President’s message

Dear colleagues and friends,

It is unfortunate that we have to continue to fight the COVID-19 pandemic in most countries if not everywhere in the world. My heart goes out to all those who have suffered one way or another over the past two years. Let us act together to build a better life and a better world in times ahead.

It has been more than 4 years since I was first elected as the President in Sep 2017, making me the 2nd longest serving President after the founding President Professor Karl Terzaghi. This unusual situation was caused by the COVID-19 pandemic resulting in the postponement of the 20th ICSMGE. Although I am very honoured and grateful for the opportunity to serve you all for slightly longer than the usual period, we do need a new President soon. On 1st May 2022, a day before the 20th ICSMGE, we shall have our Council Meeting during which a new President will be elected. The call for nominations is now open. I would like to invite you to nominate suitable candidates for the role as soon as possible.

The ISSMGE Virtual University

One way to combat the pandemic and reduce its negative impacts on our daily life is to continue to develop our ISSMGE Virtual University that I initiated in Sep 2017 and reported to you all in “President’s Message” in the Apr 2020 issue of the Bulletin. As reported, the Virtual University consists of three essential components: online postgraduate courses, a library and a publisher. Due to the serious threat of COVID-19, many universities and training centres worldwide still remain closed. A large number of students and engineers may not be able to access and receive the necessary education and training, which could affect their future careers significantly. The ISSMGE Virtual University offers a timely and free alternative solution for those staying at home and undergoing quarantine. Thanks to the hard work of Prof. Mounir Bouassida and others, we now have the following 10 courses available online:
In addition, we have added more webinars. You may visit the ISSMGE website (http://virtualuniversity.issmge.org/) to find out more details. Please let others in your country and region know about our free online courses and webinars so that they may also benefit from them.

**The ISSMGE Time Capsule Project (TCP)**

Under the strong leadership of Mr Sukumar Pathmanandaavel, a co-chair of the Corporate Associates Presidential Group, the ISSMGE Time Capsule Project (TCP) is taking shape. Let me now report to you the current status of the TCP on behalf of Sukumar.

The ISSMGE TCP was initiated with the central aim of creating and sustaining a strong level of conversation about the past, present and future of geotechnical engineering amongst and for the benefit of our 20,000 individual members. There is also the added benefit of a legacy that could be added to and modified in the coming years and even decades. Some 90 Member Societies, 36 Technical Committees, the Young Members Presidential Group (YMPG) and ISSMGE Corporate Associates (https://www.issmge.org/corporate-associates/listing) have been invited to contribute to the TCP. The leadership of the Member Societies and Technical Committees have been extensively briefed by the TCP Design Team between May and August 2021. Information about the TCP and how to contact the TCP Design Team is available on the ISSMGE website (https://www.issmge.org/the-society/time-capsule).

A variety of new and existing materials provided by the contributors will be held and promoted on an online platform named as ISSMGE Time Capsule 2022, which will be formally launched at the 20th ICSMGE. I would strongly urge all Member Societies, Technical Committees, the YMPG and Corporate Associates to contribute to this exciting initiative by Sukumar. The TCP Design Team will be ready to process and promote your online submissions from November 2021. I would also cordially invite individual members to help promote debate and discussion by visiting the Time Capsule Blog page on the ISSMGE website and writing on any topic within the geotechnical engineering profession. Details and examples of previous blogs are available at https://www.issmge.org/news/tcp-blog-posts.

**The Bright Spark Lectures**

Since the 1st Bright Spark Lecture was delivered in May 2018, we now have selected and promoted 26 young rising stars aged at or below 36 to deliver their keynotes in planetary sessions at various international conferences and symposia. For more details of the Bright Spark Lecture including the list of award recipients, please visit https://www.issmge.org/the-society/awards/bright-spark-lecture-award. I would like to thank Ms Lucy Wu, chair of YMPG, and her team for promoting the Lecture and assisting me to identify and select potential raising stars.
President’s message (Con’t)

20th International Conference on Soil Mechanics and Geotechnical Engineering
Led by Professor John Carter, the Organising Committee for the 20th International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE) has developed a feasible plan for the Conference to be held between 2nd May and 5th May 2022. The Conference will be staged in hybrid mode combining face-to-face and online (live and prerecorded) sessions. The duration of the Conference will be shortened from the typical 5 days to 4 days. Please visit the Conference website for more details. I would like to thank John and his wonderful team for their tireless work to make the Conference happen.

Please continue to monitor the pandemic situation and take care of your health. God bless you all.
Ethics in Geotechnical Engineering

Ethical issues may be perceived differently across the world due to the disparity of cultural backgrounds and social settings. I believe this is sufficient reason to start the conversation on the issue with regards to the geotechnical profession in the context of the ISSMGE Time Capsule Project.

A key aspect comes from the very definition of profession. That is “any type of work that needs special training or a particular skill, often one that is respected because it involves a high level of education” or “a statement about what someone feels, believes, or intends to do, often made publicly”. Professional ethics has usually been framed in the context of the first definition, however, I will focus on the second one. This may be considered too simplistic by some, who frame the concept of profession around individual success – however, it elicits the origin of the word (i.e. a process where an individual – through his/her work – makes a public statement of his/her own contribution to the community).

When considering one’s profession as a ‘social practice’, the geotechnical engineer must not only make ‘extrinsic’ considerations (such as wealth, prestige, and power), but also ‘intrinsic’ ones, such as fulfilling one’s duty to accomplish the common good (i.e. finding the best ‘geotechnical’ solution for the client and society at large). In this way, the ethical dimension of work is expressed.

Such a process implies ethical self-reflection on the part of the geotechnical engineer. He/she must not only conform with the task at hand, but also question how to best meet the original request, while making sure that the results of his/her work fit within the common good to be accomplished.

Technical innovation is probably the most challenging field when making such ethical considerations. For us researchers, this means we should consider carefully the social consequences of technical progress. Social responsibility, however, is not only limited to researchers, but is deeply involved in the everyday work of technical professionals, where innovation and creativity are constantly required. Therefore, when faced with a request we should avoid simply pursuing goals that someone else defines, but follow our own judgments and values shared with the community.

Do you agree with this reflection about ethical issues in our profession? How do you “declare” your contribution to the community good while accomplishing your technical tasks?

I challenge you to reflect on these questions and fill in the following 5-minute pop quiz.

About the author:
Emilio Bilotta is Associate Professor at the University of Napoli Federico II (Italy) where he teaches Geotechnical Engineering and Tunnels and Underground Structures to undergraduate and postgraduate students. He enjoys research on tunneling in urban areas and tunnels under seismic actions as well as on ground improvement to mitigate the effects of seismic ground shaking and liquefaction on the built environment. Reading good novels is his favorite pastime.
Case study

An innovative method of assessing the capacity of existing wharf piles, Australia

Introduction

The Mackay Outer Harbour is situated in the Northern Queensland of Australia, and was officially opened on 26 August 1939 (see Figure 1). The deep water port became an important facility for the thriving trade of a growing district. In 1957, the bulk sugar handling terminal was open, servicing the sugar industry that started in the region in 1865.


