

Thank you for the review of our manuscript. We appreciate your constructive comments and suggestions. Please find our point-by-point response below (in blue).

The manuscript is well written and good to publish in the journal. My main concern is about the degree-day factors used in the study. Therefore, my specific comments are as follows:

Line 132-133: It is good that the degree-day-based snow melt and glacier melt modules were used in the HBV model. It is necessary to mention whether the degree-day factors are model-calibrated or assigned values derived from the field measurement in the past. Since the degree-day factors play a significant role in the ablation estimation, it should be mentioned degree-day factors in this study. Moreover, sometimes model-generated degree-day factors may be unrealistic. Therefore, I suggest mentioning degree-day factors used in this study.

Based on this comment and also the one from the second reviewer we realized that the method section related to the model structure and parameters needs to be extended since a lot of information is missing there (despite references to other literature). This also applies to a better explanation of the snow routine of the model which is based on the degree-day method.

The degree-day factors both for snow and glaciers are one of the model parameters and thus they were calibrated. Before the calibration, the upper and lower limits have been applied to ensure that parameters are physically relevant. In the case of our study, the lower limit was set to  $2 \text{ mm } ^\circ\text{C}^{-1} \text{ d}^{-1}$  and the upper limit to  $8 \text{ mm } ^\circ\text{C}^{-1} \text{ d}^{-1}$ . However, after leaving the same range for non-glaciated and glaciated parts of the catchment, the model simulated high snow accumulations at the highest elevation zones of the catchment which did not completely melt in the season and thus created an unrealistic increase in snow storage over the study period (in hydrological modelling literature often referred to as “snow towers”). Therefore, we needed to do a fine-tuning of the degree-day factors separately for non-glaciated (median value resulting from 100 calibration runs was  $6.01 \text{ mm } ^\circ\text{C}^{-1} \text{ d}^{-1}$ ) and glaciated parts of the catchment (median value equal to  $2.23 \text{ mm } ^\circ\text{C}^{-1} \text{ d}^{-1}$ ) to achieve realistic snow storage simulations.

Additionally, we provided a simple evaluation of the simulated snow water equivalent and snow depth (measured automatically during a single summer season) as described in L179-182 and Appendix A2 of the original manuscript. Despite the lack of data, the modelled SWE values correlated well with measured ones.

We will reformulate the methods section on this topic reflecting the above explanation and include the calibrated degree-day factor values.

Line 347: It should be .... was also slightly negative in 2014/15, .....

Thank you, we will correct the sentence.

Line 435: Missing the reference of Seibert and Vis (2012).

We are not sure whether we interpret this comment correctly since the referenced line (L435) represents the beginning of the references section. The mentioned reference is included in the reference list (L607).