

## ***Interactive comment on “Are tidal predictions a good guide to future extremes? – a critique of the Witness King Tides Project” by John Hunter***

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In this paper John Hunter uses records from a quasi-global tide-gauge dataset to determine in which regions of the world the Witness King Tide (WKT) Project would perform well and other regions where it would not perform well. Overall, I find the paper to be interesting, novel and well written – and commend the author for a nice study. The statistical approach is robust. Therefore, I recommend it for publication. However, I have a few moderate/minor corrections that I feel should be undertaken to strengthen the paper.

Moderate Comments

I think it might be useful, in the introduction, to include a short paragraph describing why

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the predicted tidal height changes through the year and maybe even include a figure showing a year of tidal predictions at a semi-diurnal and diurnal example site. I still find people don't appreciate or understand the differences in height and timing in a given year between semi-diurnal, diurnal or mixed tidal sites. For example, you could mention that the largest semidiurnal tidal range occurs in March and September during the equinoxes, while the largest diurnal tidal range occurs in June and December during the solstices. The day of largest tide varies with phasing of the spring and neap tidal cycle and influence of moons distance to earth (e.g., perigee).

I wondered whether it would be interesting, for one year or a couple of years, to plot the actual date when the maximum tide occurs, as this will vary quite a bit around the world depending on whether the site has semi-diurnal, diurnal or mixed tides.

No where do you mention the 4.4 and 18.6 tidal cycles – these can be important in influencing both the timing and height of the annual maximum predicted tide from year to year, but also in a given year. I assume these are accounted for in the tidal analysis.

In the paper there is no mention of storm-surges induced by tropical cyclones. These can be very large. I was just wondering how such events might influence/bias the results around the tropics.

I don't feel too strongly about this, but I wonder whether a short paragraph, or few sentences could be added to briefly highlight the papers that have looked at sunny day or nuisance flooding, as this has some relevance here.

#### Minor Comments

Page 1, Line 11 – you could add that this has become known as 'Sunny day flooding' nor 'nuisance flooding'.

Page 1, line 6 – maybe add a sentence or two to describe why there might be more than one astronomical tides of similar magnitude to the maximum. For example, larger than average tides occur twice per year around either the equinoxes or solstices depending

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on whether you have semi-diurnal or diurnal tides.

Page 2, line 3 – I would replace ‘and tidal observations’ with ‘and sea level observations’ as you are considering both tide and surge.

Page 2, line 14 – some justification is need for the first selection. How much data was ignored based on this selection.

Page 2, line 15 – I am not sure what you mean by ‘binned’ – do you mean averaged or interpolated.

Page 3, line 5 — which tidal analysis software was used?

Sorry for my delay in posting this review.

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