Editorial

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As the new honorary editor of *Geotechnical Engineering* and chairman of its editorial advisory board, I am pleased to welcome you to the first issue of 2015. Before introducing the papers, I would like to thank the outgoing editor, Michael Brown, for all his hard work and achievements during the past 3 years when important changes have occurred: the size of each issue has increased by 50%; the turnaround time for papers has reduced greatly; and, as Michael noted in his December editorial, the journal's impact factor has jumped significantly from 0.569 to 1.056 in the past year. In the December issue, Michael thanked the retiring members of the panel and I have the privilege of welcoming their replacements, six from the UK: Cedric Allenou (Atkins Ground Engineering), Ana Ivanovic (University of Aberdeen), Louis Le Pen (University of Southampton), Anthony Leung (University of Dundee), Ashraf Osman (University of Durham) and Nick Sartain (Arup's Ground Engineering Group); and four from outside the UK: Francesco Cecinato (University of Trento, Italy), Peter Day (Jones & Wagener and University of Stellenbosch, South Africa), Jørgen Steenfelt (COWI, Denmark) and Rainer Massarsch (Geo Risk & Vibration Scandinavia AB, Sweden). I am delighted that Paul Nowak has agreed to remain as deputy chairman for this year.

As the new editor, I aim to maintain the practical and applied nature of the journal and look forward to receiving high-quality papers from both industrial and academic authors that are of current relevance so that the impact factor will continue to increase. Looking ahead, the annual themed issue this year, championed by Benoit Jones and Stuart Haigh, will be on 'Construction processes and installation effects' and the 2016 themed issue, championed by Christopher Parks and John Gannon, will be on 'Innovation in deep foundation design and construction'.

This issue contains eight excellent papers, from both practitioners and academics, all of which have current practical relevance. The first paper, by Allenby and Kilburn (2015), presents a very readable and comprehensive overview of four techniques used for sinking caisson shafts. The authors explore the issues involved in each technique and identify the most favourable, considering the ground and groundwater conditions. They also consider the safety aspects of shaft sinking, noting these are more critical than in any other construction activity. This paper will be a valuable reference both for practitioners and for lecturers and students in universities.

In the second paper, Ranjbarnia *et al.* (2015) present a new

analytical-numerical procedure to analyse the challenging problem of the non-linear strain-softening post-failure behaviour of ground around a tunnel in rock. This situation involves a complicated relationship between the stress-strain parameters during the softening stage because of the influence of factors, such as the quality of the rock mass, on the strain softening parameter, η and on the rock mass drop modulus, M , which are shown on the stress-strain curve in Figure 1. The authors found that a linear drop modulus can be used in the post-failure softening stage if the proper critical softening parameter is employed.

The third paper, by O'Riordan and Almufti (2015), examines the design of shoring to excavations in urban environments to provide global stability and meet the performance criteria for both seismic and static loading. Numerical analyses are used to provide a better understanding of the complex interaction that occurs between the soil, shoring system, completed underground structure and adjacent buildings. One conclusion is that, with seismic loading, tall heavy adjacent buildings may require foundations that are significantly deeper and stiffer than would be required with only static loading. Fong *et al.* (2014) published a related paper last year in this journal examining the response of buildings adjacent to deep excavations with static loading.

In the fourth paper, Chmoulian (2015) presents a detailed study of the effect of axial stiffness on the development of axial forces in soil nails. This is an interesting contribution as the author examines the use of fibre-reinforced polymer nails rather than conventional nails for slope stabilisation due to the advantages of their light weight, ease of site preparation and durability. He also

Figure 1. Strain-softening behaviour with non-linear post-failure behaviour

discusses methods to overcome the negative effects of soil nails with lower axial stiffness and ductility.

The next two papers are laboratory studies. Sivakumar *et al.* (2015) present the results of an experimental investigation using the penetration of a 30°, 0.727 kg fall cone allowed to free-fall 200 mm before contacting the specimen surface to determine the plastic limit as an alternative to the traditional Casagrande thread-rolling method, which is heavily dependent on operator judgement and can give inconsistent results. The authors show their test procedure provides plastic limits that are in good agreement with measured Casagrande values. Strong views on this topic within the geotechnical community have given rise to discussion, for example Vinod *et al.* (2013). Hence I invite discussion on this paper, particularly at this time when new European standards for soil testing are about to be published by CEN, the European Committee for Standardization. The paper by Fattahpour *et al.* (2015) is also laboratory based and involves modelling, in a Rowe cell, compaction grouting around a pile shaft to compensate for soil loosening that can occur during construction.

The last two papers in this issue are important as they present instrumented case histories, which are required by the geotechnical community to validate analytical models. The penultimate paper, by Nazir *et al.* (2015), presents two case histories of maintained load tests on bored piles under full-scale static loads. Conventional vibrating wire strain gauges and a global strain extensometer were used to investigate the mobilisation of skin friction and end-bearing resistance with applied load and pile settlement. In the final paper, Fakharian and Mehdizadeh (2015) report the use of prefabricated vertical drains and an 8 m high embankment to accelerate the consolidation of 15 m of soft soil for construction of a water tank. The authors conclude that if consolidation parameters are selected appropriately from laboratory tests, reasonable estimates can be obtained for the maximum settlement and consolidation time using conventional theoretical solutions and more detailed numerical analyses.

If you would like to raise any points regarding these papers, please consider contributing a discussion or briefing note. Instructions on the preparation and submission of discussions, briefing notes and papers are included at the end of each paper. In this first issue of 2015, we also include a report on the award-winning papers from *Geotechnical Engineering* in 2013 and a list of our reviewers from 2014, who play an important role in the success of the journal. For up-to-date information on *Geotechnical Engineering* and to see articles already published Ahead of Print, please visit <http://www.icevirtuallibrary.com/content/serial/geng>.

I hope you find this issue stimulating and wish you a happy and productive year in 2015.

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