Comments of Reviewer 2 (Volker Meyer) and responses

We thank you very much for reviewing our article. The responses and revisions according to your comments are listed below.

Comment 1: p. 3488, line 2:
“that is not necessarily true. Indirect losses can also occur inside the inundated area”

*Response 1: Thanks for this hint. We rephrased the sentence now to “*Indirect costs like production loss or cost of emergency service, in contrast, occur inside or outside of the inundated area and often with a time lag, but are induced by the direct impact of the flood event (Cochrane, 2004; Meyer et al., 2013)*”.*

Comment 2: p. 3488, line 4:
“also intangible values can be monetized, but this requires evaluation techniques, as no market price exists”

Response 2: We included a new sentence to explain that different methods for the valuation of intangible costs exists as pointed out by Meyer et al. (2013), for instance.

Comment 3: p. 3488, line 9:
“Maybe some examples should be given here for the assessment of indirect losses (see conhaz report on indirect losses for examples).
Why is it "problematic"? Please add an explanation”

Response 3: We modified the beginning of this paragraph a little bit by mentioning some assessment methods and emphasizing the current shortcomings of these models.

Comment 4: p. 3488, line 22:
“but also by the value of elements at risk...”

Response 4: Yes. This aspect has now been added to the building characteristics.

Comment 5: p. 3489, line 3:
“maybe penning-rowseel et al. 1977 should be also mentioned here as the first application in Europe”

Response 5: Absolutely. Will be added.

Comment 6: p. 3490, line 23:
“maybe better: "more similar""

Response 6: We agree that this term is more appropriate.

Comment 7: p. 3492, line 23:
“breach”

Response 7: Thanks. Will be corrected.

Comment 8: p. 3494, line 12:
“?”

Response 8: By this hint we only wanted to clarify that these hydraulic simulations are not shown on a map. As reviewer #1 criticized (small comment no. 4) that this paragraph contains too much results in advance we deleted the whole last sentence.

Comment 9: p. 3496, line 17:
“are these full replacement values or depreciated values? Usually, full replacement values overestimate damages as they may include improvements to pre-flood conditions. Please explain.”

Response 9: These asset values are replacement values. We added a few lines how both concepts differ and why we used replacement values.

Comment 10: p. 3498, line 3:
“Maybe you can add a sentence or two in which aspects the Bavarian and the Saxon sample differ.”

Response 10: We added three more sentences to explain more details about the different flood impacts and mean building damage in both regions.

Comment 11: p. 3499, line 25:
“as far as I know detached house is the same as "Einfamilienhaus" and semi-detached the same as "Doppelhaus" or "Zweifamilienhaus" - so I do not see the difference to the classification above. Please explain.”

Response 11: Indeed, these terms are a little bit confusing at first. Therefore we added briefly how residential buildings are classified in the official statistical data for Austria to understand the differentiation between the two terms. As two family houses are not directly the same as semi-detached houses we introduced this term for the following reasons:
1) semi-detached houses is a more technical term and refers particularly to houses which are joined on one side by a common wall and are based on two different land parcels
2) two-family house, in contrast, is a more general and vague term which may include semi-detached houses but also two-storey houses (vertical division) lived in by two families.
From the official statistics it is not clear whether the building is semi-detached or not. We only derived this type by the number of apartments per building. Thus this term fits more in this context.

Comment 12: p. 3501, line 11:
“grid (sometimes raster is used in the following sometimes grid - I think grid is the better term)”

Response 12: Definitely.

Comment 13: p. 3504, line 18:
“I am sure that these 2 conclusions are true but it seems to be too early to draw them as this chapter as the comparison with observed losses did not take place yet. Better in the conclusions section...”

Response 13: That’s right. Therefore we moved this statement to the conclusion section.

Comment 14: p. 3510, line 16:
“I think you should not stress too much the aspect of homogeneity but better the aspect of similarity which seems to be more important. If you would use damage functions from a homogeneous region (such as Saxony in your case) and transfer it to Austria you would have worse results than for the whole (heterogeneous) sample.”

Response 14: Indeed, similarity is the better expression in this sense.

Comment 15: p. 3510, line 18:
“It would be interesting here to know what really makes the Bavarian sample similar to the Austrian case study (and what makes the Saxon sample different). Do you have analyzed the Bavarian and Saxonian sample with regard to this question?
Would the results have been different if you would have selected a sample of house types from Saxony which is similar to the house types in Austria?
(could be an interesting question for the next study...).”

Response 15: As already mentioned to your comment no. 10 we explained in more detail how these datasets differ and why we think that this has an influence on the derived loss functions and damage estimates.

Comment 16: p. 3525, Fig. 4:
“These figures are too much crowded to really differentiate between the curves (I assume that they are in colour in the original version but even then it would be hard to distinguish. I would propose to cut/paste the 6 yes/no-contamination curves in two new Figures (c and d) then there would be only 9 curves in a and b...”

Response 16: Your suggestion is fine and now we extended this figures by two additional subplots where the loss functions with and without contamination are shown.

References cited:

Meyer V, Becker N, Markantonis V, Schwarze R, van den Bergh JCJM, Bouwer LM, Bubeck P, Ciavola P, Genovese E, Green C, Hallegatte S, Kreibich H, Lequeux Q, Logar I, Papyrakis E, Pfurtscheller C, Poussin J, Przyluski V, Thieken AH, Viavattene C (2013) Review article: Assessing the costs of natural hazards – state of the art and knowledge gaps. Nat Hazards Earth Syst Sci 13 (5):1351-1373. doi:10.5194/nhess-13-1351-2013