

Authors comments to the Anonymous Referee #1

We have considered carefully the peer-reviewed comments from you and revised our manuscript. Authors' one-on-one comments are as follows. Also, we have attached the revised manuscript.

Please address all correspondence concerning this manuscript to me. Thank you for your consideration of this manuscript.

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Major concern:

On the last part of page 3 and first part of page 4, the authors have included a new text concerning heterogeneous slip and other complicating factors that are not treated in their analysis. This addition is highly welcomed. However, the authors missed my most important point, which concerns the spatial inundation height and flow depth variability that would emerge from a real tsunami (e.g. from field observations), or estimated through numerical inundation simulations. As said in the previous review, these variations are suppressed in the present analysis, and this issue is still not fixed. In essence, it would not help to use heterogeneous slip if the inundation field is smoothed anyway by a response surface. So a remark on this simplification is still needed. It needs to be pointed out that there will be a spatial variability not incorporated by the response surface, and that this is a limitation of the analysis. The authors touches the subject, but this was not explicitly mentioned, and you feel that the implications of this concern was not fully understood. If the authors wish, they can consult for instance Glimsdal et al. (2019), which analysed the stochastic variability of onshore flow for various numerical simulations.

Thank you for pointing this out.

We have correctly understood what you pointed out. Your indication is correct and we also consider that it is important to evaluate the spatial inundation height and flow depth variability. However, such analysis is outside the scope of this study. We have included these explanations from Page 3 - line 23 to line 25 in the revised manuscript as follows:

It should be noted here that a response surface is generated for a certain point. Therefore, it is necessary to generate a large number of response surfaces with spatial meshes in order to evaluate the spatial inundation height and flow depth variability, but such analysis is outside the scope of this study.

Minor comments

Page 2 – line 17: Thanks for providing this extra explanations. However, the sentence starting with "In this case..." is still not fully clear.

Thank you for pointing this out.

We have been changed the sentence as follows to make it clearer:

In this case, the hazards at the two target sites is smaller than when the positive correlation of hazards is strong, and as a result, the aggregate risk of the two buildings is smaller in case that the vulnerability of the two sites is equal.

Page 3 – line 28: Add reference to Geist (2002)

Thank you for pointing this out.

We have included the reference.

Page 6 – The table provide only average slip values but not average areas. Please include these as well.

Thank you for pointing this out.

We have included the areas of each source.

Page 7 – line 25: Please spell out what quantity your response surface represents.

Thank you for pointing this out. We have spelled out it as follows:

In this section, we construct response surfaces, which indicate maximum wave height at target sites.

Page 8 – line 5: Remove "the" before source 8

Thank you for pointing this out. However, there is no such word in the line you pointed out. Instead, we have removed "the" before source 8 in Page 9 – line6.