

Response to Referee #1.

Our responses, in blue italics, are embedded in the Referee's comments. We first thank the Referee for these useful and constructive comments.

The paper describes data from two adjacent sites in the forest-tundra ecotone in Northern Quebec.

With one station in the tundra landscape and one in the forest this data set covers an important transition zone.

The data will be of great interest for validation and improving of (climate) models.

Thank you for this positive evaluation.

Specific Comments

Abstract

I would like to read a sentence here about your gap-filling practices

Thank you for this suggestion. We do not think however that discussing gap-filling is useful in the abstract, especially that this procedure involves few data and would be lengthy to discuss in an informative manner in an abstract. All required information is given in the main text. We will listen to the Editor's recommendation on this point.

2. Site Description

line 80: The presence of lithalsas are not the reason for the permafrost, but the indicator why we know/think there is permafrost. Please rephrase

Thank you for this remark. We will change the text to "There is discontinuous to sporadic permafrost in the valley (Lemieux et al., 2020) as witnessed by the presence of permafrost mounds".

3. Climate Data

Table 1: could you make the rows more distinguishable? Shade every second row or something?

We apologize for the lack of clarity. Shading is not allowed by the journal, but we will improve the layout. In any case, the final layout will be done at typesetting.

I suggest to use negative numbers for soil depth to make it more clear which numbers are height over surface and which are depth below surface

Thank you for this suggestion. This will be done.

line 212: This sentence suggest you would allow precipitations value between -30 and 0 mm/h? There are now negative precipitation values in the data.

We apologize for this error. Indeed, there cannot be negative precipitation values. We will change $\pm 30 \text{ mm h}^{-1}$ to 30 mm h^{-1} .

7. Soil Data

Figure 15/16: could you make the accuracy of the tic marks and the grid the same for these two images? The resolution of your tic marks and the white space and the axis limits are often not the same for the pair of TUNDRA/FOREST images.

We will modify Figure 15 so that it matches Figure 16. Due to the swapping of sections 7.1 and 7.2 (see subsequent Reviewer's comment), these will be Figs 16 and 17.

line 422: Why did you choose to describe the soil properties after the measurements of temperature and soil moisture? I would suggest to change that, as it makes the interpretation of the soil moisture plots more intuitive

Good idea. We will follow this recommendation.

Technical Comments

line 24: "The data is available" instead of "The data are available"

Rigorously, "data" is a plural word, with "datum" the singular. Many people use "data" as a singular word, but this unfortunately widespread use is not grammatically correct.

line 345: delete "the" in ".. with these heights, as the there is.."

This will be done, thank you.