

The latest round of revisions by Wytiahlowsky and others has resulted in an improved manuscript however, several of my previous concerns were not addressed or not sufficiently addressed by the authors. I have expounded upon my previous comments to help clarify my concerns. My original comments (black, italicized), the authors response (blue), and my new comments (black) are included below. The few other concerns I have are also detailed below.

### Concerns

L44-46: Here Pitcher and Smith 2019 is cited as stating that channelized meltwater flow occurs on some glaciers and not others. This isn't an accurate representation of the 2019 review paper that instead argues for a full inventory of supraglacial channels to be mapped but does not present conclusions or findings that channels are absent on some glaciers and present on others.

(1) Citations were not added to support statement that most alpine glacier channels have widths smaller than satellite imagery resolution

*L56-57: Here the authors state that remote sensing techniques have not been applied to mountain environments because of the small channel sizes there, but this is not supported adequately, how big are the channels typically found on mountain glaciers? This should be stated and references given. Currently only satellite resolutions are given which does not mean much if the size of the streams are not given as well.*

We do not provide citations or state the size range of channels on mountain glaciers simply because there is a lack of research to provide us with a good figure. The introduction notes this uncertainty as we state "...the majority of channels are **likely** to be... below the resolution of the highest resolution freely-available satellite platforms". Hence, the benefit of this study is that we provide the first large-scale characterization of channels on mountain glaciers. Previous studies that have documented channels on mountain glaciers are largely focused on a single glacier in higher latitudes (e.g., Norway), hence we cannot confidently provide a quantification of channel size in the introduction.

You do not need to provide a definitive, universal value for channel size, but you should state the range of sizes that have been observed, such as from glaciers that have been widely published on in Norway, Switzerland (Ferguson 1973), Alaska/Canada (Dozier 1974), Iceland, etc. Even though the statement is reasonable, stating something is "likely" to be true is insufficient without the necessary rationale. If you can't support statements with a citation then the logical argument needs to be presented.

(2) Measured drainage density values were not added to the Discussion text.

*L404: state the value for drainage density here.*

This paragraph speculates how drainage density is likely to vary between glacier types; hence, we do not provide values for drainage densities. Additionally, this sentence mentions cirque-type glaciers, for which including a value might be misleading because we have little understanding of their surface hydrology. This is because most of their channels are likely to fall below the resolution of our mapping.

I still think a range of drainage densities observed should be stated in this section. For example, what constitutes a “high drainage density” or “low drainage density” in your area? Ranges for these vague statements should be given to aid readers in comparing their observations to yours for this region of Switzerland. Values from your dataset aren’t misleading if they are properly stated with the caveats you mention above.

(4)

*L484: If there are sediment laden beds there, this should be said so explicitly and cited.*

This sentence refers to a study that has modelled the excavation rates of subglacial sediment from beneath a glacier, hence we do not have observations to support this from our dataset. We instead use this study to theorise the effect that channel termini locations have on the amount of subglacially derived sediment entering into proglacial rivers.

My suggestion results from a gap in the logic of the paragraph. If no previous studies have identified subglacial sediments or rationale for why they would be likely (which should be included if this exists), then a qualifier such as “if subglacial till is present, then ...” should be included. The phrasing implies you know there are extensive subglacial sediments.

#### Additional Comments

Throughout Remove extra space between all #s and the % symbol.

L184 this is not a complete sentence

L284- it appears that there is a space between each number and the % that should not be there, unsure if this is a weird compiling error or included in the submission but it should be fixed at some point

L377: change “from mid-July 2020” to “acquired in” and add the specific date range in July 2020.

L442-443: The sentence now reads “Overall, we find that at the average Valais glacier, 80% of channels run directly off the glacier, while the remaining 20% terminate in moulins or crevasses”. Previously the text stated that 72% of the mapped highest order channels were routed englacially or sub glacially with 25% running off the glacier. This point should still be included within the manuscript as the most important channels in the context of supraglacial hydrology are the highest-order channels.

L529-530: here the authors state “**we** suggest that supraglacial drainage networks may expand to higher elevations due to rising equilibrium lines (Leeson et al., 2015)”. The “we” should be changed in this sentence as the authors work does not directly assess future supraglacial drainage evolution.