



ISSMGE TECHNICAL COMMITTEE ADMINISTRATIVE REPORT

Report covering the Presidential period: October 2009 – September 2013

Prepared by: KK Phoon, Gordon Fenton, and Jianye Ching

Date: 2 July 2013

Name of the Technical Committee: TC304 - Engineering Practice of Risk Assessment & Management (Risk)

Chair: Kok-Kwang Phoon

Vice-Chair: Gordon A. Fenton

Secretary: Jianye Ching

Webpage: <http://140.112.12.21/issmge/tc304.htm>

Terms of reference

The goals of TC304 are to promote and enhance professional activities and education in geotechnical and geo-environmental engineering, in areas related to:

- ❑ Geostatistics and probabilistic site characterisation
- ❑ Quantification of uncertainties in performance prediction
- ❑ Reliability-based design
- ❑ Risk-based decision analysis
- ❑ Calibration of LRFD-type geotechnical design codes
- ❑ Project risk management

Composition of TC

Executive group

Chair: KK Phoon (Singapore)
Vice Chair: GA Fenton (Canada)
Secretary: J Ching (Chinese Taipei)
Gregory Baecher (USA)
Mark Cassidy (Australia; TOC Liaison)
Vaughan Griffiths (USA)
Ken Ho (Hong Kong)
Hongwei Huang (China)
Mark Jaksa (Australia)
Farrokh Nadim (Norway)
Lars Olsson (Sweden)
Matin van Staveren (the Netherlands)

Members

Y. Ashkey (Kazakhstan)
Hansgeorg Balthaus (Germany)
Robert Berkelaar (the Netherlands)
Laura Caldeira (Portugal)
Federica Cotecchia (Italy)
Paul Cools (the Netherlands)
Guillermo Espin (Ecuador)
P. Ganne (Belgium) (uncontactable by email)
Anthony TC Goh (Singapore)
Rafael Jiménez (Spain)
Leena Korkiala-Tanttu (Finland)
Kishor Kumar (India)
Giuseppe Lanzo (Italy)
Dianqing Li (China)

B.K. Low (Singapore)
Dagang Lu (China)
Laszlo Nagy (Hungary)
Shin-ichi Nishimura (Japan)
Ali Noorzad (Iran)
Lance Roberts (USA)
Adrian Rodriguez-Marek (USA)
Nick Sartain (UK)
Bernd Schuppener (Germany)
Timo Schweckendiek (the Netherlands)
V.I. Sheinin (Russia)
Kenichi Soga (UK)
Abdul-Hamid Soubra (France)
M. Suzuki (Japan)
Pavlos Tyrologou (Greece)
Yu Wang (Hong Kong)
Jianfeng Xue (Australia)
Limin Zhang (Hong Kong)

Task Forces

TF1: Interaction with industry and education, coordinated by Farrokh Nadim
TF2: Compilation of guidelines and other technical resources, coordinated by Vaughan Griffiths
TF3: Coordination with broader risk community, coordinated by Martin van Staveren
TF4: Communication/dissemination, coordinated by Jianye Ching
TF5: Conference coordination, coordinated by Ken Ho
TF6: Risk analysis and software, coordinated by Lars Olsson

Activities prioritized by TC

Disseminate knowledge and practice within the TC's subject area to the membership of the ISSMGE.

Assist with technical programs of international and regional conferences organized by the ISSMGE.

Establish guidelines and technical recommendations within the TC's subject area.

Interact with industry and overlapping groups working in areas related to the TC's specialist area

Report on activities

Activities by Task Forces

Work task	Activities
TF 1: Interaction with industry and education (F Nadim)	<ol style="list-style-type: none"> Short course on "Risk Assessment in Geotechnical Engineering" (24-25 March 2011, San Diego; 5-6 May 2011, Chicago; 26 June 2011, Atlanta; 8-9 Nov 2012, New York City) (Instructors: DV Griffiths & GA Fenton) Short course on "Reliability Analysis and Design in Geotechnical Engineering", 1 June 2011, Munich, Germany (Instructor: KK Phoon) Short course on "Risk and Reliability of Levees and Dams", 26 June 2011, Atlanta, USA (Instructors: GB Baecher, RB Gilbert & M McCann) ISSMGE webinar on "Risk Assessment in Geotechnical Engineering", 24 Feb 2012 (Instructors: Z Medina-Cetina & M Uzielli) Short course on "Reliability analysis and design in Geotechnical Engineering", 25 March 2012, Oakland, USA (Instructors: KK Phoon & J Ching)

