

Earth Syst. Sci. Data Discuss., author comment AC3
<https://doi.org/10.5194/essd-2021-134-AC3>, 2021
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Reply on CC1

Petra Zemunik et al.

Author comment on "Minute Sea-Level Analysis (MISELA): a high-frequency sea-level analysis global dataset" by Petra Zemunik et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-134-AC3>, 2021

I have a few extra comments on this paper to add to those of the reviewers. First, I have to say that this data set of high-frequency variability is to be welcomed, and it fills a gap in a type of data provision by the other sea level data sets. It is also good to see use being made of the data in the IOC SLSMF, even though that is not what the SLSMF was primarily designed for.

- We really appreciate the positive comments and the attitude towards our research.

On this topic, reviewer 2 end of first para, refers to an article by Aarup et al. (2019) which commented on an earlier paper which had made use of SLSMF data somewhat inappropriately. That paper, if we are talking about the same one, and the paper it was commenting on were in a journal called Measurement and not in Journal of Coastal Research. The Aarup et al. reference is:

Aarup, T., Wöppelmann, G., Woodworth, P.L., Hernandez, F., Vanhoorne, B., Schöne, T. and Thompson, P.R. 2019. Comments on the article "Uncertainty and bias in electronic tide-gauge records: evidence from collocated sensors" by Stella Pytharouli, Spyros Chaikalis, Stathis C. Stiros in Measurement (Volume 125, September 2018). Measurement, 135, 616-619, doi:10.1016/j.measurement.2018.12.007.

- This reference will be included in the text.

Other remarks:

somewhere - as reviewer 2 mentions it would be good to see a statement that you plan to update this data set every few years

- A statement on the updating of the dataset is in last paragraph of the conclusion – we expanded it a bit. However, we don't firmly say that it will be updated every few years, as the presented dataset is largely developed as a part of the PhD study and a work of a small group of scientists with limited resources. Any interest and contribution of

external scientists or sea-level data centres is highly desirable and we hope that our work will attract such an attention.

page 2, top - one could add the Caribbean to this list e.g.

Woodworth, P.L. 2017. Seiches in the eastern Caribbean. *Pure and Applied Geophysics*, 174(12), 4283-4312, doi:10.1007/s00024-017-1715-7.

This paper also used SLSMF data as you did.

- Will be added.

line 37 – others

line 48 - GESLA (by which you mean GESLA-2) is not an hourly data set. I realise you say 'at the majority' but that gives a wrong impression. I would change that to 'containing global sea-level data with hourly or higher (e.g. 10 or 15-min) resolution at 1355 ...

GESLA-3 will be appearing later this year by the way.

76 - dataset is the

82 - Besides giving access to the data - see above. I suggest you say something like:

Besides giving access to the data (although that is not the main priority of the SLSMF, see strong comments on this aspect in Aarup et al. (2019)), the main

84 - station

96 - others

- Will be corrected.

Fig.1 caption. Please expand the caption to say what you are trying to show in each of the four example plots. You don't even explain that in the text.

- The problems of the time series that we are pointing to will be added in the caption of the figure.

103 - IOF needs an http or https

121 - least-squares

124 - what does gap-denser mean? jargon. please reword

128 - drop the comma after approach

- ...timescales. However,

- Will be corrected.

138 - does the allowing of large gaps introduce Gibbs-type oscillations in the use of the filter?

- We didn't find Gibbs-type oscillations in the MISELA dataset. However, we are aware that digital filters may create some spurious oscillations at the edge of a series (e.g. between data gaps and real data). For that reason, in the forthcoming statistical analysis based on the MISELA dataset (to be submitted in a month) we didn't take into account the data (close to data-to-gap transitions) that can be affected by gaps.

140 - define QC

- Will be defined (quality control).

Fig 5 - the caption needs expanding to say that a,b,e,f are sea level before and after, whereas c,d are Non-Tidal Residuals (NTR presumably). Does Wake really have a small tide as in (z)? In b and f presumably despiking and filtering is after detiding?

- The definition of NTR (non-tidal residual) will be added in the caption of the figure. Wake has tidal range up to ~ 1.2 m which can be seen on both panels (left and right). It will be replaced with "detiding and filtering" at Charleston station. It will also be clarified in the caption which panels are before and which are after processing.

150 - attributes including the station

152 - 'abas'

154 - drop 'the'

sentence 'The FMI' would be better coming before sentence 'The variable time'

- Will be corrected.

Fig 4 - there are too many lat/lon annotations

- Will be reduced.

193 - some of the longest individual records .. shorter time-series on average

I can see in Fig 6(b) that ASWA has shorter records than global on average but CSP looks about the same as global

- We will exclude CSP from the sentence.

Fig 6(b) - what is the meaning of the size of the box and the outer error bars? Box-Whiskers is just jargon, I suggest you drop that.

- We will clarify the meaning of the boxplot in the caption of the figure and drop the "Box-Whiskers".

255 - IOC (1997), which is the GLOSS Implementation Plan is ok to mention. But I would also refer to for example:

Woodworth, P.L., Aman, A. and Aarup, T. 2007. Sea level monitoring in Africa. *African Journal of Marine Science*, 29(3), 321-330. doi:10.2989/AJMS.2007.29.3.2.332.

- The reference will be added.

257 - contains a

- Will be corrected.

371 - you could refer to Woodworth and Player (2003) as well for the PSMSL if you want but a later reference is:

Holgate, S.J., Matthews, A., Woodworth, P.L., Rickards, L.J., Tamisiea, M.E., Bradshaw, E., Foden, P.R., Gordon, K.M., Jevrejeva, S. and Pugh, J. 2013. New data systems and products at the Permanent Service for Mean Sea Level. *Journal of Coastal Research*, 29, 493-504, doi:10.2112/JCOASTRES-D-12-00175.1.

which is what the PSMSL web site now asks you to refer to.

- The reference will be replaced with the proposed reference.