Earth Syst. Sci. Data Discuss.,
https://doi.org/10.5194/essd-2020-219-RC1, 2020

Earth System Science Data Discussions

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 #1

Received and published: 6 November 2020

The authors present hydrometeorological and glaciological observations of the Peyto Glacier Research Basin in Canada, including high resolution DEMs, long term meteorological data, precipitation, outflow from the glacier and bias corrected reanalysis information. In addition, the authors provide an interesting description of the historical monitoring efforts of the basin. In this respect, I found the dataset a good contribution to the already available information over mountainous regions that could asses the basis of future glaciological studies in the area. In general, I find the dataset very valuable and self-explanatory, however the description of the dataset in the manuscript is sometimes a bit confusing. Some paragraphs mix the methods to process and validate the data, and the data available from other sources, with the description of the dataset

itself.

My mayor concern about the dataset is the chosen platform to share the data. It does not allow simultaneous downloads, unless the user registers on it. This is highly annoying as the user have to download and install specific software from the platform. Such software comes with third party libraries that Linux users have to install manually. It seems like such libraries are not totally supported by all systems, or are not totally supported in an "user-friendly" way. Thus, it is very likely that the linux users have to use specific command line tools, just to download few Mbs of data. Furthermore, we found the platform surprisingly slow in comparison with other repositories. The authors should consider migrate the dataset to other platform, or at least submit a single file compressed version of the whole dataset that will allow future users to download the complete dataset avoiding the use of the platform GUI application and registration.

Some specific comments bellow:

Table1: Maybe I misunderstood something, but I can not find in the database the same variables reported in the Table 1. For instance, Peyto Main should include [Ta, RH, Ws, Wd, Ts, Qsi, Qso, Qli, Qlo, Ppt, P, Sd], but the file in the dataset includes just [Ta, RH, Ws, Qsi, Qli]. Why not to include all the variables?.

11p/ Lines 5 to 10. It is unclear if the data provided is the raw information or the corrected one. If it is the raw data please highlight, if not, the raw data should be included. I miss a brief description of the followed methodology for the bias correction of the solid precipitation for wind induced undercatch.

Figure 11. Is the gap filling procedure applied when the gap is bigger than 4 hours or lower than 5 (form the text)? It will be interesting to flag the filled timesteps.

It is surprising that the authors have chosen the deprecated ERA-Iterim reanalisys instead of ERA5. Is there any reason for that? I am not familiar with WFDEI, but is it not just a bias corrected version of the Era-Iterim with a spatial interpolation to

improve the resolution? If the idea was to perform a bias correction, Why not to use just ERA5-Land reaching a much higher resolution?.

19p/ Lines 12-20. As is presented as forcing data, it would be interesting for users to know the elevation and coordinates of the original reanalysis cells. If after the bias correction the elevation of the reanalysis cells should be considered the same as for main station, please highlight. Why not to use other stations too?. It will be interesting to read few comments about the limitations of bias corrected reanalysis specifically in terms of resolution compared with the distributed in situ observations. In addition, the metadata of the dataset highlights that the bias correction was performed using different stations (Metadata: “Bias corrected to Peyto Main for teauQsiQli, and to BowSummit for p”). It should be specified and justified in the text.

3.6 Glaciological data. Not all this data sources are available in the link provided by the authors (e.g. repeat photography). Please clarify when you are summarizing the available information, and when you are describing the new dataset, specifically in the second paragraph.

Please, use same coordinate reference systems for all the geospatial data. (e.g. BasinBoundary).

25p/Line 10. Could you provide a description of these “stable terrain”?.

26p./Line 3 to 4. the authors have probably used the tool GeoUtils, not the repository it self. I find the whole sentence confusing.

27p/Line 20. Again, this 1966 Land cover map is not available in the link provided by the authors.

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