

## ***Interactive comment on “Flood Frequency Analysis supported by the largest historical flood” by W. G. Strupczewski et al.***

**W. G. Strupczewski et al.**

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The answer to the review of

Flood Frequency Analysis supported by the largest historical flood. by W. G. Strupczewski, K. Kochanek & E. Bogdanowicz

The authors would like to thank the anonymous Reviewer for very precious remarks and comments. We hope that the new improved version of the manuscript will satisfy the Reviewer. We present the detailed answers to the particular remarks in this document and the Reviewer's suggestions are introduced to the article.

Question: This paper presents additional material and evidence to the interesting de-

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bate concerning the appropriateness of when to state the period of consideration of historical records for inclusion in flood frequency analysis.

Answer: The Reviewer is right. Our work should be treated as yet another statement to the passionate debate on inclusion of the additional historical data to the systematic records of annual maxima. We hope, though, that this statement is important and interesting. The paper presents the results obtained for the certain assumptions, among which the assumption of fitting the true (parent) distribution function to the data seems to be crucial. Therefore, to generalise our outcomes, we are going to propose the 'continuation' of this paper where the restriction of the knowledge of the true distribution will be freed. The results will be published soon, but all in all, the sense of the addition of historical information to the systematic data is dubious, regardless knowing or not the parent distribution, especially when the systematic records are long ( $N \leq 50$ ).

Question: Consider including a comment that the presence of smaller flood events within the descriptive accounts (for which no quantifiable discharge may be derived) may help in shaping the selection of an appropriate start date for the analysis, this approach has been used in some of the papers cited in helping select timeframes of study.

Answer: Indeed, the presence of smaller flood events within the descriptive accounts may help in choosing the start date of the analysis. In our paper, however, we focused on the case when only the largest (paleo-)historical flood is known for either it was best remembered (and thus recorded) because of its destructive character and taking a toll on many lives or, in case of pre-historical time, the largest inundation swept away any evidence of smaller floods that occurred earlier. We also assumed, that the additional sample element (XM) is the biggest of all considered in the analysis, including systematic data. We added the suitable comment to the manuscript (page 2, lines 78-81).

Question: In the conclusions you comment that it is a matter of conscience as to

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whether historical data should be included, I think it is important though that you recognise that the inclusion of historical information is recommended in a number of national and international policy documents e.g. EU Flood Directive.

Answer: Our aim was to check whether addition of the non-systematic element to the systematic data records improves the quality of the upper quantile estimator. However, one has to bear in mind that we did so for a certain set of assumptions. The conclusions we presented can be generalised only to a certain extent. Moreover, as the Reviewer noticed, whether to add a historical information or not is a matter of conscience. So if the analyst treats the historical information with the reserve and his/her systematic dataset is long enough, he/she is recommended to discard the additional information because it may bring more harm than good. We are not sure, whether the international policy documents take into consideration the cost/profit ('hydrological' and financial) calculation of inclusion of historical information and discuss the matter of its (often inferior) quality. We added the comment about the regulations to the text (page 2, lines 66-68).

Question: As a native English speaker please see the annotated comments throughout on the attached version of the paper, these will help improve the paper considerably. Please also note the supplement to this comment: <http://www.nat-hazards-earth-syst-sci-discuss.net/1/C2225/2014/nhessd-1-C2225-2014-supplement.pdf>

Answer: We really appreciate the effort the Reviewer made while correcting our English. We are thankful for the Reviewer's time. Although we try hard to write in English as best as we can, the help of a native speaker is always welcome. We, of course, corrected the manuscript according to the Reviewer's suggestions.

Please also note the supplement to this comment:  
<http://www.nat-hazards-earth-syst-sci-discuss.net/1/C2459/2014/nhessd-1-C2459-2014-supplement.pdf>

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 6133, 2013.

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