

Interactive comment on “Hydrometeorological, glaciological and geospatial research data from the Peyto Glacier Research Basin in the Canadian Rockies” by Dhiraj Pradhananga et al.

Anonymous Referee #2

Received and published: 14 January 2021

This paper presents a valuable collection of long term glaciological, hydrological and meteorological observations in a well-studied glacier-fed catchment. Although most of the datasets were already used elsewhere the authors argue that these datasets have “never been assembled in a single description until now”. I am not familiar with the study region so I cannot verify this statement. However, it may be useful to emphasize which dataset was already published and which one was not (maybe in a table). The paper reads well in general, but some sections reads better.

Streamflow section: the rating curve should be shown and the rating curve data could be included in the dataset as well. This may be useful if the rating curve is to be

C1

updated with new measurements in the future (or if another function is used to create the rating curve). This is important to evaluate the uncertainties on the discharge data. I did not understand well why it was necessary to make two rating curves depending on the season. When the snow covers the stream there is no discharge measurements anyway. In addition it seems that only the summer rating curve was used? This section could be elaborated and clarified.

The landcover data section should be revised because the methodology is too vague. A list GIS software is not sufficient to understand the workflow. The authors should provide details on the algorithm and parameters (e.g. thresholds on the NDSI/NDWI, etc.). Was it done by supervised or unsupervised classification? If supervised, details on the training samples are needed. I understand that top-of-atmosphere reflectance images were transformed to albedo maps using the Liang et al method. First it is not clear to me why the albedo was used instead of the reflectance to make these land cover maps. Second the narrowband to broadband albedo should be applied to surface reflectance, not TOA reflectances. How was done the atmospheric correction?

Otherwise I agree with the comments of Referee #1.

Minor comments

Fig 1: add legend to the upper panel (blue areas = glacier) P4L5: et al. in italics Fig 5: “with 2.75 multiplier applied to shortwave radiation to mimic noon values” Clarify. Fig 16: x label cropped on the right

Interactive comment on Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2020-219, 2020.

C2