Since its opening, various phases of harbor expansion took place under McKay Harbour Board. Wharf no. 4 was constructed circa 1967 and wharf no. 5 followed later under McKay Harbour Ltd which changed to North Queensland Bulk Ports in 2009. The locations of wharves 1, 4 and 5 are shown in Figure 2.

Figure 2. Site plan showing the Wharf and the borehole locations
Case study

An innovative method of assessing the capacity of existing wharf piles, Australia (Con't)

In 2017, NQBP commenced upgrade work on wharves 1, 4 and 5 involves a fender replacement and bollard upgrading programme. As a result of the proposed upgrade, the axial capacity of the fender piles at Wharves 1, 4 and 5 is increased from the original design requirements. The piles supporting the wharves are driven tubular steel piles ranging from 457 mm diameter at Wharves Nos. 1 and 4, to 1000 mm diameter at Wharf No. 5. The required pile capacities are compared to estimated pile capacities made in 2016 by another geotechnical consultant as summarized in Table 1.

Table 1: Pile Loads and Initial Estimate of Capacity

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Design ultimate (kN)</th>
<th>¹Available design ultimate capacity (kN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression row C</td>
<td>1135</td>
<td>650</td>
</tr>
<tr>
<td>Compression row D</td>
<td>1364</td>
<td>975</td>
</tr>
<tr>
<td>Tension</td>
<td>426</td>
<td>225</td>
</tr>
</tbody>
</table>

¹Estimated by another geotechnical consultant in 2016

Due to the lack of information on as-constructed pile toe levels, final driving energy and sets or pile load testing at the wharves in question, doubts were raised on the ability of the existing piles to carry the revised loads based on the theoretical assessment results shown in Table 1. Contrary to the theoretical assessment, however, a previous dynamic pile load test with CAPWAP assessment on a pile installed at Wharf 3 gave a compression capacity of a 1000mm diameter pile of 1,900 kN in shaft resistance and 5,380 kN end resistance, i.e. 7,280 kN total capacity (or a design ultimate capacity of 798 kN in tension and 5,096 kN using a tension to compression capacity ratio, $R_{st}$ of 0.6 (based on De Nicola and Randolph (1993) and a geotechnical strength reduction factor $\phi_s$ of 0.7). This is significantly higher than the theoretical estimate made by the other consultant and therefore gave at least some confidence that the existing piles may be able to carry the revised loading associated with the upgrade without remedial works. To confirm this initially assessment, the following programme of investigation was carried out:

- Drilling of 3 boreholes, one at each of Wharf 1, 4 and 5 adjacent to existing piles at the locations shown in Figure 2.
- Conduct downhole magnetic testing in PVC access tubes installed at the completion of the boreholes to assess the toe levels of the adjacent piles.
- Install 457 mm diameter tubular steel test piles to the assessed pile toe levels.
- Conduct dynamic pile load testing and CAPWAP analyses (Rausche et al., 1985) to assess the ultimate pile capacity of the test piles.

The test results and subsequent interpretations are discussed below.

Borehole and downhole magnetic testing

Three boreholes were drilled at the approximate locations shown in Figure 2. It had originally been intended to drill the boreholes within 1 m of the external face of the existing pile for the downhole magnetic testing. Unfortunately, that was not possible due to site access constraints and the boreholes were drilled at distances ranging from 1.3 to 1.6 m. Beyond 1 m distance, the accuracy of the magnetics testing reduces.

Downhole magnetics testing is a passive method based on the measurement of localised perpetuations of the Earth’s magnetic field measured in nano-tesla’s (nT). These may be caused by geological features and buried ferrous targets (e.g., pipes, cables, drums, iron sheets, steel reinforcement etc).

The magnetics testing was completed in-situ using pre-drilled, PVC cased boreholes. A Bartington 3-component fluxgate magnetometer was used to measure the magnetic field variations at 0.5 m intervals to the maximum depth of the borehole. The magnetic data was acquired with Spectromag-6 software.
Case study

An innovative method of assessing the capacity of existing wharf piles, Australia (Con’t)

The borehole magnetometer was lowered from the top of each borehole (from the wharf deck) and repeated magnetic measurements were made at each depth to assist assessment of any external magnetic noise.

The borehole magnetometer measures magnetic field intensity in three dimensions (X, Y and Z) with the vertical (Z) component of the magnetic field typically providing the clearest indication of the base of steel piles and hence the approximate depth of the pile. Furthermore, the vertical first derivative of the vertical component of the magnetic field can also reliably indicate the base of a steel pile. Figure 3 shows a typical magnetic response of a pile as sensed from a proximal borehole adjacent to the pile, including the vertical component and vertical first derivative of the magnetic response. This shows that a magnetic anomaly indicates the approximate base of the pile.

![Magnetic Field Intensity (nT)](image)

**Figure 3.** Typical magnetic response of a steel pile (from Jo. et al., 2003)
Case study

An innovative method of assessing the capacity of existing wharf piles, Australia (Con’t)

Subsurface profile and inferred pile toe levels

The results and interpretation of the downhole magnetics testing are shown in Figure 4. It can be seen that the clearest magnetic response change was obtained at wharf 4 where the borehole was at the least distance away from the face of the nearest pile.

![Figure 4. Results of downhole magnetics testing](image)

The results of the borehole drilling and inferred pile toe levels at each borehole location based on interpretation of the downhole magnetics testing are summarized in Table 2.

<table>
<thead>
<tr>
<th>Borehole</th>
<th>Approx. distance to nearest pile (m)</th>
<th>Inferred pile toe level range(^1) from magnetics testing (mLAT)</th>
<th>Materials recorded in borehole and SPT results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wharf 1</td>
<td>1.4</td>
<td>-9.7 to -11.6 (-12.8)(^2)</td>
<td>Gravelly Clayey Sand and Clayey Sand, SPT-N = 21 and 26 above -11.6 m LAT; SPT-N = 39 at -12.8 m LAT</td>
</tr>
<tr>
<td>Wharf 4</td>
<td>1.3</td>
<td>-15.0 to -17.4</td>
<td>Gravelly Sand and Clayey Gravelly Sand (Residual Soil); SPT-N = “R” (30 blows per 145 mm penetration)</td>
</tr>
<tr>
<td>Wharf 5</td>
<td>1.6</td>
<td>Below -18.1</td>
<td>Sandy Gravelly Clay and Sandy Gravel; SPT-N = “R” (30 blows per 100 mm penetration)</td>
</tr>
</tbody>
</table>

\(^1\)Definitive levels cannot be inferred due to attenuation of magnetic intensity with distance away from the pile, and potential influence from other piles that have different toe levels.

