

Interactive comment on “Continental Portuguese Territory Flood Susceptibility Index – contribution for a vulnerability index” by R. Jacinto et al.

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General comments: The pointed methodological limitation regarding the non-inclusion of precipitation regime, was a methodological option. Hence the goal of this paper was to propose a methodology which represents well flood susceptibility regarding the propensity given by the territory intrinsic characteristics and the inclusion of precipitation regimes was planned to future works, as mentioned on the abstract. The main goal was very well achieved, since the variables are simple and the method showed a good description of the problem on the Portuguese case and may be adapted to other countries and geographic realities. Beside the previously mentioned, and as referred on the article: ‘The inclusion of precipitation would require a different scale of analysis,

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namely a regional index. Also, a double evaluation for types of episodes and events, extreme rainfall and annual mean rainfall.’, and this was not the goal of this article.

Specific comments: We agreed on the recommendation to move the introductory paragraph to the Methods section, therefore it was done. Regarding the criteria’s of the chosen variables we think that b) and c) are self-explanatory while the sensitivity of the criteria a) is explored in the results section.

Although as the Anonymous Referee mentioned the figures 3 and 5 present the same variables, they present it before and after the normalization. The spatial and visual representation shown by the figures let the readers understand the geographic discrepancies in the study area. Therefore, both images will be maintained. Representing the ability to capture the cumulative nature of the flood phenomena was subject of discussion in several conferences given by the references in Portuguese. To make a synthesis of all those works would take a large amount of pages and other authors authorization, therefore it will not be possible. Regarding the suggestion of introducing a quantitative method into the analysis we think that would lose the focus of the present work, which is to maintain the qualitative structure of the proposed flood susceptibility index.

The index and respective classes were better described in the methods section and the text was reformulated as:”The definition of variables weights for the final composition of the index was based on an iterative comparison of different weighting results (Reis, 2011) with the 100-year flood inundation area map for the main Portuguese rivers. Different combinations were tested, and the selected weights were the ones which better described the 100 year floodable areas and, at the same time, didn’t overestimate Alentejo and Algarve regions, due to its general low slope and high river-density network. The final step to arrive to a Flood Susceptibility Index (FSI) for the Portuguese territory was to define four classes. The definition of those classes was made based on a comparison with the already mentioned 100-year flood area maps and on an empirical analysis of the physical characteristics of the Portuguese territory. This last approach

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was developed using visual interpretation with experts, adjusting each interval to accomplish a higher agreement.” Regarding fig.6A histogram the classes are unevenly spaced because they are the result of the interaction carried out with experts to define those classes has explained in the methods section. It was also expected that the highest density of flood events would fall in the intermediate values of the index because there is a general knowledge on not to build in areas where floods are frequent and intense, which are represented by the higher values of the index. Regarding your final comments, p6 row 167, was changed to WGS84; p7 row 204, the figure was updated to 3, p. 30, 6B the units were corrected.

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