

## ***Interactive comment on “A flood risk oriented dynamic protection motivation framework to explain risk reduction behaviours” by Philippe Weyrich et al.***

### **Anonymous Referee #1**

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This is a well-written manuscript, providing adequate details and good scientific quality. The results and conclusions are clear, concise and focused enough. The manuscript is discussing the motivations behind the adoption of protective actions by the public with the novel idea of combining PMT with TTM to deal with the non-homogeneity of population. The manuscript is worth publishing as it clearly adds to the knowledge in the field of risk perception and protective behaviors, in the wider topic of flood risk mitigation. I recommend accepting the manuscript with minor revisions, provided in the following list: - Page 2: Line 23-25: It is important to note that in the region and possibly elsewhere, it has been found that laymen think of flooding as a man-made or man-caused phenomenon rather than a natural one (Lara et al. 2010 and Diakakis

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et al. 2018). Lara A., D. Sauri, A. Ribas, D. Pavon, Social perceptions of floods and flood management in a Mediterranean area (Costa Brava, Spain), Nat. Hazards Earth Syst. Sci. 10 (2010) 2081–2091. Diakakis M., Priskos G., Skordoulis M (2018) Public perception of flood risk in flash flood-prone areas of Eastern Mediterranean: the case of Attica Region in Greece. International Journal of Disaster Risk Reduction, 28, 404–413

- Page 3: lines 15-17: Although it can be understood, there is a logical leap, that may be hard for the reader to understand. Why this categorization allows us to identify the key issues to improve communication with people in each stage? It is not well connected with the previous phrase. I would recommend to describe it in a bit more detail as it is a very crucial part of the manuscript (i.e. setting the objectives).

- Page 3: lines 25-27: This seems to be an important argument, to make your case (to build the problem presentation). It is in the right direction. So, I would recommend adding more literature here. I recommend literature that states that there is no link between risk perception and actual adoption of mitigation measures. K. Takao K, T. Motoyoshi, T. Sato, T. Fukuzono, Factors determining residents' preparedness for floods in modern megalopolises: the case of the Tokai flood disaster in Japan, J. Risk Res. 7 (2004) 775–787 Kreibich, H. A.H. Thieken, T. Petrow, M. Müller, B. Merz, Flood loss reduction of private households due to building precautionary measures - lessons learned from the Elbe flood in August 2002, Nat. Hazards Earth Syst. Sci. 5 (2005) 117–126. Siegrist, M., H. Gutscher, Flooding risks: a comparison of lay people's perceptions and expert's assessments in Switzerland, Risk Anal. 26 (2006) 971–979. Diakakis M., Priskos G., Skordoulis M (2018) Public perception of flood risk in flash flood-prone areas of Eastern Mediterranean: the case of Attica Region in Greece. International Journal of Disaster Risk Reduction, 28, 404–413

- Page 6: line 26: I think the parentheses should not include the author. The authors should keep the parenthesis only for the year in Amponsah et al. 2018 - Page 6: line 28: the word damage repeats. Please reword. - Page 6 line 30-32: The diversion may

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have played a role in people's perception. There have been cases where inhabitants of areas that see public flood protection works are influenced in their thinking to a degree. There could be a question on the survey on that or to measure that. If it there hasn't been a question, maybe it could be acknowledged by the authors as a limitation of the current research, stating that the current survey did not examine the influences of significant flood protection measures separately. - Page 8: line 30: family status (especially the presence of young children) has been correlated with protective behaviors and risk perception in previous works. I assume it was not surveyed. Given the numerous other factors that were examined the manuscript has a lot of merit and value for publishing. In future surveys, though I recommend being included. If the family status was surveyed in the present study, then I would like to see how it is correlated. - Figure 4: In the caption, does the word "likelihood" refers to absolute likelihood or reported-likelihood by the respondents of the survey? If it is the latter, then it should probably be revised to "reported-likelihood". At the moment it is a little confusing for the reader - page 10: lines 11-12. Sentences not perfectly clear. Please elaborate further or make sentence simpler. - Page 11: In general in the discussion section, it could be of value to mention in more detail what did you find regarding "experience" of respondents. The literature clearly shows that perception is correlated with experience and that the latter is an important factor. Currently is not discussed adequately. - Page 11: line 29: The way you describe the findings in the last paragraph, what comes in mind is a simple concept of "risk personalization" or the phrase "it won't happen to me". This has been noted in the literature. For example Gissing et al. 2016, clearly states that people ignored warnings and went around barricades and drove into flooded areas, even though protective behavior would mean something very simple such as a d-tour. I think this concept has to be acknowledged in the discussion to a limited extent, in the sense that not everything can be projected or explained. There will always be a factor such as the failure to "personalize risk", even though this manuscript provides excellent ground to reduce this uncertainty of predicting behavior. Gissing, A., Haynes, K., Coates, L., & Keys, C. (2016). Motorist behavior during the 2015 Shoalhaven floods.

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Australian Journal of Emergency Management, The, 31(2), 25.

Page 12: line 9-11: Sentence not so clear. Please rephrase to make it more clear.

Page 12: line 17-18: Please state clearly that this is speculation, to avoid the risk of other authors take it as a data-based conclusion and propagate assumptions in their own research.

Page 12: line 23: Previous studies refer to differences in risk perception between male and females. I think a few more remarks on this very subject should be included here.

Page 12: line 26: any references for this claim?

Page 12: line 27: the word "also" is not needed here

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2019-120>, 2019.

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