\(^2\)Based on SPT-N value, it is unlikely that the pile would have terminated in SP-N of 21 to 26 material. Therefore, the next SPT of N = 39 at 22 m depth (-12.8 mLAT) is considered to be a more reasonable estimate.
Case study

An innovative method of assessing the capacity of existing wharf piles, Australia (Con’t)

Test pile and CAPWAP analysis

The proposed methodology of testing originally proposed was that the test piles should have been installed to a similar pile toe level as assessed by the magnetics testing. However, due to logistics reasons, the test piles were installed before the magnetics testing took place, and they were generally driven to a level lower than the pile toe levels inferred from the magnetics testing.

The test piles comprised 457 mm OD steel tubular piles with a wall thickness of 15.9 mm, and they were driven using a Juntant HHK7A hammer. The average final sets under a final drop height of 1.2 m and the corresponding materials at the end of drive toe level from the nearest boreholes are tabulated in Table 3 and the CAPWAP analysis results of the test piles are summarized in Table 4.

Table 3. Test pile average final set and founding material

<table>
<thead>
<tr>
<th>Test Pile</th>
<th>Installed pile toe Level (mLAT)</th>
<th>Average final Set (mm/blow)</th>
<th>Founding material inferred from the nearest boreholes</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP1 - Wharf 1</td>
<td>-16.553</td>
<td>1.6</td>
<td>Clayey Sandy Gravel, Residual Soil, SPT-N = “R” (30 blows / 60 mm penetration)</td>
</tr>
<tr>
<td>TP4 - Wharf 4</td>
<td>-17.558</td>
<td>2.1</td>
<td>Extremely Weathered Rock, SPT-N = “R” (30 blows / 60 mm penetration)</td>
</tr>
<tr>
<td>TP5 - Wharf 5</td>
<td>-19.169</td>
<td>2.2</td>
<td>Sandy Gravel, SPT-N = “R” (30 blows / 100 mm penetration)</td>
</tr>
</tbody>
</table>

Table 4. Results of test pile CAPWAP analysis

<table>
<thead>
<tr>
<th>Test pile</th>
<th>Inferred EOD capacity (kN)(^1)</th>
<th>Inferred restrike capacity (kN)(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shaft</td>
<td>Toe</td>
</tr>
<tr>
<td>TP1 - Wharf 1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TP4 - Wharf 4</td>
<td>1674</td>
<td>2053</td>
</tr>
<tr>
<td>TP5 - Wharf 5</td>
<td>2169</td>
<td>2385</td>
</tr>
</tbody>
</table>

It can be seen from Table 4 that the test pile capacities are sufficiently high (even after accounting for geotechnical strength reduction and tension to compression reduction factors) to deal with the increased loads associated with the wharf upgrade work. However, because the test piles are driven into rock and founded below the existing pile toe levels inferred from the downhole magnetics testing, direct application of the dynamic pile load testing to assess the existing pile capacities was not possible. Further assessment of the pile capacities by correlation of shaft friction and end bearing capacities for the soil and rock layers intersected by the boreholes was necessary as discussed in the following section.

Assessment of existing pile capacities

As a cautious approach, an assumption was made to assess the situation where the pile toes of the existing piles are not founded into or close to rock level. The assessment was made as follows:

- Assume the pile toe is located at the average of the range assessed by the magnetics testing, or the best estimate for TP1 as shown in Note 2 of Table 2.
- For driven steel tubular piles, the phenomenon of “friction fatigue” as described by White and Lehane (2004) results in the pile shaft capacity mainly derived from about 10 x pile diameters (i.e. say 4.5 m) above the pile toe. This is the section where adjustment of SPT-N value and shaft capacity will take place. The ultimate shaft friction in this section were back-analysed from the CAPWAP results using the correlation of SPT-N values by DeCourt (1982) who suggested $f_s = k_s N + 10$ (kPa) where $k_s$ is typically about 3.3 for displacement piles, although this was later reduced to 2.8 in Decourt (1995). Based on the CAPWAP results, however, we inferred a $k_s$ value of about 3.4 at this site as shown in Figure 5.
Case study

An innovative method of assessing the capacity of existing wharf piles, Australia (Con’t)

Figure 5. Back-analysed Relationship between Ultimate Shaft Friction and SPT-N

- For the shaft above 4.5 m above the test pile toe, the shaft friction from the CAPWAP testing was relatively low, and based on the SPT results, average values of 28 kPa to 45 kPa was adopted for the pile assessment for the upper part of the pile shaft, ignoring any shaft friction in soft to firm soils.
- For the ultimate end bearing pressure, the CAPWAP results were back-analysed using the correlation of SPT-N values by Decourt (1982) who suggested \( f_b = K_b N \) (kPa) for driven piles where \( K_b = 250 \) for sandy silt and 400 for sands, although the value for sands was later reduced to 325 for sands in Decourt (1995). From the test results, we adopted a correlation of \( f_b = 300 N^{0.77} \) as shown in Figure 6. This relationship was then applied to the inferred existing pile toe levels where SPT values may be lower than those below the toes of the test piles.
- Finally, reduction factors, \( \phi \) and \( R_s \), as described in Section 1 above were applied to compute the design ultimate pile capacity presented in Table 5.

Figure 6. Back-analysed relationship between ultimate end bearing pressure and SPT-N
Case study
An innovative method of assessing the capacity of existing wharf piles, Australia (Con’t)

Table 5. Pile capacity assessment results

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Wharf 1</th>
<th>Wharf 4</th>
<th>Wharf 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of bottom 4.5 m</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Length of upper pile shaft</td>
<td>5.5</td>
<td>3.2</td>
<td>4.5</td>
</tr>
<tr>
<td>Ultimate End Bearing Pressure (kPa)</td>
<td>4255</td>
<td>5804</td>
<td>6514</td>
</tr>
<tr>
<td>Ultimate Compression Shaft Friction in upper section of pile shaft (kPa)</td>
<td>28</td>
<td>34</td>
<td>45</td>
</tr>
<tr>
<td>Ultimate Compression Shaft Friction in bottom 4.5 m of pile shaft (kPa)</td>
<td>120</td>
<td>185</td>
<td>202</td>
</tr>
<tr>
<td>Assessed Ultimate Shaft Compression Capacity (kN)</td>
<td>997</td>
<td>1351</td>
<td>2382¹</td>
</tr>
<tr>
<td>Assessed Ultimate Compression Base Capacity (kN)</td>
<td>698</td>
<td>952</td>
<td>5116¹</td>
</tr>
<tr>
<td>Assessed Ultimate Compression Pile Capacity (kN)</td>
<td>1695</td>
<td>2304</td>
<td>7498¹</td>
</tr>
<tr>
<td>Assessed Design Ultimate Compression Capacity (kN)²</td>
<td>1187</td>
<td>1613</td>
<td>5249¹</td>
</tr>
<tr>
<td>Assessed Design Ultimate Tension Capacity (kN)²</td>
<td>419</td>
<td>568</td>
<td>1000¹</td>
</tr>
</tbody>
</table>

