

## ***Interactive comment on “Combining operational models and data into a dynamic vessel risk assessment tool for coastal regions” by R. Fernandes et al.***

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First of all, many thanks for the comments and the time dedicated to this manuscript.

In relation to the specific suggestions: Regarding suggestion 1: This paper aims to test the dynamic behavior of a novel methodology implemented in a new software tool that is able to run in realtime or on-demand (for historic periods or virtual scenarios), since it is based on information and data layers (AIS, metocean data, etc.) that are available in both real time and for past periods. Therefore, we assume that if the methodology - tested by the developed tool - is capable of providing a dynamic behavior and response to the different variables, then the developed tool is also ready and able to provide

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results in realtime / in an operational way. Anyway, we agree with you that the main focus of the work presented is the discussion of the dynamic behavior of the model. We will rephrase the results in the reference to “applicability and usability tests”, as well as to “calibration in terms of probability and consequences”, in order to make it clear that this is not the focus of the work. We agree to broaden the analysis in order to provide more robust tests of the dynamic behavior of the model. We will make an effort to include broader range of variation of metocean conditions, ship traffic conditions and different oil types. However, we believe that the calculation of proposed daily variation of those conditions for a complete year will be extremely exhaustive, redundant and counter-productive – at the end we would have a lot of similar and redundant situations, and a huge amount of information difficult to resume and to analyze (nevertheless, using this methodology and tool for 1 or more years can be extremely interesting for the characterization of the risk in one specific area – but this is also out of scope of this paper).

Regarding suggestion 2: In relation to the spatial resolution of the index, it is a fact that very different spatial resolutions are considered for the different variables used. We assume that the index resolution is equal to coastal vulnerability (which has a high resolution, but this is important to allow responders to visualize, manage and prioritize different shoreline areas), but we have in mind that a better spatial resolution of the metocean models would better represent the coastal processes. Having all the layers with a (low) resolution would be worse, since the responders would not be able to prioritize and manage the coastal areas. The software tool is ready to accommodate more metocean models with more resolution. However, as a first dynamic implementation and for the purpose of this work, we consider that the proposed approach is capable of demonstrating and providing satisfactory results. We will explain and discuss this in the revised paper, as suggested. Indeed we have performed an exhaustive bibliographic review for the introduction, but we will extend the review to take in consideration the mentioned papers, and will try to discuss results obtained considering previous works and their references.

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In relation to the minor comment (regarding which data are given by each model / database), we will include the details recommended.

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