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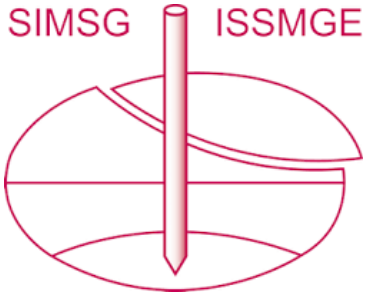

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4th International Young Geotechnical Engineers Conference
Quatrième Congrès International des Jeunes Ingénieurs Géotechnicien

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1 INTRODUCTION

The idea of bringing together research students in the field of Geotechnical Engineering from different universities in the United Kingdom to present and discuss their research work, started in 1980 at City University, U.K. Due to the importance of interacting internationally, the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) held the first international conference for young geotechnical engineers at Southampton University, U.K. in 2000, which was followed by the second in Romania in 2003. Since then the conference has been held in conjunction with the main ISSMGE international conference on soil mechanics and geotechnical engineering, which takes place every four years in a different city around the world.

The aim of the young engineers' conference is to enhance the development of new generations of geotechnical engineers by bringing them together to share knowledge and experiences with their international counterparts in the field of geotechnical engineering.

2 THE 4IYGEC

As host of the 17th International Conference on Soil Mechanics and Geotechnical Engineering (17th ICSMGE) in Alexandria, Egypt, 5th to 9th of October 2009, the Egyptian Geotechnical Society together with the Organizing Committee of the 17th ICSMGE planned the 4th International Young Geotechnical Engineers Conference (4iYGEC) to run concurrently with the main international conference.

Thus, under the auspices of the ISSMGE, the 4iYGEC was scheduled in Alexandria from the 3rd to 6th of October 2009. (On site conference registration took place on Friday the 2nd of October.) The idea behind the overlap with the main ICSMGE was to encourage young geotechnical engineers not only to pursue the conventional aims of iYGEC, but also to attend the first two days of the main conference to gain additional experience and a broader scope through interaction with senior engineers and academics in their field.

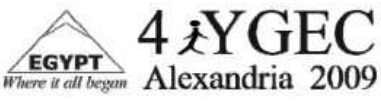

Figure 1. Symbol of 4iYGEC

To assure a successful conference, it was important to get as many ISSMGE member societies as possible to participate. Hence, there were hopes to receive one hundred and twenty delegates from sixty member societies - two delegates from each, as regulated by the international society. Therefore, each ISSMGE national society was asked to officially nominate two distinguished young geotechnical engineers with outstanding research projects as delegates to the 4iYGEC. Research students interested in participating in the 4th iYGEC were required to submit a paper on a theme of their choice to their national society; society delegate nominations to the 4iYGEC organizing committee followed the review and acceptance of a student's paper.

Participation at the 4iYGEC was restricted to those aged 35 years or younger on the date of the conference. Official delegates paid USD $450 each as a registration fee. The fees covered five nights accommodation in double rooms at the Hotel El Mahrousa, three meals per day, 4iYGEC conference proceedings and local transportation to the main ICSMGE conference. If they wished, delegates could also attend the main conference social events; however, they were required to pay the full social event fees to the main conference organizers. (The proceedings of the main conference were not included in the iYGEC registration fees.)

Figure 2. The 4iYGEC Conference Venue: Hotel El Mahrousa, Alexandria, Egypt

National societies wishing to nominate a third delegate to attend the 4iYGEC were allowed to do so, but the additional delegate was required to pay the *real* conference cost of USD $600. All 4iYGEC delegates, whether official or "additional," were invited to give oral presentations during the conference.

The result was 83 young geotechnical engineers from ISSMGE member societies in 42 countries attended a four-day program designed to advance their knowledge and development in geotechnical and ground engineering, as well as to promote an exchange of ideas and experiences that would enhance their futures in this field.

The conference received 89 papers from young geotechnical engineers, and 83 of those authors were able to attend and present their work at the conference in Alexandria. The participants came from 42 countries across six continents, including 11 delegates from Africa, 7 from the Americas, 21 from Asia, 2 from Australia and 42 from Europe.