	<p>6. Short course on “Reliability analysis and design in Geotechnical Engineering”, 26 July 2013, Midrand, South Africa (Instructor: KK Phoon)</p>
<p>TF 2: Compilation of guidelines and other technical resources (DV Griffiths)</p>	<ol style="list-style-type: none"> 1. TC304 Guidelines, Information, and Technical Resources (DV Griffiths & GA Fenton) (http://140.112.12.21/issmge/TC304_refs_v6.1.html) The compilation has over 450 references organized into 17 topics ranging from “Introductory Material” to “Inverse Analyses and Bayesian Methods”. 2. Bibliography database link http://www.geoengineer.org/databases/ 3. TC304 Glossary (English, Chinese, Spanish & German version) http://140.112.12.21/issmge/2013Glossary_Chinese_Spanish_German.pdf Traditional Chinese: J Ching & CH Juang Simplified Chinese: HW Huang, DQ Li, Y Wang, J Zhang, & LM Zhang Spanish: R Jimenez, Z Medina-Cetina, & CR Rodríguez French: Abdul-Hamid Soubra German: Daniel Straub & Christian Birkhahn Japanese: Shin-ichi Nishimura
<p>TF 3: Coordination with broader risk community (M van Staveren)</p>	<ol style="list-style-type: none"> 1. The international state-of-the-art report on integration of geotechnical risk management in project risk management: Part 1 (summary, analyses, conclusions, recommendations) and Part 2 (country reports). To be presented during ISGSR2013 in Hong Kong. In draft issued for comments by TC304-TF3 participants. Representatives of 10 countries contributed, in alphabetical order: Austra, China, Czech Republic, Finland, Germany, Japan, Netherlands, Sweden, Switzerland, UK. 2. Conference paper: Embedding Geo Risk Management: The Geo-Impuls Approach, for ICSMGE2013 in Paris (M. Van Staveren, P. Cools, P. Litjens). 3. Book summary of the Dutch GeoRM guideline, to be published in Georisk journal in 2013 (accepted).
<p>TF 4: Communication/ dissemination (J Ching)</p>	<ol style="list-style-type: none"> 1. Set up and maintain the TC304 website: http://140.112.12.21/issmge/tc304.htm 2. Set up and maintain the Geoworld website: http://www.mygeoworld.info/pg/groups/948/engineering-practice-of-risk-assessment-and-management-tc304/ 3. Establish benchmark tutorial examples: http://140.112.12.21/issmge/edu_2010.htm
<p>TF 5: Conference coordination (Ken Ho)</p>	<ol style="list-style-type: none"> 1. Special GEOSNet/TC304 session at 17th Southeast Asian Geotechnical Conference, 10-13 May 2010 (Jianye Ching, KK Phoon) 2. Collaborate with TC302 (Forensic Geotechnical Engineering) on International Symposium on Forensic Geotechnical Engineering, 14-15 Dec 2010, Indian Institute of Technology Bombay, Mumbai, India (Kishor Kumar) 3. Special TC304 session at 14th Asian Regional Conference, 23–27 May 2011, Hong Kong (Limin Zhang, Yu Wang) 4. Collaborate with TC303 (Coastal and River Disaster Mitigation and Rehabilitation) on 3rd International Conference on Geotechnical Engineering for Disaster Mitigation and Rehabilitation (GEDMAR 2011), 4-6 May 2011, Semarang, Indonesia. 5. Collaborate with GEOSNet on 3rd International Symposium on

