

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
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Comment on nhess-2021-169

Neil Macdonald (Referee)

Referee comment on "Geo-historical analysis of flood impacts in Alpine catchments (HIFAVa database, Arve River, France, 1850–2015)" by Eva Boisson et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-169-RC2>, 2021

This paper presents a historical analysis of flood impacts on an Alpine system, it contextualises the work in relation to other existing databases and provides a framework for the analysis of such databases and their importance for informing flood risk assessment. The sources are well described and a justification for the need for such studies presented.

I have provided an annotated copy of the manuscript with comments and suggested corrections, that I hope the authors find helpful, as such I only highlight the key points below that I feel need addressing.

- You conflate the idea of flood impacts with flood frequency/occurrence (1329-333; 1373-378; 1532), I think you need to take care and ensure you recognise that you are not looking at flood frequency, just the impact of flood events from historical sources. It would I believe be beneficial to present the hydrological records from the valley's studied, if these are available, and then compare the relationship between discharge and time, as this would help clarify that flood frequency has not changed just the recording of flood impacts. This would then support the argument that social and cultural changes may explain the increased impacts as buildings are increasingly constructed in risky areas.
- Did you consider ranking the descriptions of impact, or consider the use of indices in assessing the historical records to determine flood severity – if not this might be a future development and worth considering.
- It would be advantageous to explain how you define impact early in the paper.
- Are changing literacy rates over the timescales considered a consideration in the region? This could be easily stated and removed as a potential variable.
- Is engineering information available that would provide insights into the changing nature and elevation of any flood defences in the valleys discussed, as changing exceedance thresholds of such structures may vary vulnerability of communities. A short section present (1460), but further historical consideration would be valuable.
- It would be interesting to see some sense of data completeness, or assessment of data availability through time, we have previously tried this (see <https://doi.org/10.5194/hess-21-1631-2017>).

- You need to provide more detailed figure captions
- You allude/suggest further analysis – such work would certainly strengthen the analysis within this manuscript.

There are now several regional databases from across France and a national database, why are all these not condensed into a single location that would facilitate searches of historical flood information, I appreciate that they may have different aspects of focus – impact compared to water level, but does having different databases not make it more challenging for future studies? Has all the data in this database also been added to the national database? I think a statement addressing this would be beneficial in the discussion/conclusion. You note several of the databases in the Introduction.

Please also note the supplement to this comment:

<https://nhess.copernicus.org/preprints/nhess-2021-169/nhess-2021-169-RC2-supplement.pdf>