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Table 1. Distribution of participants from different member societies

Society	Participants
Argentina	1
Australia	2
Austria	2
Belgium	3
Brazil	1
Canada	2
Croatia	3
CTGA*	2
Czech & Slovak	3
Denmark	2
Egypt**	6
France	2
Germany	2
Greece	2
Hong Kong	1
Hungary	2
India	1
Ireland	2
Italy	2
Japan	3
Kazakhstan	2
Korea	1
Macedonia	1
Mexico	1
Netherlands	2
New Zealand	2
Norway	2
Pakistan	3
Poland	1
Portugal	2
Singapore	2
Slovenia	1
South Africa	2
S.E. Asia***	4
Spain	2
Sweden	2
Switzerland	2
Thailand	1
Tunisia	2
Turkey	2
Ukraine	2
United Kingdom	2
United States	3
Total	89

* Algeria (although has not yet a society, it comes under CTGA), Burundi
** Egypt, being the host country, was permitted six delegates
*** Malaysia, Taiwan

Unfortunately, political reasons kept one nominated delegate from France and one from Switzerland, both Iranian nationals, from attending the conference. The three nominated delegates from Pakistan and the one from Mexico were also unable to attend for various other reasons.

3 OPENING CEREMONY

The first two days of the 4iYGEC - Saturday the 3rd and Sunday the 4th of October - took place at the Hotel El Mahrousa located on the sea front in Alexandria. The conference began on Saturday with an opening ceremony in which Prof. Fatma Baligh *(Chairperson of 4iYGEC Organizing Committee, Egypt*), Prof. Mamdouh Hamza *(Chairman of the,17th ICSMGE Organizing Committee, Egypt)*, Prof. Neil Taylor *(Secretary General ISSMGE, UK)* and Prof. Pedro Seco e Pinto *(President of ISSMGE, Portugal)* spoke in succession. They welcomed the participants and introduced the conference program and schedule of events.

Figure 3. Group picture of Delegates and 4iYGEC Organizing Committee following the opening ceremony

Leading into the technical program, Prof. Ahmed W. Elgamal (University of California, San Diego, USA) presented a plenary lecture on "3-dimensional Computational Simulation Techniques for Soil and Soil-Foundation Systems".

4 CONFERENCE TECHNICAL PROGRAM

The technical program on Saturday the 3rd and Sunday the 4th of October comprised of eight technical sessions with two sessions held in parallel each day. Each presentation was allocated 10 minutes with 5 minutes for discussion time.

The session topics were determined by the themes of the papers submitted by the young authors. At the end of each session, a symbolic prize was awarded for the best presentation.

Table 2. The main themes of the 4iYGEC

	Themes	Presentations
1	Soil Behaviour & Properties, New Concepts & Correlations (topic covered in two sessions)	11
2	Ground Improvement: Chemical, Mechanical & Reinforcement (topic covered in two sessions)	15
3	Seepage Flow, Contaminated Soil Treatment & Response	6
4	Land Slide & Slope Stability, Case Studies	11
5	Deep Foundation Design & Practice (topic covered in two sessions)	12
6	Performance of Different Types of Earth Retaining Structures (topic covered in two sessions)	13
7	Soil Structure Interaction, Risk Management	8
8	Underground Construction	9

Throughout the sessions authors discussed state-of-the-art laboratory techniques, soil-structure interactions, and the use of numerical models to solve geotechnical problems. The recurrence of discussion about the use of numerical models in research and practice exhibited the current interest and capabilities of the young geotechnical engineers.

Since some topics were covered by more papers than others, presentations were divided into two sessions.

