

Dear Editor,

We would like to thank the Reviewer for his final suggestions. We have addressed all the points reported below, followed by our replies in blue.

Point 1 - Order of content

I still do not understand the rationale for including a data description in the Methods section. In my view, merely changing a subsection header is not sufficient. Descriptions of the AWS station and the mass-balance data belong in a “Study Area and Data” section, not in Methods. The station data have already been described in detail in Carturan et al. (2023), as far as I understand. Moreover, these data are already referenced (Figs. 2 and 3) before they are formally described. I do not see why the authors have declined to revise the manuscript accordingly without providing a convincing justification.

In our opinion those paragraph are methodological, because they describe the methods used to collect and process the meteorological and mass balance data. That description cannot be skipped because it contains explanations that are essential in the framework of this manuscript, for example the impossibility to directly measure precipitation or the processing of raw meteorological data and sensors characteristics. However, following the reviewer’s suggestion, we now present that description in the new Section 2 named “Study area and Data”. We hope that this change improves the structure of the manuscript.

Point 2 - Figure quality

Thank you for updating several figure elements. I still recommend a comprehensive polish of the figures. Please optimize figure layout and whitespace, standardize the size and placement of labels and headers, harmonize their positions (inside vs. outside; left- vs. right-aligned), decide consistently on figure borders (with or without boxes), and use a uniform approach to background grids (on or off).

We have optimized and homogenized the figures’ layout as much as possible. In particular we enlarged labels and headers where they were too small (Figure 8, legend of Figure 9), removed grids and chart boxes where feasible (Figure 3a (formerly Figure 2a), Figure 8, Figure 12 and Figure 13). Figure 7 keeps internal rather than external headers for optimizing the use of space. For Figure 6 we have few degrees of freedom because it is generated internally by the SNOWPACK software.

Point 3 - Lapse rate (Line 238-244)

I’m still unclear about the justification for applying a constant precipitation lapse rate of 28% per km throughout the simulation. Did you calculate this value from the data in Carturan et al. (2019), or are you treating it as a model parameter to be optimized? Using monthly values derived from long-term observations at a site only 10 km away seems more appropriate than a single fixed value.

We have now better clarified that the vertical precipitation lapse rate was derived from independent meteorological observations and was not used as a calibration parameter (lines 253-255 of the clean version of the 3rd review). In our opinion, considering unchanged montly variability of the precipitation gradient on Mt Ortles, compared to Val de La Mare, is a too strong assumption, especially in absence of local information on this variability, but also considering the orographic characteristics.