	<p>Geotechnical Safety and Risk (ISGSR 2011), 2-3 June 2011, Munich, Germany.</p> <ol style="list-style-type: none"> 6. Joint TC304/TC205 panel on "The basis for partial factors - probability or experience?" in ISGSR 2011, 2-3 June 2011, Munich, Germany. 7. Special Session "Flood Defences" in ISGSR 2011, 2-3 June 2011, Munich, Germany. (Timo Schweckendiek and Han Vrijling) 8. Mini-symposium "Recent advances in geotechnical risk and reliability", 11th International Conference on Applications of Statistics and Probability in Soil and Structural Engineering (ICASP11), 1-4 August 2011, ETH Zurich, Switzerland. 9. Collaborate with ASCE GI-RAM on Georisk 2011 "Risk assessment and management in geoenvironmental engineering", June 26 - 28, 2011 Atlanta, GA. 10. Special TC304 session "Quantitative risk analysis for embankments, dams and slopes" in Georisk 2011, June 26 - 28, 2011 Atlanta, GA (Limin Zhang) 11. Special TC304 session "Limit state design in geotechnical engineering" in Georisk 2011, June 26 - 28, 2011 Atlanta, GA (Yu Wang) 12. Special TC304 session "Geotechnical assessment, characterization and design for risk management" in Georisk 2011, June 26 - 28, 2011 Atlanta, GA (HW Huang & DQ Li) 13. Workshop on "Safety Concepts and Calibration of Partial Factors in European and North American Codes of Practice", 30 Nov- 1 Dec 2011, TUDelft (Timo Schweckendiek & GA Fenton) 14. TC304 Workshop in conjunction with the 2nd National Symposium on risk management and Insurance Research in civil Engineering in Beijing, 2012 (Hongwei Huang) 15. Special TC304 session on "Impact of Spatial Variability in Analysis and Design" in GeoCongress 2012, 25-29 March, Oakland (KK Phoon & J Ching) 16. 5th Asian-Pacific Symposium on Structural Reliability and its Applications (APSSRA 2012), 23-25 May 2012, Singapore (Chair: KK Phoon) 17. Special TC304 session on "Impact of Spatial Variability in Analysis and Design" in APSSRA 2012, 23-25 May 2012, Singapore (J Ching, Yu Wang & JR Chen) 18. Special session on "Monte Carlo Methods and Engineering Applications" in APSSRA 2012, 23-25 May 2012, Singapore (Yu Wang & Ivan Au) 19. Wilson Tang Memorial Symposium, 15 Dec 2012, Hong Kong (Limin Zhang) 20. Mini-Symposium on "Treatment of Spatial Variability in Reliability and Probabilistic Assessment" in ICOSSAR, 16-20 June 2013, New York, USA (I. Papaioannou & K.-K. Phoon) 21. TC304 Workshop on "Handling Uncertainties in Modern Geotechnical Design Codes of Practice" in 18 ICSMGE, 4 Sep 2013, Paris, France (GA Fenton & Michael Hicks)
<p>TF 6: Risk analysis and software (Lars Olsson)</p>	<ol style="list-style-type: none"> 1. A simple web form for submission of information on useful software tools related to risk has been developed: https://sites.google.com/site/tc304rms/ 2. Compile list of software including a price estimate for TC304 website

ISO 2394 Annex D

Working group for ISO2394 “General principles on reliability of structures” Annex D “Reliability of Geotechnical Structures:

- TC304 members: KK Phoon, J Ching, Yu Wang, Limin Zhang, Timo Schweckendiek
- Non-members: M Dithinde, J Retief

CD version of ISO2394 has been accepted.

Publications:

1. ASCE Geotechnical Special Publications 224 on “Geotechnical Risk Assessment and Management”, ASCE, Reston, 2011 (CH Juang, KK Phoon, AJ Puppala, RA Green & GA Fenton)
2. Modern Geotechnical Design Codes of Practice – Implementation, Application, and Development, IOS Press, Amsterdam, 2012 (Patrick Arnold, GA Fenton, Michael Hicks, Timo Schweckendiek, and Brian Simpson)
3. ASCE Geotechnical Special Publications 224 on “Foundation Engineering in the Face of Uncertainty” in honour of Professor Fred Kulhawy, 2013 (JL Withiam, KK Phoon & MH Hussein)
4. Georisk Special Issue on “Reliability and risk analysis of Flood Defenses” (Timo Schweckendiek & Ed Calle)