Table 3. Schedule of 4iYGEC technical sessions

Saturday, 3rd of October	
08:00 – 09:00 am	Registration
09:00 – 09:45 am	Conference Opening Ceremony
09:45 – 10:30 am	Keynote Lecture
10:30 – 11:00 am	Refreshment Break
11:00 – 12:30 pm	Technical Sessions #1A, #2A
12:30 – 02:00 pm	Lunch
02:00 – 03:45 pm	Technical Sessions #1B, #2B
03:45 – 04:15 pm	Refreshment Break
04:15 – 06:15 pm	Technical Sessions #3, #4
07:00 – 08:30 pm	Dinner
Sunday, 4th of October	
09:00 – 10:30 am	Technical Sessions #5A, #6A
10:30 – 11:00 am	Refreshment Break
11:00 – 12:30 pm	Technical Sessions #5B, #6B
12:30 – 02:00 pm	Lunch
02:00 – 04:00 pm	Technical Session #7
02:00 – 04:30 pm	Technical Session #8
04:30 – 05:00 pm	Conference Summary & Closing Session
06:00 – 10:00 pm	Dinner & Cultural Evening
Monday 5th of October	
Schedule of 17th ICSMGE	
Tuesday 6th of October	
Schedule of 17th ICSMGE	
Wednesday, 7th of October	
09:00 – 10:30 am	Optional Technical visit

Figure 4. Delegates during technical session 6B

Figure 5. Delegate presenting his work in technical session 5A

As the conference comes within the framework of the 17th ICSMGE, participants of 4iYGEC were invited to attend the plenary sessions held on the first two days of the 17th ICSMGE (5th and 6th of October) at the Library of Alexandria "Bibliotheca Alexandrina". During these two days the participants attended five State-of-The-Art lectures, a Heritage lecture and two Great Projects lectures.

On the 6th of October in the session "Thoughts and Observations", a presentation by the 4iYGEC conference chairperson and three selected 4iYGEC participants briefed the main conference delegates about what took place on the first two days at 4iYGEC. The presentation provided a synopsis of the current state-of-practice of young geotechnical engineers and their collective vision and recommendations for the progression of the ISSMGE.

Figure 6. Delegates of 4iYGEC preparing the presentation for session "Thoughts and Observations"

The following is a summary of these views written by Christopher Bareither (Graduate Research Assistant, Geological Engineering, University of Wisconsin, USA) and Suzanne Powell (PhD Candidate, Geological Sciences & Geological Engineering, Queen's University, Canada) for the ISSMGE Bulletin. Eng. Heba Mohamed (Graduate Research Assistant, Housing and Building National Research Center, Egypt) joined Eng. Bareither and Power in giving the presentation.

Figure 7. 4iYGEC delegates at the session "Thoughts and Observations" at the 17th ICSMGE

"The delegates of the 4iYGEC see a number of problems facing the geotechnical engineering community in the future. First and foremost are geotechnical problems arising from the increasing global population. The current population growth rate is forcing engineers to increasingly work in poor soil areas, with many of these areas stricken by geological and environmental hazards. Solving or mitigating these problems is further complicated by the desire for sustainable solutions. While young engineers fully support sustainable engineering

solutions to geotechnical problems, some of the fundamental engineering judgment required to solve these problems is perhaps being lost. The delegates believe that current geotechnical education needs an increased focus on engineering fundamentals and soil behavior. Students will benefit from understanding the problem-solving progression of real-world projects, i.e., site assessment → data collection → data analysis → report writing and recommendations. While young engineers embrace and acknowledge the benefits of modern technology in geotechnical engineering, a healthy balance between engineering fundamentals and computing capabilities will aid in developing sustainable solutions to the most difficult geotechnical problems of the future.

A major theme of the XVII ICSMGE was bridging the gap between academia and industry. No where is this gap more prevalent than in undergraduate engineering education. Hands-on experience through internships, work co-ops, field trips, volunteer efforts, and other ways to get young engineers involved in real-world problems will enhance engineering education. Many young engineers already participate in these outreach activities; however, university curriculums would benefit from requiring students to engage in some form of practice prior to graduating. These experiences will advance a student's comprehension of engineering application, and perhaps act as a stepping-stone for their transition from academia to industry.

The gap between academia and industry, and the gap between junior and senior level engineers, can be narrowed by promoting the involvement of young engineers in the ISSMGE. For example, technical committees should reach out to incorporate young engineers in order to transfer knowledge and gain diverse perspectives. Enhancing the ISSMGE website by incorporating connection portals for participating ISSMGE members, young geotechnical engineering newsletters, and archives for masters and doctoral theses will also aid in drawing the attention of more young engineers. Lastly, the ISSMGE would benefit from increasing global collaborations that bring engineers together to work on geotechnical problems. While conferences provide an important service in global networking, they are often limited to short discussions on research and practice. Making grants available for students and young engineers interested in global collaborative research and education will further stimulate global networking. Young engineers from all over the world should feel welcome and safe to collaborate on geotechnical problems in any nation.

