

Interactive comment on “Localized Coherence of Freak Waves” by A. L. Latifah and E. van Groesen

Anonymous Referee #1

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This paper is devoted to the practical use of nonlinear-dispersive mechanism of wave focusing for the prediction of freak wave formation. The idea of nonlinear-dispersive mechanism based on coherence of frequency-modulated components in the wave field has become popular nowadays again and allows forecasting the freak wave formation for weakly nonlinear water waves (low and moderate Benjamin-Feir index) before the event occurs. That is why I support publishing the given paper. I like the simplest formulas derived in the manuscript which can estimate the possible maximal amplitude of freak waves. Meanwhile, the whole text is presented in a difficult to read way as a lot of definitions of new integral characteristics are introduced. Being a theoretician, I do not properly understand their practical role, and it will be better to have a reviewer from the experimentalists. I have thought for a long time how to improve the presentation of main quantitative results, but, in fact, I have no idea how to do this radically. I may suggest only some minor comments:

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1. Page 2 line 10. It is incorrect that "Pelinovsky et al. (2011) discussed the scenario of a single freak wave in deep water by dispersive focusing of a unidirectional wave packet in linear theory and showed that the freak wave is originated from an anomalous solitary wave". A freak wave of the solitary-like shape is originated from the wave packet.
2. Equation (3). What is the second argument in $\eta(0,0)$? The first argument is $t=0$, but what about the second one?
3. The authors use the JONSWAP spectrum. What is the used value of γ ? Is it 2 as on page 12?
4. Page 5 line 10. Value $3.8\text{-E}8$ should be better replaced by $3.8 \cdot 10^{-8}$.
5. AB equation. It is not familiar for readers and perhaps it should be given in Appendix.
6. In the list of references there are no titles for two papers: 1) Baldock, 2) Kharif et al, JETP Letters. The following reference: Pelinovsky et al Physica D, 2000 appears twice. In the book "Rogue waves in the ocean" the author's name is misspelt: it should be Pelinovsky, but not Phelinovsky.

I would like to recommend publishing this paper with some minor revision but I stress the point that the paper can be improved.....

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