



## ISSMGE TC 211 GROUND IMPROVEMENT NEWSLETTER n°12, July 2016

Dear reader,

In this 12<sup>th</sup> Newsletter we provide some information concerning the recent and upcoming activities of the ISSMGE TC 211. Here below more information is given regarding the following topics:

- Organization of a 1-day **workshop of TC 211 in Guimarães, Portugal** within the framework of the 3<sup>rd</sup> ICTG (September 4, 2016): presentation of the technical program and time schedule
- Organization of an additional TC 211 workshop and next Louis Ménard Lecture in Seoul within the framework of the 19<sup>th</sup> ICSMGE 2017 (September 2017)
- Recent events and activities related to the TC 211 within the framework of the 19<sup>th</sup> Southeast Asian Geotechnical Conference in Kuala Lumpur, at the International Symposium of ETC3 in Leuven and at the ECSMGE in Edinburgh.
- Other lectures, presentations and publications.

### 1. Workshop TC 211 at the 3<sup>rd</sup> ICTG in Guimarães (September 4, 2016)



The 3<sup>rd</sup> International Conference on Transportation Geotechnics will be held in September 2016 in Guimarães, Portugal from 4 to 7 September 2016. The reader will find the scientific program and the themes of the conference on the following website:

<http://www.civil.uminho.pt/3rd-ICTG2016/>

Within the framework of this conference, a **Workshop on Ground Improvement** and soil stabilization will be organized. Dr Serge Varaksin (France), Prof. Antonio Correia (Portugal) and Prof. Miguel Azema (Portugal) will act as the Chairmen of this Workshop which will thus be coordinated by the TC 211. **This workshop will be organized on September 4, 2016 during the first day of the Conference.** You will find the provisional program of the workshop on the next page.



## TC 211

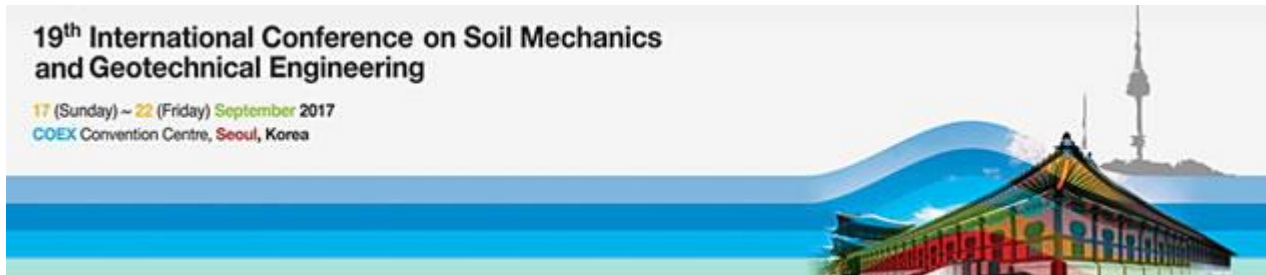
09:00-09:05	Opening Remarks by Serge Varaksin & Miguel Azenha
09:05-09:45	<b>Keynote Lecture</b> - " <i>Controlled Modulus Columns (CMC) Ground Improvement under the Future Embankment of the New Turcot Interchange</i> " by Jérôme Racinais, France
09:45-10:10	" <i>Geotextile encased Columns: Applications in Russia</i> " by Andrey Ponomaryov, Russia
10:10-10:35	" <i>Basal Reinforced Piled Embankments: how to design, how to decide?</i> " by Arjan Venmans & Suzanne Van Eekelen, The Netherlands
10:35-11:00	" <i>Behaviour of a Compacted Subgrade Soil and the Influence of Planar Reinforcement in Track Substructure</i> " by Ana Heitor, Buddhima Indraratna & Cholachat Rujikiatkamjorn, Australia
11:00-11:30	Coffee Break
11:30-11:55	" <i>The Advantages of the Use of Advanced Quality Control Methods during PVD Installation and Heavy Rapid Impact Compaction in Transportation Geotechnics</i> " by Jeroen Dykstra, The Netherlands
11:55-12:20	" <i>Dynamics Rollers in Earthworks: Compaction and Continuous Compaction Control</i> " by Johannes Pistor & Dietmar Adam, Austria
12:20-12:45	Discussion Session
12:45-14:00	Lunch
14:05-14:45	<b>Keynote Lecture</b> - " <i>Performance of Test Embankment under Vacuum Consolidation</i> " by Márcio Almeida, Brazil
14:45-15:10	" <i>Characterisation and Modelling of Non-isothermal Soil Behaviour and Implications to Ground Improvement</i> " by David Taborda, England
15:10-15:35	" <i>Novel grouting process for reinforcement of low permeability soils with the use of biocementation by biocalcis</i> " by Anette Esnault, France
15:35-16:00	" <i>Alkali Activated Binders in Soil Stabilisation Applications</i> " by Nuno Cristelo & Tiago Miranda, Portugal
16:00-16:15	Coffee Break
16:15-16:40	" <i>Ground Improvement Solutions for Harbours</i> " by António Cristóvão, Alexandre Pinto & Rui Tomásio, Portugal
16:40-17:05	" <i>Rigid Inclusions a ground reinforcement solution rather than a ground improvement solution</i> " by Baldomiro Xavier, Portugal
17:05-17:30	" <i>Application of grouting technology: Case study of compensation and consolidation grouting in metropolitan tunnel</i> " by João Falcão, Portugal
17:30-17:50	Discussion Session
17:50-18:00	Closure by Serge Varaksin & António Alberto Correia

