



**Fifth International Symposium on
Geotechnical Safety and Risk (ISGSR)
Rotterdam, The Netherlands
13 – 16 October 2015**

Geotechnical Safety and Risk V

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- TC304 Engineering Practice of Risk Assessment & Management
- TC205 Safety and Serviceability in Geotechnical Design
- TC212 Deep Foundations
- TC302 Forensic Geotechnical Engineering

Geotechnical Risk and Safety V covers seven themes:

1. Geotechnical Risk Management and Risk Communication
2. Variability in Ground Conditions and Site Investigation
3. Reliability and Risk Analysis of Geotechnical Structures
4. Limit-state design in Geotechnical Engineering
5. Assessment and Management of Natural Hazards
6. Contractual and Legal Issues of Foundation and (Under)Ground Works
7. Case Studies, Monitoring and Observational Method

The **5th ISGSR** is the continuation of a series of symposiums and workshops on geotechnical risk and reliability, starting with LSD2000 (Melbourne, Australia), IWS2002 (Tokyo and Kamakura, Japan), LSD2003 (Cambridge, USA), Georisk2004 (Bangalore, India), Taipei2006 (Taipei, Taiwan), the 1st ISGSR (Shanghai, China, 2007), the 2nd ISGSR (Gifu, Japan, 2009), the 3rd ISGSR (Munich, Germany, 2011) and the 4th ISGSR (Hong Kong, 2013).

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Preface

It is our great pleasure to present to you the proceedings of the Fifth International Symposium on Geotechnical Safety and Risk (ISGSR2015), which is held in Rotterdam, the Netherlands, 13–16 October 2015. This 5th ISGSR is a continuation of a series of symposiums on geotechnical safety, reliability and risk assessment and management. These symposiums started 15 years ago with LSD2000 in Melbourne, Australia and continued with IWS2002 in Tokyo and Kamakura, Japan; LSD2003 in Cambridge, United States of America; Georisk2004 in Bangalore, India; Taipei2006 in Taipei; 1st ISGSR2007 in Shanghai, People's Republic of China; 2nd ISGSR2009 in Gifu, Japan; 3rd ISGSR2011 in Munich, Germany and 4th ISGSR2013 in Hong Kong, People's Republic of China. All of these symposiums have been organized and attended by a truly international and dedicated group of geotechnical academics and professionals. In addition, all of these symposiums proved the great value of sharing knowledge and experiences from research and practice between the international geotechnical engineering communities.

This 5th ISGSR symposium has been organized by KIVI Geotechniek, the Netherlands Society of Soil Mechanics and Geotechnical Engineering (SMGE), which is a member society of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), together with the Geotechnical Safety Network (GEOSNet) and the Dutch Geo-Impuls innovation program. GEOSNet has been formed in 2006 in Taipei in view of the increasing interest and need to rationalize the concept of risk in new geotechnical design codes using reliability, risk analysis and risk management methods.

This 5th ISGSR is even more special, because it is combined with the presentation of the results of the Dutch Geo-Impuls innovation program in the Netherlands. Geo-Impuls is a five year long, joint industry programme. It has been executed from 2010 to 2015 and aims to reduce geotechnical failure in construction and infrastructure projects substantially by 2015. Implementing Geo Risk Management (GeoRM) and the tools developed by the Working Groups in projects and organizations are the key objectives for reaching this ambitious goal. The Dutch geo-engineers and managers are truly honoured to present and discuss their results with the international geo-community during ISGSR2015.

Managing geotechnical safety and risk during and after completion of construction and infrastructure projects became over the years essential to satisfy the already high and ever growing expectations in our societies. Therefore, ISGSR2015 selected the following seven conference themes:

1. Geotechnical Risk Management and Risk Communication
2. Variability in Ground Conditions and Site Investigation
3. Reliability and Risk Analysis of Geotechnical Structures
4. Limit-state design in Geotechnical Engineering
5. Assessment and Management of Natural Hazards
6. Contractual and Legal Issues of Foundation and (Under)Ground Works
7. Case Studies, Monitoring and Observational Method

In total 139 peer reviewed and accepted papers from 31 countries are included in these proceedings. Each of these papers has been allocated to one of the conference themes. The proceedings contain also seven keynote lectures, of which the Wilson Tang Lecture is the most prestigious one. This lecture was inaugurated during the 2nd ISGSR in Gifu, Japan, for recognizing the valuable and remarkable contributions of the late Professor Wilson Tang. We are very honoured that Professor Kok Kwang Phoon of the National University of Singapore provided the 4th Wilson Tang Lecture during ISGSR2015, with the title "Is there anything better than load and resistance factor design for simplified geotechnical reliability-based design?"

This symposium has been well-supported by the following Technical Committees (TCs) of ISSMGE:

- TC304 Engineering Practice of Risk Assessment & Management
- TC205 Safety and Serviceability in Geotechnical Design
- TC212 Deep Foundations
- TC302 Forensic Geotechnical Engineering

Moreover, substantial financial contributions have been delivered by a considerable number of sponsors. The premium sponsors are Rijkswaterstaat of the Dutch Ministry of Infrastructure & Environment and the Municipality of the city of Rotterdam. The main sponsors are Deltares and Prorail. The regular sponsors are Antea Group, Arcadis, Crux, Fugro, Grontmij, Movares, Royal HaskoningDHV and Witteveen+Bos.

Finally, the editors are grateful to all dedicated members of the Local Organizing Committee. They provided and organized the right conditions. Nevertheless, at the end of the day the credits for these proceedings go to the many authors and reviewers, who found the time and energy to provide their excellent contributions. Many thanks to all of you!

The editors
Timo Schweckendiek, Frits van Tol, Dirk Pereboom, Martin van Staveren and Paul Cools
October 2015, Delft, Netherlands

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