

## Reviewer Comments

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### Constitution of a multicentennial multirisk database in a mountainous environment from composite sources: the example of the Vallouise-Pelvoux municipality (Ecrins, France)

<https://doi.org/10.5194/egusphere-2025-761>

**Summary (General Comments):** This is a very interesting manuscript, with a clear aim and methodology. The latter is well executed, with a comprehensive set of results and evidenced discussion. The authors make very good use of existing literature to support most of their writing. Overall, the manuscript offers an interesting and useful addition to the literature. It demonstrates well the potential of blending multiple evidence sources to develop richer understanding of hazard events. Below I note some specific and technical comments that I believe would strengthen this manuscript.

### Specific Comments:

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**1. Multirisk.** You have developed an important and exciting database, that contains information about multiple hazards and cascading multi-hazards, and their impacts. However, some reflection is needed on the framing of this as a ‘multirisk’ database. There is no universally accepted definition of the term ‘multirisk’ (though multi-hazard does have a UNDRR included definition). Previous work has explored what others have meant by this term, and generally accepted that multirisk includes reflection on interrelationships at the vulnerability as well as hazard level ([https://www.myriadproject.eu/wp-content/uploads/2022/11/D1\\_2\\_Handbook.pdf](https://www.myriadproject.eu/wp-content/uploads/2022/11/D1_2_Handbook.pdf)). The reference to Curt (2021) on Line 39 is perhaps rather limited given this was a bibliometric analysis. If you are going to pitch this as a ‘multirisk’ database then I think there needs to be greater engagement with a broader body of multirisk literature throughout this manuscript, explaining what is understood by this approach and how this work aligns with and builds on existing work.

### 2. Clarity regarding cascading multi-hazards.

**a. Literature.** The manuscript would benefit from a greater engagement with the multi-hazard and multi-risk literature and inclusion of a definition of ‘multi-hazard’ ([https://www.undrr.org/terminology/hazard#:~:text=Multi%2Dhazard%20means%20\(1\),account%20the%20potential%20interrelated%20effects](https://www.undrr.org/terminology/hazard#:~:text=Multi%2Dhazard%20means%20(1),account%20the%20potential%20interrelated%20effects)) in the opening sections.

**b. Database.** The manuscript would benefit from clarity as to how cascading multi-hazards are being identified and included in the database. Section 3.4.1, for example, is quite vague – noting that these events are distinct in the database but without a full and detailed explanation as to why and how these are identified. In the results, **Table 6** is the only time ‘cascading multi-hazard’ is included as its own row. It’s unclear if this is merged into other categories elsewhere – or omitted.

**c. Discussion.** There is limited critical reflection in the discussion section about the cascading multi-hazards, including (for example) how few of them there are. Are there genuinely very few cascading multi-hazard events in this region – or is this a function of not having the information to categorise events as being ‘cascading multi-hazard’, a function of your definition of ‘cascading multi-hazard’? I was hoping for more reflection on this in the discussion, and suggestions of how you could explore this further.

**3. Vulnerability.** There is only one reference to vulnerability in the entire manuscript (Line 284). Given the prominence of vulnerability to risk, and interactions at the vulnerability level to many definitions of

multirisk this is surprising. There is scope for greater reflection on the concept of vulnerability (<https://www.undrr.org/terminology/vulnerability>) throughout this manuscript – how it may have changed over time, how it may also be responsible for changes in disaster impacts (alongside changes in exposure, for example).

#### Technical Comments:

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**Line 90-93.** Include specific sections (Sect 2. Etc) to improve signposting in the manuscript.

**Figure 1.** You note where these images are from, but not the license by which you are reproducing them / confirmation that you have permission to reuse them.

**Line 120.** A source is needed for the information about the surface of glaciers in 2018.

**Line 195-199.** You make reference to the C Series, O Series etc – but it's not clear here what the 'C' or 'O' relates to. An additional sentence or two here to clarify would be useful. Alternatively, signpost to a later section where more information is given.

**Figure 2.** The figure caption would benefit from a little more detail about the relevance of the alphanumerical codes (e.g., 2C, 1M). The significance of the red writing (difficulties in readability...) is also unclear.

**Line 275.** The meaning of 'mobilized sources' is not clear.

**Line 279.** In addition to saying 'oldest periods' can you give a date range, to support the reader.

**Line 325.** Given 'risk' has quite a specific meaning, should the wording "range of information on risks related to various hazards" actually be something such as: "range of information to characterise various hazards and their impacts".

**Line 360.** Section 4 would benefit from a short opening paragraph outlining what each sub-section will present.

**Line 368.** 'The mentions' is not clear given the preceding paragraph. Can you be more specific (all mentions or a sub-set of mentions etc).

**Line 390.** This is the first point I realise that debris flows are included as part of your 'floods' category. I think this needs to be made clearer earlier on, and justified. Why are they included within this category and not as their own stand-alone category? Are there other hazard 'sub-types' included in each of the hazard categories that you have used? If so – can you explain these earlier in the writing.

**Line 392.** I don't think 'small half' is suitable language. Consider 'just under half' instead.

**Line 428.** Change synthetizes to synthesizes

**Line 431.** I don't think it is possible to use the data in Table 4 to say '*caused the most damage*' rather '*the most events causing some level of damage*' (or equivalent wording) – your numbers don't take into account whether that damage was small or large.

**Line 450.** There is a word missing in the phrase '1,674 damage recorded'. Should it be damage types, or damage categories?

**Table 5.** Check the spelling of words in this table. Materiel vs. material; vehicules vs vehicles; stuctures vs structures.

**Line 466.** The phasing 'during which mentions numerous events' is unclear.

**Line 544** (and throughout). Check if a space is needed between a number and % sign.

**Line 589.** Should 20e century be 20th century?

**Line 620.** Suggest avoid using the term 'natural disasters' given current dialogue about it not being an appropriate term. The word 'disasters' should be sufficient.