

Dear editor,

We would like to thank the reviewer for the comments. We have revised the manuscript accordingly and provide a point-by-point response below.

On behalf of all the co-authors,  
Agnese Petteni

## Reviewer comments

The authors have substantially revised the manuscript according to the reviewer feedbacks. The manuscript is of broadscale interest and can be accepted for publication to “The Cryosphere” subject to the following minor suggestions.

Minor comments:

1. L340: The range of 0.04 to 0.09 mm w.e. day<sup>-1</sup> is not consistent with 0.05-0.35 mm w.e. day<sup>-1</sup>. At best, it can be written as the values being towards the lower end of previous estimates. I agree with the explanations provided in the next line and would suggest adding nighttime condensation in this sentence, as nighttime condensation of vapor over snow surface will reduce their O18 values and increase d-excess values, and is likely an important process.

We revised the manuscript as follow:

“The estimated sublimation fluxes range from 0.04 to 0.09 mm w.e. day<sup>-1</sup> (Fig. 9), falling towards the lower end of previous estimates (0.05–0.35 mm w.e. day<sup>-1</sup>; Ollivier et al., 2025). It is important to note that the values reported by Ollivier et al. (2025) represent daily estimates and therefore reflect substantial day-to-day variability driven by changes in insolation, cloud cover, temperature, and wind speed, as well as processes such as nighttime condensation.”

2. L390-391 “For this extended dataset, mean  $\delta^{18}\text{O}$  values were calculated over 1980-2000 due to the lack of precise temporal coverage of the snow samples in Masson-Delmotte et al. (2008). This part belongs to “Methods” and not “Discussion”

We revised the manuscript by modifying and moving the following sentences to the Methods (L133): “For this dataset, mean  $\delta^{18}\text{O}$  values from LMDZiso model were simulated over the 1980-2000 period, due to the lack of precise temporal coverage of the snow samples.”

3. L393-394: “This supports the hypothesis that LMDZ6iso is also able to simulate temporal  $\delta^{18}\text{O}$ -T slopes”. As the current study had a limited spatial coverage for Section II, this would be a good place to mention that future campaigns can be targeted for this Section to verify the said hypothesis.

We revised the manuscript, accordingly, adding the following sentence:

“However, given the limited spatial coverage of Section II, future field campaigns should be targeted toward the Pacific sector on the East plateau to further investigate and validate this hypothesis.”