Editorial

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The world's rapid evolution towards more technology-based and organised infrastructures is confirmed by many researchers and professionals. This evolution is mainly due to the efforts made in the research and development phase, where the outcomes are not quantified in the short term but are guaranteed in the long term. Research in environmental geotechnics is now more promising than ever. With the advent of globalisation and the need for massive housing and infrastructure in cities, many studies are now conducted to create a synergy between the surrounding environment and the expansion of the built environment. For that, the need to merge new ideas and disciplines in geotechnics is the cornerstone to assess and control soil and rock behaviour in order to prevent damages from natural disasters.

This issue has been developed to provide significant information on environmental geotechnics. New tools and technologies are investigated in the geotechnical field by conducting a series of tests based on rigorous and original methodologies. Diverse researches in environmental geotechnics along with other fields are compiled.

The study done by Arson and Medina-Cetina (2015) discusses the application of probabilistic methods to assess and to predict rock damage performance. Trivedi *et al.* (2015) develop a new two-dimensional numerical solution for soil consolidation.

This issue also provides a comprehensive review of the climatic impact on geotechnical infrastructure by Philip J. Vardon (2015). Keykha *et al.* (2015) conducted biology-based research to demonstrate the potential use of electrokinetics in geotechnics for bacterial soils transportation.

Sivakugan *et al.* (2015) pointed out the need to find suitable best practices for the main problems related to geotechnics. Some valuable guidelines are exposed to better preserve future work on land (excavation and filling, etc.)

Rima and Azam (2015) present a structured approach to the dewatering process. This approach is based on a physicochemical study applied to geotechnics, which is a breakthrough in geotechnics. Finally, Cecconi *et al.* (2015) propose a new technology for shallow slope instability control.

This issue could be considered a crossroad of multiple scientific domains (physics, chemistry and biology) applied in environmental geotechnics. Overall, it provides an excellent reference for postgraduates, researchers and practitioners who need to deepen their understanding on environmental geotechnics.

The civil and geotechnical engineering communities are now investigating the soil as an ecosystem where interactions are made and value creation is optimised. Indeed, this volume includes different methods to describe and model those interactions with the purpose of creating systems to prevent damage from the many natural phenomena that soils will surely encounter. The content of this volume will surely enhance the common understanding of geotechnics and environmental kinetics. It will also provide new concepts and methodologies, which may be used to inspire the readers to new research directions.

This issue allows substantial gain in knowledge and lists the measures to control the impact on soil- and rock-generated phenomena. Probabilistic and numerical models as well as chemical and biological experimentations are designed to understand the geotechnical issues in our environment, which is a huge step for the scientific community. I am convinced that the themes tackled will provide valuable perspective for innovation in the future.

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