

## ***Interactive comment on “The potentials of high-resolution photogrammetry for analyzing glacier retreat in the Ötztal Alps, Austria” by Joschka Geissler et al.***

**Joschka Geissler et al.**

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Dear referee, we highly appreciate your positive and constructive feedback. Indeed, most of your proposed changes of the manuscript are implementable and will not take too much time. We agree, that those small corrections will improve our manuscript and would therefore be happy to implement the following changes of the manuscript.

(A) We will relate the temporal correction function to local meteorological data. The respective data sets are already available to us. Following a DDF or similar approach, we will try to integrate this data to our correction function. This might slightly change our results but improve transferability.

C1

(B) We will underline the advantages and successful implementation of our density function that includes a linear transition zone around the ELA. By doing so, we will eliminate ambiguities and clarify the methodology. For better understanding, you can find a plot of our density function below.

(C) We agree that the discussion of ice dynamics must be more careful since its values are similar to the magnitude of error. We will adjust the wording accordingly. However, we see great potential of applying our methodology to glaciers with higher ice dynamics and would like to present our quantitative results. GPS coordinates exist for the ablation stakes and we will check methods to estimate ice dynamics and compare them with our results.

(D) Concerning debris cover, we will add a few lines to the result and discussion as suggested. Since no ground truth data is available, we are not able to relate our findings to e.g. thickness or stone type.

(E) The DEM and orthophotos were coregistered horizontally by using ground control points. The resulting horizontal error is, as you mention, relatively small so that no further (rotational) coregistration was applied. We will clarify the method and will discuss, that a rotational coregistration might have improved observed errors (Fig. 6c).

(F) We will improve our introduction by incorporating previous photogrammetric work.

(G) We will improve our discussion by streamlining and incorporating questions that will come up during the discussion phase.

If you have any further questions or need a more detailed feedback, please let us know. Your specific comments will, of course, be incorporated.

Sincerely, Joschka Geissler and Coauthors

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Interactive comment on The Cryosphere Discuss., https://doi.org/10.5194/tc-2020-263, 2020.

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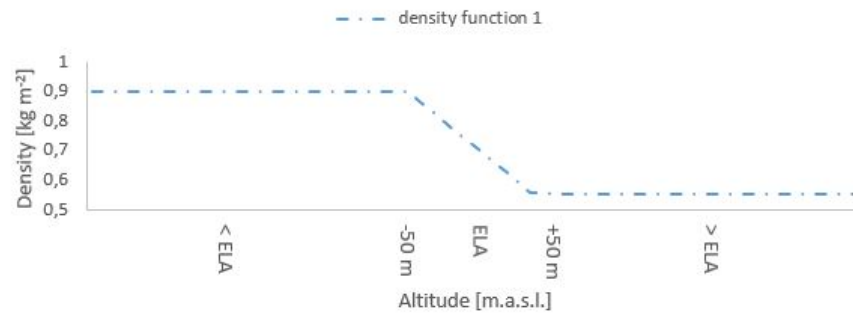


Fig. 1. Density\_function