¹Based on 1,000 mm diameter existing pile at Wharf 5. Pile diameter = 457 mm for all other piles
²Design ultimate values including a φ₉ value of 0.7 and a Rₜₜ ratio of 0.6 for tension capacity

Based on the assessment results shown in Table 5, only the wharf 1 Row D piles were found to have design ultimate capacities slightly less than the required capacity of 1364 kN for compression and 426 kN in tension. Following a review of the results with the marine/structural engineer for the project, it was considered that the existing piles are considered to be acceptable based on the following reason:

- The test piles were installed off the existing wharf and therefore slightly more seawards compared to the existing piles and the boreholes which were drilled from the wharf decks. Therefore, it is feasible that the bedrock is slightly deeper at the test pile locations compared to the existing piles which may also have been driven to rock.
- The downhole magnetics testing may be influenced by other piles further in-shore and which are shorter due to shallower depth to bedrock.
- The ultimate static end bearing capacity of the test piles are likely to be higher than those inferred from the dynamic pile load testing because during dynamic testing, the steel tubular pile will behave in an “unplugged” manner. Under static loading conditions, the steel tubular pile is likely to behave in a “plugged” manner thereby giving a much greater end bearing area.
- The inferred ultimate shaft capacity of the test piles will provide a reasonable estimate of the lower-bound unit shaft resistance of existing piles because the piles would not have sufficient time to “set up” with the restrike testing conducted only 24 to 48 hrs after end of drive. Furthermore, minor rusting/aging of the steel surface over time has been shown to increase the ultimate shaft resistance of tubular piles.
- As a result, no remedial works were deemed to be required for the proposed wharf upgrade works.

Conclusions
The innovative approach of combining conventional investigations with geophysical techniques using downhole magnetics testing, and dynamic pile load testing has enabled the toe levels of existing wharf piles to be assessed. Through the interpretation of unit shaft and base resistance derived from the test piles and adjustments made according to standard penetration test values at the inferred pile toe levels, the capacity of the existing piles was able to be made and compared to the increased load requirements associated with the wharf upgrade. In doing so, the existing piles were assessed to have adequate capacity and successfully avoided the costly option of remedial works for the client.
Case study

An innovative method of assessing the capacity of existing wharf piles, Australia (Con’t)

Acknowledgements
The authors are grateful to NQBP for their permission to publish the test data in this paper. We are thankful to Royal Haskoning DHV (marine/structural engineers for the project) for their valuable comments on the pile assessment interpretation and content of the paper.

References
On September 7-10, 2021, the XIX Technical Dam Control International Conference took place in Legnica (Poland). The Conference was organized by the Division of Hydro-Engineering and Hydraulics of the Faculty of Building Services, Hydro and Environmental Engineering, the Warsaw University of Technology. The KGHM Polska Miedź SA - Hydrotechnical Department, Dam Monitoring Center - National Service for Safety of Hydraulic Structures - Institute of Meteorology and Water Management - National Research Institute, the Institute for Applied Research, Warsaw University of Technology Ltd. and the Hydrotechnical Structures Division of the Committee on Civil Engineering and Hydroengineering of the Polish Academy of Sciences were the Conference co-organizers. The Conference was held in a hybrid structure for the first time because of the pandemic situation.

One hundred seventy participants from 15 countries took part in the Conference; hundred of them were offline participants. Due to covid restrictions, Poles were the largest group of participants. Still, over 30 participants represented countries such as Austria, Czech Republic, Germany, Great Britain, Italy, Kazakhstan, Lithuania, Romania, Russian Federation, Slovakia, Slovenia, Spain, Tanzania, Ukraine.

This year, due to the 25th anniversary of the operation of the Hydrotechnical Department of the KGHM Polska Miedź SA, the event was held under the title “Safety of Dams on Tailing Storage Facilities and Other Hydraulic Structures”. A special session including six presentations and a technical trip was dedicated to a unique storage facility on a European and global scale - the Tailing Storage Facility “Żelazny Most”.

The 60th anniversary of technical dam control in Poland was celebrated during the Conference. In a special technical session, the scientific achievements of the National Service for Safety of Hydraulic Structures - Institute of Meteorology and Water Management - National Research Institute were presented.

Tree other technical sessions were dedicated to surveying, operation, and maintenance of hydraulic structures. The presented papers were related to water management, rehabilitation and modernization of hydraulic structures, new technologies in water engineering, modern measurement and monitoring techniques, and technical solutions for designed and constructed hydraulic structures. Among 15 technical key international presentations given in that sessions, there were:

- Peter Banzhaf “Rehabilitation of Aging Embankment Dams” from BAUER Spezialtiefbau GmbH, Germany,
- Paolo Mazzanti “InSAR & PhotoMonitoringTM for ground deformation monitoring” from the “Sapienza” University of Rome, Italy,
- John Metzger “Geotechnical monitoring and slope failure characterization through a combination of IoT and InSAR” from SkyGeo Inc., Germany,
- Juraj Škvarka “Water management system Liptovská Mara - Bešeňová versus extreme hydrological phenomena” from the Slovak University of Technology in Bratislava, Slovakia.
Mateja Klun “Dynamic Monitoring as a Part of Structural Health Monitoring of Dams” from the University of Ljubljana, Slovenia,

Tomáš Julinek “Proposed dam Skalička - conflicts and challenges” from the Brno University of Technology, Czech Republic,

Timothy Mkilima “The influence of material characteristics on dam stability under rapid drawdown conditions” from the L.N. Gumilyov Eurasian National University, Kazakhstan,

Aleksey Velichko “Influence of laboratory test methods for plastic concrete on the results of strength and deformation determination” from “Vedeneev VNIIG”, JSC, Russian Federation,

Tomáš Rudolf “Vibration and seismicity monitoring in dam control process” from VODNÍ DÍLA - TBD a.s., Czech Republic,

Peter Panenka “Performance of technical and safety supervision within the project Innovation and modernization of locks of the Gabčíkovo Waterworks - Upgrade of Gabčíkovo locks” from VODOHOSPODÁRSKY PODNIK, štátny podnik, Slovak Republic,

Andrej Kryžanowski “Evaluation of the environmental impacts and mitigation measures in hydropower production sector” from the University of Ljubljana, Slovenia.

