better than elaborate ones based on limited input". This is exactly, as far as I can remember, the words Dr Peck told me when I got excited during the design of the foundations of the Rion

Antirion bridge; I felt ashamed not to have remembered this advice that I have heard 30 years earlier when I was a young graduate student at Berkeley and Dr Peck was the guest lecturer at the annual banquet of the geotechnical department.

Although very important, these words of wisdom are only a small part of the book which really constitutes a jewel for any geotechnical engineer. In the first part a self portrait recalls Dr Peck's life; we are told about his first years in Louisville, Detroit and Denver which led him to his graduate studies at Rensselaer Polytechnic Institute; his father is always present throughout these years and "gave me my greatest influence towards this line of work". Dr Peck guides the reader from the early stages to the present stage of the soil mechanics science. It is hard to realize now that a little more than half a century ago soil mechanics simply did not exist and that he could be advised "to go to Harvard and learn something about the new subject of soil mechanics". This journey back in the early days of soil mechanics gives an opportunity to meet all the great people whose influence on soil mechanics has been of paramount importance: Terzaghi of course, Casagrande, Skempton, Bjerrum to quote the most famous ones. This Norwegian connection which started with Laurits Bjerrum and continues today with Suzanne Lacasse culminated with the installation of the Peck library at the Norwegian Geotechnical Institute. Meanwhile we discover the impressive number and variety of consulting jobs in which Dr Peck was involved: dams, tunnels, bridges, rapid transit systems, nuclear power plants even if technical issues were not always, to his regret, at the central core of these latter projects. From each of them we learn the way to deal rationally with technical issues: just quoting one example, amongst several others, the example of the Portage Mountain (Bennett) dam is revealing: the sinkhole discovered near the crest of the dam should have a physical origin (installation of an inclinometer in that case) and Dr Peck early suspected this cause; however, he did not feel comfortable until he could notice that his intuition was correct. The lesson is clear: we must always search for the physical meaning of any observation but must not be blind and confident unless it is confirmed by observation.

All this experience gained on actual jobs has been advantageously used for teaching, following Terzaghi's early advice "you do not yet know enough to teach. You must get a job that will give you more experience". This gave rise to the creation of the geotechnical department at Illinois and to the course on "case histories in soil mechanics" in which the students are put in the same situation as the design engineer with an obligation of summarizing their findings in one page. Having gone through the same kind of exercise (several years later) for my civil engineering degree in France, I fully adhere to the students opinions claiming that "this was the best lesson [they] learned in the University". At a period when we are overwhelmed with information, documents, publications, etc. we realize how important this lesson is and we can just admire Prof. Peck's vision. Clearly, we should also seriously consider Dr Peck's feelings about the coming years with the prominence of lawyers, the increase in routine computations, the catastrophic consequences of sophisticated analyses of incorrectly characterized ground condition.

Finally, the reader will have a chance to rediscover several selected publications, most notably on "Engineering Practice" and "Observations and Instrumentation" with the development of the observational method. Development of soil mechanics will certainly continue and explore paths that cannot be thought of today; however the new generations must not forget Ralph Peck's heritage and remember that, paraphrasing Richard Newton, "If those who follow see further than their predecessors it will be because they are standing on the shoulders of giants". Ralph. Peck is clearly one of these giants as attested by the numerous testimonies of colleagues and friends at the end of the book. His heritage is contained in this book and we must be grateful to him not only for having contributed to the creation of this new science that constitutes our every day life, for having formed so many engineers but also for offering us an opportunity to share part of his experience through this book. These thanks must be extended to John Dunnycliff and Nancy Peck Young for assembling all this material.

Event Diary

ISSMGE SPONSORED EVENTS 2007

10th Australia - New Zealand Conference on Geomechanics
Date: 21 - 24 October 2007
Location: The Hilton, Brisbane, Brisbane, Queensland, Australia
E-mail: anzgeo2007@ccm.com.au
Website: www.anzgeo2007.com

5th International Symposium on Earth Reinforcement (IS Kyushu '07)
Date: 14 - 16 November 2007
Location: Fukuoka, Japan
Contact person: Prof. Jun Otani (iskyushu@kumamoto-u.ac.jp)
Website: www.nda.ac.jp/cc/users/miyamiya/is-kyushu07/index2.htm

14th African Regional Conference on Soil Mechanics and Geotechnical Engineering
Date: 26 - 28 November 2007
Location: Yaoundé, Cameroon
Website: www.CRA-YDE-2007.org.cm

13th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering
Date: 10 - 14 December 2007
Location: ITC Sonar Bangla Sheraton, Kolkata, India
Contact person: Dr N. Som
Website: www.13arc2007.com

