

Minutes for 36th ISSMGE TC304 Meeting (Email meeting)

Date: Mar 23-27, 2020

Time: 9:00 am Mar 23 to 5:00 pm March 27 (Taipei, UTC/GMT +8 hours)

1. Approval of the 35th TC304 minutes (ISGSR 2019)

Minutes were approved.

2. Activities in the past six months (conferences, short courses, awards, and keynotes)

- Are We Overdesigning? – A Survey of International Practice (A joint initiative by the CAPG, the YMPG, TC205 - Safety and Serviceability and TC304 - Risk)
 - Pile Group (Takayuki Shuku and Waldemar Hachich)
 - Pile Group worked on deterministic/probabilistic design of three pile problems (axially loaded single pile in clay and sand, laterally loaded single pile in clay)
 - Summary reports submitted
 - Retaining Wall Group (Takayuki Shuku, Zijun Cao, Timo Schweckendiek & Marco Redaelli)
 - Retaining Wall Group worked on deterministic/probabilistic design of propped embedded retaining wall in sand and soil nailed retaining wall
 - Summary reports submitted
 - Footing group (Jianfeng Xue & Zhiyong Yang)
 - Slope group (Shuihua Jiang, Redaelli Marco, Waldemar Hachich, Ali Noorzad, Timo Schweckendiek & Lulu Zhang)
- A report for TC304/309/210 Machine Learning Dialogue for Geotechnics 2019 has been published in the most recent ISSMGE Bulletin p. 17-22 (TC Corner).
 - The report is available at TC304 website:
http://140.112.12.21/issmge/2020/ISSMGE_BULLETIN_2020_FEB.pdf
- International Symposium on Geotechnical Safety and Risk (ISGSR 2019) (Chairs: J Ching & Dianqing Li)
 - 143 final full papers are included in the proceedings; ~160 presentations.
 - Wilson Tang Lecture, Suzanne Lacasse Lecture
 - Six keynotes and three ISSMGE Bright Spark lecturers
 - Short courses
 - Risk Assessment in Geotechnical Engineering (DV Griffiths)
 - Bayesian method and tools for geotechnical practice (Timo Schweckendiek & Yu Wang)
 - Geotechnical reliability-based design examples to improve partial factor design methods (BK Low & KK Phoon)
 - Special session honoring late Prof. TH Wu (KK Phoon and Hsein Juang)
 - 12 presentations
 - A Georisk special issue has been published to honor late Prof. TH Wu
 - Mini-symposium on performance-based design codes & practice, honouring Prof. Yusuke Honjo (Takashi Hara & Yu Otake)
 - 8 presentations

