

Interactive comment on “Variability in Above and Belowground Carbon Stocks in a Siberian Larch Watershed” by Elizabeth E. Webb et al.

Anonymous Referee #1

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Overall Evaluation:

The manuscript by Webb, Heard and Natali et al. presents an interesting and detailed study on the variability of carbon storage above and belowground in northeast Siberia. The authors address an important and understudied topic showing the tremendous regional carbon variability and this knowledge is needed to increase our understanding of permafrost-climate feedback on global warming. The amount of produced data is substantial, especially for aboveground biomass. The data was thoroughly analyzed with meaningful and valuable results. In general, I like the design and the analyses of this study. The text is well structured and fluent written.

General comments:

It is clear throughout the text that the main emphasis was on the aboveground biomass.

C1

What I lack is the same accuracy and description for the fewer belowground carbon samples, especially for the 7 surface permafrost cores. As a reader I want to know for example: was the coring and the analysis of the 60 cm cores in short increments? How were the 7 sampling sites selected? Any signs of cryoturbation, data on soil texture, etc. Why do you think there is so little carbon in your top meter compared to the results from many other studies? In addition, I suggest that you add the SOC data from the first meter from the two deep cores which are part of the watershed to the other permafrost cores. This additional data will most likely increase the 1m average which will then be similar to many other cited studies. You have nice supplementary data but I lack the information from the permafrost cores in the data.

Since the samples were also analyzed for nitrogen (Line 223), why did you not further incorporate this data in the text? Also, given the sampling and measurement uncertainties, I think is unnecessary to present the soil C values in grams, especially since you shift to kg from line 308 in the text.

Specific Comments

- Line 288: Comma used for decimals
- Line 296: I suppose the SE should be \pm ?
- Line 346: Please remove the word “slightly”.
- Line 385: How many permafrost soils were sampled: 21 or 7? I miss this information in the section 2.7. Since it is stated in the description of Table 4 “. . .at selected sites, but not on the transects. . .”?
- Line 640: Typo “Author(s)”
- Table 2 & 3: Site number 18 is not forested as stated in table 1, why are there values for larch/larch density?
- Table 4: Would be good to indicate the n for the values since they are different

C2

- Table 4 & 5: Please add in the title “of the mean” as in others tables

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