Review of egusphere-2025-4771: Intra-annual grounding line migration and retreat: insights from high-resolution satellite and in-situ observations over Milne Glacier in the Canadian High Arctic

This is a very well-written manuscript. I recognize that there have been some confusing and differing definitions of the flexure zone and grounding zone across different communities. In simple terms, the grounding zone encompasses the full range of grounding line positions, whereas the flexure zone is the area of the glacier that experiences tidal flexing. These concepts are now well described in the manuscript following the first revision.

This is the second round of revision, and I am taking over the previous reviewers' work. I can see that the authors have made a substantial effort to address the previous comments, and the manuscript has been significantly improved. Overall, I think the authors have done an excellent job revising the manuscript.

However, I strongly disagree with the terminology change from DDInSAR to DInSAR. I recognize that raising this issue again may cause additional work for the authors, but I believe that correcting the terminology would make the methodology and the manuscript considerably clearer.

Major comment: DDInSAR vs. DInSAR

I would like to reiterate my concern regarding the change from "Double Difference Interferometric SAR (DDInSAR)" to "Differential Interferometric SAR (DInSAR)." After reviewing the revised manuscript and the authors' response, I believe this terminology change should be reconsidered because it may not accurately describe the processing performed in this study.

As I understand the methodology, the authors first generate individual interferograms and remove the topographic phase from each interferometric product. This constitutes differential InSAR (DInSAR) processing, as described in L164; indeed, the processing described there is exactly the DInSAR step. They then difference the two resulting DInSAR products to isolate the phase associated with vertical displacement, assuming that the horizontal displacement is constant. This subsequent differencing of two DInSAR measurements is commonly described as double-difference interferometry (DDInSAR).

Thus, in this context, DInSAR and DDInSAR are not interchangeable terms. Rather, DInSAR describes the differential interferometric processing applied to the individual interferograms, whereas DDInSAR describes the subsequent differencing of two such differential interferometric products.

I therefore do not agree with the rationale in the previous review comment that "differential" implies that two interferograms are being differenced. Differential InSAR does not inherently require the differencing of two interferograms. For example, in a two-pass DInSAR approach, the topographic contribution can be estimated using an external DEM and removed from a single interferogram. The use of additional interferograms in three- or four-pass approaches does not, by itself, make DInSAR synonymous with double-difference interferometry.

I also do not believe that the statement that DInSAR is the "modern terminology" for DDInSAR is sufficiently supported. Both terms remain in use in recent literature, and their usage is not completely uniform. More importantly, recent studies in the same application domain explicitly distinguish the two concepts. For example, Andersen et al. (2026), in a recent study of grounding-line mapping, describe DInSAR as the individual differential interferometric measurement and explicitly define the differencing of two sequential DInSAR measurements as "double-difference interferometry." This is directly consistent with the processing terminology used in the present manuscript.

For this manuscript, I therefore recommend retaining "Double Difference Interferometric SAR (DDInSAR)" (or "double-difference interferometry") for the final differencing step used to determine grounding-line migration. The authors could clarify the relationship between the two terms at first occurrence, for example, by stating that the DDInSAR product is obtained by differencing two DInSAR interferograms. This would eliminate any ambiguity while preserving the distinction between the differential interferometric processing of the individual interferograms and the subsequent double-difference operation.

If my understanding of the processing described in the manuscript is correct, I strongly recommend that the authors reconsider this terminology change.

- Andersen, J. K., Millan, R., Rignot, E., Gimenes, L., Scheuchl, B., Barré, J. B., & Bjørk, A. A. (2026). Brief communication: Updated grounding line mapping in the Amundsen Sea Embayment, Antarctica, from one day repeat Sentinel-1 SAR data. The Cryosphere, 20, 1589–1598. https://doi.org/10.5194/tc-20-1589-2026.

Minor comments

- L326: The citation should be (Porter et al., 2023) without the first name. I understand that the ArcticDEM webpage provides the citation as "Porter, Claire, et al., 2023, 'ArcticDEM, Version 4.1'..." However, when following the DOI, the actual citation is: "Porter, Claire; Howat, Ian; Noh, Myoung-Jon; Husby, Erik; Khuvis, Samuel; Danish, Evan; Tomko, Karen; Gardiner, Judith; Negrete, Adelaide; Yadav, Bidhyananda; Klassen, James; Kelleher, Cole; Cloutier, Michael; Bakker, Jesse; Enos, Jeremy; Arnold, Galen; Bauer, Greg; Morin, Paul, 2023, 'ArcticDEM - Mosaics, Version 4.1'..." Therefore, the citation in the manuscript should follow the standard author–year format and use "(Porter et al., 2023)"
- L347: I think you are referring to the whole of Fig. 3 rather than to a single panel (Fig. 3a).
- Figure 5: I believe the unit on the y-axis should be cm rather than m. It is also good to see that "DDInSAR" is retained here, which is appropriate given the processing described in the manuscript.

Otherwise, this is a very nice paper with important results, and I appreciate the authors' considerable effort in revising the manuscript. I recommend major revision primarily because of the terminology issue discussed above. I look forward to seeing the paper published after this issue has been addressed.