

Interactive comment on “Resonance phenomena at the long wave run-up on the coast” by A. Ezersky et al.

Anonymous Referee #1

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The paper aims to investigate the influence of resonance on long waves run-up. The problem is studied in one spatial dimension and time and the authors considered a bottom profile formed by three segments with different slope angles, representing a very simple but realistic ocean condition. They also considered two kind of initial condition, a Gaussian and a N-shape waves.

The general impression is that the manuscript fits aim and scope of the journal and it can be accepted for publication after that authors have addressed the following issue.

Comments:

1) The authors just briefly outlined the Makran tsunami event to compare their model results to a real case. On the other hand, I suggest to expand this part, by presenting

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clearly and more in detail the Makran event as a case study and the result obtained for it. The authors could slightly re-thinking the overall manuscript scheme, by properly introducing the Makran tsunami to the readers and which are the results corresponding to the this specific case (maybe they could dedicate a section to it, instead of presenting sparsely in the different sections). In fact, for example, it seems strange to me that in Figure 6, the quantities BR, R and U are presented for the specific case of Makran, but it is mentioned only in the last line of the Conclusions, while in both the caption of figure 6 and at the end of section 4 (where figure 6 is cited) nothing is said.

2) The authors analysed two waveforms and different slope angles. Why they did not consider also the variation of the horizontal length of the two last segments as possible controlling factor for the resonance? Amplification and Run-up are not affected by the horizontal dimension of slopes?

3) I didn't understand if there was any particular reason to select exactly mw 7.7 and 8.5. However, it could be interesting to give particular relevance to the results for magnitudes that can be associated to the Makren event (this actually is part of previos comment 1).

4) In Section 2, the author could briefly expand some paragraphs to better explain some mathematical passages. For instance in equation 3 has been obtained by using the hodograph transformation, it should be at least mentioned. Or it should be mentioned what transformation they are using. I found also not completely clear how authors found out equation 8.

5) Legends in Figures 4 and 5 could be better positioned in order to fill less space in the Figures

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