

Interactive comment on “Citizen observations contributing to flood modelling: opportunities and challenges” by Thaine Herman Assumpção et al.

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We thank the reviewer for providing feedback on the quality of the paper. The review is valuable for making the paper clearer and more structured and the comments are highly appreciated. Please find below our response to the provided comments.

Comment #1: This paper addresses a very timely and interesting topic: citizen science and its use in flood modelling. It will provide some guidance to researchers struggling with the lack of traditional data and at the same time resistant to adhere to alternative data sources. Overall, the text is rather fluid and well written, but in topic 3, "crowded source data in flooding modeling", the explanation of some uses of citizen data in modeling is confusedly described and could benefit from a restructuring of description

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of uses.

Authors' response: By suggestion of the reviewer, the description of uses in Section 3 will be restructured for the next version of the manuscript.

Comment #2: Also, despite the relatively large number of papers gathered, the revision process and papers selection is not fully described. Thus, for a synthesis paper, it will be worth proving a perspective on how exhaustive were the efforts undertaken in the collection and selection of relevant studies, and the data sources consulted.

Authors' response: The manuscript will be extended to inform that the papers' collection was done through multiple platforms (e.g. ScienceDirect and GoogleScholar), exemplifying used keywords. Additionally, explanation on the selection criterion for consideration will be given, which is the generation/use of flood-related crowdsourced data. The first paragraph of Section 2 (pages 5-6) gives an explanation on how the selection of relevant studies was done (i.e. why certain articles were not selected).

A few minor points include:

Comment #3: In Figure 1, only level one is termed crowdsourcing, not level 2, as stated in the text (page 3, lines 30-31).

Authors' response: The sentence will be rephrased as follows (modifications to the manuscript's text are highlighted in bold):

“Further in this article, **for readability, only the term crowdsourced data is used to refer to data from these two levels of engagement.**”

Comment #4: It is not clear how the CAPTCHA plug in works as a volunteered contribution; please provide a better explanation.

Authors' response: Clarification regarding the CAPTCHA plug-in will be done by means of a footnote, as also requested by another reviewer. The footnote will read as follows:

“CAPTCHA stands for ‘Completely Automated Public Turing test to tell Computers and Humans Apart’. It is a test evaluating if the subject is human, which is used in websites to provide security. After the test is done the user can be asked to perform extra tasks, for example, tag images.”

Comment #5: Figure 2 does not seem relevant, I suggest excluding it; while Figure 6, in its present form, does not seem very informative.

Authors' response: Figure 2 was included as an introductory example of framework for analysing crowdsourced data. We acknowledge that it does not attend other purposes in the current version of the manuscript. As per suggestion of a reader that commented on HESSD interactive discussion, we will include a modified version of Figure 2 further in the text, changed to include the reviewed literature. The motivation behind increasing the relevance of such a figure is two-fold: exposition to the interested reader of classification systems of citizen science approaches; connect at a superficial level with social studies that evaluate these classifications, to increase the integration among disciplines.

Figure 6 presents visually two types of information: the components of the flood modelling process and the data necessary for each component; citizen contributions within the process. We consider that the first type of information is essential for scientists in the field of citizen science that do not have a background in modelling (but that can, for example, research data collection methods to address modelling needs). The second type of information is an essential component of the manuscript and, although described via text, making it explicit visually fulfils the objective of highlighting it in the paper. We are open to suggestions on how this image could be enhanced.

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Comment #6: I suggest merging Section 1.2 - Article outline with the end of the Introduction (page 2, line 30).

Authors' response: Thank you for the suggestion, we will consider it. However, we will need to see how the manuscript is changed due to all the suggestions of reviewers and readers and based on that we will see if the outline and the end of the introduction can still be merged.

Comment #7: There are some unnecessary wording throughout the paper, for example: "We have seen in the previous section that" and "In this section we intend to" (page 14, lines 4-5).

Authors' response: Thank you for the suggestion, the paper will be thoroughly scanned for unnecessary wording and changed accordingly.

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