Editor report:

Dear authors,

The revised version of the paper is now close to be accepted. However, I would like to see the following additions to the new sections:

p.10 l. 6-10 : ....These parameters are kept constant through the simulations and were optimized according to the constraint of minimizing the differences (in terms of least squares) between the recession shape of the simulated hydrographs and the observed one." - It would be helpful to the reader to cite some references that discussed the assumption of keeping these parameters constant of changing it in time as has been done in other models simulating the water storage within the glacier.

Authors response:

Dear Editor,

Please find herewith a modified version of our paper "Quantification of different flow components in a high-altitude glacierized catchment (Dudh Koshi, Himalaya): some cryospheric-related issues".

References were added to the manuscript to discuss the assumption of using constant parameters for simulating the englacial storage. The modifications that were applied to the manuscript are the following:

p.10 l.4-12 (Sect. 3.2.4 Glacier parameterization): "Previous studies have shown the good performance of adding a conceptual representation of the storage and drainage in the glaciers within glacio-hydrological models (e.g., Jansson et al., 2003, Hock and Jansson, 2006). The most widely adopted approach is based on a reservoir or a cascade of reservoirs with time-invariant parameters (e.g., Farinotti et al., 2012; Zhang et al., 2015; Hanzer et al., 2016; Gao et al., 2017). Here, storage of liquid water inside glaciers was implemented by adding an englacial porous layer between the glacier and the bedrock allowing the liquid water storage within the glacier. This englacial porous layer has a depth of 2 m and is characterized by a porosity of 0.8 and a hydraulic conductivity (vertical and lateral) of $3 * 10^{-4}$ m/s (see Table A2). As in the previously cited studies, the parameters are kept constant through the simulations. They were optimized here according to the constraint of minimizing the differences (in terms of least squares) between the recession shape of the simulated hydrographs and the observed one."

p.28 l.16-23 (Sect. 5.2 Representation of the cryospheric processes in the model): "The results presented in this study also indicate potential future improvements to increase the reliability and to reduce the uncertainty of the simulations at short time steps. While at daily and longer time scales the different hydrological components seem to be well reproduced by the model, the analysis of the diurnal cycle (Fig. 15) shows that DHSVM-GDM responds too rapidly to the ice melt production with too high diurnal peak discharges. This is probably related to the use of constant parameters in the parameterization of the englacial porous layer for glacier storage. Taking into account the seasonal variation of the efficiency of the englacial drainage system appears necessary to simulate the diurnal flow cycle correctly (Hannah and Gurnell, 2001). Therefore, further improvements should be based on studies analyzing the mechanisms of glacier drainage systems in the Khumbu region and their influence on glacier outflows (e.g., Gulley et al., 2009; Benn et al., 2017). These studies …"

Best regards,