Response

First of all, we would like to thank the editor for the careful reading of the manuscript and the constructive comments, which helped to improve the manuscript. In the following, we quote the comments followed by our replies, which are marked in orange, while changes in the text are marked in blue.

- *Before accepting this manuscript, I would like to request a few changes. In response to the main comment by the reviewer, please ad a further couple sentences be made about these uncertainties in the dynamics contribution, particularly with respect to SMB, In addition to uncertainties in the DEM due to snow cover, could there be other processes such as wind features or avalanching or debris cover that could impact these results. This could also be accomplished by discussing these matters in Section 5.1.*

Thank you very much for pointing that out. In Section 4.1, “Long-term dynamics,” we provide more detailed information on the estimated uncertainties, and in Section 5.1, “Discussion: ice dynamics,” we have added a few sentences regarding the uncertainties, particularly in relation to physical processes.

In Chapter 4.1 Long-term dynamic

In order to enable a numerical estimation of the processes, which excludes outliers as far as possible, the median of the absolute mass balance and the absolute dynamical contribution were calculated separately for the three glacier parts. The median of the absolute mass balance amounts to 1.48 m yr−1, 1.32 m yr−1 and 1.06 m yr−1 for the Taschach, Schwarzwand and Brochkogel area, respectively. The corresponding median of the absolute dynamical contribution to elevation change are 0.54 m yr−1, 0.43 m yr−1 and 0.74 m yr−1. For the mass balance determined by the glaciological method, a total uncertainty of less than 0.40 m yr−1 can be assumed (Zemp et al., 2013). For the period 2016-2018, an uncertainty of approximately 0.28 m yr−1 can therefore be calculated, taking into account the law of error propagation. The mean errors of the DEMs can be estimated at approximately 20 cm for 2016 and 10 cm for 2018 (tiris Tirol, 2025). Taking into account the law of error propagation, this results in an uncertainty of 0.11 m yr−1 for the surface difference from 2018 to 2016. For the dynamic contribution to elevation change, calculated as the difference between SMB and surface difference, a total uncertainty of approximately 0.30 m yr−1 can be assumed.

In Chapter Discussion 5.1 Ice dynamics:

A quantitative analysis of recent geometry change (period 2016–2018) at VF indicates that SMB is the dominant control, while local dynamic contribution to elevation change remains secondary. When interpreting the contributions of SMB and local dynamic contribution to elevation change, various uncertainties must be taken into account. For the investigated period (2016–2018), measurement uncertainties arise from SMB estimation (0.28 m yr−1), DEM differencing (0,11 m yr−1) and the derived local dynamic contribution to elevation change (0,30 m yr−1). In addition to these measurement uncertainties, various physical processes may influence the observed elevation changes. For example, snow cover in the accumulation area can affect the DEM accuracy, while small local wind-driven snow transport events can modify the accumulation pattern and thus SMB. Additionally, avalanches and debris covered parts of the glacier may contribute to elevation change or altered ablation, although their overall impact at VF is assumed to be limited. These processes are not considered in the applied approach and may therefore lead to additional variations in the estimated local dynamic contribution to elevation change, particularly on small spatial scales. Despite these uncertainties, the significantly higher magnitude of SMB remains the dominant control on recent elevation change. The median absolute values for SMB (median = 1.08 Taschach: 1.48 myr−1, Schwarzwand:1.32 myr−1 and Brochkogelarea: 1.06 myr−1) and the local dynamic contribution to elevation change (median = 0.67 Taschach:0.54myr−1,Schwarzwand:0.43myr−1 and Brochkogelarea0.74myr−1) suggest that the ice dynamic is not able to fully compensate the losses due to melt, especially in the ablation area.

- *Additionally, in the paragraph at Ln 270, I request that the relevant figures be cited to make these comments clear. Please check in the manuscript throughout.*
  Thanks for the hint. We cite the relvant figures as follow (Ln 270 and following) :

  A closer look at the Schwarzwand area in Fig. F1c reveals a stronger dynamic contribution to elevation change. … In addition, the SMB map (Fig. F1a) is largely interpolated (in particular in the northern part of Schwarzwand area), …. Pronounced negative error values are present in the northern part of the Hochvernagt plateau (Fig. F1c)…

- *Lastly, inclusion of the data in Appendix A, B , D, E and potentially G highly valuable and much appreciated. However, please considering placing it in a supplement, unless you wish to directly refer to them in the text.*
  We place the Appendix A (Data overview), B (Stake network overview) and D (Dates and orbit information) in a supplement. When referring to this data in the manuscript, we refer to the supplementary materials.
  Appendix E (Melt-induced changes and manual feature tracking): We´d like to keep this as an Appendix because this section provides a detailed explanation of why we use manual feature tracking and demonstrates that the change caused by ablation can actually be grater than the movement itself.
  Appendix G (Uncertainty): We´d like to keep this as an Appendix, as this section complements Chapter 4.4 (Uncertainty Analysis) of the manuscript very well and demonstrates the results of common methods such as "leave one out".
  In the manuscript, we refer to the relevant appendix at the respective sections.