

Interactive comment on “Predicting tidal heights for extreme environments: From 25 h observations to accurate predictions at Jang Bogo Antarctic Research Station, Ross Sea, Antarctica” by Do-Seong Byun and Deirdre E. Hart

Anonymous Referee #1

Received and published: 17 January 2020

This paper is a case-study demonstrating the use of a method termed "CTSM+TCC" for deriving tidal predictions from only 25h of observations and a good nearby tidal record, at a site in Antarctica. The method itself is similar to the Response Method (Munk & Cartwright, 1966) applied to neighbouring "standard stations", as described in Pugh & Woodworth 2014. (Chapter 4.3). It is not therefore particularly novel in principle, but the paper has merit as a very clear description of both method and results. It is also a useful reminder that Antarctic tides are important and short of data. I have a number of minor comments, but am happy to recommend publication in Ocean Science.

Printer-friendly version

Discussion paper



Minor comments:

p1, line35: Could you add these neighbouring sites to the map? And it would be good to find out what data is publicly available, and use them for further validation if possible.

p4, line22: thanks for mentioning atmospheric conditions, too often ignored.

p4, line148: you could mention somewhere here that bundling all the constituents in a species together is valid due to the "credo of smoothness" assumption.

p6, line206: In figure 6, it looks like the ADI is negative as the peak is before the max declination?

p7, line 251: (And elsewhere, please check all), Msf should be MSf [Moon-Sun-fortnight]. Similarly Msm should be MSm [Moon-Sun-month].

p7, line 270: Given MSf is important, I wonder if it might be worth including MS4? It might mop up the high frequency residual in figure 8. Worth checking the amplitude in the long record.

p8, line 302: So the tides in the Ross Sea will be almost 1.5 times larger in 2025 than in 2016? I wonder how aware the ice modelling community are of this?

fig 6: Is the split y axis really necessary here?

Language:

I am particularly impressed by how clearly written this paper is - I thank the authors for making the reviewing task easy. I wish I wrote as well!

p1,line9: "Though" should be "However"

p7 line 246: -tropic ?

p8 line 275: The abbreviations DD etc aren't used again, delete.

References:

P&W 2014: Pugh, D.T. and Woodworth, P.L. 2014. Sea-level science : understanding tides, surges tsunamis and mean sea-level changes. Cambridge University Press <https://doi.org/10.1080/00107514.2015.1005682> M&C 1966: Tidal spectroscopy and prediction, Walter Heinrich Munk and David Edgar Cartwright <https://doi.org/10.1098/rsta.1966.0024>

Oh, and you need to add doi to some of your other references!

Interactive comment on Ocean Sci. Discuss., <https://doi.org/10.5194/os-2019-133>, 2020.

OSD

[Interactive
comment](#)

[Printer-friendly version](#)

[Discussion paper](#)

