

This study contributes to disaster risk science by developing an algorithm to identify multi-hazard events using information on associated hazards and spatiotemporal relationships in EM-DAT records. It suggests creating generic archetypes of multi-hazard risk dynamics to enhance risk analysis and decision-making. While acknowledging EM-DAT's limitations, the study highlights the database's value in identifying global multi-hazard impact patterns and recommends improvements in data reporting.

The authors have successfully addressed all concerns raised during the first review, resulting in a manuscript that significantly improves in readability and flow. I recommend the following minor corrections before publication:

- **L190:** The sentence appears unfinished: “disaster types listed in the second column of...”
- **L200:** The sentence appears unfinished: “We use the same terms for the hazard types as (Claassen et al., 2023); they are given in the first column of...”
- **L395:** Add “an” to the sentence: “The aim of this study was to gain (an) understanding of multi-hazards and their compounding impacts by analysing the emergency events database EM-DAT.”
- **L488:** Change “than” to “as”: “In all archetypes, hazard pairs tend to have at least as much impact ~~than~~ (as) single hazards or combinations of two single hazards, but never less impact.”
- **L494:** Separate this long sentence into multiple shorter sentences for improved clarity and grammar. For example: “For some types of hazards and impacts, modeling the impact of one dominant hazard may yield a reasonable approximation of multi-hazard impact. In other cases, modeling single hazard impacts separately and adding them up may also provide a reasonable approximation. However, it may be important to consider interaction effects that could lead to either increased or decreased impacts compared to a simple sum of individual impacts.”
- **L507:** Change the sentence to: “In the short term, we recommend improving and supporting the existing information in EM-DAT.”