Overall comments

The authors have done a good job addressing my main concern from the previous version of this manuscript regarding uncertainties in the datasets used. The uncertainty analysis is now much more robust, clearly described in Section 3.6, and consistently reported throughout the results.

This revision represents a notable improvement over the earlier submission. I only suggest a few further, very minor adjustments to strengthen the manuscript. Again, I believe this manuscript provides valuable insights into the mechanisms of glacier dynamic instabilities in the Karakoram and describes methods for glacier mapping using Sentinel-1 SLC images and surface elevation change measurements from Jason-3 altimetry data, which have strong potential for application in other studies of glacier dynamics and for efficiently monitoring glacier change over time.

Specific comments

Abstract:

- L18, L20: Provide uncertainties for the mass transfer estimates (e.g., ~0.45 Gt ± ??).

Introduction:

- L49-55: Note that Variagated Glacier and Trapridge Glacier are geographically close, despite their differing mechanisms, showing that other regions also exhibit this heterogeneity in surge behaviours, including Svalbard.

Study area and data

- Consider citing this newly published paper on ITS_LIVE here or elsewhere in your manuscript: https://doi.org/10.5194/tc-19-3517-2025

Results:

- L433–434: “In contrast, year 2023 displayed a continuous advance throughout the year, culminating in a ~57 ± 13 m net advance.” Be cautious with the wording “continuous advance,” since the terminus retreated by >50 m in September.
- L529: Clarify what is meant by “critical threshold.”

Discussion:

- Section 5.1: Peak 3 appears to have accelerated relatively rapidly, similar to Peaks 2 and 4, but decelerated more slowly. I would therefore not classify it as having a long acceleration phase, as with Peak 1; rather, it seems intermediate between Peak 1 and Peaks 2 and 4. I would also not

rule out the possibility that Peak 3's acceleration was hydrologically driven, perhaps reflecting a slower release of englacial or subglacial water over the fall, winter, and spring until the next peak in meltwater input in 2018. As you note, future work could examine the surface characteristics of NKG1 during its surge to determine whether increased crevassing, and the associated development of meltwater pathways to the glacier bed, coincided with the velocity peaks observed in 2017 and 2018.

Figures and tables

- Table 1: Near the bottom of the table, in "A Python package contains a series of methods to work with gridded DEM and flow direction datasets": change "contains" to "containing" or "that contains".
- Figure 8: In the caption or preceding text, explain why "Distance to the 1984 terminus" was chosen for the y-axis. Without Figure 9 for context, it could be unclear whether increasing distance implies advance or retreat.
- Figure 9: Add a scale bar, ideally to panel (f).
- Figure 10: In the caption, briefly describe what the black circle highlights in Fig. 10c.
- Figure 11: Add scale bars to both (a) and (b).
- Figure 12: Change "green line" to "orange line" for the monthly mean glacier velocity.