

Interactive comment on “Estimating the long-term historic evolution of exposure to flooding of coastal populations” by A. J. Stevens et al.

Anonymous Referee #2

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This study investigates the uncertainty of temporal variability within “receptors” using the “source-pathways-receptors” approach. Specifically this manuscript explores the idea of static flood risk analysis in context of development and population changes; raising the question is sea-level rise or population change more important in future flood risk estimates?

In this paper, the authors find population change to be the dominant driver in exposure to flooding. If we consider that flood risk studies are typically applied to avoid unnecessary exposure to risk in the future, then this result may be, in my opinion, academic (perhaps I am wrong?). Nevertheless, this paper highlights the importance of temporal variability within flood risk studies that is not currently considered. i.e. rate of sea-level rise, population exposure, extreme event clustering. Further, this paper shows that fu-

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ture flood risk studies should consider any likely population and infrastructure changes in the future.

I found it unclear within this paper if the uncertainty within the “sources” (i.e. spatial variability of storm tide or return period estimate as not much detail on this is included) or “pathways” (inundation model resolution / accuracy and breaching) is greater than their results (uncertainty within receptors) – especially considering the omission of flood defences. I guess this is the major problem that I have with the paper, and that it is very case specific: i.e. would the result be different for a different extreme event probability and a different region (i.e. places where centralised flood risk management plan is not implemented?). Moreover, no consideration of the temporal variability within the cost of a flood event was considered which may be a much more important consideration within a flood risk estimate. Therefore, I have some concerns about this research paper; however it raises some good research questions and is a good basis for a future direction of study.

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