

Interactive comment on “Performance of storm damage functions: a sectoral impact model intercomparison” by B. F. Prah et al.

Anonymous Referee #1

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The paper we are reviewing here represents an interesting approach towards the analysis of three pressing issues in the area of natural hazards.

First the evidences collected up to now show that extreme meteorological events will be a key driver of impact from climate change, hence a profound knowledge on the accuracy of mathematical modelling alternatives to capture the hazard profile is an essential issue to address, some comments could be opportune on the stability of the conclusions if new hazard profiles could emerge, focusing not only on the capacity to model extreme events but on its flexibility.

Second, there exists a broad set of uncertainty sources that affect the actual nature of damage value and the accuracy of the evidence collected to characterize it. In this

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case on one hand we face the problem that accumulated damages may emerge after a sequence of catastrophic events that may offer a misleading image on the performance and vulnerability of the built capital when exposed to an specific hazard level (not necessarily the highest), and on the other we might be working with a truncated damage distribution due to thresholds included in the insurance contracts and public regulation and the derived incentive effects on individuals behavior. I would recommend to systematize a set of careful comments that limits the validity of the statistical analysis to guarantee that irregular behavior, be it temporal (due to accumulated unobserved damage and collapse), spatial or sectoral due to different vulnerability and recovery capacity levels on geographical areas or economic sector and finally wealth level as we might face different insurance related behavior according with wealth level (different contracts, different assets quality, economic wealth effect etc..) in particular some reflection on the eventual heteroscedascity of insured value due to different values of declared to actual property value ratio could be of interest. Some comments on the relevance of temporal integration of damages to capture the actual accumulative exposure as explanatory variable would also be useful.

The third relevant question that emerges is related with the purpose of the paper itself. As it is explicitly declared in point 5 "Towards a synthesis of storm damage functions", we face here an opportunity to show how a relevant research with a robust statistical analysis would provide the reader with a criterion to select an accurate model to perform further analysis, hence some clarifying table or graphical representation on the validity of the tested solution and the restrictions for its use would be of great help for this purpose and a clearer description of the steps towards a synthesis would also enrich the document.

On the conclusions of the work a clear conclusion should be derived from the document, the results of the models tend either to overestimate or underestimate average or extreme damages, some table or graphical description clarifying the ranking of the tested solutions on each of the cases will improve the readability of the document.

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As a final comment I would like to focus on the title that puts the finger on the sectoral differences on mathematical functions performance. Under this title one would expect to observe some kind of measures that compare the accuracy of the damage functions when applied to domestic assets, industrial facilities... but none of this is observed in the document, the analysis presented compares different mathematical formulation and checks its validity to predict damages for one single sector. I'd recommend some clarification about this.

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