

Dear Editor,

Thank you for having reviewed the changes and the entire manuscript and for your remaining items to be addressed. We have revised our manuscript in accordance with the suggested requests, see itemized responses below, where your comments are in black and our responses are in red. A clean version of the revised manuscript and a marked-up version showing the changes made have been uploaded to the system.

Best regards,  
Tazio Strozzi

L93: was able acquire -> was able to acquire

Done.

L95-97: These sentences about JERS-1 are a bit awkward, please revise for clarity.

Done.

L100: here and elsewhere in the manuscript, the spacing between numbers is marked with an ' please change this to a space instead. 478'477 -> 478 477.

Done.

L149: succesfull -> successful

Done.

L194: please change 'wall to wall' to full

Done.

195: we computed therefore -> we therefore computed

Done.

L300: please change 'wall to wall' to full

Done.

Figure 9: please revise the figure and remove the backscatter changes that are shown off the glacier. This appears to me to be related to differences in sea ice conditions, but it draws the readers attention away from the changs on the glacier and could lead to mis-interpretation

Indeed, differences in sea ice conditions also cause changes in backscatter. This can be clearly seen in several figures, but most strongly in Figure 9. However, we believe that removing the backscatter changes outside the glacier only in Figure 9 would be inconsistent with our analysis of the other images. To indicate the location of the glaciers, we use in all figures the outlines from the Randolph Glacier Inventory 7.0 (RGI 7.0 Consortium, 2023). We actually also considered using these outlines to remove the backscatter changes toward the sea, but in many cases this is not possible because the outlines are not up to date when glaciers are advancing rapidly. To clarify this point for the reader, we have now added the following sentence to the caption of Figure 9: "Outlines from the Randolph Glacier Inventory 7.0 (RGI 7.0 Consortium, 2023) are shown in black; backscatter changes off the glacier are related to differences in sea ice conditions."

L330: more spatial details -> finer spatial detail

Done.

Figure 11: why not present this map as a red/blue stretch to show areas with increases/decreases in backscatter that are consistent with all the other backscatter figures presented to this point in the

manuscript? The increase in backscatter is obvious in this figure, but the darker colours that show decreases in backscatter are less apparent.

Done. For consistency between the images we have done this also for Figure 12.

L343: might well complement or do complement?

Changed to do complement.

Figure 13: each of these are a discrete surge event, I wonder if it would be intuitive to list the number of events sequentially along the left hand side of the figure, i.e. 1, 2, 3, .... N and on the right side, you could identify the number of surges for each epoch as well.

Done. The number of surge events is listed sequentially on the left side of the figure. The right side shows the event count for each epoch.

L445: remove thus from the sentence

Done.

Figure 14 needs to have a north arrow or graticule lines. I would suggest revising the colour scheme, it can be difficult to see differences between different colours. Or, use a combination of colour and different symbols to show differences. I.e. red circles, green squares, orange triangles, yellow stars.

Done.

L525: What is the current study? This particular paper?

Changed to paper.

L531: but not perhaps exceptional

Done.

L558-559: this sentence is awkwardly phrased and needs revision

Changed to "As regular satellite radar missions only began in 1991, further evidence is likely to emerge as more images are gathered in the future."

L562: large surge events

Done.