

Discussion of “A data exploration tool for averaging and accessing large data sets of snow stratigraphy profiles useful for avalanche forecasting”

## AUTHOR RESPONSE 3

Herla et al.

July 18, 2022

Dear editor, dear referees,

We thank both referees for their supportive assessments and their recommendation to publish the manuscript.

We also thank the editor for guiding us through the review process and for the final decision.

In the final revised manuscript we have addressed the small technical corrections/typos pointed out by referee 1. We respond to referee 2 in a point-by-point manner below.

### Responses to Referee #2 (Christoph Mitterer)

#### 2.1 Mention flat-field setup

Referee Comment: *You could state at some point that your simulations are based on flat-field simulations only.*

**Author Response:** Agreed. We added this information in the final manuscript in L125.

#### 2.2 To scale or not to scale

Referee Comment: *If I fully understood your approach, you stated that there are now two possibilities within the merging algorithm to handle different snow heights: Either with or without scaling. I was just wondering if a scaled approach would influence the distributions for stability indices that are closely related to depth (e.g. SK38)*

**Author Response:** The two user options of scaling or not scaling the snow profiles are settings of the layer matching algorithm. As long as the layers are matched correctly, the result (of both matching and averaging algorithms) will not be influenced by this setting. While there might specific data sets that call for either one or the other setting, our presented data set produces the same results with the two settings.

#### 2.3 Details on melt season performance

Referee Comment: *I know that it is beyond of the scope of your manuscript, but it would be beneficial to add some details within the newly added section on the performance of the algorithm*

during melt season conditions in spring:

> It would be again nice to state that your results are for flat field conditions only and that especially under melting conditions slope and aspect may have considerable impact

> I know it is a lot of work, but it would have been cool to see the advantages of the algorithm applied to the approach by Wever et al (2018). You could use the fact that you are not able at the moment to simulate different aspects and it is not feasible at the moment to include the needed Richeards<sup>TM</sup> Equation based routing routine for your grid as arguments for not showing this within the manuscript.

**Author Response:** We added the following statement in the final manuscript (L225): “While that data set is suited to highlight how our approach can add value to wet avalanche forecasting, operational simulations must consider slope and aspect processes due to their considerable impact on the melting itself.”

Reproducing the simulation design by Wever et al (2018) is indeed beyond the scope of this manuscript. If this is of interest, it could be a neat case for an ISSW conference paper. In that case you could contribute a data set of regionally distributed snowpack simulations tuned for melting conditions and I will be happy to apply the aggregating post-processing.