Fig. 2. Online presentations of Prof. Paolo Mazzanti (left), the “Sapienza” University of Rome, Italy and PhD Student Timothy Mkilima (right) at the L.N. Gumilyov Eurasian National University, Kazakhstan

Fig. 3. Online presentations of Prof. Zbigniew Lechowicz / Vice-President of Polish Committee on Geotechnics (left) and Agnieszka Machowska, PhD / Vice-Dean for Studies the Faculty of Building Services, Hydro and Environmental Engineering, Warsaw University of Technology (right)

Papers submitted to the Conference are going to be published in the following journals: Archives of Civil Engineering (issues from 2022), Gospodarka Wodna (issues 9/2021 and 10/2021), Energetyka Wodna (issue 2/2021) and a special monograph published by the Institute of Meteorology and Water Management on the occasion of the XIX Technical Dam Control International Conference.
Organizing Committee invites to visit the Conference website: tkz.is.pw.edu.pl and encourages potential participants to participate in the jubilee 20th edition of the TKZ'2023 Conference in 2023 in Poland.

Papers:
The monograph can be downloaded free of charge from the Institute of Meteorology and Water Management website.

The E-issue of the Gospodarka Wodna is available on the journal's website.
https://gospodarkawodna.net/

The issue of 2/2021 of Energetyka Wodna is available on the journal's website.
https://www.energetykawodna.info/pl/2021/

Papers in the Archives of Civil Engineering will be published on the journal's website as open access.
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Prepared by:
Agnieszka Dabska, PhD Eng
General Secretary of the Organizing Committee of the XIX Technical Dam Control International Conference, Member of Poland Geotechnical Society
The 17th World Conference on Earthquake Engineering (17WCEE) 2021 is a well-renowned world conference in the field of geotechnical, earthquake and structural engineering. It is organized once in four years.

The 17th World Conference on Earthquake Engineering 2020-21, was held in hybrid mode, both an in-person conference and a virtual (on-line) conference due to COVID-19 pandemic. The online access is further extended for one-month post conference period. The Conference was originally planned to be held from September 13 to 18, 2020, but due to the COVID-19 problem, the 17WCEE Organizing Committee, decided to postpone the 17WCEE by one year, to be held from September 27 to October 2, 2021, the 10th anniversary year of the 2011 Great East-Japan Earthquake and Tsunami Disaster in the same venue, in Sendai City, Miyagi Prefecture, Japan. The conference consisted of various programs which included the keynote lectures, invited lectures, oral and poster presentations, short presentations (SOP), technical parallel sessions, and exhibition.

The conference covered several topics from engineering such as Engineering Seismology, Seismic Performance of Structures, Assessment and Retrofitting of Structures, Geotechnical Earthquake Engineering, Tsunami disaster, Preparedness and Emergency Management, Social and Economic Aspects, Seismic Loss and Risk Management, Innovative Technology, Lessons Learnt from Earthquakes, and others.

As the conference was in hybrid mode so maximum presentation is available in the website with the audio of the speakers. Hence it was very flexible to attend any such presentation at any time and also there was a provision for making any comments on the presentation in the comment box. The access to online mode is extended for one-month post conference. It was a great honour for me to present my research work at this prestigious world conference. The organizing committee was also very professional and didn’t cause any inconvenience to the delegates during the 17WCEE.

Overall, the 17WCEE conference provided me a valuable opportunity to learn about the research being carried out in different universities and also to understand the different aspects of latest technologies of geotechnical, earthquake and structural engineering. This will help me in improving my area of research. I am beholden to ISSMGE Foundation for providing me with financial support for participating in this prestigious conference through virtual (on-line) mode.

During my presentation

Chaidul Haque Chaudhuri
Indian Institute of Technology Bombay

Simplified Analytical Solution of Buried Pipeline Subjected to Pipe Bursting Underneath

By

(1)Chaidul Haque Chaudhuri, (presenter)
Ph.D. Research Scholar, IIT Bombay, Mumbai, India

(2)Deepankar Choudhury,
Prof. T. Kant Chair Professor and Head, Dept. of Civil Engineering, IIT Bombay, Mumbai, India

Chaidul Haque Chaudhuri
Indian Institute of Technology Bombay
The 6th International Conference on Geotechnical and Geophysical Site Characterisation was held in Budapest, Hungary, from 26th to 29th September 2021 in hybrid (physical and virtual) mode. I attended the workshop in online mode. I had submitted my work on the field investigation of instrumented minipiles to this conference. The main theme of this conference was site characterisation using both traditional and advanced techniques. The conference was divided into 16 breakout sessions among which 'piles' was the session designated for my presentation based on my paper. Other interesting sessions were liquefaction, soil parameters from testing, numerical modelling, sampling, quality control and others. Besides the sessions for the presentations, there were interesting talks by renowned experts such as Catherine Jacquard, Jason DeJong, D. M. Berisavljevic, Richard Jardine, Don J. DeGroot, Sebastiano Foti, Jean-Sebastien L’Heureux and others.

My pre-recorded video was played on 29th September. Other interesting talks in that session were on pressuremeter based methods to predict the behaviour of micropiles and grouted anchors by Habert et al., Assessment of stiffness degradation of soil by in-situ cyclic loading using pressuremeter by Kamura et al., Normalised py analysis method for laterally loaded piles in sand based on CPT results by Kim et al. among others. Although I could not directly interact with any of the speakers due to the online mode, I was able to listen to other speakers working in a similar research domain.

I also attended the workshop on Flat Dilatometer testing (DMT). This course focused on working principles, test procedure and interpretation of the field test data from a DMT test. The speakers shared their experience on projects they have worked on, how they have performed DMT tests and what was their key takeaway. Although I could not join the session on hands-on learning demonstration, I learned essential bits from the online presentations.

In conclusion, attending the conference was an enriching experience for me. I was able to present my research and learn about similar interests from researchers all over the world. Some of the keynote lectures by the renowned invited speakers were very insightful for an early career researcher like me. I want to express my heartfelt gratitude to the organising committee of the ISC’6 conference for giving me the opportunity to attend the conference. I am also grateful to the ISSMGE Foundation for supporting me financially to attend this conference.

Sanchari Mondal
University of Melbourne
Obituary

Paul Marinos (1944 – 2021)

Emeritus Professor of the National Technical University of Athens (NTUA) and Former President of the International Association of Engineering Geology (IAEG) Paul Marinos passed away on October 10th 2021, one day after the 3rd European Conference of IAEG held in Athens Greece and after being awarded the title of the Honorary President of IAEG on October 8th. A most fitting award indeed that made him happy during his last days along with the success of the European Conference of IAEG chaired by his son Vassilis.

Paul Marinos received a Mining Engineering degree from the School of Mines of the National Technical University of Athens, Greece, in 1966, a postgraduate degree in Applied Geology from the University of Grenoble, France, and his Doctorate in Engineering Geology from the same University in 1969. He worked for French and Greek big design and construction companies until 1977 and then was elected as Professor at Democritus University in Northern Greece. From 1988 Paul Marinos was Professor of Engineering Geology at the School of Civil Engineering in the National Technical University of Athens, where he served as head of the Geotechnical Section of the School for several years. From 2001 to 2004 and from 2006 to 2008 he was the Director of the Post-graduate Course of NTUA in Design and Construction of Underground Works.