- 18 Other sessions
- 29th European Safety and Reliability Conference (ESREL 2019), Hannover, Germany, Sep 22-26 2019 (Chairs: Michael Beer & Enrico Zio)
 - <https://esrel2019.org/#/>
 - TC304 session (Jianye)
 - 9 presentations
 - TC304/TC309 Student Contest (Giovanna Vessia & Wojciech Puła)
 - 8 groups of students presented their works in ESREL 2019
 - 1st Place award: Cong Miao, Luyu Ju & Shuo Zheng (Wuhan University, China)
 - 2nd Place award: Y. Tsuda & M. Kagehira (Okayama University, Japan)
 - Encouragement awards: M.S. Farhadi (Tampere University, Finland) and J. Rainer & H. Szabowicz (Wroclaw U. of Science and Technology, Poland)
 - Keynote: Managing uncertain ground truth using Bayesian machine learning (KK Phoon & J Ching)
- 16th Asian Regional Conference (16ARC) on Soil Mechanics and Geotechnical Engineering, Oct 14-18 2019, Taipei, Taiwan (Chair: Chang-Yu Ou)
 - <http://www.16arc.org>
 - TC304 session on “Geotechnical risk/reliability and data analysis” (JP Wang & J Ching)
 - 7 presentations
 - Keynote: Role of generic soil database in site-specific soil property estimation (J Ching & KK Phoon)
- Keynotes, invited speeches, and panelists
 - DV Griffiths delivered keynote lecture “Risk Assessment in Highly Variable Soils” at 13th Chinese National Congress on Soil Mechanics and Geotechnical Engineering, Tianjin, PRC, Jul 2019.
 - DV Griffiths delivered keynote Lecturer “Computational Slope Stability Analysis” at 4th Australasian Conference on Computational Mechanics (ACCM), University of Tasmania, Hobart, Australia, Nov 2019.
 - DV Griffiths delivered Invited Panelist on debate into “Limit Equilibrium vs. Finite Element Slope Stability Analysis” at Geo-Congress, Minneapolis, USA, Feb 2020.
 - Giovanna Vessia delivered keynote lecture "Regionalized variables and geostatistical tools to enable a reliable geo-mechanical site characterization for civil engineering designing and natural hazard mapping" at 32th Conference in Computer Methods in the Design and Analysis of Hydrotechnical Structures, Korbielów, Poland, Feb 2020.
 - MB Jaksa delivered keynote lecturer “Application of Statistical Techniques for Geotechnical Site Investigation” at 2019 Australian Geomechanics Society Victorian Symposium – Geotechnical Characterisation – Managing Design and Construction Risk, Melbourne, Australia, Oct 2019.
 - BK Low delivered 13 technical talks related to his paper which won the 2019 ASCE Thomas A. Middlebrooks award, at the following cities, all coordinated by ASCE except the three Oct 2019 talks in China:
 - Kuala Lumpur (on 8/8/2019),
 - Sydney (2/10), Melbourne (4/10),
 - Christchurch (7/10), Wellington (8/10), Auckland (10/10),
 - Nanjing China (18/10), Fuzhou China (22/10), Shanghai China (25/10),
 - Bangkok (31/10),

- Taipei (17/12/2019),
- Lafayette (3/3/2020),
- Palo Alto (5/3/2020)

3. Future Activities

3.1 Conferences & workshops

- 16th International Conference of the International Association for Computer Methods and Advances in Geomechanics (IACMAG 2020), Jul 1-4 2020, Torino, Italy
 - www.iacmag2020.org
 - Announcement for COVID-19
 - Early registration deadline postponed to April 30, 2020.
 - It is expected that the situation in Italy will be fully recovered by July and that the conference can take place as scheduled. However, situations in other areas of the world may be delayed. Therefore, we may consider allowing some Authors to participate by video conference or, in a worst scenario, to postpone the date of the conference. We will provide updated information by May.
 - While asking all Authors of accepted papers to register for the conference we recommend that participants postpone making travel and accommodation bookings unless reimbursement is guaranteed. You will have time to do so in May. Registration is indeed needed to allow for the indexed conference proceedings to be prepared on time.
 - Important dates
 - Full paper due: December 15, 2019
 - Early registration fee deadline extended to April 30, 2020
 - TC304 session (MS8) on “Probabilistic site characterization and data analytics” (Jianye Ching, Yu Wang, and Kok-Kwang Phoon)
 - 8 submissions

- 7th International Symposium on Reliability Engineering and Risk Management (ISRERM 2020), originally scheduled during June 5-8 2020, Beijing, China
 - <http://www.isrerm2020.com>
 - Announcement for COVID-19
 - ISRERM2020 will be postponed to later this year.
 - During the suspended announcement of the symposium schedule, online system will keep open and one is allowed to submit. Deadline for application of student award is also postponed.
 - Important dates
 - Abstract due date: Oct 20 2019
 - Full paper due: originally Dec 31 2019. Online submission is still open during the suspended announcement of the symposium schedule.
 - Sessions organized by TC304 members
 - 01. Uncertainty Quantification and Analysis for Industry 4.0 (Kok-Kwang Phoon, Michael Beer)
 - 07. Data Analytics for Geotechnical Engineering (Jie Zhang, Wei Guo)
 - 08. Real World Uncertainty Quantification and Data-driven Decision Making (Kok-Kwang Phoon, Zhaohui Chen, Pengfei Wei)
 - 13. Advances in Reliability-based Design: Theory and Applications (Zi-Jun Cao, Jian Ji, Wen-Ping Gong)

