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Comment on nhess-2021-387

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Community comment on "Modelling extreme water levels using intertidal topography and bathymetry derived from multispectral satellite images" by Wagner Luiz Langer Costa et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-387-CC1>, 2022

The manuscript presents a novel methodology to deriving intertidal bathymetry for four estuaries in New Zealand (Tauranga, Ohiwa, Maketu and Whitianga harbour) characterized by a complex morphology. I find this thematic interesting, as it allows to update and improve the boundary conditions of regional numerical models. However, I think the structure and writing of the manuscript require further work to reflect all the work done. The manuscript needs a better use of English, a restructuring of the chapters and above all to emphasize the purpose of the work as well as the authors' motivation and innovations. Therefore, I do not recommend the publication of this manuscript as submitted. This review is critical, nonetheless the authors have the potential to have a great manuscript and I would like to encourage them in their progress.

I mainly concern of the reasoning and the reading flow, which is quite confusing and the reader can easily miss the guidelines of the study. Section 1 does not clearly show the developments achieved by the scientific community, the relevance of the chosen methodology and, above all, the authors' motivations. Section 2 is very long and presents too many technical concepts, and even results, that is hard to follow how they were implemented. The study area should be expanded with a description of the main processes describing water level dynamic, since the work's title mentions the storm surge modelling. Results and figures in Section 3 present a lack of consistency of SI units, authors should homogenize them. I think criteria presented in Fig. 3 and 4 are unclear and need a deeper discussion. Errors should be accompanied by their percentage for better interpretation. Unfortunately, the color map chosen for Fig. 7 and 9 is not good for presenting such significant results. The conclusions are extremely short and not summarize the reasoning of the work.