2008

The 3rd International Conference on Site Characterization
Date: 1 - 4 April 2008
Location: Taipei Int. Conv. Center, Taipei, Taiwan
Contact person: An-Bin Huang (abhuan@mail.nctu.edu.tw)
Website: www.elitepc.com.tw/ISC3/

VI International Symposium Geotechnical Aspects of Underground Construction in Soft Ground - IS- Shanghai 2008
Date: 10 - 12 April 2008
Location: Shanghai, China
Contact person: Dr. Xiongyao Xie (secretary@tc28-shanghai.org)
Website: www.tc28-shanghai.org

2nd International Conference on Geotechnical Engineering for Disaster Mitigation and Rehabilitation- GEDMAR08
Date: 30 May - 2 June 2008
Location: Nanjing, China
Contact person: Dr. An Deng (GEDMAR08@hhu.edu.cn)
Website: www.GeoHohai.com/GEDMAR08

Development of Urban Areas and Geotechnical Engineering
Date: 16-19 June 2008
Location: Saint Petersburg, Russia
Contact person: Dr. Michael Lisyuk (mbl@georec.spb.ru)

10th International Symposium on Landslides and Engineered Slopes
Date: 30 June - 4 July 2008
Location: Xi'an, China
Contact person: Zuyu Chen (chenzy@iwhr.com)
Website: www.landslide.iwhr.com

E-UNSAT 2008: First European Conference on Unsaturated Soils
Date: 2 - 4 July 2008
Location: Durham University, Durham, UK
Organizer: Durham & Glasgow Universities
Contact person: Dr Charles Augarde (e-unsat@durham.ac.uk)
Website: www.e-unsat.dur.ac.uk/

1st International Conference on Transportation Geotechnics
Date: 8-10 September 2008
Location: Nottingham, UK
Contact person: Ed Ellis (tc3conference@nottingham.ac.uk)
Website: www.nottingham.ac.uk/ngc/

5th Bored and Auger Piles Conference
Date: 8 - 10 September 2008
Location: Ghent, Belgium
Contact person: Prof. William Van Impe
E-mail: william.vanimpe@ugent.be

Stress Wave 2008 - 8th International Conference on the Application of Stress Wave Theory to Piles
Date: 8 - 10 September 2008
Location: Lisbon, Portugal
Contact person: Prof. Jaime Santos (sw2008@civil.ist.utl.pt)
Website: www.civil.ist.utl.pt/sw2008

11th Baltic Sea Geotechnical Conference - Geotechnics in Maritime Engineering
Date: 15 - 18 September 2008
Location: Gdansk, Poland (BC11@pg.gda.pl)
Website: www.pg.gda.pl/~BC11

4th International Symposium on Pre-Failure Deformation Characteristics of Geomaterials and Symposium on Characterization and Behavior of Interfaces
Date: 21 - 24 September 2008
Location: Global Learning Center, Atlanta, Georgia, USA
Contact person: Glenn J. Rix (glenn.rix@ce.gatech.edu)

IV International Conference on Scour and Erosion 2008
Date: 5-7 November 2008
Location: Chuo University, Tokyo, Japan
Contact person: Professor Sekiguchi (sekiguch@ujigawa.mbox.media.kyoto-u.ac.jp)
Website: icse-4.kz.tsukuba.ac.jp/

2009

XVII International Conference for Soil Mechanics and Geotechnical Engineering
Date: 5 - 9 October 2009
Location: Bibliotheca Alexandrina, Alexandria, Egypt
Website: www.2009icsmge-egypt.org/

Event Diary (continued)

NON-ISSMGE SPONSORED EVENTS 2007

60th Canadian/8th CGS_IAH Conference

Date: 21 - 24 October 2007
Location: Westin Hotel, Ottawa, Ontario, Canada
Contact person: K. Tim Law (tlaw@ccs.carleton.ca)
Website: www.ottawageo2007.ca

1st Middle European Conference on Landfill Technology

Date: 19-20 November 2007
Location: Budapest, Hungary
Contact person: submission@ymmfk.szie.hu
Website: www.geotec.bme.hu/issmge/indexen.html

International Symposium on Geotechnical Engineering, Ground Improvement and Geosynthetics for Human Security and Environment Preservation

Date: 6-7 December 2007
Location: Bangkok, Thailand
Contact person: ACSIG Secretariat (acsig@ait.ac.th)

2008

International Conference on Geotechnical Engineering

Date: 28-30 March 2008
Location: Tunis, Tunisia
Contact person: Dr. Essaieb Hamdi (essaieb.hamdi@enit.rnu.tn)

GEESD IV - Geotechnical Earthquake Engineering and Soil Dynamics IV

Date: 18 - 22 May 2008
Location: Sacramento, California, USA
Contact person: Ross W. Boulanger (rwboulanger@ucdavis.edu)