- The 6th National Symposium on Engineering Risk & Insurance Research (NSERIR6), Aug 7-9 2020, Chongqing University, Chongqing, China (Chairs: Hongwei Huang & Haijia Wen)
 - TC304/TC309 Student Contest (Wenping Gong, Andy Leung, Zijun Cao, Lei Wang & Hai-Qing Yang)
 - 20 participation groups
 - Jul 31 2020: Submission of full length paper
 - Aug 7-9 15 2020: Student Contest
 - Contact: Prof. Hai-Qing Yang (yanghaiqing06@163.com)

- 7th Asian-Pacific Symposium on Structural Reliability and its Applications (APSSRA2020), Oct 4-7 2020, Tokyo, Japan (Ikumasa Yoshida & Shin-ichi Nishimura)
 - <http://risk.arch.t.u-tokyo.ac.jp/APSSRA2020/index.html>
 - Announcement for COVID-19
 - Full paper submission deadline postponed to May 15
 - The Organizing Committee is preparing to hold APSSRA2020 as planned with the first priority of the health and safety of participants. We are also considering to bring in a new and IT-enhanced style for participants who could not come to the symposium venue as planned.
 - In case of the further situation change such as the authority's request to postpone, we might reschedule the symposium. We will continue to monitor the situation closely and provide updates timely.
 - Important Dates
 - Dec 15 2019 Abstract submission due
 - May 15 2020 Full paper submission due
 - June 15 2020 Notification of acceptance
 - 5th TC304 Suzanne Lacasse Lecture
 - Risk informed landslide hazard mitigation in mountain highway design (Limin Zhang)
 - Sessions related to TC304
 - Machine Learning for Civil Engineering (M. Kohiyama, S. Wu, WenGang Zhang, Takayuki Shuku)
 - Current Trend on Statistical Methods for Engineering Analyses (M. Beer, B.U. Park, K.K. Phoon, K. Zuev, M. Faes)
 - Risk Analysis and Management of Geotechnical Problem (Shin-ichi Nishimura, Lulu Zhang)
 - Probabilistic Site Characterization: Planning, Data Analytics and Value of Information (Yu Wang, Hui Wang, Shin-ichi Nishimura)
 - Probabilistic Methods and Reliability-based Design in Geotechnical Engineering (Jinhui Li, Zijun Cao, Yu Otake)
 - TC304/TC309 Student Contest (Andy Leung, Zijun Cao, Lei Wang & Takayuki Shuku)
 - April 30 2020: Submission of participation form
 - Sep 4 2020: Submission of extended abstract
 - Oct 4-7 2020: Student Contest
 - Contact: Prof. Takayuki Shuku (shuku@cc.okayama-u.ac.jp)
 - <http://140.112.12.21/issmge/tc304.htm?=10>
 - Learning about a Site using Sparse Site-Specific Data — Recent Advancements (J Ching and KK Phoon)
 - Short course
 - Geotechnical reliability-based design examples to improve partial factor design methods (BK Low & KK Phoon)

