

## **Minutes for 25<sup>th</sup> ISSMGE TC304 Meeting (Geo-Risk 2017/6<sup>th</sup> ISGSR)**

**Date:** 4 June 2017 (Sunday)

**Time:** 9:00 ~ 10:00 pm

**Venue:** Mt. Columbia room, Grand Hyatt Denver (Geo-Risk 2017 venue), Denver, USA

**Members:** Kok-Kwang Phoon (Chair), Jianye Ching (Secretary), Zeynep Aslay, Michele Calvello, Zijun Cao, Paul Cool, Malcolm Eddleston, Kevin Foye, António Gomes, Vaughan Griffiths, Hongwei Huang, Jinsong Huang, Mark Jaksa, Rafael Jiménez, Celeste Jorge, Dianqing Li, Zhongqiang Liu, Bak-Kong Low, Sónia Marques, Axel Moellmann, Shin-ichi Nishimura, Lars Olsson, Adrian Rodrigues-Marek, Timo Schweckendiek, Brian Simpson, Baris Trak, Giovanna Vessia, Jie Zhang, Limin Zhang

**Guests:** William Bjureland, Marcin Chwala, Wenping Gong, Georgios Katsigiannis, Zhe Luo, Meng-Yao Shen, Johan Spross, Makoto Suzuki, Lei Wang, Pula Wojciech, Te Xiao, Tengyuan Zhao

### **1. Approval of the 24<sup>th</sup> TC304 minutes (Email meeting, 13-17 Feb 2017)**

Minutes are approved.

### **2. Discussion on future directions for TC304 after 19ICSMGE**

- KK mentioned that Pierre (Chair, Technical Oversight Committee) has shared the ISSMGE global survey of the State of the Art (SOA) and State of Practice (SOP) in geotechnical engineering with all TCs recently. He summarized the survey outcomes for TC304 below and opined that this feedback can be useful for planning our future directions.
  - Aspects that deserve the most attention:
    - Role of engineering judgment
    - Selection of characteristic value
    - Statistical interpretation of site data and other geotechnical data
    - Target reliability index
    - Bayesian observational approach
    - Codification vs site-specific needs
  - Wish list for action items that will facilitate the adoption of reliability/risk-informed decision making in practice:
    - Statistical guideline and databases
    - Better design codes
    - Case studies
    - Short courses
    - Softwares
- Members discussed possible future directions for TC304:
  - Limin proposed to put more emphasis on resilience of infrastructure so that geotechnical inputs can be properly reflected in an evolving conversation that goes beyond the civil engineering community.
  - KK mentioned that industries are being disrupted by the emergence of data-driven innovations, such as data analytics and machine learning. He opined that it is

unwise for geotechnical engineering to stay away from evaluating the potential usefulness of such emerging technologies. The rapid development of data science feeds into the development of IoT (Internet of Things) that in turn generate massive data from ubiquitous human-to-device and device-to-device communication. In particular, the georisk community is particularly well placed to explore this potential, because the basis for machine learning is essentially Bayesian in nature and this data-driven revolution can be exploited to further advance our observational approach. Jie agreed with this view and said in future Artificial Intelligence (AI) may replace some aspects of engineering judgment. AI has already encroached on areas previously thought to be out of reach of machine intelligence. The boundary between what machines could do and what humans could do is evolving all the time.

- Simpson opined that it is important to better understand failure by learning from case histories. Mark mentioned that ISSMGE has a journal for case histories (International Journal of Geoenvironment Case Histories). Vaughan indicated that writing journal papers are not the main responsibility of engineers. Simpson further indicated that many journals do not accept pure case history papers, because there is limited academic novelty.
- KK mentioned that there is a rising awareness in the importance of risk-informed decision making in the ASCE Geo-Institute (GI). Vaughan mentioned that Prof. J-L Briaud is leading a task force to develop a Geo-Institute Risk Design Standard (GI-RDS).
- Timo mentioned the new reliability-based guideline for levee design in the Netherlands. A comprehensive background document called “Fundamentals of flood protection” can be downloaded at [https://www.enwinform.nl/images/pdf/Grondslagen/GrondslagenEN\\_lowres.pdf](https://www.enwinform.nl/images/pdf/Grondslagen/GrondslagenEN_lowres.pdf)
- Lars mentioned the report on geotechnical risk management from the Swedish Geotechnical Society. Johan Spross indicated that the English version of this report can be downloaded at <http://www.sgf.net/web/page.aspx?refid=4567>
- Jianye mentioned the recent cooperation between TC304 and Sinotech (Taiwan). One product of this cooperation will be a web-based or apps-based software that can predict design soil parameter based on site data (possibly to be delivered at the end of 2017). In the future, this software will contain soil/rock databases for practitioners to download for their use. In the long run, practitioners may also upload their site-specific data. Mark opined that it is important to screen out unreliable data. KK mentioned the importance of maintaining strict confidentiality of the data source to encourage sharing of data. He encouraged members to participate in this initiative and to draw innovative ideas from the sharing economy that is already transforming many industries. While the development of a digital soil database is not new, getting the sharing mechanism right so that people will share willingly and data reliability/authenticity could be certified automatically is critical to this initiative.

### **3. Discussion on next Chair of TC304**

KK mentioned that he has served for two terms and he is very grateful for the tremendous support he has received over the past 8 years. He said that TC304 should be very proud of its achievements – the recently submitted TC304 report for the Council Meeting in Seoul that has been circulated to members for inputs is a testament to its collective efforts in promoting reliability/risk informed decision making in practice. The continuation of a TC is at the discretion of the new President who would be elected in Seoul, but KK is confident that TC304 would be extended by another 4 years. KK

said that it is best to discuss succession planning in this meeting, because there are a large number of members in attendance. Mark explained the process of nominating a new chair. The number of terms is normally limited to two and it is timely for TC304 to consider this issue. Limin recommended Jianye, and Mark seconded. KK mentioned that Gordon, who is Vice-Chair, has offered his support to Jianye as next Chair. KK conveyed Gordon's apology to the meeting for his absence as he has to prepare for the Wilson Tang Lecture. After further discussions, the committee decided to recommend Jianye as the next chair. Before the official nomination, TC304 will seek the approval from Chinese Taipei Geotechnical Society (CTGS), because each TC requires a host national society. KK said he would seek continuation of TC304 and nominate Jianye as the next Chair of TC304 after the new President is elected.

**The meeting adjourned at 10PM.**



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