

## Review NHESS-2023-10

### General comments

- **Introduction.** The introduction lacks an overview of rockfall inventories and/or catalogues, as well as examples showcasing their importance for hazard assessment studies.
- **Methodology.** In the definitions section, the authors discuss the concepts of completeness and representativeness of the collected data. Have rockfalls that occurred but were not included in the catalogs been checked, evaluated or considered in any way? This aspect is particularly critical when considering catalog records gathered by non-experts, such as citizens, police officers, or hunter.
- **Methodology.** Why was a time interval from 1857 to 2011 selected for calculating the absolute numbers of rockfalls per year in the CAVI, CYV, CH8, CSAL, and CH9 catalogs, when we have earlier and later data available in the catalogs? Also, why was this time interval chosen for calculating the cumulative number of rockfalls per year? Please clarify it.
- **Methodology.** Please explain why the CYV1 catalog has been excluded from the statistical analysis. In many parts of the text, reference is made to the CYV catalog for a time series starting from 1851, when it only covers year 2011 (i.e. line 230 or foot of Figure 2). Please review this.
- **Results.** Regarding the analysis of the correlation between meteorological data and rockfalls, I don't understand why the authors have chosen to focus only on one catalog for this study (CH9), instead of using several catalogs as they have done in the analysis of change points and structural breaks in the time series. In my opinion, if the analysis is expanded to include other catalogs, it could be very interesting point to discuss. Otherwise, in my opinion, the inclusion of this part of the text seems inconsistent with the rest of the article.
- **Results.** It is understood that authors, in order to detect trend lines in time series, have used all the records from the catalogs for subsequent analysis. Therefore, the rate and change points (especially in catalogs with few records) can capture not only a higher frequency of rockfalls but also more systematic recording. To analyze the frequency, have the authors not considered using additional information, such as the size of the boulders, by comparing different scenarios (medium, large, or very large size)?
- **Discussion.** The catalogs used have very different time scales (ranging from only one year to 500 years) and spatial scales (ranging from 1 km<sup>2</sup> to 300,000 km<sup>2</sup>). It would be interesting to include in the discussion section how these particularities have influenced the statistical study and how they may impact the overall conclusions.
- **Conclusion.** It would be interesting to have some general concluding remarks that should be taken into account in future rockfalls inventories/ catalogues to improve the results and lessons learned from this study.

### Minor comments

- Line136: In Table 1, catalog CH9 displays 41 records. Please clarify why the text indicates 28 records.
- Line192: The text states, "Catalogues CYV and CH8 cover comparable area sizes, but the CYV shows a much higher number of reported rockfalls." However, it is worth noting that the CYV covers an area of 3000 km<sup>2</sup>, while CH8 only covers 6.7 km<sup>2</sup>. Please clarify.

- Line195: The reference Fig. 2 is incorrect; please change it to Fig. 3.
- Table 1: For a better understanding of Table 1, it would be interesting to include a column indicating the type of information provided by each catalog, such as historical data, consequences, etc.
- Figure 9: The numbers overlap with the P/D rectangles. Please relocate them to another position.