

Dear Dr. Bolch,

Thank you kindly for your review of our revised manuscript. Below is a point-by-point response to your comments from March 28, 2025, outlining the revisions we have made.

Comment 1:

L95 (of the track changes manuscript): Please do not cite so many references in a row, be more specific (as already mentioned in my access review). Here you can omit the references which are mentioned in the table as you refer to it.

Author Response:

Thank you for the suggestion. As recommended, we have removed the redundant citations in the text, as these references are already included in Table 1. The revised sentence now refers only to Table 1.

Comment 2:

L243: Is there no impact of freezing at all (also no seasonal freezing)? Please clarify.

Here you also kept the term “cryotic” and “non-cryotic” while in most other cases (except line 381) you changed to “permafrost”. I am fine if you keep but just wanted to be sure that it is on purpose. If not then I suggest changing to be consistent.

Author Response:

The non-cryotic boreholes are indeed subject to seasonal freezing, and we have revised the sentence for clarity. It now reads:

“Of the total, 30 boreholes intercepted permafrost, while the remaining 23 were installed within unfrozen, or non-cryotic ground (Figure 2) subject only to seasonal freeze-thaw.”

Regarding the terminology, the use of “cryotic/non-cryotic” was intentional. Here, we provide the rationale for classifying boreholes with temperatures below 0 °C as “permafrost,” even in the absence of two consecutive years of measurement. This is the point in the text where we explicitly justify the use of the term “permafrost” for these cases.

Comment 3:

L643f: Do not cite so many papers in a row; be more specific with the papers (e.g. mention the region they are covering).

Author Response: Thank you for the comment. We have removed the in-line citations and instead only reference Table 1, which lists the specific studies and their corresponding regions.

Comment 4:

Section 5.3 Shared Characteristics with other Mountain Permafrost Regions

While you discuss shared characteristics other regions almost no references of other regions are provided. As I did not provide a comment in this regard neither a reviewer did I do not want to ask at this stage, but still recommend to add some. Maybe you can also change the title as you put some emphasis on rock glaciers in this section.

Author Response:

Thank you for the suggestion. We have now added 2 relevant citations to support the discussion of shared characteristics with other mountain permafrost regions:

- 1- Etzelmüller, B., Guglielmin, M., Hauck, C., Hilbich, C., Hoelzle, M., Isaksen, K., Noetzli, J., Oliva, M., and Ramos, M.: Twenty years of European mountain permafrost dynamics—the PACE legacy, *Environmental Research Letters*, 15, 104070, <https://doi.org/10.1088/1748-9326/abae9d>, 2020.

And

- 2- PERMOS: Swiss Permafrost Bulletin 2022, edited by: Noetzli, J. and Pellet, C., 23 pp., 2023.

Regarding the title of Section 5.3, we have decided to keep it as is, as most of the boreholes discussed are not located in rock glaciers, and we do not wish to overemphasize these landforms within the dataset.

Thank you once again for your invaluable feedback. We have updated our documents with the changes made as 'technical corrections.' We greatly appreciate your input and hope that these revisions meet your expectations.

Best Regards,

Cassandra Koenig