Dear Dr Delaney
Thank you for your further suggestions. Below you will see our responses (in red) in response to your suggestions and these are also shown as Track Changes on the revised document.

We hope that this is the last set of revisions. The paper was submitted a long time ago and has already undergone review by two reviewers (and Reviewer 1 made substantial comments on the wording).

Best wishes,
Stephan

Will landscape responses reduce glacier sensitivity to climate change in High Mountain Asia?

Specific comments

• Ln 73: Double check this and provide a citation. Done

• Figure 1: Clarify in caption that sediment supply is to the glacier, not from the glacier. Done

Also, replace "Ice glacier" with "Clean ice glacier" as this is what is used in text. Reviewer 2 made a comment about this. Done.

• Paragraph 169–189: Uses "explore" three times. Please change. Done.

• Glacier lake outburst floods, in my understanding, is not capitalized. Done.

• Ln 222: Something strange in this sentence. It seems to suggest that negative mass balance refers to lakes, not glaciers. Please rephrase. Agree and done

• Ln 230: I could be wrong as a non-expert, but my impression is that "modeling research " or "regional research" could be a better representation of previous work mentioned above. Also is there a chance that a review article on this research could be cited here? We have discussed this and would like to maintain the wording. There is no wider review article we think could be used here. We have cited many of the relevant papers.

• Ln 241: Could "water pressures" be explained? The connection is unclear to me. Yes, we have done this.

• Ln 261: Please add citations for the glacierMIP work? Added.

• Ln 265: Please define "these features." This relates to the previous sentence about rock glaciers. We hope this is now clear.

• Ln 274: "PT scenario will likely increase the resilience…" The increase happens regardless of our MIL or PT scenario. Would a better way to phrase this sentence be: "

PT scenario accounts for increased resilience. . . ”? We disagree with this suggestion and would like to keep the text as it is.

• Ln 280: As no citation is given at the end of the sentence, please change the “will” to a “could”. Agree. Done

• Ln 311: is “although” needed? Same for Ln 331? Thanks. We use this to suggest that while the statement is correct, there are exceptions to this.

• Ln 316: “these glaciers?? move into high-elevation cirques”? “Conditions” sounds a bit strange. Yes, agree. We have reworded this.

• Ln 312: Should ice-debris landforms be included/mentioned here? Yes, agree. We have done this.

• Ln 320: is “more rapidly” meant rather than greater? It is not clear what exactly is greater. The scale of the transition. We think this is now clear.

• Ln 321: “rock glaciers to develop” would “transition to occur” be more accurate? We disagree as the previous phrase is widely used (e.g. in Jarman et al., Ballantyne 2023).

• Ln 332: “precisely how”. Could this be replaced with a more concrete example, for instance, it is difficult to examine the precise timing/variability amongst glaciers and/or regions. As it is, I find that this sentence may undermine much of the message in the paper. We point out that there remains much research to be carried out if we are able to assess the nature and timing of the PT view.

• Ln 340: Can some clarification be added here? Do the authors mean glaciers generally “the glaciers”? a particular glacier? or group of glaciers, for instance in a region? Glaciers generally. We have omitted ‘the’.

• Ln 357: Consider removing this sentence and referencing the figures. We have discussed this and would want to keep the sentence.

• Ln 362-363: While the sensitivity of the glaciers is discussed, could speculative statements be made (and supported) about the role the pathway or geomorphic impact? We don’t want to add any more speculation (this paper already contains much of this) so have kept this.

• Figure 2: In the bar plots, what is 7.3? please add a scale to mention what they represent? 7.3 represents the average reduction in glacier length for the whole Himalaya, but was not discussed in the figure caption. We have clarified this by using a vertical horizontal scale showing 7.3km glacier length reduction.

• Figure 2: LIA is noted in the figure, however, “Holocene Neoglacial Maximum” (Ln 347) or “Neoglacial“ (395) are used in the text. Please make consistent. This is discussed and clarified in the text.

• Figure 2: Along the recommendations of Reviewer 1, please include the Karakoram on the map, as this region is discussed in lines 408-409. Likewise, as the Khumbu region is

referenced in paragraph at 418, please mention which region that it is in. We have done these and also added 'Khumbu' to the map.

• Ln 404: MIS defined multiple times (see above). Also, would it make sense to add dates? and use either LGM or Last Glacier Maximum, but not both. We have clarified this.

• Paragraph 399-414: This paragraph would be strengthened if a stronger link was made with the different pathways and the role of geomorphic activity. As this is speculative, we don't think this link is warranted.

• Ln 432-433: "supports the PT scenario…" As an outsider to the field, could a more detailed explanation be made as to why this behavior supports the PT pathway, as opposed to other factors such as glacier response time. Downwasting is a clear response of Himalayan glaciers to negative mass balance, and we argue this supports the PT pathway.

• Ln 485: given the specific findings (90% loss by 2100), please add a citation. Done.

• Ln 500: "More research…" can this sentence be shortened? This is only two lines in length, so we are not sure why this needs to be shortened.

• Ln 501–504: There has been some drilling in Khumbu to these ends, I believe. Please add a citation. This work by Duncan Quincey and colleagues was not directed at our research questions. They wanted to assess the thermal regime of the Khumbu glacier and did not discuss the transition to rock glaciers.

• Table 1. Remove blank column and consider added a column with average of the different studies to easily differentiate the differences amongst the regions. We do not agree that adding an averaged value would add to this argument.

Thanks for your suggestions.