Website: www.geesd.org

2nd British Geotechnical Association Conference on Foundations- ICOF2008

Date: 24 - 27 June 2008
Location: University of Dundee, Dundee, Scotland, UK
Contact person: Dr. Michael Brown
E-mail: m.j.z.brown@dundee.ac.uk
Website: www.dundee.ac.uk/civileng/icof2008

33rd International Geological Congress

Date: 4 - 15 August 2008
Location: Oslo, Norway
Contact person: 33rd IGC
Website: www.33igc.org

6th International Conference on Case Histories in Geotechnical Engineering

Date: 11 - 16 August 2008
Location: Washington, D.C., USA
Contact person: CShamsher Prakash (prakash@umr.edu)
Website: www.6icchge2008.org

XII International Conference of IACMAG

Date: 1 - 6 October 2008
Location: India
Contact person: Dr. D. N. Singh (dns@civil.iitb.ac.in)
Website: www.12iacmag.com


NUCGE 08: International Conference on Numerical Computation in Geotechnical Engineering

Date: 27-29 October 2008
Location: University of Skikda, Skikda, Algeria
E-mail: larmacs@univ-skikda.dz, nucge08@gmail.com
Website: www.univ-skikda.dz

Editorial Remarks

The editorial board is pleased to send the ISSMGE members ISSMGE Bulletin Vol.1, Issue 3 in September 2007, which includes a message from the Vice-President for Asia, a case history of grouting in limestone for tunnel project and other interesting articles. Contributions from member society, TC, or individual members are very much welcome. Any comments to improve the Bulletin are also welcome. Please contact a member of editorial board or Vice-President for the region, or directly e-mail to Osamu Kusakabe (kusakabe@cv.titech.ac.jp).

Osamu Kusakabe

<p>ISSMGE City University Northampton Square, London EC1V 0HB United Kingdom</p> <p>Phone: +44 (0) 20 7040 8154 Fax: +44 (0) 20 7040 8832 Email: secretariat@issmge.org Website: www.issmge.org</p>	
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Corporate Members



Acciona Infraestructuras SA
Avenida de Europa 18
Parque Empresarial La Moraleja
28108 ALCOBENDAS MADRID
SPAIN



Bauer Maschinen GmbH
Wittelsbacherstr. 5
86529 Schrobenhausen
GERMANY



Fugro N.V.
PO Box 41
2260 AA Leidschendam
NETHERLANDS



GeoDelft
PO Box 69
2600 AB Delft, NETHERLANDS



Georeconstruction Engineering Co
Izmaylovsky Prosp. 4., of. 414
Saint Petersburg, RUSSIA



Geo-Research Institute
Osaka Soil Test Laboratory
1-8-4, Otsubo-Honmachi
Nishi-ku, Osaka, JAPAN



Golder Associates Inc
8933 Western Way, Suite 12
Jacksonville, FL 32256
USA



Jan de Nul N.V.
Tragel 60, B-9308 Hofstade-Aalst
BELGIUM



Keller Group Limited
Aztec House
397-405 Archway Road
LONDON N6 4EY, UK



Kiso-Jiban Consultants Co., Ltd.
1-11-5 Kudan-kita
Chiyoda-ku, Tokyo, JAPAN



NAUE GmbH Co KG
Gewerbestrasse 2
32339 Espelkamp-Fiestel
GERMANY



Norwegian Geotechnical Institute
P.O. Box 3930 Ullevaal Stadion
N-0806 OSLO
NORWAY



Sinotech Engineering Consultants, Inc.
171 Nanking E. Rd., Sec. 5
Taipei 105, TAIWAN
REPUBLIC OF CHINA



SOLETANCHE BACHY SA
6 rue de Watford
92000 NANTERRE BP511
FRANCE



S.N. Apageo S.A.S.
ZA de Gomberville
BP 35 - 78114 MAGNY LES HAMEAUX
FRANCE



Tensor International Ltd
New Wellington Street
Blackburn
Lancashire BB2 4PJ
UK



Terre Armée & Menard Soltraitment
Soiltech - R & D Division
2 Rue de Gutenberg
91620 Nozay
FRANCE



Tokyu Construction Co., Ltd.
Attn: Yujiro Aoki
Institute of Technology
3062-1, Tana Sagamihara
Kanagawa, JAPAN



TRACTEBEL DEVELOPMENT ENGINEERING S.A.

Tractebel Development Engineering SA
Transportation Division
Geotechnology Section
7 Avenue Ariane B-1200, BRUSSELS
BELGIUM



gINT Software
Attn: Salvatore Caronna
7710 Bell Road
Windsor, CA 95492-8518
USA