

Comments on the paper  
“Spatial variations in the Baltic Sea wave field”  
by Soomere and Raamet

This paper reports the basic results of an extensive hindcast of the wave conditions in the Baltic Sea. The paper is well written, the results are clearly reported and discussed, providing material for further future work. The paper deserves publication with the exception of some minor notes I list here below following the structure of the paper.

Page 1893 – mentioning the considered processes, it is implicit, but I think preferable to mention explicitly, “wind input”.

1893 - bottom paragraph – I think it is better to specify that the triple nested version of the model does not refer to this study. About this version, I am puzzled that at 5 m depth ‘depth induced breaking’ is not considered. I am puzzled also in this study, as I expect 5 m depth, or similar, to be reached also in 3’ resolution grid.

1895 – I believe a bit more discussion is required about wind evaluation. The use of a constant reduction coefficient, 0.6, practically acts as a tuning knob for the final wave results. I can agree with this pragmatic and efficient approach (I have used it myself in early times). However, one should realise that the  $r=U_{10}/U_{\text{geostrophic}}$  ratio, and related turning angle, depend on the air-sea stability conditions. In the case of the Baltic Sea this could imply different  $r$  values if, e.g., the storms were from North or from West. This should somehow be discussed. Possibly an extension of the study, not for this paper, could be to analyse the trends according to direction.

Another point concerning wind is that the use of reduced geostrophic winds may show some difficulties close to coast, where land and orography play their role.. In general I consider the “geostrophic” approach suitable for long term studies, but not so much for the single storms. Finally, not strictly necessary, but probably a compact definition of geostrophic wind would be useful.

Talking about the  $\Delta t = 3$  or 6 hours as input to wave model, I suggest to specify if, e.g., the 6 hour wind at 12 pm was considered as valid from 12 to 18 or from 9 to 15 (that I consider the correct approach). While this is unsequential for long term statistics, it certainly has some implications when comparing model versus measured data.

1895/3 – “... an estimate for the vicinity of Tallinn Bay”. Please rephrase. Do you mean “... an estimate for the not far Tallinn Bay”?

1897/12-14 – this statement about wave period is not consistent with what said at 1899/5-7.

1898/1-2 – Somehow this assumes no coming and going of the conditions. Do your time series really suggest so? It would be interesting to specify the variability along the trend..

1898/12 – I believe “suggested” rather than “signified” would convey better the message.

1899/5-7 – see above 1887/12-14.

1900/5-6 – I am not sure I understand what you mean.

1900/18-19 – See above 1897/12-14 and 1899/5-7.

1901/1-2 – Somehow this point should be better discussed.

1901/28-29 – Please correct this sentence.

Figure 4 is not mentioned in the paper, possibly at 1898/5-6.

English is ok, except for the plural use of the word “data”. I spotted this at 1892/17, 1895/8-9, 1901/4, 1901/9.

Congratulations for a nice piece of work.