

Response to review

Brief communication: The Glacier Loss Day as indicator for extreme glacier melt in 2022

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Dear editor,

Thank you very much for accepting our article for publication. We have adjusted your final three remarks.

In this response-to-review document we try to clarify and address each of the suggestions, comments and questions made during the review. Therefore we have copied the comments in blue boxes and have addressed them one by one. In the response we use italic fonts to quote text from the revised manuscript. Additional to the revised manuscript, we have uploaded a version of the manuscript with highlighted track changes that indicate where the manuscript has changed (red=removed; blue=added).

Yours sincerely, Annelies Voordendag & co-authors

Response to the editor

Minor comments

E1: L67. "the average elevation change weighted over the covered glacier area is calculated". The statement was not clear to me, what weight and how they are applied. I think it is important to be clear on how the elevation change measurements, obtained on a 100 m² grid covering 80% of the glacier area, are averaged to compute a glacier-wide value. In order to clarify for the readers how the roughly 20% missing area are treated.

We explained in L54-58 that the uncovered part of the glacier is mainly attributed to tributary basins, but we understand that "weighted over the covered area" caused some confusion. We meant to say, that as the covered area per scan is slightly different each time, the weight is attributed to the amount of covered grid cells. We have rewritten the sentence to:

Subsequently, the average elevation change of the covered glacier area is calculated and plotted over the hydrological year.

E2:L86. Here you refer to a maximum in the time series. When I read first I thought you provided the maximum in the spatial pattern. My suggestion to avoid this ambiguity: "At the end of the accumulation season, the average (or glacier-wide) elevation change peaks at a maximum of only 2.1 m of snow"

We adjusted this according to your suggestion:

At the end of the accumulation season, the average (or glacier-wide) elevation change peaks at a maximum of only 2.1 m of snow in 2022 (Figure 2a),

E3: L137. You may want to add a reference for the availability of very high resolution satellite data as you have references for the others statements.

We added a reference to Pandey et al. (2022):

(..) and the increasing availability of high-resolution satellite data (Pandey et al., 2022), (..)

References

Pandey, M., Pandey, P. C., Ray, Y., Arora, A., Jawak, S. D., and Shukla, U. K., eds.: *Advances in Remote Sensing Technology and the Three Poles*, Wiley, doi: 10.1002/9781119787754, 2022.