

Interactive comment on “Evaluation of extreme wave probability on the basis of long-term data analysis” by Kirill Bulgakov et al.

Anonymous Referee #1

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The authors present an interesting by product of a long term wave hindcast. By itself it does not pose any new concepts, however it is a nice application. The paper might benefit from a careful reading and editing by an English native.

Two main comments:

If I understand the paper of Chalikov and Bulgakov 2017 correctly than are the η in the definition of $H\text{-tilde}$ ($H\text{-tile} = \eta/H_s$) on line 35 op p.2 and the wave height h in formula 3 on page 3 the same variable. However in the paper it looks like h is the wave height (crest to trough or trough to crest) and η is the height above mean water level and h is the wave height. As the authors state clearly in the introduction on p.2 (lines 12-24), the statistical properties of trough-to-crest wave height are quite different from those of the wave height above mean level. Please clarify and correct

where necessary.

The authors do not mention the limitations of formula 2 (on page 2). It is not clear to me, if differences in directional distribution, multi-peak spectra (wind-sea and or 1 or more swell components) are taken into account. As far as I can see in a quick scan of the Chalikov and Bulgakov 2017 paper, equation (2) is only valid for a JONSWAP spectrum with a typical directional distribution and a typical peak enhancement factor. The authors should elaborate on this and make this clear in the introduction and/or discussion of the paper. In my opinion, the current analysis is not the ultimate answer to the probability of extreme waves, which does not mean that it does not contribute to the discussion. Therefore it is important to state the limitations of the current analysis.

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Discussion paper

