

The presented study investigates a novel case of a lake-to-land terminus transition of Jinwu Glacier in Tibet. While several studies have investigated the opposite transition (from land to lake), this study is, to my knowledge, the first to describe glacier response to the loss of a proglacial lake following a glacial lake outburst flood. Understanding a glacier's response to such an event is relevant, as this process is observable not only in High Mountain Asia but also in other regions of the world, such as Greenland. The study has a clear rationale and a concise objective.

To assess the glacier's response, the authors examine ice flow velocities and surface elevation change before and after the GLOF, both for the terminus region and for upstream regions of the glacier. While this represents a sound study design, I have two major concerns that substantially limit the interpretations that can be drawn from the current dataset. I therefore recommend a major revision aimed at addressing these limitations. Nonetheless, the authors present interesting results showing a lagged decrease in flow velocities in the terminus region after a short period of dynamic adjustment, which represents a valuable contribution to the community.

Major comments

- (1) The authors describe a pronounced ice fall (L88–90): “*Its lower tongue is partly debris covered and includes a pronounced icefall. The icefall has an elevation drop of ~300 m, and the maximum slope exceeds 35°, based on the SRTM DEM (Fig. 1e).*” This ice fall is also clearly visible in Figure S6. I believe that this icefall disconnects the terminus region from the upper part of the glacier and that a signal from the terminus cannot propagate upstream across this icefall. Consequently, I think that this physical setting makes the analysis of dynamics in the upper part of the glacier unrelated to the GLOF event at the terminus or at least strongly complicates it.
- (2) The authors assess the surface elevation change rate before and after the GLOF event. However, the chosen time periods make this comparison difficult. The pre-GLOF period is 2002–2014, and the post-GLOF period is 2014–2025. However, the GLOF occurred in 2020, meaning that the “post-GLOF” period includes signals from both before and after the event. In addition, the dataset from Hugonnet et al. (2021) for the period 2015–2019 shows the same surface thinning rate as the period 2014–2025. The datasets support the conclusion that the glacier experiences long-term thinning in both the terminus and the upstream regions. However, no robust interpretation of the GLOF's effect can be drawn from the current analysis, which appears to be the central goal of the paper. Ideally, the signal should be disentangled to clearly represent pre- and post-event periods, or different DEMs should be used (though I assume these may not be available).

Considering these two points, the current dataset supports only the findings of a flow velocity decrease in the terminus region and geometry changes at the front. Interpretations regarding elevation change and flow velocities in the upstream region are, in my view, not well supported by the data as presented.

Minor comments

Long term evolution of Jinwuco: Zheng et al. (2021) (<https://doi.org/10.5194/tc-15-3159-2021>) present almost the exact same analysis of Jinwuco lake as presented here. Therefore, the difference to this analysis should clearly be established and it should be justified why the analysis should be repeated.

Flow velocities: The authors clearly demonstrate that flow velocities in the terminus region decrease distinctly following the GLOF and after a short adjustment period. In the upstream section, a decrease in flow velocities is also reported. However, this decrease lies within the stated uncertainty range (from $38.25 \pm 9.12 \text{ m a}^{-1}$ to $32.87 \pm 8.37 \text{ m a}^{-1}$). Combined with the likely dynamic decoupling discussed in Major Comment 1, I do not find the upstream signal convincing.

Study area section: The study area section lacks information on lake depth and on water depth at the glacier front. This information would be valuable for understanding the terminus regime.

Discussion opening: The discussion opens with an interpretation of flow velocities and lake depth (L215): “*Our analysis shows that when lake depth exceeded 10 m (measured after the GLOF) (Zhang et al., 2023a), ice-flow velocity (600-1550m) was significantly positively correlated with lake depth ($p < 0.001$, $R^2 = 0.78$, Fig. S4)*”. However, neither in the methods nor the results I find this analysis and it is only displayed in Fig. S4.

Specific comments:

Title: I find the current title somewhat hard to read and I think does not capture the central contribution of the study. A possible alternative, which puts the focus on the lake to land transition following a GLOF: “*Glacier response to the transition from lake to land-terminating following a glacial lake outburst flood*” (optionally: Jinwu Glacier, southeast Tibet).

L18: a decrease from 40 m a⁻¹ to 20 m a⁻¹ is a 50 % not a 49 % decrease. I assume this stems from rounding in the underlying values.

L111: Do you mean manual lake delineation when you say “manual visual interpretation”?

L170: This would be more clearly expressed as "m per year."

L186: Which year does the value 41.82 m per year refer to?

L202-204: Are the reported changes within the uncertainty range?