

## Conference report

### The 8<sup>th</sup> International Congress on Environmental Geotechnics, China



The 8<sup>th</sup> International Congress on Environmental Geotechnics (8ICEG), under the auspices of TC 215 Environmental Geotechnics of ISSMGE, successfully took place on Oct. 28<sup>th</sup> - Nov. 1<sup>st</sup>, 2018 at Hangzhou, China. This congress was organized by Ministry of Education Key Laboratory of Soft Soils and Geoenvironmental Engineering of Zhejiang University, The Chinese Institution of Soil Mechanics and Geotechnical Engineering (CISMGE), and The Hong Kong Geotechnical Society (HKGES). Support was also received from International Geosynthetics Society (IGS), International Waste Working Group (IWWG), Commission on Radioactive Waste Disposal of International Society for Rock Mechanics (ISRM), and Commission on Waste Disposal of the International Association of Engineering Geology and the Environment (IAEG). Financial supports were from the National Natural Science Foundation of China (41842018), the Chinese Program of Introducing Talents of Discipline to University (the 111 Project, B18047), the College of Civil Engineering and Architecture of Zhejiang University, and 11 sponsors from the industry.

The congress theme was “Towards a Sustainable Geoenvironment.” “Sustainable development was to meet the needs of the present without compromising the ability of future generations to meet their own needs”. Geoenvironment was a specific compartment of the environment and comprised portions of geosphere, hydrosphere and biosphere. Under this theme the congress covered a broad range of topics and provided an excellent opportunity for academics, engineers, scientists, government officials, regulators and planners to present, discuss and exchange the latest advancements and developments in the research and application of environmental geotechnics.

8ICEG featured (1) 22 Plenary Lecturers from 11 countries, which includes 7 academicians, 4 editors of major journals, and 6 chairpersons of international renowned organizations; (2) 4 ISSMGE Bright Spark Lectures honoring distinguished young scholars in geoenvironmental area under age of 36, (3) 216 oral presentations and 24 posters were presented in a spacious and comfortable five-star hotel, Sheraton Hangzhou Wetland Park Resort; (4) Over 250 papers in the congress proceedings, including emerging “hot” topics on sustainability, bio-geoengineering and geoenvironmental aspects in energy geotechnics, were published in Environmental Series of Springer, EI-indexed, and searchable by Web of Science; (5) 4 internationally renowned journals, such as Geotextiles and Geomembranes, agreed to special issue publication; (6) 3 short courses, and (7) technical visits to Tianziling landfill of municipal solid waste disposal facility and two construction waste recycling facilities. Numerous positive feedbacks orally or by email were received on the planning, scheduling, on-site organization and off-site guidance. A brief review was provided as follows.

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Speakers	Topic
<b>Distinguished Lecture</b>	
Kerry Rowe	Environmental Geotechnics: Looking back, looking future
<b>Kerry Rowe Lecture</b>	
Mario Manassero	On the Fabric and State Parameters of Active Clays for Contaminant Control
<b>Keynote Lectures</b>	
Craig Benson	Engineering for Sustainability: New Value Proposition for Differentiation in Environmental Geotechnics
Ning-wu Chang	Brownfield Redevelopment at Contaminated Landfill Site
Yun-min Chen	Waste Mechanics and Sustainable Landfilling Technology: Comparison between HFWC and LFWC MSWs
<b>Invited Lectures</b>	
Malek Bouazza	Failures in Containment System: Lessons Learned
Michael A. Celia	Modeling Geological Storage of Carbon Dioxide with a Focus on Leakage Risk Assessment
Pierre Delage	Micro-macro Effects in Bentonite Engineered Barriers for Radioactive Waste Disposal
Nathalie Touze-Foltz	Performance Issues of Barrier Systems for Landfills
Stephan Jefferis	Low Permeability Vertical Barriers: The State of the Art and the Research Needs for the Future
Takeshi Katsumi	Towards Sustainable Soil Management - Reuse of Excavated Soils with Natural Contamination
Edward Kavazanjian	Biogeotechnical Engineering Applications for Environmental Protection and Restoration
Olaf Kolditz	Workflows in Environmental Geotechnics: Status-Quo and Perspectives
William Powrie	Climate and Vegetation Impacts on Infrastructure Cuttings and Embankments
Krishna Reddy	Risk, Sustainability and Resiliency Considerations in Polluted Site Remediation
Devendra Narain Singh	Centrifuge Modeling of Contaminant Transport in Geomaterials
Rainer Stegmann	Development of Waste Management in the Last 30 Years
Antonio Thome	Remediation Technologies Applied in Polluted Soils: New Perspectives in this Field
Fu-ming Wang	Jet Grouting for Leakage Prevention with Non-Aqueous Reactive Polymers
Liang Chen	Progress of High-Level Radioactive Waste Disposal Program in China
<b>General Report</b>	
Charles Shackelford	Pollutant Transport
William Powrie	Waste Mechanics
<b>ISSMGE Bright Spark Lectures</b>	
Marta Di Sante	The Reuse of Excavated Soil by Lime Stabilization: Mechanical and Hydraulic Properties
Xunchang Fei	Changes in Static and Dynamic Responses of Municipal Solid Waste in Landfills due to Long-term Coupled Degradation Processes
Wenjie Xu	A Multi-field Coupling Model of Degradable Soils and its Applications in Landfilled Municipal Solid Waste
Junjun Ni	Hydrological Contribution of Vegetation to Slope Stabilization: Theory and Experiment

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#### Day 1 (Oct. 28<sup>th</sup>): Registration, short courses, lab tour, and reception.

