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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Surface water floods in Switzerland: what insurance claim records tell us about the caused damages in space and time" *by* Daniel B. Bernet et al.

Anonymous Referee #2

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Using a comprehensive data set with flood insurance claims from Switzerland representing 48% of all buildings in Switzerland, the authors have developed an algorithm that allows them to assign a flood type (fluvial flood or surface water flooding - SWF) to each damage claim using official flood hazard maps as further input. After that, they present a thorough analysis of the data revealing the relevance of surface water flooding, their regional as well as their temporal distribution. Throughout the analysis the number of claims and the total amount of loss are distinguished. By this, interesting insights in damaging processes and the differences between the two flood types are revealed. Overall, the paper addresses an important field and provides unique data and insights on the relevance of surface warter flooding, on which a lot of rumours, but

only little evidence have existed so far.

Despite this overall positive assessment, I would like to mention a few suggestions how to further improve the paper. 1) For an international audience the flood insurance scheme in Switzerland should be introduced in more detail. 2) Section 2 should end with some recommendations on the usage of the terms/definitions or a clarification how they were used in the paper. In addition, the distinction between pluvial / SWF and fluvial floods should be explained. 3) The usage of the data from the Swiss Mobilar is not clear to me. On p. 6, line 7, it is stated that those data were not used, but later they are mentioned several times. Please clarify. In addition, I would recommend to avoid the company's name throughout the paper to avoid (unintended) promotion. 4) The section 4.1 on validation comes a bit as a surprise. I would prefer to read the methodological consideratiions and the inforamtion about data available for validation in the section on Data and Methods. The results on the validation need more explanations. 5) Since the results are presented in several sub-sections, the reader has to wait a long time for a discussion and interpretation of the findings. Therefore, I would recommend to have a common section on Results and Discussion and add some discussion at the end of each subsection. In addition, more explanations and interpretations of the findings would be great, e.g. by considering the different nature of the flood processes shown in Fig. 1, the spatial extent of triggering rainfall events and their seasonality. The advantages and shortcomings of the methodology could be shifted to the conclusions if this issue does not fit into the (new) more specific discussions. 6) There are a lot of figures; some could be improved in quality and readability, particularly Fig. 13 and 14. In addition, the style of Fig. 11 is a bit confusing and full. Maybe you should concentrate on the 11 events only.

The paper would also benefit from a language check.

Some minor points: - To my best knwoledge the plural of damage is not damages. Damages has a another meaning (in German: Schadensersatz/Entschädigung). - p. 2, line 2: Besides Amsterdam, the city of Münster, Germany, experienced heavy plu-

vial flooding on the same day causing one of the costliest hazard events for German insurers (see Spekkers et al. 2017 for a comparison of the event in the two cities); see: http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2017-125/ - p 2: The role and relevance of market penetration of flood insurance should also be addressed here. - p 3: Insurance data generally do not include further information about factors and processes that explain the amount of damage as this information is usually not recorded by insurers to save costs. This should be addressed in this section. - p. 3, line 33: The term "direct tangible flood losses" should be briefly defined. Add some information (maybe in the section on methods) on how you treated deductibles and upper bounds of insurance coverage (if applicable). - p.6, line 17-23: Fig 2 and Table 1 should be shifted to the section in which both are explained in detail. - p.8, line 7: Could you provide examples for data errors and their corrections? - p.8, line 8: To which index is the used index comparable? What are the underlying counted goods and services? - p.9, line 22-23: This process is not 100% clear. - p.10, line 1-2: In my view, this (lake inundations are covered by fluvial flood haazrd maps) is the most convincing point for the assumption made and should be mentioned earlier. - p.10, line 15: check terms (use hazard instead of danger) - p.12, line 20: Is there any evidence for this assumption? - p.15, line 22-23: Please add: how did you deal with consecutive days with claims when defining events? - p.18, line 6: damage density should be defined (and refer to the appendix explicitly) - p.26, line 8-9: The same is true for Germany, but the evidence is lacking. Maybe this point should be made clearer - already in the introduction. - p.27, line 23: Why? Please mention your assessment criteria.

I am looking forward to the revised paper. Thank you for this interesting analysis.

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