- KK mentioned about the possibility that TC304 Young Group (Andy Leung, Zijun Cao, and Lei Wang) presents the short videos as a short course in APPSRA 2020. Jianye will discuss this possibility with Young Group.
- 18th International Probabilistic Workshop (IPW 2020), September 23-25, 2020, University of Minho, Guimaraes, Portugal
 - <https://ipw2020.com/>
 - Important Dates
 - Nov 30 2019 Abstract submission due (probably extended to Dec 31)
 - Feb 29 2020 Full paper submission due
 - Session related to TC304: Reliability in Geotechnical Engineering (Timo Schweckendiek & Bram van den Eijnden)
- Wojciech, Giovanna, and Diego Di Curzio proposed to host a TC304 workshop in March 2021 at Wrocław University of Technology.
 - Possible event with ELGIP
- Collaboration with European Large Geotechnical Institutes Platform (ELGIP) (Liaison: Timo Schweckendiek)
 - ELGIP consists of researchers from major European geotechnical research institutes such as NGI and Deltares.
 - ELGIP expressed interests for collaboration with TC304 through's email.
 - Armin Stuedlein had a preliminary meeting with Joost from ELGIP in ECSMGE 2019, Iceland.
 - Possible ELGIP-TC304 events during the TC304 Workshop in Wrocław University of Technology.
- 13th International Conference on Structural Safety & Reliability (ICOSSAR 2021), Jun 21-25 2021, Tongji University, Shanghai, China
 - <http://www.icossar2021.org/>
 - Important dates
 - Abstracts due: May 31 2020
 - Full paper due: Dec 31 2020
 - TC304 Sessions
 - Bayesian analysis of structural and geotechnical models (Iason Papaioannou, Costas Papadimitriou, Daniel Straub, Jie Zhang)
 - Hazard and risk assessment of earthquake-induced landslides (Cong Xu & Qing Lü)
 - Soft Computing Methods for Geotechnical Infrastructures (Wengang Zhang)
 - Machine learning and data analytics in geotechnical site investigation (Yu Wang & Hui Wang)
 - Multi-source and multi-methodological data fusion to improve the reliability of geo-engineering and environmental characterization, urban planning, and geotechnical designing (Di Curzio Diego, Castrignanò Annamaria, Pula Wojciech & Vessia Giovanna)
 - Uncertainty characterization of the geological model and its influences (Wenping Gong & Lei Wang)

3.2 Short courses

- DV Griffiths will deliver short courses at the following cities

- Pittsburgh, PA, USA, for the Pittsburgh G-I Chapter, April 2020 (postponed due to Covid-19)
- Christchurch, Wellington and Auckland, for the New Zealand Geotechnical Society (NZGS), May/June 2020
- Perth, Australia, for the Western Australia Chapter of the Australian Geomechanics Society (AGS), August 2020
- Durham and Glasgow, UK, for the British Geotechnical Association (BGA), October 2020

4. Honors & Awards

- Bak Kong Low received the 2019 ASCE Thomas A. Middlebrooks award on 27 February 2020 at the GeoCongress in Minneapolis, USA, for the paper “Insights from Reliability-Based Design to Complement Load and Resistance Factor Design Approach”, that appeared in the November 2017 issue of Journal of Geotechnical and Geoenvironmental Engineering. He also gave a 1.5 hours presentation (including Q&A) based on his award paper at Purdue University on 3-March-2020, and at Palo Alto on 5-March-2020. The complete list of Thomas A. Middlebrooks Award winners from 1956 to now is shown at https://www.asce.org/templates/award-detail.aspx?id=1489&all_recipients=1.
- DV Griffiths has been elected as a Distinguished Member of the ASCE (Dist.M. ASCE) and will be inducted at the ASCE National Convention in Anaheim, CA in October 2020

5. Other businesses

- TC304 Young Group (Andy Leung, Zijun Cao & Lei Wang)
 - Short videos
 - Young Group has set seven topics for short videos (about 15 min each) introducing different aspects of geotechnical risk and reliability. Target audience would be practicing engineers and students.
 - Planned short videos (15 min) in progress/planning to be online in June
 - SV1: Overview and significance of geotechnical uncertainty (Waldemar Hachich)
 - SV2: How to characterize site/model uncertainty (Zijun Cao)
 - SV3: How to estimate characteristic values for design (Yu Wang)
 - <http://virtualuniversity.issmge.org/courses/course-v1:ISSMGE+TC304-101+2019/about>
 - Examples by Zijun (in preparation)
 - SV4: How does geotechnical uncertainty impact the system response (TBA)
 - SV5: How to perform reliability analyses on a spreadsheet (Lei Wang)
 - SV6: Insights from geotechnical reliability-based design (BK Low)
 - SV7: Case studies for reliability-based design and risk assessment (TBA)
 - Marco Uzielli produced a 90-min ISSMGE webinar in 2017 on “Risk and Geotechnical Engineering”: <https://www.issmge.org/education/recorded-webinars/risk-and-geotechnical-engineering>
- 304dB database (<http://140.112.12.21/issmge/tc304.htm?=6>)
 - New database contributed by Shin-ichi Nishimura
 - JP-CPTU/25/River dike
 - 25 closely spaced CPTU on a river dike along Oda River, Okayama, Japan.