Keynote lectures:

1. KK Phoon, J Ching & JR Chen “How Reliable Are Reliability-Based Multiple Factor Code Formats?” 3rd International Symposium on Geotechnical Safety and Risk (3ISGSR), 2-3 June 2011, Munich, Germany.
2. J Christian & G Baecher “Unresolved Problems in Geotechnical Risk and Reliability” ASCE Georisk 2011, 26-28 June 2011, Atlanta, USA.
3. Suzanne Lacasse & Farrokh Nadim “Learning to Live with Geohazards: From Research to Practice” Georisk 2011, ASCE, 26-28 June 2011, Atlanta, USA.
4. DV Griffiths, State of the Art presentation “Risk Assessment in Geotechnical Engineering: Stability Analysis of Highly Variable Soils” ASCE GeoCongress 2012, 25-29 March 2012, Oakland, USA.
5. KK Phoon & J Ching “Beyond Coefficient of Variation for Statistical Characterization of Geotechnical Parameters” Geotechnical and Geophysical Site Characterization 4 (ISC’4), 18-21 Sep 2012, Porto de Galinhas, Pernambuco, Brazil.
6. KK Phoon & J Ching, SL Lee Lecture “Is Site Investigation an Investment or Expense?” 18 SEAGC/1AGSSEA, 29-31 May 2013, Singapore.
7. KK Phoon, “Statistical Characterization of Geotechnical Parameters”, 11th Jennings Memorial Lecture, SAICE Geotechnical Division, July 2013, South Africa.

List of TC304 contributing to Georisk as board members (names appear alphabetically):

Editor-in-chief: KK Phoon

Managing editors: GA Fenton, A-H Soubra, Limin Zhang

EBM members: J Ching, DV Griffiths, Ken Ho, HW Huang, M Jaksa, Dianqing Li, Kenichi Soga, Martin van Staveren, Yu Wang

Meetings:

1. 1st TC304 meeting from 14-22 Oct 2010 – for executive group only (email meeting)
2. 2nd TC304 meeting from 10 Nov - 17 Nov 2010 (email meeting)

3. 3rd TC304 meeting, 14th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, 25 May 2011
4. 4th TC304 meeting, 3rd International Symposium on Geotechnical Safety and Risk, 3 June 2011
5. Joint Committee Meeting between Geo-Institute Technical Committee on Risk Assessment and Management (GI-RAM) and ISSMGE TC304, 26 June 2011.
6. 6th TC304 meeting 5-9 March 2012 (email meeting)
7. 7th TC304 meeting, 5th Asian Pacific Symposium on Structural Reliability and Its Applications, 24 May 2012
8. 8th TC304 meeting, 12-16 Nov 2012 (email meeting)
9. 9th TC304 meeting, 8-12 July 2013 (email meeting)
10. 10th TC304 meeting, 18th ICSMGE, Paris, 4 Sep 2013

Observations and recommendations

TC304 has made concrete contributions to the dissemination of knowledge to the general community through publication of technical resources, organization of symposiums/sessions, delivery of short courses, webinar, and lectures, development of glossary, participation in ISO 2394 Annex D (CD version accepted), and collaborations with other ISSMGE TCs, particularly TC205.

TC304 was selected as the recipient of the 2013 ISSMGE Outstanding Technical Committee in recognition of the above collective efforts and contributions. It is noteworthy that TC304 has maintained a good level of activities over the past 4 years which demonstrated the sustained commitments and energy of the members.

There are 2 aspects that TC304 could improve upon: (a) strengthen ties with the industry and (b) education. For (a), TF3 is a good start and more energy should be committed to this enterprise. For (b), webinars could reach a wider audience beyond conferences and more members could be encouraged to participate in webinars. Another possible initiative is to produce more educational resources. An initiative is underway to publish a book with CRC Press entitled "Risk and Reliability in Geotechnical Engineering", eds. KK Phoon & J Ching.

End of administrative report