Editorial

Matteo O. Ciantia BEng, MSc, Ing, PhD, AFHEA, GMICE
Lecturer, School of Science and Engineering, University of Dundee, UK

While in Russia the football World Cup is getting everyone's attention (including Italians like me), as a new member of the *Geotechnical Engineering* Editorial Advisory Panel, I would like to welcome you to the 4th issue of 2018.

The eight papers in this issue cover diverse aspects of geotechnical engineering, including offshore spudcan design, earth pressure balance (EPB) tunnelling, embankments stabilisation, buried pipelines, energy piles, pile group behaviour, experimental investigation of clays and a theoretical study on internal stability of sands.

I have grouped the first two papers together under the theme of piles in soft soils. The paper by Wu *et al.* (2018) looks at the displacement response of a floating energy pile in a saturated clay. A small scale instrumented pile was used to experimentally investigate the effect of temperature cycles on excess pore pressure and pile head displacements. The experiments focus on the shielding effects that existing traditional adjacent piles may have on the thermo-hydro-mechanical behaviour of the system. This paper provides very useful experimental data that may be used to further validate existing numerical methods (such as those of, for example, Gawlecka *et al.*, 2017 and Rui and Soga, 2018) and better understand mechanisms governing the thermo-hydro-mechanical-coupled behaviour of such soil–structure interaction problems. Continuing the theme of piles in clays, Mishra and Patra (2018) look at dragloads and downdrag experienced by pile groups with flexible caps during consolidation in non-Darcian soils. A mathematical model capable of predicting downdrag is proposed, parametric analyses are performed and experimental results from literature predicted. The model is well suited to field applications as the parameters required can be easily obtained.

The third paper (Dean, 2018) also deals with clays but shifts the problem to the offshore environment. In this paper, Dean presents a new model to account for the leaning instability of three-legged jackups that may occur during the preloading phase. Using well established concepts contained in the current offshore geotechnical engineering standards, the model is framed to be readily adaptable into practice and can be easily extended to other configurations.

The next two papers may be linked together by the theme of slope stability, its mitigation and its modelling and measurements. On one side, Zhu *et al.* (2018) deal with the design of

buried pipes near slope crests and on the other, Payne *et al.* (2018) discuss the stabilisation of a railway embankment. Zhu *et al.* (2018) perform two-dimensional numerical parametric analyses of the wetting front advancement that may occur in case of pipeline leakage. By changing the position of the pipeline from the crest, the authors propose stability charts and, based on their results, advance design recommendations. Concerning the railway embankment stabilisation problem, Payne *et al.* (2018) show how slope monitoring, track performance data and site investigations can be used to identify the best engineering measures to stabilise slope. On top of the considerable cost saving with respect to the traditional solutions, commuters using the c2c line are now granted, at least from the geotechnical perspective, a more reliable service.

The sixth paper of this issue is the last one dealing with clays. Sivakumar *et al.* (2018) present a very interesting experimental campaign on clay containing solid inclusions. The effect of the shape and roughness of the inclusion on the compression and strength of such mixtures is studied by using crushed basalt or steel ball bearings. After performing many tests with various percentages of solid inclusions, the results are reinterpreted micromechanically using scanning electron microscope imaging as a validating tool.

Moving on to granular materials, Ni *et al.* (2018) present a modification to the Kezdi and Sherard methods to increase their accuracy in assessing internal stability of widely graded soils. The authors re-analyse and collect a large set of experimental results from the literature and propose a simple modification that proves to be effective, particularly when applied to the Sherard method.

The last paper of this issue by Elbaz *et al.* (2018) is a detailed report of the tunnel excavated using an EPB machine in China to construct line 9 of the Guangzhou metro. Attention is placed on the wear of cutter discs, which was found to be more severe when tunnelling through an upper soft silty clay and lower hard fractured limestone. Other various challenges encountered, including the opening of a surface sinkhole, are described along with the different measures undertaken to face each of such incidents.

We welcome contributions in the form of a discussion on any of the papers in this issue or previous journal issues. You can

find further instructions on the preparation and submission of a discussion at the end of each paper.

Finally, as member of the Organising Committee of the British Geotechnical Association's 2018 *Engineering in Chalk* conference taking place at Imperial College London (UK) in September 2018, allow me to remind you that registration for the two-day international event is now open. Please visit the conference website for more details on the program and Keynote Speakers (<https://www.chalk2018.org/>). For up to date information on *Geotechnical Engineering* and Ahead of Print papers, please visit <https://www.icevirtuallibrary.com/toc/jgeen/0/0>, where some of the papers of the themed issue on Engineering in Chalk are already appearing.

We hope you will enjoy this month's issue of *Geotechnical Engineering*.

REFERENCES

- Dean ETR (2018) Assessment method for leaning instability of jackups during preloading in deep soft clay. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **171**(4): 310–323, <https://doi.org/10.1680/jgeen.17.00182>.
- Elbaz K, Shen SL, Cheng WC and Arulrajah A (2018) Cutter-disc consumption during earth pressure balance tunnelling in mixed strata. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **171**(4): 363–376, <https://doi.org/10.1680/jgeen.17.00117>.
- Gawecka KA, Taborda DMG, Potts DM et al. (2017) Numerical modelling of thermo-active piles in London Clay. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **170**(3): 201–219, <https://doi.org/10.1680/jgeen.16.00096>.
- Mishra A and Patra NR (2018) Dragload of pile groups in consolidating Non-Darcian clays. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **171**(4): 295–309, <https://doi.org/10.1680/jgeen.17.00169>.
- Ni X, Dallo YAH and Wang Y (2018) Internal stability assessment of granular soils using the Kezdi and Sherard methods. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **171**(4): 357–362, <https://doi.org/10.1680/jgeen.17.00033>.
- Payne I, Holt SJ and Griffiths IW (2018) Railway embankment stabilisation: economical asset management. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **171**(4): 332–344, <https://doi.org/10.1680/jgeen.17.00101>.
- Rui Y and Soga K (2018) Thermo-hydro-mechanical coupling analysis of a thermal pile. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering*, <https://doi.org/10.1680/jgeen.16.00133>.
- Sivakumar V, Donohue S, Rødvand L, Nanda S and Tripathy S (2018) Behaviour of normally consolidated clay containing isolated solid inclusions. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **171**(4): 345–356, <https://doi.org/10.1680/jgeen.17.00131>.
- Wu D, Liu HL, Kong GQ, Ng CWW and Cheng XH (2018) Displacement response of an energy pile in saturated clay. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **171**(4): 285–294, <https://doi.org/10.1680/jgeen.17.00152>.
- Zhu H, Zhang L, Chan K and Chen C (2018) Design safe distance between a buried pipe and a soil slope. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **171**(4): 324–331, <https://doi.org/10.1680/jgeen.17.00153>.