

## ***Interactive comment on “Global flood hazard mapping using statistical peak flow estimates” by C. Herold and F. Mouton***

**Anonymous Referee #2**

Received and published: 7 March 2011

This paper aims at presenting a methodology for global flood hazard mapping by means of statistical peak flow estimates. Although I think that the authors are addressing a really interesting topic -definitely worth investigation and publication- I have some doubts about the outcomes of their research and the methodology applied.

As general comments I would like to notice that:

It is not clear to me what the true aim of this study is. According to what stated in the abstract (and title) one would expect to see "...a world map of flooded areas of 100 year return period...", but then in the conclusions the reader finds out that the "This study is a first attempt to use the method of peak flow estimates at global level."

Authors implement their methodology for the peak flow estimate without giving credits

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to all previous works done by the scientific community to address this issue.

To me, most of this paper reads like a GIS tool manual: redundant information is given to the manipulation of the DEM and original dataset, while no information is given to the hydraulic modelling part, which is actually supposed to produce the flooded areas.

The statistical analysis relies on the quality of the data collected. Authors mention this point the conclusions, but there is no information in the manuscript about the accuracy of the datasets used.

In a couple of lines authors mention "global risk analysis": I believe that there is a misunderstanding in the use of the words hazard and risk.

The structure of the paper, to me, it reads more like a report than a scientific paper. Many comments are too "qualitative" and general.

English is not always appropriate

### **SPECIFIC COMMENTS**

Page 306 Line 1: can authors show the maps they produced? Line 7: how many basins did they consider? Line 13: why did they not provide any information on the hydraulic model they used?

Page 308 Line 8: what are these specific conditions? Line 9: how do they quantify "satisfactory results"? Line 11: please state what ISDR is Line 23: I would recommend authors to spend a few lines on the description of the hydraulic model they used

Page 309 Lines 3-7: why is this information relevant to the paper? Can authors explain why they are referring to this ongoing work? Lines 10-14: what is the source for this dataset?

Page 310 Line 8: authors say that they selected the GPCC dataset because of its reliability: how did they measure the reliability? Line 24: same as above: the datasets used for the land cover are supposed to "present adequate precision for generating...".

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What would this adequate precision be?

Page 311 Lines 1-5: Is there a return period associated to the observed flood events so that authors can compare their results?

Page 315 Line 24: Table 5 should be listed in the text after Table 2, 3, and 4.

Page 317 Lines 1-13: this paragraph is supposed to describe the hydraulic model used to produce the flooded areas.....but no relevant information is provided to help the reader understanding how the estimated peak flow is then turned into flooded area! Plus, the little information provided is not clear: how did they use the Manning's equation? How did they estimate the model parameters? This is to me a weak point of the paper.

Page 320 Line 2: can authors quantify the assumed "good results"? Line 6: same as above: how do authors define "quite good results"?

Page 322 Line 18: I am afraid that defining some results as "doubtful" is too subjective for a scientific paper: can authors be more precise on this?

Page 324 Line 7: how were the modeled flooded areas validated against the DFO data?

Page 325 Lines 11-12: where is the final map shown in the paper? Isn't it supposed to be your final product? Or is it Figure 11? Line 13: once again, can authors quantify the "good results" of their outcomes?

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 305, 2011.