- Interlayers of backfill sand, alluvial clay, and diluvial sand.
 - New database contributed by Shuyin Feng & Paul Vardanega
 - FG-KSAT/6/1358
 - Permeability of saturated fine-grained soils
 - Generic database from 33 studies
 - Six parameters: e , k_{sat} , LL , PL , PI , G_s
 - Expansion of 304dB (load tests & municipal data)
- Special Collection of the ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems: Part A on “Bayesian Learning Methods for Geotechnical Data” (Kelvin Yuen, Jianye Ching & Kok-Kwang Phoon)
 - Measuring similarity between site-specific data and records in a geotechnical database (Jianye Ching & Kok-Kwang Phoon)
 - Bayesian learning-based data analysis of uniaxial compressive strength of rock: relevance feature selection and prediction reliability assessment (He-Qing Mu & Ka-Veng Yuen)
 - Optimization of Site Exploration Programs for Slope Reliability Assessment (Shui-Hua Jiang, Iason Papaioannou, and Daniel Straub)
 - Bayesian Updating of Model Parameters by Iterative Particle Filter with Importance Sampling (Ikumasa Yoshida and Takayuki Shuku)
 - Bayesian supervised learning of site-specific geotechnical spatial variability from sparse measurements (Yue Hu, Yu Wang, Tengyuan Zhao, Kok-Kwang Phoon)
 - Broad Learning System for Nonparametric Modeling of Clay Parameters (Sin-Chi Kuok & Ka-Veng Yuen)
 - Developing region-specific liquefaction assessment criterion for Bachu region, China (Yixun Ge, Jie Zhang, Liuwen Zhu, Wentang Zhen)
- Georisk Special issue on “Recent Developments of Performance-based Design Codes and Practice” honoring Prof Yusuke Honjo (Makoto Suzuki & Masahiro Shirato)
 - 7 papers published
- Georisk Special issue honoring late Prof. Tien H. Wu (KK Phoon and Hsein Juang)
 - 15 papers published
- TC304 Special issue in International Journal of Geoengineering Case histories (Andy Leung)
 - Examples of published papers: <https://www.geocasehistoriesjournal.org/pub>
 - Requires submission of the data from authors (in the form of an excel datasheet) which will be made available online to accompany the paper. The purpose is to facilitate the use of data and enhance impact of the paper.
 - Contributors
 - Faraz Tehrani
 - Richard Bathurst & Tony Allen
 - Shin-ichi Nishimura
 - Takayuki Shuku & Jianye Ching
 - Giovanna Vessia & Diego Di Curzio
 - Andy Leung
 - Armin Stuedlein
 - Jinsong Huang
 - Wengang Zhang
 - Timeline
 - Jun 1 – Jul 31 2020: Official call for abstracts and abstract review by editors

- Aug 1 – Oct 31 2020: Paper preparation. Submission of full papers by Oct 30
 - Nov 1 – Dec 31 2020: Paper review and revision stage (and re-review if necessary).
 - Jan 1 – Jan 31 2021: Decision stage. Final decision for all papers to be ready by Jan 31
 - Feb or Mar 2021: Journal office would take about 1 month for final editing/formatting. Special issue to be published in Feb or Mar 2021

- Article “The Goldilocks Dilemma – Too Little or Too Much Data?” in ASCE-GI GeoStrata Jan-Feb 2020 (KK Phoon)
 - https://www.readgeo.com/geostrata/jan_feb_2020/MobilePagedArticle.action?articleId=1551315#articleId1551315

- Georisk Spotlight Article “The story of statistics in geotechnical engineering” (KK Phoon)
 - <https://www.tandfonline.com/doi/full/10.1080/17499518.2019.1700423>

- Johan Spross and Lars Olsson formed a project group on Contracts and Geotechnical Risk within the Swedish branch of ISSMGE. This project group will strive to improve the current ways of managing, within contracts, the geotechnical risks that are caused by unexpected or vaguely defined ground conditions. If you also are interested in matters related to contracts and risk, including e.g. the use of Geotechnical Baseline Reports, please contact Johan and Lars.