Wind Energ. Sci. Discuss., author comment AC1
https://doi.org/10.5194/wes-2021-129-AC1, 2022
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Reply on RC1

Dennis Frick and Martin Achmus

Author comment on "A model test study on the parameters affecting the cyclic lateral response of monopile foundations for offshore wind turbines embedded in non-cohesive soils" by Dennis Frick and Martin Achmus, Wind Energ. Sci. Discuss., https://doi.org/10.5194/wes-2021-129-AC1, 2022

The authors would first like to thank the reviewer for the detailed comment. Regarding the mentioned criticism, it can only be stated that it was not the intention of the authors to attack other authors and their publications as well as findings or to provoke them. Rather, this paper is intended to be a factual and clear compilation of the current state of the art as well as already existing (simple) methods for the prediction of pile deformations under cyclic lateral loading.

The presented results of the extensive test campaign shall help to evaluate and at best to confirm the already existing methods. Even though comparable experiments have already been carried out by many other scientists and the results have been published, the authors of this article are not aware of any publication in which such a number of different system parameters have been systematically investigated, which could possibly make the reported results of the experiments interesting for others.

Furthermore, the authors are of course aware that such simple methods as those mentioned or developed in this article can only provide a rough and first estimation of pile deformations under cyclic constant loads. Considering the complexity of this field of research, the loading conditions in situ and the lack of other accepted methods or standards that precisely regulate the prediction of deformations for large diameter piles, such simple and engineering methods are anyway well suited at least for a first preliminary design.

However, the authors agree with the reviewer that in the medium or long term, it would be desirable to develop new (numerical) prediction methods or models that can represent the complex behaviour of cyclically laterally loaded piles much more accurately and in its entirety. To get closer to this objective, also the publication of results of carefully planned and performed experimental tests, which can for example be used for the calibration or validation of numerical models, is a small contribution.

Finally, it should be noted that no changes have been made to the present article in accordance with Reviewer 1's comments.