

## ***Interactive comment on “New estimates of potential impacts of sea level rise and coastal floods in Poland” by D. Paprotny and P. Terefenko***

**Anonymous Referee #1**

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The manuscript presents an assessment of coastal inundation exposure to storms and sea-level rise. The work is based on new detailed datasets that have recently been made available with the aim to support analysis for the requirements of the EU-flood directive. The work presented is based on sound methods and data and the results are interesting and are likely to constitute improved estimates of the exposure of the coastal regions of Poland to coastal flooding. However, the manuscript is limited in some aspects which, although largely acknowledged, reduce the value of the outputs of the work that the authors present.

First, the methods employed in the context of the analysis have been extensively used in previous work and the document presents no methodological advances. Rather, the manuscript relies solely on the quality of the new datasets that have been used for

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producing the new estimates presented. Although this may constitute an improvement, the results simply provide revised estimates and do not seem to support substantial new conclusions regarding the topic or the study area.

Second, the estimates provided have been produced based on a number of sea-level change scenarios (or rather values, as these are not clearly linked to SRES, RPCs or other). Future impacts will however also depend substantially on socio-economic development. Although this is acknowledged in the document, it is only addressed through the use of a single projection for future population. This projection does not account however for the range of uncertainty in socioeconomic development and, in this context, the results are of rather limited value when discussing future impacts of sea-level rise. Importantly, adaptation is also not accounted for in those future estimates. Discussion on potential impacts or risks, without reference to adaptation, is of limited value.

Third, the authors use the terms vulnerability (e.g. pg. 9), risk, exposure or sensitivity (in the Conclusions section) in an inconsistent manner, without prior definition or, in some cases, incorrectly. The exposure of land to different water levels that is presented in the analysis is an example where these terms are used in a confusing way for the reader.

Further, the evaluation of the results through the comparison with other studies (another relevant study I would propose for this purpose is Hinkel et al, 2010) is often not valid as these studies use different indices, methods or assumptions. Consequently their results cannot be directly compared and such a task would require further discussion or even analysis.

Finally, the authors fail to demonstrate and discuss how their results and conclusions are useful for informing policy or managing future flood risk in Poland. This is a very important point which, if addressed, would certainly strengthen the manuscript.

Despite the thorough work that is presented in the manuscript, I believe that the work

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lacks novelty and does not represent any major advances in the field of national scale flood risk assessment. I also feel that the above-listed issues will be hard to address without substantial further analysis and further extensive revisions.

References "Hinkel, J., Nicholls, R. J., Vafeidis, A. T., Tol, R. S., & Avagianou, T. (2010). Assessing risk of and adaptation to sea-level rise in the European Union: an application of DIVA." *Mitigation and Adaptation Strategies for Global Change*, 15, 703-719

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