**Registration for the conference and the workshop via:**

<http://www.civil.uminho.pt/3rd-ICTG2016/Registration.php>



## 2. TC 211 conference session, Workshop TC 211 and Louis Ménéard Lecture at the 19<sup>th</sup> ICSMGE 2017 in Seoul (September 2017)



The format of the Seoul Conference will be very close to the successful format followed in Paris for the 18<sup>th</sup> ICSMGE with significant contributions from the TCs. There will be therefore two kinds of Parallel Sessions for the TCs (probably during the 3<sup>rd</sup> day and the 4<sup>th</sup> day of the Conference): the Discussion Sessions and the Workshops.

The Discussion Sessions are the "official" TC Sessions of the Conference. During these parallel Sessions, after a General report, delivered by the Discussion Leader, the selected oral presentations (selected from the contributions sent to the Conference by the Member Societies) will be delivered. The Discussion Session on the topic of Ground Improvement will be managed by our TC.

In addition of this "official" Discussion Session, the board of the TC 211 proposes to organize an additional TC 211 Workshop. In the recent past, Workshops or Short Courses were organized by the TC 211 on the following GI topics: deep mixing, marine ground improvement, rigid inclusions (in Brussels at the IS-GI 2012), grouting type techniques (in Paris at the ICSMGE 2013) and QA/QC in GI works (in Edinburgh at the ECSMGE 2015). The theme of the TC 211 Workshop of Seoul will be this time dedicated to the "**Earth reinforcement in fill and in cut**" including the interesting topic of Mechanically Stabilized Earth **MSE-walls**. The TC 211 Workshop will be included in the parallel sessions and will be full component of the official Conference. This Workshop will also be managed by the TC 211.

Further details (provisional program, hour and room) concerning the TC 211 Workshop 2017 will follow later.

Finally, it is to note that within the framework of the 19<sup>th</sup> ICSMGE, **Prof. Buddhima Indraratna** will present the **4<sup>th</sup> Louis Ménéard Lecture**. The provisional title of his presentation is:

***"Advancing the State-of-the-Art in Soft Soil Stabilisation  
- From Conceptual Fundamentals to Field Applications"***



### 3. Recent activities and events related to the TC 211

[19<sup>th</sup> Southeast Asian Geotechnical Conference and 2<sup>nd</sup> AGSSEA conference on Deep Excavation and Ground Improvement](#)



**AGSSEA**

## **19<sup>TH</sup> SOUTHEAST ASIAN GEOTECHNICAL CONFERENCE & 2<sup>ND</sup> AGSSEA CONFERENCE**

*Deep Excavation and Ground Improvement*

**31 May – 3 June 2016**

**Dorsett Grand Subang, Subang Jaya, Malaysia**

The 19<sup>th</sup> Southeast Asian Geotechnical Conference and the 2<sup>nd</sup> Association of Geotechnical Societies in Southeast Asia Conference (19SEAGC-2AGSSEAC) were held last month in Kuala Lumpur, Malaysia.

