

Minutes for 20th ISSMGE TC304 Meeting (15 ARC)

Date: 10 November 2015 (Tue)

Time: 5:15 PM

Venue: Room 404, 4F, Fukuoka International Congress Center (15ARC Venue)

Members: KK Phoon (Chair), Jianye Ching, HW Huang, Hyun-Ki Kim, Jin-Man Kim, Shin-ichi Nishimura, Makoto Suzuki, Yu Wang, Ikumasa Yoshida.

Guests: Yu-Gang Hu, Frankie L C Lo (representing Wing Sun), Thauh Son Nguyen, Dongming Zhang.

1. Introduction

KK welcomed members and guests to the 20th TC304 meeting and invited attendees to introduce themselves. KK encouraged guests who are interested in TC304 activities to contact their national societies to join TC304 as corresponding members. KK mentioned that there is no limit to the number of corresponding members per national society. There is also no difference between a formal member (restricted to 2 members per society) and a corresponding member with the exception that only a formal member can vote.

2. Confirmation of the 18th (ICASP 12, 14 July 2015) & 19th meeting minutes (ISGSR 2015, 14 Oct 2015)

The minutes were confirmed.

3. Updates and matters arising from the previous meeting

- TC304 sessions in 15 Asian Regional Conference (15 ARC), Sep 9-13 2015, Fukuoka, Japan, <http://www.15arc.org/> (Shin-ichi)
 - 15 papers were published and 14 papers were presented in 2 sessions chaired by Shin-ichi Nishimura, Makoto Suzuki.
- TC304 special session in 2015 Symposium on Reliability of Engineering Systems (SRES), Oct 21-24, Taipei, Taiwan (Jianye)
 - 6 papers were published and 5 papers were presented in one session chaired by Jianye and KK.

4. Future activities in 2015/2016+

- 6th Asian-Pacific Symposium on Structural Reliability and its Applications (APSSRA 2016), May 28-30 2016, Shanghai, China, <http://www.apssra2016.org/> (Hongwei)
 - 150+ abstracts were received.
 - Full paper due November 30 2015
 - 8 keynote lectures, including the 1st Suzanne Lacasse Lecture to be delivered by Vaughan, were arranged. Four of the keynote lectures are related to geotechnical engineering.
 - Software demonstration session (KK, Jianye, Gordon)
 - KK explained that the purpose of this session is to promote awareness on the availability of user-friendly probabilistic softwares that engineers can use and to hasten the development of these softwares for practice. KK said participants were encouraged to showcase the capabilities of their softwares using existing TC304 benchmark examples and to contribute more benchmark examples (http://140.112.12.21/issmge/edu_2010.htm). KK mentioned that similar sessions should be held in future conferences, for e.g., Georisk 2017.

- Georisk 2017/ISGSR 2017, June 4-6 2017, Denver, Colorado (Vaughan) (updated by Jianye). Members were requested to assist in the publicity of this important conference in 2017. It was last held in Atlanta in 2011. Georisk 2017 would host the 5th Wilson Tang Lecture and the 2nd Suzanne Lacasse Lecture (Greg Baecher).
- 19th ICSMGE, Sep 17-22 2017, Seoul, Korea, <http://www.icsmge2017.org/>.
 - TC304 has successfully secured a placement for the 3rd Suzanne Lacasse Lecture in 19ICSMGE. It would be delivered by Farrokh Nadim.
- Georisk Special Issue on “Distinctive and Critical Elements in Geotechnical Risk and Reliability” (Yu Wang)
 - 1 paper has been accepted, 2 papers are under review, and 7 papers are being drafted.
 - Yu mentioned that authors who contributed to the ICASP 12 special session were invited to this special issue.
 - KK opined that geotechnical reliability is evolving as a distinct discipline from structural reliability where it originates from. The publication of ISO2394 Annex D has provided a strong impetus for us to examine more deeply what sets geotechnical reliability apart from structural reliability. KK mentioned that spatial variability is clearly one distinctive element that can affect soil-structure interaction problems in a profound way. While a fair amount of information has been compiled for soil properties and some information is available on intact rock properties, research on the statistical characterization of the in-situ rock mass is very limited. KK opined that it is important for our community to sharpen the focus of our research agenda through this lens. ISO2394 Annex D was a good start and this special issue will hopefully continue the conversation on establishing a clearer research agenda for our georisk community.
- Georisk Special Issue on “10th Anniversary Issue for Georisk” (KK).
 - 2 papers are currently under review and 8 papers are being drafted (see list below). KK mentioned that the deadline for the full paper is Jan 2016. Members who are keen to contribute in this 10th anniversary special issue should contact KK directly.
 1. Richard J. Bathurst & Sina Javankhoshdel, Influence of model accuracy, input parameter variability, bias variability and bias dependencies on reliability analysis for simple limit states in soil-structure interaction problems
 2. Jinbo Chen and Robert B. Gilbert, Updated Model Biases for Offshore Pile Systems based on Hurricane Performance
 3. J. Michael Duncan & Matthew D. Sleep, The Need for Judgement in Geotechnical Reliability Studies
 4. Herbert Einstein, Rita Sousa, Karim Karam & Ana Costa, Reliability and Exploration in Geotechnical Engineering - A Case Study
 5. Ahmad Kahiel, Shadi Najjar, and Salah Sadek, Reliability-Based Design of Spread Footings on Clays Reinforced with Aggregate Piers
 6. Sara Khoshnevisan, Lei Wang & C. Hsein Juang, Practical Robust Geotechnical Design of Supported Excavation Using Response Surface
 7. Dian-Qing Li, Te Xiao & Zi-Jun Cao, A Simplified Reliability Method for Full Probabilistic Design of Soil Slopes Considering Spatial Variability
 8. Trevor Orr, Defining and selecting characteristic values for geotechnical parameters
 9. Iason Papaioannou & Daniel Straub, Assessing the Reliability of Shallow Foundations with Spatially Variable Measurements
 10. Yu Wang & Adeyemi Emman Aladejare, Variability of intact rock and rock mass properties

