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Editorial

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Editorial: vol 16, issue 1

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On behalf of the Editorial Board of the International Journal of Physical Modelling in Geotechnics, welcome to the first issue of 2016. 2015 has been a year of growth for the journal with an increase in the number of high quality manuscripts both submitted for review and accepted and ahead of print. This has been helped in part by the journal receiving its registration with Thomson Reuters, its first Journal Impact Factor, and a pair of themed issues based around the developments presented at the 8th International Conference on Physical Modelling in Geotechnics (ICPMG 2014). I am happy to report that the journal is now in a very healthy position and has an excellent platform for future growth.

Following the success of last year's themed issues, the end of 2016 will see our forthcoming themed issue on 'Advanced use of image analysis in physical modelling'. We had an outstanding response to the call for papers on this topic and have a number of exciting papers currently under review. Indeed, the response has been so good that we hope to continue to offer a themed issue each year, covering both important conferences within the community (e.g. Eurofuge 2016, ICPMG 2018) and also particular topic areas of wide interest in physical modelling.

In this issue, we have three papers on very different topics, including cone penetrometer testing and boundary effects, seepage through tailings embankments and soil-structure interaction of spudcan foundations for offshore structures, so there should be something for everyone.

The first paper (Wei et al. 2016) investigates the stress changes induced due to CPT penetration in sands, when they are conducted at different distances from the container walls. Model CPTs are now very popular for characterising centrifuge model tests, particularly given the advent of robotic actuators which can profile and characterise the soil with a CPT, before conducting load tests on geotechnical structures or simulating other geotechnical processes. This tends to involve the use of more of the 'real estate' of the box and so the results will be highly useful to the physical modelling community in optimising model use while minimising boundary effects (and therefore obtaining accurate characterisation).

The second paper (Beckett et al. 2016) describes the use of centrifuge modelling for assessing the seepage through embankments used as part of tailing storage facilities, both under steady state and drawdown conditions. The pore pressures induced in such embankments are critical to assessing the stability of the embankments. These facilities can be very large (e.g. see Jamiolkowski, 2014) and their failure can have dramatic consequences (e.g. Mecsi, 2013). In addition to modelling seepage on a conventional centrifuge, the use of a benchtop centrifuge is also described for characterising the material consolidation behaviour as a rapid alternative to traditional methods.

The final paper (Cheng and Cassidy, 2016) investigates the capacity of spudcan foundations for jack-up drilling units operating on sands. A novel apparatus for independently applying three degrees of

freedom of loading within a drum centrifuge is used to more completely trace the full VHM capacity envelope for these footings of complex shape and evaluate proposed analytical models based on strain-hardening plasticity theory. This provides an important extension to previous studies which have been limited by the stress paths which could be applied, and has important applications both in offshore oil and gas application, and for supporting the deployment of offshore renewable energy systems (e.g. wind turbines).

Looking towards the future, the growth in the number of accepted papers in the last year means that we hope to be able to increase the number of papers published per issue from 2017 onwards. This is an important milestone and will give us an excellent platform for further sustainable growth, while maintaining short times to first decision for new submissions. The Editorial Board and I would like to thank the physical modelling community for their continued support of the journal through submission and reviewing of papers, and to encourage further submissions, particularly where these relate to the development, assessment or application of new modelling techniques at all scales. I hope you enjoy the content of this issue.

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