

Interactive comment on “Storm surge forecasting: quantifying errors arising from the double-counting of radiational tides” by Joanne Williams et al.

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Received and published: 2 August 2018

Thank-you for your helpful editorial comments and the discussion with Phil.

1. At several points in the paper, you refer to the nodal tide (or node tide). I think most readers will take this to mean the near-equilibrium zonal tide of period 18.6 years. But surely you are instead referring to 18.6-y modulations of all lunar tides (especially the large ones like M2, O1, and K1). Yes? I think Phil, in informal comments, also thought you were referring to the 18.6-y tide; there is thus no reason to cite his 2012 paper on the topic, as it's irrelevant (assuming I'm right about what you've meant). So if you really mean nodal modulations of major tides, it's best not to call that the node tide,

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even though all of this does arise from the moon's nodal precession.

Yes, that's right, I should have referred to "nodal modulation". Now corrected throughout.

2. Both reviewers found the nomenclature problematic – e.g. see Point (1) of Reviewer #1 – and I also had to repeatedly read the relevant text because I kept getting confused about what was what. So please give some thought to making this clearer, possibly along the lines suggested by Reviewer #1, or some other way if you have a good idea.

We've revised the notation, and hopefully it's less confusing now, with tilde to indicate "harmonic predictions from..." See response to reviewers.

3. Many figures are difficult to see because they are so small, and their fonts are even smaller. Remember that most journals end up reducing figure sizes anyway, so give some care to figure legibility.

The figure fonts are now increased to be similar to the main text, and figures are enlarged.

As you know, we also received a very detailed review from Phil Woodworth. Most of his comments were on detailed presentation and precise wording, and they have all been addressed, with the exception of the choice of named coastal locations. These were a compromise between even spacing and well known places, and hopefully the clearer legend and reference to the map in the Appendix will make these figures easier to understand.

There was a discussion about the relative importance of the nodal tide in tidal range and the paragraph in section 4 now reads:

An approximate calculation of $\text{Range} = 2(M_2 + S_2 + O_1 + K_1)$ is occasionally used [Yotsukuri 2017], but the error due to this can be over 1 metre (figure 6b). N_2 is a significant contributor, at about 20% of M_2 in many sites worldwide. A few tens of centimetres are accounted for by the omission of the nodal modulations, and there are

also the shallow water constituents at the coast.

Interactive comment on Ocean Sci. Discuss., <https://doi.org/10.5194/os-2018-63>, 2018.

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