Comment on hess-2022-110

Anonymous Referee #1

Referee comment on "Towards a hydrogeomorphological understanding of proglacial catchments: an assessment of groundwater storage and release in an Alpine catchment" by Tom Müller et al., Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2022-110-RC1, 2022

The work from Müller and colleagues offers a meta-analysis and a research work on the hydrological dynamics of proglacial areas, with a particular focus on the role of distinct landforms. This topic is overlooked in alpine hydrological research, although the importance and pervasive role of proglacial dynamics under rapid glacier recession.

I found the outcomes of the research work interesting. Likewise, the manuscript cannot be accepted in its current version, because of some major and several minor issues. The revisions to be addressed are many, and would also result in a complete reshaping of the work. Thus, I would suggest a rejection with resubmission. As this option is absent in the referee's portal, i suggest a major revision instead of rejection. I am sure that the work will be worth of being puublished after the suggested amendments will be addressed by the authors.

Major revisions are:

- The work is too long and fair-winded. Some parts are not essential, and can be condensed, moved to supplementary or just removed (see suggestions below). I suggest to shorten the work of at least 1/3, to get it more readable
- The work has a weird structure, being a combination of a review paper (with several drawbacks as written) and a research work (which is better presented and written). I suggest to discard the review part, and shift to a research paper offering a brief meta-analysis in the discussions. Also, the review part do not offer a particularly innovative view when compared with other works (e.g., Hayashi 2020), and the text as well as the main figure could be improved. Under my suggested reshaping, I suggest discarding Figure 1, in part redundant with Figure 11, and move table 1 to discussions (because part of your meta-analysis)
- Methods and results parts can be condensed quite a lot. Also, some parts of the results

belong to methods or discussion, i.e., the description and discussion of chosen models and tools in methods and data interpretation in the discussion. I highlighted only some of these parts in the pdf file but please shorten and move the text to its correct position in the manuscript

- The work has some typos. I highlighted some of these, but please carefully read the work to check these errors before sending for review

Other minor and major amendments are suggested in the annexed pdf.

Please also note the supplement to this comment:
https://hess.copernicus.org/preprints/hess-2022-110/hess-2022-110-RC1-supplement.pdf