Through his teaching he sought to introduce the latest methods and advances in engineering geology, emphasizing on the importance of engineering geology for coping with problems and failures in large infrastructure projects. His teaching affected deeply graduates of NTUA and other universities he taught as visiting professor or lectured during his trips. He successfully mentored 17 students to their PhD degrees. On top of these, Paul Marinos organized every year the field trip to various locations of large projects and failures of interest in engineering geology in the wider area of Alps. Visits to the Malpasset dam failure and the Vajont landslide among other sites have been lifetime experiences for his students and his co-workers since the initiation of this days-long field trip in 1992.
For more than 40 years he acted as an independent consultant in Engineering Geology and Geotechnics or as a member of panel of experts for important engineering structures and infrastructure works, such as dams and tunnels, landslides and rockslides and water resources projects, around the world: Albania, Armenia, Bulgaria, Burundi, Cameroon, Chile, Colombia, Cyprus, Ecuador, Ethiopia, Georgia, Greece, France, India, Iran, Iraq, Israel, Jordan, Kenya, Kosovo, Lebanon, Madagascar, Malawi, Morocco, Nepal, Nigeria, Papua New Guinea, Pakistan, Peru, Portugal, Qatar, Saudi Arabia, Laos, Rwanda, Serbia, Spain, Sri Lanka, Sweden, Tajikistan, Tanzania, Turkey, Uganda, Ukraine and Zambia. Especially in Greece, he was involved practically in all major infrastructure projects constructed over the past 40 years including the Athens and Thessaloniki Metros, Egnatia Highway in northern Greece, all large dams and large-scale hydropower projects among others.

Paul Marinos’ research endeavors advanced the state-of-the-art on a variety of applications of geology to engineering, mainly rock mass characterization, weak rock properties and behavior, karstic terrain, with special emphasis to engineering design and construction. His collaboration with his lifelong friend Evert Hoek produced some seminal work that has deeply affected rock mechanics and engineering geology alike. Paul authored or co-authored over 320 papers in highly ranked journals or major conference proceedings. He was a key or invited lecturer in more than 120 conferences or special events worldwide.

He served as the president of International Association of Engineering and the Environment between 1994 and 1998, the Geological Society of Greece (2004-2008) and the Greek Tunnelling Society (1998-2001) and was member of many other national and international scientific societies.

He served as the Editor in chief of Geological and Geotechnical Engineering (GEGE) journal, and as member of the editorial board on other journals: “Engineering geology”, “Bulletin of the International Association of Engineering Geology and the Environment”, “Environmental Earth Sciences”, “Rock Mechanics” and “Environmental and Engineering Geosciences”. He was also the editor of many international conference proceedings.
Obituary (Con’t)
Paul Marinos (1944 – 2021)

Throughout his academic and consulting career, he received numerous awards, the most characteristic of which are:

- He was knighted in the order of “Palmes Académiques” from the French Republic (2014)
- Hans Cloos medal, IAEG, 2001
- André Dumont medal of the Geological Society of Belgium (1999)
- The 33rd Cross Canada Lecture (2005)
- The 2010 Jahns Distinguished Lecturer and award of the Geological Society of America and the Association of Engineering Geologists (being the 1st Lecturer chosen from outside North America, since the creation of the award in 1987)

Apart from all these he found and shared happiness with his beloved wife Katerina, his sons Vassilis and Giorgos, and of late his grandchildren. His passing shed great sorrow both to his family and the wider family of his students and colleagues worldwide and has left the community of engineering geology, rock mechanics and geotechnical engineering devoid of his energy, his mentorship and his profound knowledge. We shall dearly miss our teacher, mentor, colleague and friend.

A legend of engineering geology, a great teacher and mentor, a larger-than-life human being has left us...

(Photocredits: Ioanna Dretta).

The Hellenic Society for Soil Mechanics and Geotechnical Engineering
Event Diary

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

2021

Asialuge 2021 Singapore -
Location: NUS UTown Campus, Singapore
Dates: 18-11-2021 - 19-11-2021
Language: English
Organiser: Geotechnical Society of Singapore (GeoSS) & National University of Singapore (NUS)
Contact person: Assoc Prof Darren Chian
Address: National University of Singapore
Email: sc.chian@nus.edu.sg
Website: https://www.asialuge-sg.com/

XI Congreso Chileno de Geotecnia
Location: Universidad de Talca, Chile
Dates: Talca 22-11-2021 - 24-11-2021
Language: Spanish
Organiser: Chilean Geotechnical Society
Contact Information
Contact person: Macarena Tugas
Email: coordinadorasochige@gmail.com
Website: http://www.sochige.cl
Email: directorio@sochige.cl

International Young Professionals Workshop on Rail-Road Infrastructure
Location: Hybrid, Sydney Australia
Dates: 26-11-2021 - 27-11-2021
Language: English
Organiser: Transport Research Centre, University of Technology Sydney
Contact person: Christine Smith
Email: christine.smith-1@uts.edu.au
Website: https://www.uts.edu.au/research/transport-research-centre

3rd International Conference on Geotechnical Engineering
Location: Cinnamon Grand, Colombo , Sri Lanka
Dates: 06-12-2021 - 07-12-2021
Language: English
Organiser: Sri Lankan Geotechnical Society
Contact person: Dr. JSM Fowze
Email: slgssecretariat@gmail.com
Website: http://icgecolombo.org/2020/index.php
2022

The 60th Rankine Lecture: The Unusual and the Unexpected in Geotechnical Engineering: Observation - Analogy - Experiment
Location: Imperial College London, United Kingdom;
Date: 16-03-2022
Language: English;
Organiser: British Geotechnical Association;
Contact person: Shelagh Fleming,
Email: Shelagh.Fleming@ice.org.uk; bga@ice.org.uk
Website: https://www.britishgeotech.org;

6th International Symposium on Tunnels and Shafts in Soils and Rocks
Location: Mexico City, Mexico
Dates: 29-03-2022 - 07-04-2022
Languages: English / Spanish
Organiser: Mexican Society of Geotechnical Engineering (SMIG)
Contact Information: Miss. Brenda Aguilar
Email: administracion@smig.org.mx
Website: http://www.smig.org.mx

