Review

It's my pleasure to review "Datasets for research on groundwater flow and its interactions with surface water in an alpine catchment on the northeastern Tibetan Plateau, China" by Pan et al. This is an unique and very important dataset fur understanding the permafrost hydrologic process on the Tibetan Plateau. The manuscript is generally well orgnized and written. The manuscript can be accepted after addressing my following comments.

Main comments

1. In the manuscript, the authors mentioned the precipitation, temperature, and streamflow data in the study area (p.5 l.108) but gave only a URL (http://hhsy.casnw.net). How to download the data is not mentioned. Given the importance of the precipitation, temperature, and streamflow data to the use of datasets in this manuscript, I strongly recommended adding meteorological stations and hydrological monitoring points in the Study Area section and explaining how to apply for and download these data.

2. As a descriptive manuscript related to the field monitoring data, it should present the details about the study area as much as possible. However, the study area description in the manuscript, such as permafrost and planation surface, is too broad. It does not promote my understanding of the conditions at these sites. Can the authors provide some pictures of each typical landform, the well-group layout, and the core lithology of the borehole? Furthermore, please add a geological map of the study area.

3. In the alpine area with extreme weather conditions, the sensor's accuracy is especially essential in the quality assurance of field monitoring data. And to gain

this, a priority is to conduct systemic sensor calibration. However, no information about the sensor calibration can be found in the manuscript. Therefore, I highly recommend reinforcing the information about the processes and results of sensor calibrating in the manuscript.

4. Similarly, detailed information about the processes of water sampling is vital to evaluate the quality of hydrochemical and isotopic data. Unfortunately, I cannot find any information regarding this. So, it is suggested to provide detailed information (better with some photos) about sampling processes of different water reservoirs, including precipitation, glacier meltwater, groundwater, etc. In addition, the accuracy controlling of analytical results needs to be explained.

Minor comments

These are my minor comments, in order of appearance:

1. p.7 l.150: Please explain the data source for the permafrost range in figures 1(b) and 1(c) and the source and resolution of elevation data in Figure 1(c)? In addition, the phrase 'spring water' was used in the manuscript, while the word 'spring' was used in Figure 1(c). Please keep consistent.

2. p.12 l.203: What does '/' mean in Table 2? Is it the same as 0%? Please explain clearly.

3. p.13 l.210: The interval of temperature monitoring seems to have been forgotten to mention.

4. p.14 l.224: In Figure 3, the lines used to represent the groundwater level are broken. Is it due to missing data or something else? There is a similar problem in Figure 4 (p.15 l.233). It is recommended to tabulate the available data in the manuscript.

5. Section 4.2, 4.3, 4.4, and 4.3: These sections involve various analysis methods of water samples. A table is suggested to add to make a summary about these methods.

Technical comments

1. p.7 l.150: Since many monitoring and sampling sites belonging to different types were involved, it is recommended to rearrange Figure 1 to obtain a better visual effect.

2. p.10 l.152: 'Table 1 (continued)' should be changed to 'Table 1. (continued)'.

3. p.13 l.209: Please check the resolution of the pressure sensor (HOBO U20–001–02, ONSET, USA). The resolution should be 0.41 cm, not 0.21 cm.

4. p.13 l.210: The wire length of the temperature sensor (HOBO S–TMB–M0017, ONSET, USA) is only 17 m. Just out of curiosity: how to measure the temperature to a depth of 30 m?

5. p.13 l.213: Please check the resolution of the temperature sensor (HOBO S–TMB–M0017, ONSET, USA). The resolution should be ± 0.03 °C, not 0.03 °C.

6. p.14 l.224 and p.15 l.233: It is tough to see the differences described in your text from Figures 3 and 4 because the x-axis covers a range as long as six years. Please consider adding another plot or subplot with a shorter time span.

7. p.16 l.260: Please double-check the pore diameter of the filter membrane used for DOC water sampling. It should be 0.7 µm.

8. p.18 l.291: ‘ppb’ is generally not used to represent the unit of measurement precision. It is suggested to be replaced by ‘*u*g/L’.

9. p.18 l.300: A space is missing in ‘of’ and ‘^{13}C’.

10. p.28 l.590 and p.28 l.608: The URLs of the two references cannot be opened. Please double-check.

The dataset

These comments concern only the dataset itself given at

https://doi.org/10.5281/zenodo.5184470

1. There seems to be a language problem with the title of the dataset. Please correct it.

2. Please add elevation data for each site in the datasets.

3. Please simplify the analysis results. For example, the DOC concentration in precipitation was not measured using the total organic carbon analyzer (Multi N/C 2100 TOC, Analytik Jena AG, Germany). Thus this column can be deleted from the datasets.

4. It seems that some groundwater level data were missing. Please explain the reasons for the data missing (please refer to Minor comment #3).