

Earth Syst. Sci. Data Discuss., referee comment RC2
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Comment on essd-2022-85

Anonymous Referee #2

Referee comment on "Permafrost changes in the northwestern Da Xing'anling Mountains, Northeast China, in the past decade" by Xiaoli Chang et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-85-RC2>, 2022

General Comments:

It's my pleasure to review "Permafrost changes in the northwestern Da Xing'anling Mountains, Northeast China in the past decade" by Chang et al. Despite meeting the problems of the logger damage, lost in mailing, borehole damage and traffic control, the soil temperature including seven boreholes has been observed continuously for nearly 10 years, which is a valuable data set for understanding the hydrological process of regional permafrost. The manuscript is generally well organized and written. The manuscript can be accepted after addressing my following comments.

Specific comments:

- Please strictly unify the font and serial number of the main title and sub-title in the manuscript according to the template of ESSD. In addition, keywords do not appear to be necessary.
- Please check the acronyms in the full-text to ensure that each is defined when it first appears. For example, GH, MG, YTLH, etc. must be defined by Genhe, Mangui, Yituli'he,

etc. in appropriate places; ALT must be defined at the first occurrence, not at Line 209; Is YT in Table 1 equivalent to YTLH? Please add one note after the Table 1.

- Please add a north arrow to the left sub panel of Figure 1. Full name of all boreholes shall be included in the description of Figure 1.

- Ground temperatures at the Borehole GH4 were automatically collected hourly by the Micrologger CR3000 (USA), whereas at other sites were manually measured with a multi-meter (Fluke 189®). Can the deviation of the two different recording methods be quantified? Please clarify their possible uncertainties.

- Please add the factors (temperature, precipitation, etc.) of climate change from 1980 to 2020 in Figure 9 to better reveal the relationship between the maximum thaw depth and climate change.

- In discussion, please consider the possibility of hiatuses recovery and the possibility of increasing the frequency of observation (MG1, MG2, and MG3) from month to week. Because it is probably to enhance the comparability between these borehole data or with borehole data in other regions on monitoring frequency.

The dataset (<https://doi.org/10.11888/Geocry.tpd.271752>):

- What represents the difference between two and nine decimal places in the observed value? What determines it? Why do they alternate in all sites except for the MG3 (two decimal places)?

- The number of hiatuses in dataset far exceeds the described in the manuscript. Please add the interruption causes, including the sensor changes before and after the interruption (if any).

- GH5 and YTLH2 data have repeated the column of date. Does it make a special meaning? Please unify the format of observation data.