2nd International Conference on Energy Geotechnics
Location: Robert Paine Scripps Forum for Science, Society and the Environment. La Jolla, CA, USA.
Date: 10-04-2022 - 13-04-2022
Language: English
Organiser: John McCartney (UC San Diego, USA) and Ingrid Tomac (UC San Diego, USA),
Contact Information: ICEGT-2020 Secretariat,
Address: 9500 Gilman Dr., La Jolla CA,
Phone: +1-858-822-5212,
Fax: +1-858-822-2260,
Email: secretariat@icegt-2020.com,
Website: https://icegt-2020.eng.ucsd.edu/home

7th International Young Geotechnical Engineers Conference
Location: International Convention Centre, Sydney, Australia
Language: English
Organiser: Australian Geomechanics Society
Contact person: ICMS Australasia
Address: Level 9, 234 George Street, Sydney NSW, 2000
Phone: (+61 2) 9254 5000
Email: info@icsmge2021.com
Website: http://icsmge2021.org/7iygec/
Event Diary (Con’t)

20th International Conference on Soil Mechanics and Geotechnical Engineering
Location: International Convention Centre Sydney, Australia
Date: 01-05-2022 - 05-05-2022
Language: English
Organiser: The Australian Geomechanics Society;
Contact person: ICMS Australasia;
Address: Level 9, 234 George Street Sydney NSW 200;
Email: emmab@icmsaust.com.au
Website: http://www.icsmge2021.org/

3rd International Conference on Geotechnical Engineering - Iraq 2022
Location: University of Baghdad, Iraq
Language: English
Organiser: Iraqi Scientific Society for Soil Mechanics and Foundation Engineering
Contact person: Mahdi O Karkush
Address: University of Baghdad, Aljadriah
Phone: 00964780105893
Email: mahdi_karkush@coeng.uobaghdad.edu.iq
Website: https://ocs.uobaghdad.edu.iq/index.php/ICGEI/ticgei

5th International Symposium on Cone Penetration Testing (CPT’22)
Location: Centro Congressi CNR, Bologna, Italy
Language: English
Organiser: Italian Geotechnical Society (AGI) and University of Bologna (endorsed by TC102)
Contact person: Susanna Antonielli (AGI), Prof. Guido Gottardi (University of Bologna)
Email: guidogottardi2@unibo.it; agi@associazionegeotecnica.it

Geohazards 8
Location: Musée de la Civilisation, Quebec, Canada
Languages: English and French
Organiser: Canadian Geotechnical Society Eastern Quebec Section
Contact person: Ariane Locat
Email: ariane.locat@gci.ulaval.ca
Website: https://geohazards8.ca/
Email: info@geohazards8.ca

Geotechnical Engineering for the Preservation of Monuments and Historic Sites
Location: Naples, Italy
Date: 22-24 June 2022
Organizer: TC 301, AGI (Italian Geotechnical Society)
Contact person: Filomena de Silva
Email: secretary@tc301-napoli.org
Website: http://www.tc301-napoli.org
Event Diary (Con’t)

TC204: Geotechnical Aspects of Underground Construction In Soft Ground - TC204 Cambridge 2021
Location: University of Cambridge, United Kingdom
Date: 28-06-2021 - 30-06-2021
Language: English
Organiser: University of Cambridge
Contact person: Dr Mohammed Elshafie
Address: Laing O'Rourke Centre, Department of Engineering, Cambridge University
Phone: +44(0) 1223 332780
Email: me254@cam.ac.uk

5th International Conference on New Developments in Soil Mechanics and Geotechnical Engineering
Location: Atatürk Cultural and Congress Center Near East University , Nicosia, Turkey ,
Dates: 30-06-2022 - 02-07-2022
Language: English
Organiser: Turkish Society of Soil Mechanics and Geotechnical Engineering and Near East University
Contact person: Cavit ATALAR
Address: Near East Boulevard
Phone: 05338342829
Fax: 00903922236461
Email: cavit.atalar@neu.edu.tr
Website: http://zm2020.neu.edu.tr

4th International Symposium on Frontiers in Offshore Geotechnics
Location: University of Texas, Austin, United States
Date: : 28-08-2022 - 31-08-2022
Language: English
Organizer: ISFOG 2020 Organising Committee
Contact person: Phil Watson
Address: The University of Western Australia
Phone: 0418881280
Email: phillip.watson@uwa.edu.au
Website: http://www.isfog2020.org

11th International Symposium on Field Monitoring in Geomechanics
Location: Imperial College London, United Kingdom
Dates: 04-09-2022 - 08-09-2022
Organiser: TC220
Contact person: Dr Andrew Ridley
Email: andrew.ridley@geo-observations.com

17th Danube - European Conference on Geotechnical Engineering
Location: Ramada Parc, Bucharest, Romania
Dates: 05-09-2022 - 07-09-2022
Language: English
Organiser: Romanian Society for Geotechnical and Foundation Engineering
Contact person: Ernest Olinic
Address: Bvd. Lacul Tei 124
Email: srgf@utcb.ro
Website: http://www.17decge.ro
28th European Young Geotechnical Engineers Conference and Geogames
Location: National Research Moscow State University of Civil Engineering, Russia, Moscow
Date: 15-09-2022 - 19-12-2022
Language: English
Organiser: Russian Society for Soil Mechanics, Geotechnics and Foundation Engineering
Contact person: PhD Ivan Luzin
Address: NR MSUCE, 26 Yaroslavskoye shosse
Phone: +7-495-287-4914 (2384)
Email: youngburo@gmail.com
Additional Information: https://t.me/EYGEC2020

10th International Conference on Physical Modelling in Geotechnics
Location: KAIST, Daejeon, South Korea
Dates: 19-09-2022 - 23-09-2022
Language: English
Organiser: Korean Geotechnical Society (KGS)
Website: http://icpmg2022.org/
Email: secretariat@icpmg2022.org

Location: De Doelen, Rotterdam, The Netherlands,
Dates: 20-09-2022 - 23-09-2022
Language: English
Organiser: Royal Netherlands Society of Engineers (KIVI)
Contact person: Angelique van Tongeren
Address: Prinsessegracht 23
Email: SW2022@kivi.nl
Website: https://www.kivi.nl/afdelingen/geotechniek/stress-wave-conference-2022

16th International Conference on Geotechnical Engineering,
Location: University of Engineering & Technology (UET) Lahore, Pakistan,
Dates: 08-12-2022 - 09-12-2022
Language: English
Organiser: Pakistan Geotechnical Engineering Society (PGES)
Contact person: Dr. Jahanzaib Israr
Address: Civil Engineering Department, University of Engineering & Technology (UET) Lahore (Main Campus), G.T. Road
Phone: 03344132808
Email: 16icge@uet.edu.pk
Website: https://16icge.uet.edu.pk/
2023

17th Danube - European Conference on Geotechnical Engineering
Location: Ramada Parc, Bucharest, Romania
Dates: 07-06-2023 - 09-06-2022
Language: English
Description
Organiser: Romanian Society for Geotechnical and Foundation Engineering
Contact person: Ernest Olinic
Address: Bvd. Lacul Tei 124
Email: srgf@utcb.ro
Website: http://www.17decge.ro

