

# **Final review: Flood reconstruction and transnational flood risk analysis of the Upper Rhine and its French and German tributaries since AD 1480**

## ***General remarks***

The authors made the efforts to integrate the almost entire part of the comments made during the review, contributing to increase the quality of the paper. For example the link between the different parts of the study was rework, which makes the reading easier. Some aspects related to the methodology used for selecting the flood event were also developed which contributes to a better understanding. I however regret the lack of visibility in the figures, already mentioned in the first review (cf. *specific remarks*). In my opinion, the main objectives of the paper could also be pointed out and formulated more clearly into the introduction.

## ***Specific remarks***

### **Title –**

As suggested in the remarks, the title of the main paper was changed in a more appropriate one. I would however suggest reconsidering the term of “flood reconstruction”. I imagine it is a reference to “reconstruct a flood chronology”. I guess this expression could however be confused with the recovery step after a damaging flood event, aspect which seems not clearly mentioned in the paper. I don’t know the classical term used for characterizing this kind of works but I suggest finding a more appropriate one or to rearticulate the title.

### **Abstract –**

As mentioned in the first review, the abstract was too short. The authors completely changed this part making the abstract more useful for the reader.

### **Introduction -**

The main remark concerning the introduction concerned the lack of objectives pointed into this part. The authors added some interesting remarks on the management of transboundary regions. In my opinion, the main objective of the paper should however still more specified into the introduction and along the different results parts.

### **Data and methodology -**

Several major improvements were produced on the methods and data part. Following my first remarks, some elements concerning the classification scheme used to define the severity of extreme events, or the uncertainties associated with the use of historical were missing (*Page C163*). You added substantial information concerning these aspects which contribute to a better understanding of your methodology. With regard to the comment made by the second referee I also appreciated the new and rich description of the historical sources used for establishing your flood event set.

### **Vulnerability analysis -**

With regard to the remarks concerning the land-use evolution and its relationship to vulnerability, several interesting aspects were developed by the authors during the reviewing step.

As suggested, the part related to transboundary protection aspects was put forward the vulnerability analysis. This reorganization contributes to clarify your results and to get an overview of the existing protection in a context of transboundary regions.

On the vulnerability analysis point, several details were added concerning the link existing between flood protection and damages induced by a past flood event. This aspect contributes to a better relation between the several parts of the paper but also to highlights the role played by risk policies and land-use on the spatial distribution of damages.

### **Conclusions -**

The final conclusions of the paper of the paper were changed by the authors. Following the remarks made during the first review, the main results were resumed and some essential issues and perspectives were added. The example concerning the interest of mapping historical damages in order to appreciate the catchment vulnerability especially stands out as a key feature. According to the remark produced, the interest of studying small catchment areas, mentioned in introduction, is now figuring into the conclusions.

**Figures -** I don't know if it is due to the electronic version of the paper but please reconsider the quality of the figures. The figures are less visible than in your first publication (the quality seems to have decreased). Furthermore, we still not able to see the location of your local case study (on River Dreisam) as suggested in the previous comments. Such information would be interesting to integrate, especially for foreigners readers, not used with the local geography of the territory.