

Interactive comment on “Review article: Natural hazard risk assessments at the global scale” by Philip J. Ward et al.

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Received and published: 5 February 2020

This review paper provides a valuable and comprehensive overview of the state of the art of global risk models for natural hazards. I much agree on the objective of comparing modelling approaches across sectors, and I believe such comparison may offer a contribution towards the improvement of global models. The paper is generally well structured. The sections addressing the different hazards are balanced and informative, including the supplementary material.

Before recommending the paper for publication, I'd like to suggest some minor changes:

Section 2.1.1, River floods: several modelling frameworks only cover large river basins

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(e.g. 5000km² in Alfieri et al., 2017) while minor river network is not considered (even though there are exceptions). I think it would be important to mention this as a general limitation.

Section 2.1.3, Pluvial floods: it would be good to shortly discuss the issue of modelling flash floods at global scale (i.e. fast-developing flood events occurring in the minor river network). Maybe it's worth mentioning here the global flood model by Sampson et al. (2015), because it is the only global flood model including a pluvial flooding component (to my best knowledge).

Section 2.2 I would mention the multi-hazard nature of tropical cyclones (i.e. the fact that impacts are caused by strong winds and the combination of pluvial, coastal, river flooding).

Line 297 typo: "Commonly, drought hazard is defined as..."

Line 301 typo: "Hence, a universal definition of drought seems impracticable..."

Line 693-694: It's worth mentioning that the study by Wing et al. (2018) also evaluated risk from pluvial flooding.

Section 4.3, Vulnerability: another important challenge here is the reliability of existing global loss datasets, which have known limitations in data coverage, accessibility, completeness and accuracy (e.g. see UNISDR-CRED (2018) related to EM-DAT database). These limitations hamper the validation of any large-scale modelling framework and I think they should be mentioned, either in section 4.3 or in a dedicated section.

Table 1: please consider the idea of separating each hazard in a dedicated table. Also, please define the meaning of IDF in the caption.

Additional References

UNISDR-CRED (2018). Economic Losses, Poverty and Disasters 1998-2017. avail-

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able at https://www.unisdr.org/2016/iddr/IDDR2018_Economic%20Losses.pdf

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2019-403>, 2019.

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