- Monograph for “Reliability of Geotechnical Structures in ISO2394”, CRC Press/Balkema (KK)
 - This monograph consists of 7 chapters. 5 chapters are close to completion.
 - The purpose of this monograph is to compile published results that are relevant to Annex D. Members can contact KK if they would like to participate in the chapters which were organized based on the section headings in Annex D:
 - D.1 Introduction
 - D.2 Uncertainty representation of geotechnical design parameters
 - D.3 Statistical characterization of multivariate geotechnical data
 - D.4 Statistical characterization of model factors
 - D.5 Implementation issues in geotechnical reliability-based design
- Future collaboration with TC205 (KK)
 - KK has proposed the formation of a reliability working group in TC205 as a follow up action from joint meeting in ISGSR2015. Some terms of reference have been submitted for discussion:
 1. Identify the benefits and scope of applicability for reliability (e.g. maybe higher probability of unsatisfactory performance associated with SLS is a good start).
 2. Identify gaps (e.g. human errors) and review existing literature for possible solutions.
 3. Provide information on properties and model uncertainties – this information is useful for design in non-reliability context.
 4. Based on the above, can we refine and build on Annex D of ISO2394 to produce a useful annex for future codes such as next revision of Eurocode 7? (e.g., further clarification of characteristic value? Reliability-based design for SLS? Bayesian updating methods).
 - KK referred to the minutes of the joint meeting that were circulated last week. He shared that there is a consensus on the need to manage data more rationally, be it statistically or otherwise, given the rapid advancement in big data, data science, and smart technology. Hyun-Ki commented that it is also important to have a standard format to facilitate exchange of data. In relation to human errors and actual rates of failure discussed in the joint meeting, KK commented that data on failures are hard to obtain and he opined that there is still ample room for our design practice to improve notwithstanding this well-known difficulty that affects many disciplines. Members agreed that it is least contentious and most effective to focus on building databases, which are useful for design code calibration regardless of its basis (reliability or otherwise).
 - If this TC205 working group were to be formed, it would be ideal to rope in members who could contribute from TC304, GEOSNet, ISRM, and others.
- 1st International Symposium on Reducing Risks in Site Investigation, Modeling and Construction for Rock Engineering (GeoSafe 2016), May 25-27 2016, Xi’an, China, <http://www.geosafe2016.org/dct/page/1> (Hongwei)
 - Sponsored by ISRM.
 - Hongwei has been invited as one of the keynote lecturers.
 - Hongwei would explore with the organisers on the possibility of organizing a TC304 session.
- 4th China National symposium on Engineering Risk and Insurance, Aug 26-28, Wuhan University, Hubei, China (Hongwei, KK & Dianqing)
 - Presentations are in Chinese.
 - Jie Zhang, LuLu Zhang and Zijun Cao will organize a TC304 session.

5. Other business

- For the remaining 2 years in the current term of TC304, KK mentioned that he would like members to think about championing or contributing to activities related to:

- Developing distinctive identity for the georisk community
- Engaging the broader community to discuss how reliability can be applied to practice
- Data and user-friendly software

Meeting adjourned at 630pm.

