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Review of the Discussion paper, JCHS 5(42)

## DISCUSSION ON: Robust validation of trends and cycles in sea level and tidal amplitude in the Dutch North Sea, JCHS 3(32)

Discussion by Dewi Le Bars et. al.

Editors handling the paper: Nils Goseberg & Bas Hofland

Note that unlike Research Papers, the review of the Discussion in JCHS is single anonymously, where the discussers (and original author(s)) are known to the reviewers. The reviewers remain anonymous.

### Reviewer A

When I first saw the Voortman (2023) paper published I had several concerns myself regarding some of the applied methods and conclusions drawn and was surprised that it had made it through the peer-review process. Because of that, I am happy to see that the authors of this discussion paper spent the time and effort to outline the shortcomings of the Voortman (2023) study in great detail and in a way that is easy to read and understandable. I fully agree with their concerns and recommend (rapid) publication of the discussion paper. I list very few and very minor comments below.

I've gone through both the original paper (Voortman) and this discussion piece. Let me start by saying that I saw the Voortman paper before I received the request to review the discussion paper, and I was seriously considering setting up a discussion paper myself because of the numerous false claims in Voortman.

### Reviewer B

The authors rightfully mention several issues with the published paper including errors in the estimation of MSL from temporally under-sampled data, inappropriate choice and setup of the statistical analysis, and the lack of physical understanding of the climate system with respect to the individual components driving sea level. I don't have a lot to add to the discussion paper. I think the authors did a good job in outlining the several issues that appeared in Voortman. I do also agree with their request to remove the published paper from the literature, as it does more damage than good.

I have two minor comments that the authors might consider to incorporate:

P5 line 40: It might be important to note that at these timescales the Ekman effect becomes important (the typical response of sea level to wind is perpendicular to the mean wind direction at these timescales; i.e., zonal wind is most important for the Dutch coastline).

P6 Line 6 following: The authors might reference Calafat et al. (2013, <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/grl.50731>) and Haigh et al. (2014, <https://www.nature.com/articles/ncomms4635>) to further support their findings

### Editorial closure

The editors' decision was to accept the Discussion, so no rebuttal was given by the discussers.

The proposal by the discussers to withdraw the original paper is not followed. Both the original paper and discussion were peer-reviewed and accepted. The discussion seems to be a scientific discussion on methods and is judged not to be gross scientific misconduct or fraud. Following the procedure for discussions, we added a clear link to the discussion at the site of the original paper. In the paper a novel method was presented, which by itself seems useful. Moreover, besides the discussion on mean sea level, the proposed technique also determines changes in the tides, which has merit for the design of Coastal and Hydraulic structures. We would welcome further work that can reconcile the differences in methods.