

## ***Interactive comment on “Effects of short-term variability of meteorological variables on soil temperature in permafrost regions” by Christian Beer et al.***

### **Anonymous Referee #1**

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Effects of short-term variability of meteorological variables on soil temperature in permafrost regions

By Beer et al., 2017.

The study explores short-term variability of the meteorological variables on the permafrost ground temperatures. The major finding is that short-term variability can slow down gradual permafrost warming predicted by many LSM type models. This is mainly true; however, resolution is another important factor that needs to be mentioned in the study. For example, at fine scale resolution, topography and vegetation might intercept snow allowing warmer ground temperatures. This effect will not be captured at low res-

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olution with global models. Overall, the manuscript is well written and requires some minor edition, which I list below.

L151. Not sure what is reservoir initialization.

REDVAR is introduced in L143 and explained only in L205. Need a better logical flow.

L228. What is the resolution of the GIPL1.3 model? Why GIPL?

L230. Typically, permafrost ground temperature observation made at depth from 15 to 20 m. Why authors choose 38m as comparison depth for the model?

Figures 4 and 9. Since your colorbar include green, I suggest to make non-permafrost areas colorless.

Percentile on the figure introduced in L320, explained in L326. Better flow.

L361. Not sure what authors are trying to say by bolded text.

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Interactive comment on The Cryosphere Discuss., <https://doi.org/10.5194/tc-2017-182>, 2017.

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