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Interactive comment on "Estimating exposure of residential assets to natural hazards in Europe using open data" *by* Dominik Paprotny et al.

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Received and published: 11 November 2019

We thank the referee for his review. Below we list the comments (C) and our responses (R).

C: One of my main concerns is the rather unorganized structure of the manuscript. It deals with different scales, e.g. nationally aggregated data, data from 30 major cities, different validation samples, and a local case study. Moreover, the manuscript has also different time scales. It lists different states of the datasets and includes timeseries of the temporal development of the economic values. This is on the one side a benefit in terms of the broad scope but hampers the readability for the reader on the other side. I urge the authors to elaborate a more thorough structure of the manuscript to help

reader's orientation.

R: We prepared a new graphic with the workflow of the paper, with references to all sections, figures and tables, which will be included at the beginning of the methodology section. We add the figure to the supplement to this response.

C: Another concern is the transferability of the model from an urban context to a rural context. This needs to be validated. For instance, Roethlisberger et al (2018) in the same journal state that a difference in the values per square meter between Centre areas (urban areas) and Residential areas of 60%. An alternative is to restrict the title of the manuscript towards urban context of Europe. The conclusion in the abstract "The study shows that the resulting standardized residential exposure values provide much better coverage and consistency compared to previous studies" is not supported by the results.

R: The referenced paper shows a 60% difference in the insured values per square meter of landuse, not of replacement values per usable floor space as in our paper (Table 2 of Roethlisberger et al. 2018). The other authors' findings are not surprising given the higher density of construction in the city/town centers (to which "Centre" class refers) that in other residential areas. Table 3 of Roethlisberger et al. (2018) actually shows lower average insured values per building volume for "Centre" zones (861 CHF per M^3) than in "Residential" areas (897). However, we agree that there are differences between asset values in urban and rural areas, as exemplified by the cited Portuguese data. We will highlight this aspect better in the discussion, but at the moment the availability of both regional economic data and local validation data is very limited, and therefore we didn't attempt (yet) to calculate sub-national asset values per m^2.

C: In the Introduction section, the authors state that the developed procedure is "applicable in any location". This proof is not provided (discussion about urban-rural context). Another main criticism is that the identification of residential buildings is not described.

There is an explicit subsection on this topic (section "2.1 Identification of residential buildings"). However, how this identification has been done is described within brackets in section "2.2 Building size estimation" in line 109 ("(identified either through the buildings or the land use layers of OSM)") while in section 2.1 is stated that the identification of buildings and their occupancy (i.e., residential use?) is outside the scope of this paper.

R: We will add information on the selection of OSM buildings. Firstly, we downloaded two Map Features ("Buildings" and "Landuse") for the 30 study areas and the example application study from section 3.3. For the analysis, residential buildings were objects from "Buildings" layer which (1) had tags "residential", "apartments", "house", "detached" or "terrace", and (2) had tags "yes" (indicating that a building exists, but the function is not defined) and were located within an object from "Landuse" layer which had a tag "residential".

Please also note the supplement to this comment:
https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2019-313/nhess-2019-313-AC2-supplement.pdf

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2019-313, 2019.