During the conference, a TC 211 conference session was organized including the presentation of 8 selected papers focusing on the theme of Ground Improvement works:

- Development of Deep Soil Mixing Technique for Earth Retention in Malaysia - *Prasad. P.V.S.R., Yee. Y.W. and V.R. Raju*
- Artificial Ground Freezing to Remediate the Construction of a Shaft of a Water Supply System in Bueno Aires, Argentina - *Lancellotta G., Pastore V., Tonoli G., De Mello L.G., Sopko J., Gomes G.G. and R. Aradas.*
- Lightweight Fill to Reduce Settlement on Bridge Approach Embankments Treated with Vibro Stones Columns - *Chwee A.Y.L. and E.G. Balakrishnan*
- Design and Construction of Ground Improvements to Mitigate Liquefaction, a Case History from MacKays to Peka Peka Expressway, New Zealand - *Robins, P. and T. Pervan.*
- Pilot tests on methods to form working platform on very soft clay – *Guo W., Sun L.Q., Chu J., Yan S.W. and J.F. Hou*
- Ground Improvement for Tanks - *Hamidi B. and S. Varaksin*
- Recent Advancements in the Application of Vacuum Pressure for Consolidating Soft Soil - *Zhong R., Indraratna B. and C. Rujikiatkamjorn*
- Twenty years of CMC successful application – *Racinais J., Thomas B. and R. Ong*

The presentations will be soon available on the website of the TC 211. To purchase the proceedings of the 19<sup>th</sup> Southeast Asian Geotechnical Conference, kindly email to [andrita@iemasb.com](mailto:andrita@iemasb.com) or [serena@iem.org.my](mailto:serena@iem.org.my)



*“Ground Improvement vs. Pile Foundations”? A keynote lecture given at the International Symposium of ETC3 in Leuven in April 2016*



## Design of Piles in Europe

How did Eurocode 7 change daily practice?

International Symposium  
28 and 29 April 2016, Leuven, Belgium

Within the framework of the International Symposium ETC3, co-organized by our Chairman, Noël Huybrechts and focusing on the design of pile foundations in Europe, a **keynote lecture** was written by our TC 211 members: Serge Varaksin, Babak Hamidi, Noël Huybrechts and Nicolas Denies. The purpose of this keynote (titled: **“Ground improvement vs. pile foundations?”**) was to highlight the fundamental differences between the design of pile foundations and the design of rigid inclusions including (or not) a load transfer platform.

Actually, a current trend on the European market is the use of ground improvement concepts as alternative or in complement with deep foundations realized by piling methods. Several ground improvement techniques include the use of rigid inclusions. Their construction process, sometimes similar to the typical piling techniques, makes it difficult to draw a boundary between deep foundation by piles and ground improvement by rigid inclusions. In the present keynote, design methodologies for rigid inclusions, in line with the Eurocodes, are discussed and promoted in order to ensure a positive competition or a strong collaboration between both worlds. The authors give a general overview of the rigid inclusion concept including theoretical, design and execution aspects. Recent trends on the market (deep mixing, CMC...) are highlighted and research perspectives proposed in order to better understand the fundamental principles governing the different foundation concepts.

**The text of the keynote and the presentation are available on the website of the TC 211:**  
[www.tc211.be](http://www.tc211.be)





*[TC 211 Workshop in Edinburgh \(ECSMGE 2015\)](#)*

**XVI ECSMGE 2015**  
13-17 September 2015 - Edinburgh

**TC 211 WORKSHOP – Progress in QC/QA for GI works**

MECHANICS IN CIVIL ENGINEERING  
CONFERENCE FOR DEVELOPING COUNTRIES

**BGA** THE BRITISH GEOTECHNICAL ASSOCIATION

SIMSG ISSMGE

Within the framework of the XVI European Conference on Soil Mechanics and Geotechnical Engineering, held in September 2015 in Edinburgh, the TC 211 has organized a workshop dedicated to the theme:

*“Progress in QC/QA for GROUND IMPROVEMENT works”*



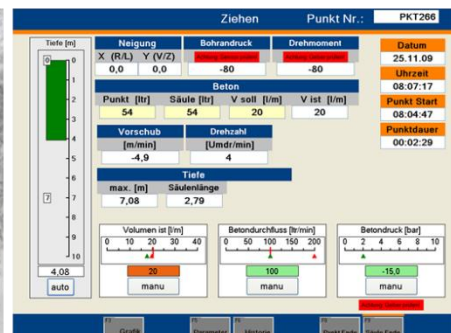
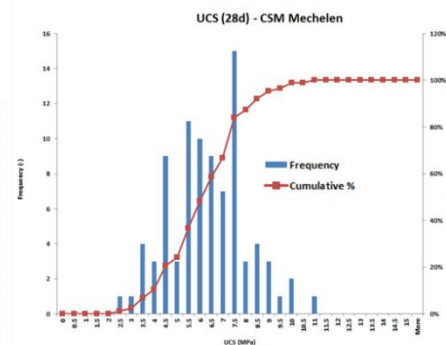
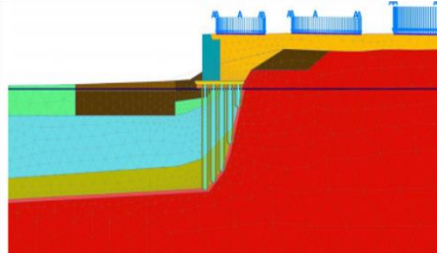
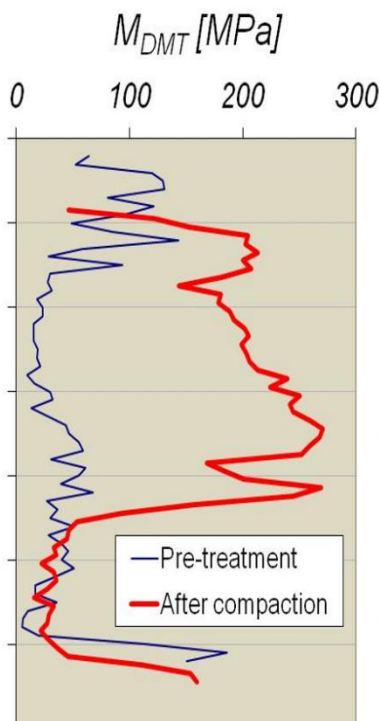


## TC 211

This topic was chosen in agreement with our terms of reference for the current period: “*Design, Quality Control and Quality Assurance for ground improvement works*”. The TC 211 workshop was chaired by our TC 211 Chairman Noël Huybrechts. It was held on Tuesday 15 September 2015 and it has encountered a real success. Six presentations were given for this occasion:

- “Progress in QC/QA for GI works Design, Quality Control and Quality Assurance”  
by Antonio Viana Da Fonseca (Portugal), Chairman of TC 102,
- “In-situ Testing for Quality Assurance in Permafrost”  
by Richard Jewell (UK), executive member of TC 211,
- “Quality Control of Ground Improvement by in-situ and laboratory testing”  
by Henk Van De Graaf (The Netherlands),
- “Calibration of rigid inclusion parameters based on the pressuremeter test results”  
by Jérôme Racinais (France),
- “Real-time quality monitoring and result verification by static and dynamic trial loading of piles in marine clay”  
by Jimmy Wehr (Germany),
- “Soil Improvement Techniques – Bypass Mechelen”  
by Wim Maekelberg (Belgium).

These presentations are available on the website of the TC 211 [www.tc211.be](http://www.tc211.be)





#### 4. Other lectures, presentations and publications

	<p>In recent years, the Deep Mixing Method has increasingly been applied for the construction of earth and water retaining structures. From practice, it has been experienced that there was a real need to develop execution and design rules adapted to the function of the soil mix wall (used as retaining structure, cut-off wall, foundation solution or a combination) including the temporary or permanent character of the application. Based on the results of the BBRI Soil Mix project (2009-2013), a design approach has been developed in collaboration with the SBRCURnet. The Dutch version of the SBRCURnet/BBRI soil mix handbook is now available at the following link:</p> <p><a href="http://www.sbrcurnet.nl/producten/publicaties/handboek-soilmix-wanden">http://www.sbrcurnet.nl/producten/publicaties/handboek-soilmix-wanden</a></p> <p>A meeting is planned in September 2016 to begin the preparation of the English version of the handbook. The reader will be informed about the publication of the English version via the ISSMGE and DFI.</p>
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At the end of 2015, our vice-Chairman Serge Varaksin, travelling around the world, provided several presentations for students and professionals:

- Portugal 13-18 October 2015, Universities of Minho, Porto and Coimbra:
  - *Ground Improvement techniques, quality control and case histories*
  - *The Menard pressuremeter: history, equipment, new developments, installation procedures, design rules and methods*
- Indonesia, Jakarta, 24-25 November 2015, HATTI Conference “Geotechnical Role in Mega Structure Construction:
  - *Ground Improvement solutions for fast track mega project*
- Malaysia 1-3 December 2015, Kuala Lumpur and Kuching, seminars organized by the Malaysian Engineers association and the Geotechnical association (Kuala Lumpur) and ACEM & SUT (Kuching, Sarawak)
  - *Ground Improvement Techniques with associated soil investigation and quality control*

These presentations will be soon available on the website of the TC 211: [www.tc211.be](http://www.tc211.be)

**Finally, the TC 211 thanks you for your active participation to all these activities.**

**May the summer 2016 be a successful and relaxing time for you all!**