9th International Congress on Environmental Geotechnics
Location: Chania, Crete island, Greece,
Dates: 25-06-2023 - 28-06-2023
Language: English
Organiser: Chair: Dimitrios Zekkos, University of California at Berkeley; zekkos@berkeley.edu
Contact person: Dr. Rallis Kourkoulis
Email: rallisko@grid-engineers.com
Website: https://www.iceg2022.org/

17th Asian Regional Geotechnical Engineering Conference
Location: Nur-Sultan, Kazakhstan
Dates: 14-08-2023 - 18-08-2023
Language: English
Organiser: Kazakhstan Geotechnical Society
Contact person: Ms. Bibigul Abdrakhmanova
Address: 2, Satpayev Street, Eurasian National University, Geotechnical Institute
Phone: +7-7172- 344796
Fax: +7-7172-353740
Email: milanbi@mail.ru

XVIII European Conference on Soil Mechanics and Geotechnical Engineering
Location: Lisbon, Portugal
Dates: 25-08-2024 - 30-08-2024
Language: English
Organiser: SPG
Contact person: SPG
Address: Av. BRASIL, 101
Email: spg@lnec.pt
Website: http://www.spgeotecnia.pt
NON-ISSMGE SPONSORED EVENTS

2021

Fifth World Landslide Forum
Location: Kyoto International Conference Center, Kyoto, Japan
Dates: 02-11-2021 - 06-11-2021
Organizer: International Consortium on Landslides
Contact person: Ryosuke Uzuoka
Address: Gokasho
Phone: +81-774-38-4090
Email: uzuoka.ryosuke.6z@kyoto-u.ac.jp
Website: http://wlf5.iplhq.org/
Email: secretariat@iclhq.org

Buchanan Lecture
Dr Philippe Jeanjean - Offshore Geotechnics: From Oil and Gas to Renewable Energy"
Location: Online - United States
Date: 12-11-2021 - 13-11-2021
Language: English
Organiser: Jean-Louis Briaud
Contact person: Blake Thurman
Address: 3135 TAMU
Phone: 9794581024
Email: blake960@tamu.edu
Website: https://briaud.engr.tamu.edu/buchananlecture/

4th African Regional Conference on Geosynthetics
Location: Cairo, Egypt
Dates: 21-02-2022 - 24-02-2022
Language: English
Organiser: International Geosynthetics Society- Egypt Chapter
Contact person: Prof. Fatma Baligh
Address: 87 El-Tahrir St., Dokki, Giza, Egypt
Email: Secretariat@geoafrica2021.org; info@geoafrica2021.org
Website https://geoafrica2021.org/;

The Third International Conference on Environmental Geotechnology, Recycled Waste Materials and Sustainable Engineering
Location: Dokuz Eylul University, Izmir, Turkey,
Dates: 17-06-2021 - 19-06-2021
Organiser: Dokuz Eylul University
Contact person: Tugce Ozdamar Kul
Address: Dokuz Eylul University
Phone: +905325164800
Email: egrwse2020@gmail.com
Website: http://www.egrwse2020.com
16th International Conference of the International Association for Computer Methods and Advances in Geomechanics - IACMAG
Location: Politecnico di Torino Conference Centre, Italy
Dates: 01-08-2022 - 02-09-2022
Language: English
Organiser: Politecnico di Torino
Contact person: Symposium srl
Address: via Gozzano 14
Phone: +390119211467
Email: info@symposium.it, marco.barla@polito.it

12th International Conference on Geosynthetics
Location: Auditorium Parco della Musica, Rome, Italy
Dates: 18-09-2022 - 22-09-2022
Language: English
Organiser: Associazione Geotecnica Italiana - Italian Chapter of IGS
Contact person: Susanna Antonielli
Address: AGI-Viale dell'Università 11
Phone: +39 06 4465569
Fax: +39 06 44361035
Email: info@12icg-roma.org
Website: http://www.12icg-roma.org

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

AECOM Asia Company Ltd
8/F, Tower 2, Grand Central Plaza
138 Shatin Rural Committee Road
Shatin, NT
HONG KONG

Bentley Systems (UK) Limited
20 Gracechurch Street
London EC3V 0BG
www.bentley.com/en

CCCFourth Harbor Engineering Institute Co. Ltd.
Guangzhou Window HQ Building 368 Lijiao Rd Haizhu District Guangzhou, 510231
China
http://english.etr.cccc4.com/

Dar Al Handasah Corp
Smart Village,
Cairo-Alexandria desert Road
Street 26, Building 10
P.O. Box: 129, Giza 12577,
Egypt

Deltarcs
PO Box 177
2600 AB Delft,
THE NETHERLANDS

EBP SA
info@ebpanama.com
Tel: +351 - 69053051
www.ebpanama.com

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

GDS Instruments Sdn. Bhd.
124, Jalan Kapar 27/89, Section 27, Taman Alam Megah, 40400 Shah Alam, Selangor,
Malaysia
https://www.gdsi.com.my/

Geoharbour Building, 6A, No.1228,
Jiangchang Rd., Jing’an District, Shanghai,
200434, P.R.China.
Tel: +86 21 3126 1263
Fax: +86 21 2301 0238
Web: www.geoharbour.com

Golder Associates Inc
1000, 940-6th Avenue S.W.
Calgary, Alberta
CANADA T2P 3T1

Advanced Infrastructure

Ove Arup & Partners Ltd.
13 Fitzroy Street
London W1T 4BQ
UNITED KINGDOM

A.P. van den Berg
Ijzerweg 4
8445 PK Heerenveen
THE NETHERLANDS

A.P. van den Berg
Ijzerweg 4
8445 PK Heerenveen
THE NETHERLANDS

AOSA
Tacuari 1184 - (C1071AAH)
Cdad. de Buenos Aires
Argentina
http://www.aosa.com.ar

Golder Associates Inc
1000, 940-6th Avenue S.W.
Calgary, Alberta
CANADA T2P 3T1

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

Aurecon
Level 8, 850 Collins Street
Docklands Victoria 3008
Melbourne
AUSTRALIA

Coffey Geotechnics
Level 19, Tower B,
Citadel Towers
799 Pacific Highway
Chatswood NSW 2067 Australia

Dar Al Handasah Corp
Smart Village,
Cairo-Alexandria desert Road
Street 26, Building 10
P.O. Box: 129, Giza 12577,
Egypt

Deltares
PO Box 177
2600 AB Delft,
THE NETHERLANDS

Deltares
PO Box 177
2600 AB Delft,
THE NETHERLANDS

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Geoharbour Group
Geoharbour Building, 6A, No.1228,
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200434, P.R.China.
Tel: +86 21 3126 1263
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200434, P.R.China.
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