

We thank reviewer #3 for their comments and suggestions which will help us to improve the manuscript!

Review in black letters

Response in blue letters

This manuscript is an interesting and well written paper about the evolution of small-scale glaciers in a sub-region of the European Alps. Disintegration and especially steady covering by rock debris creates problems in mapping glaciers and creating glacier inventories.

The authors describe very well the material and methods and have a thorough discussion at the end. Interesting is the assumption of an updated definition of the term glacier.

What about glacier movement in the definition? Can that be discarded?

We thank the reviewer for their interest! The discussion on existing ice dynamics is important, as stagnant ice bodies of larger sizes can only exist as transient states (and will melt soon under current conditions if not covered by thick debris layers). We showed that the increase or decrease of ice flow velocity is one of the earliest responding indicator of glacier state (Stocker Waldhuber et al., 2019 <https://essd.copernicus.org/articles/11/705/2019/>). Including dynamics in a definition would mean to exclude stagnant ice bodies, and include them again if they start to move again (which can happen within a season). As in the moment we cannot measure dynamics of a buried ice body without drilling, all arguments point towards discarding the ice movement in the definition of a glacier, with the result of including various types of stagnant and buried ice.

We see that this point needs some work and will elaborate the point on ice motion.

Minor comments:

L254: ... the latest period was 2.4%, which is ... (you wrote loss; therefore, it should be a positive number)

We will change that throughout the paper.

Table 3: should be -17km² area change in 1969

Thank you for pointing out this typo, we will change that.

L266ff (and further in the text): please check terms highest/lowest/maximum etc. à they should all be the other way round as you refer to negative numbers

As for L254, we will change that.

L270f: ..., reducing the overall volume loss as no ice to melt is left in the areas with highest ablations in the past.--> this sentence is not clear to me.

This sentence is definitely too long and will be rephrased. At Jamtalferner, the areas at the glacier tongues where more than 6 m ice ablation was measured are ice free now. Now only the areas with about 4 m of ablation in the past are left to contribute to volume change. Therefore, despite an increase in ablation at individual stakes, total volume loss decreased.

Table 5: I would suggest a map with different colors/symbols instead of the table.

As one of the previous reviewers suggested to move Table 5 to the supplements, we will be happy to add a map as suggested in the main text.

L319ff: Could another reason be a change in debris cover?

Of course, thank you, we will mention that.

L375: does away with à better use overcomes?

We will rephrase that.

L391: Caucasus comparable to Silvretta?

We will include a few comments on the difference of these mountain regions, sorry not to have mentioned that, as it seemed very clear to us.

L419: ... the future

We will change that.

Fig. 10: I do not understand how you discriminate between volume change? and debris accumulation dominant? following the thickness change. There are two arrows without further indication.

Thank you for pointing out these two issues. There is only one experiment regarding debris accumulation on ice (with the help of net) on a single location where debris comes from the rock faces, so that in the moment we see no way to estimate the amount of debris accumulation (we will work on that!). The other problem is that there is now way to distinguish 'external' debris from englacial one coming to the surface. Here we are not sure how to design an observation procedure.

We will rethink the arrows from the thickness change, this definitely needs explanation.

L460: The glacier inventory data is stored in <https://doi.org/10.1594/PANGAEA.844988>.

Citation: <https://doi.org/10.5194/tc-2020-376-RC3>

We will change that and include the citation