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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "A dynamic landslide hazard assessment system for Central America and Hispaniola" *by* D. B. Kirschbaum et al.

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General Comments The manuscript of Kirschbaum and co-authors entitled "A dynamic landslide hazard assessment system for Central America and Hispaniola" is an interesting well-structured and well-written manuscript trying to combine landslide susceptibility and the rainfall triggering conditions to generate dynamic landslide hazard assessment. The manuscript addresses relevant scientific and technical questions which are within the scope of NHESS but needs to be improved prior to be published.

Specific Comments

1 - The main fragility of the manuscript is the poor quality of the landslide inventories used to validate the dynamic landslide hazard model. The very high uncertainty of

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landslide distribution, both is time and space biased the analysis and can be responsible for the low to moderate quality of hazard predictions. The LHASA model can be applied for any region within the latitude range 50 degrees N-S. The reliability of the landslide hazard assessment should be assessed in a study area for which reliable landslide-event inventories are available.

2 - The presentation of the landslide catalogs used in this work is not clear enough in section 2.2. It is not clear the selection of the 50 landslides belonging to the 2014 inventory. In addition, none information is given regarding landslide types and size used in the study.

3 - When describing the susceptibility map authors state that "These datasets were selected from a modified sensitivity analysis conducted over parts of the region." (page 2853). Please, provide additional details on the modified sensitivity analysis used to select datasets.

4 - Additional information needs to be provided regarding the procedures used to obtain the landslide susceptibility map, namely on the used fuzzy operators.

5 - For the final (dynamic) hazard classification, only two situations of landslide susceptibility are considered: (1) very low susceptibility, and (2) the other 4 classes from low to very high. Is this reasonable? Or it results solely from the bad adjustment between susceptibility classes and landslide points?

6 - Please, provide in table 2 or in a new table, results of False Positive Rates. Values of FPR are referred in the text, but it is not easy for the reader to follow discussion without the values summarized in the table.

7 - In page 2865, line 16, temperature is referred as a possible landslide triggering factor. Please, provide further explanation on this subject.

8 - Scale is missing in Figures 1, 3, 8 and 9, which is not acceptable.

Technical Corrections

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Along the complete manuscript: When doing multiple references in the main text authors should respect the year of the publication instead of the alphabetic order.

Landslide susceptibility map in figure 1 should represent the same 5 classes showed in figure 2.

Title is missing in figure 8.

p.2849, line 24 – Eeckhaut in the text; Van den Eeckhaut in the reference list; please normalize.

CIESIN and ITOS, 2013 – missing in the reference list.

Page 2854, line 1 “The 70th percentile”, instead of “The 70th quantile”

Page 2854, Line 9 “relative susceptibility” instead of “relative hazard”.

Page 2856 “Chleborad and Phillips” instead of “Chleborad et al.”

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 2847, 2015.