FOREWORD

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The mitigation of geohazard is an important problem in geotechnical engineering. Heavy rains, typhoons and earthquakes are the main causes of geohazards. Due to changes in climate and extreme weather, geohazards are found all over the world. The Kansai branch of the Japanese Geotechnical Society (JGS) established a technical committee on the Mitigation of Geohazard in River Basins in 2006. On the other hand, Technical Committee 34 (TC34) of the ISSMGE on Prediction and Simulation Methods in Geomechanics has been working on prediction and simulation methods for geomechanics since 2006. After the 16th ISSMGE in Osaka, TC34 and the Kansai branch of JGS decided to organize an international symposium on Prediction and Simulation Methods for Geohazard Mitigation. The symposium was held in Kyoto on 25th–27th May, 2009. The symposium provided a forum for discussing new prediction and simulation methods for geohazard and for exchanging ideas and information on topics of mutual interest.

The themes of prediction and simulation methods for geohazard mitigation include:

1. Mechanisms of geohazards, namely, heavy rains, floods, typhoons, earthquakes, landslides, slope and snow slides, tsunamis, land subsidence, coastal erosion, etc.
2. Numerical and analytical simulation methods for geohazards, including conventional and advanced methods, FDM, FEM, Extended FEM, DEM, SPH and MPM.
3. Advanced constitutive modeling of geomaterials and numerical implementations and constitutive parameter determination using laboratory and field test results.
4. Thermo-hydro-mechanical instabilities, namely, large deformations, strain localization, progressive failure, liquefaction, ground water flow analysis, the rapid flow of complex geofluids such as mud flow, etc.
5. Monitoring and non-destructive investigative methods for geostructures during/after floods, earthquakes, heavy rains, etc. and design methods.
6. Evaluation of existing prediction methods, performance-based design methods aided by advanced numerical modeling, risk analysis, and the management of mitigation programs.
7. Case records of geohazards and mitigation projects.

A total of 89 papers on the above topics have been contributed from 18 countries. Due to the high quality of the presentations during this International Symposium in Kyoto, it was decided, with the proposal of the Japanese Geotechnical Society, to dedicate a special issue of Soils and Foundations, where full length papers of the communications could be published. The rapid review of the editorial committee of SOILS AND FOUNDATIONS made it possible to publish. This special issue on the “Prediction and Simulation Methods for Mitigation of Geohazard” is composed of 10 papers. We are very sorry that Prof. I. Vardoulakis, Special Lecturer of IS-KYOTO, a member of the International Advisory Committee and the former chair of the TC34 passed away last year due to the accident. We would like to dedicate this issue to him for his outstanding work on IS-KYOTO and the activity of TC34. The main aim in publishing this special issue of SOILS AND FOUNDATIONS is to provide to researchers and engineers a forum of international exposure to present the recent advances on the subjects of prediction and simulation methods for mitigation of geohazard. For the successful completion of this endeavor we sincerely would like to thank the authors for their contributions and the reviewers for their work. Acknowledgements are also given to the Japanese Geotechnical Society, the Kansai branch of the Japanese Geotechnical Society, and ISSMGE.