The staff and student volunteers carefully explained the progress of the conference to the delegates.

Three short courses were given: Numerical simulation of THMC processes in porous and fracture media: application of the computing code OpenGeoSys by Olaf Kolditz and Haibing Shao; 2D/3D Slope stability and seepage analysis by Murray Fredlund, Haihua Lu and Yufeng Gao; and Design and Remediation of Solid and Hazardous Waste Landfills - Approach and Analysis of Existing Problems for Landfills in China by Xuede Qian and Jiwu Lan.

Nineteen delegates visited the laboratory facility at Zhejiang University in the afternoon: Landfill simulation systems and chemical analysis devices, ZJU-400 geotechnical centrifuge, 1:1 High-Speed Railway Subgrade experiment facility, and Geoenvironmental Application and Multiphase Energy (GAME) lab. A lively and crowded reception was held in the evening on a beautiful rooftop golf court.

#### Day 2 (Oct. 29<sup>th</sup>): opening ceremony and plenary lectures.

Dr. Bate Bate, secretary of the organizing committee of 8ICEG, hosted the opening ceremony and introduced the guests in the morning. Prof. Lianzhen He, Vice President of Zhejiang University, expressed sincere welcome to all delegates on behalf of Zhejiang University. Mr. Bin Zhong, deputy director of the Bureau of Soil Ecology and Environment of the Ministry of Ecology and Environment, introduced the situation and progress of soil control in China. Mr. Xingu Qiu, vice chairman of Hangzhou Urban and Rural Construction Committee, delivered a welcome speech on behalf of Hangzhou. Prof. Charles W. W. Ng of the Hong Kong University of Science and Technology, president of the ISSMGE, gave a brief introduction to the membership of ISSMGE and the progress of relevant conferences this year. Prof. Abdelmalek Bouazza, chairman of TC215, delivered the opening speech. Prof. Liangtong Zhan chairman of the organizing committee of 8ICEG, introduced the organization and schedule of the conference. Last, Prof. Liangtong Zhan and Prof. Abdelmalek Bouazza ringed the bell to announce the opening of the conference.

Afterwards, special distinguished lecture, 1 keynote lecture and 3 invited lectures were delivered in the morning. In the afternoon, Kerry Rowe Lecture and 3 invited lectures were delivered.



Photo 1 Introducing guests at the opening ceremony

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Prof. Lianzhen He



Mr. Bin Zhong



Mr. Xingu Qiu



Prof. Charles W. W. Ng



Prof. Abdelmalek Bouazza



Prof. Liangtong Zhan

Photo 2. Speech by different scholars

#### Day 3 & 4: Plenary lectures, concurrent sessions, banquet and Impression West Lake Show.

The schedule on the third and the fourth day of the conference (Oct. 30<sup>th</sup> and 31<sup>st</sup>) was similar: In the morning, 2 keynote lectures, 2 general reports and 9 invited lectures were held. Four ISSMGE Bright Spark Lecturers, honoring scholars in geoenvironmental area under the age of 35, presented their state-of-the-art work in a plenary session on Oct. 31<sup>st</sup>. These four young scholars were Drs. Marta Di Sante, Xunchang Fei, Wenjie Xu and Junjun Ni. In the afternoon of two days, oral presentations in concurrent sessions were held, the audiences were active and asked a lot of questions after the delegates' presentations.

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A banquet was held in the evening of the Oct. 30<sup>th</sup>. Chinese folk music was performed, followed by the amazing Sichuan Opera fast face-changing performance. The delegates said that they enjoyed the banquet.

In the evening of Oct. 31<sup>st</sup>, delegates arrived at West Lake and watched the Impression West Lake show. The show helped delegates to understand the Hangzhou's connotation and appreciate the essence of Hangzhou's urban culture. The changing lighting themes and diverse music genres impressed the delegates.

#### Day 5: Technical visit.

On Nov. 1<sup>st</sup>, under the guidance of the Prof. Liangtong Zhan, more than 80 delegates visited the Hangzhou construction waste recycling point - Hangzhou Gangxie Village muck transfer terminal. Xiecun Wharf is the first modern large-scale construction waste waterway transfer operation point in Hangzhou. It was completed and constructed by Hangzhou Lvnong Environmental Engineering Co., Ltd. in 2016.

In the closing ceremony of the conference, the chairman of TC215 Prof. Abdelmalek Bouazza announced that the 9th International Conference on Environmental Geotechnics will be held in Crete Island, Greece in 2022. The chairman of the organizing committee of 8ICEG, Prof. Liangtong Zhan expressed his gratitude to all the staff and volunteers and adjourn the congress.



Photo 3. 8ICEG group photo