Dear Editor,

We thank you for your relevant comments, which have led us to extensively revise the text in several sections and some figures. The updated version of the manuscript now stresses the need of dynamic flood modelling when performing probabilistic flood risk assessments, and it explains better how the components of TWL are considered in our modelling framework in relation to existing approaches. Our flood hazard analysis is based on a dynamic unfolding of coastal flood events using a simplified way to describe the TWL near shore, based on harmonic constituents. Harmonics constituents are the elements in a mathematical expression of a series of periodic terms and have been used in harmonic analysis for sea level prediction since the early 1960s. Even being a simplified method, our methodology allows for simulating the dynamics from nearshore to inland inundation, and we believe this to be a significant contribution to probabilistic flood risk assessments in coastal areas, as traditional approaches often make use of static (e.g. bathtub) approaches that do not take into account the dynamics of a coastal flood event and simply add the main components. Thus, we believe that our flood hazard methodology represents a better alternative to static methods.

In summary, the main changes are:

- We have extended the discussion on the state of the art regarding the choice of model and the components of the analysis in section 3.1. We now stress the fact that ESL scenarios under current conditions are designed on base of assessments performed in literature.

- We agree that Figure 4 (previously Figure 5) was unclear and open to misinterpretation, particularly in the representation of wave set-up contributing to TWL. In the previous version, in order to simplify the visualisation, wave contribution was (mis)represented as a continuous line with a frequency that did not present how this variable was actually accounted for in our modelling framework; instead, we have now represented wave contributions as a shaded area, stressing the relatively high-frequency contribution of such component to TWL.

- We included a new Annex 1 where we present the equations describing the harmonic components, plus a validation of the methods to observed events, and we have referred to the most recent studies that have adopted a similar approach.

- We have revised section 3.6 and divided the content into scenario design (now section 3.6) and inundation modelling (now section 3.7) to make easier the reading of the paper. Grey literature was removed.

- We thank you again for your valuable comments and those of the reviewers, as we believe that the quality of our manuscript has substantially increased after those exchanges. As such, we hope that our contribution to the scientific literature on probabilistic coastal flood risk modelling can be better appreciated now.

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