During the XVII ICSMGE a common request heard throughout the state-of-the-art lectures was the need for more detailed site characterizations and case studies, a sentiment echoed by the 4iYGEC delegates. By promoting the availability of data on well characterized soil sites and case studies (e.g., International Journal of Geoengineering Case Histories and Characterization and Engineering Properties of Natural Soils), young researchers who do not otherwise have the ability to gather their own data, can supplement their modeling efforts with trial-and-error test runs on sites and studies familiar to the geotechnical community.

The 4iYGEC was a unique and beneficial opportunity for all participating delegates. The visions and requests presented herein are largely in accordance with the manifesto prepared by delegates of the 3iYGEC in Osaka, Japan. While the 4iYGEC delegates recognize that some of the aforementioned points are currently available or in progress through the ISSMGE, the general consensus amongst all delegates was that unless engaged in a setting such as the iYGEC few young engineers are aware of the ongoing efforts by the ISSMGE. In closing, delegates of the 4iYGEC would like to emphasize two points that overlap with the visions of newly elected ISSMGE President Jean-Louis Briaud of Texas A&M University. First, the idea of stimulating academic and practice collaboration through publishing case studies in The International Journal of Geoengineering Case Histories. Young professors and graduate students eager to publish can network with practitioners who have large compilations of available data. Secondly, creating an ISSMGE student board would help bridge the gap between the active ISSMGE members and future members. The student board would also promote the ISSMGE in young engineering communities, stimulating students' interest and their desire to join."

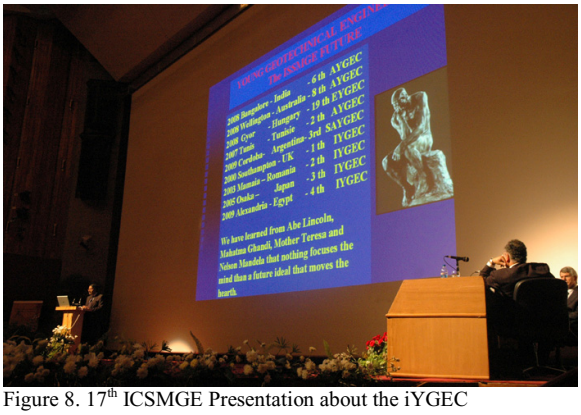

Figure 8. 17th ICSMGE Presentation about the iYGEC

5 CLOSING SESSION

Following the last technical sessions on Sunday the 4th of October the conference chairperson delivered a summary of the conference activities. Prof. Ergun Togrol (Istanbul Technical University, Turkey) and Prof. Hisham Abdelmohsen (Alexandria University, Egypt) handed out certificates of attendance to the young participants and the voluntary assistants.

Figure 8. The Closing Session

6 TECHNICAL VISIT

Unfortunately, due to problems on site, the scheduled Technical Visit to the San-Stefano Hotel Harbour could not take place on the 7th of October, as planned. Instead, a technical presentation of the project was given by the project's senior engineer.

The San-Stefano Hotel project, located approximately 25m away from the coast of the Mediterranean Sea, has three basements over an area of 20000 m^2, 12m below ground level. They are constructed with a diaphragm wall and a limited dewatering system. The building rests on large diameter grouted piles. The sea site (harbour) of the project was designed and completed while the construction of breakwaters was underway.

7 CULTURAL EVENT

On the social side, a Cultural Evening of Egyptian Folk Dancing took place around the swimming pool at El-Mahrousa Hotel where traditional oriental food and beverages were served. Members of the ISSMGE Board were invited to attend the function

8 IN CONCLUSION

The conference succeeded in bringing together young engineers from around the world and creating a comfortable atmosphere to foster the exchange of technology, ideas, research methodologies, and culture. The 4iYGEC provided a unique platform – as do all conferences for young engineers – for promoting networking and collaboration to advance professional and personal relationships. The 4iYGEC contributed greatly to the sharing of scientific knowledge in the field of soil mechanics and geotechnical engineering.

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