

Clim. Past Discuss., author comment AC2
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Reply on RC2

Angelica Feurdean et al.

Author comment on "Holocene wildfire regimes in western Siberia: interaction between peatland moisture conditions and the composition of plant functional types" by Angelica Feurdean et al., Clim. Past Discuss., <https://doi.org/10.5194/cp-2021-125-AC2>, 2021

Anonymous Referee #2

This manuscript entitled "Holocene wildfire regimes in forested peatlands in western Siberia: interaction between peatland moisture conditions and the composition of plant functional types" and submitted to Climate of the Past by Feurdean et al., seems to be an original study, providing new elements of thinking on the functioning of borelean forests, in relation to the dynamics of fires, the climate and vegetation on peaty terrain. R: We thank the reviewer for the valuable comments that helped to improve the current version of the paper and for encouraging words about this work.

Here are my general comments:

- Regarding the layout of the figures, I think there are many: it might be wise to assemble them together, like figure 4 and 5 for example and to grade the same logic: either to everywhere do 1 panel per site, ie superimpose the 2 sites, but for each figure.

R: We agree with the suggestion to homogenize the layout of the figures and will provide this in the revised manuscript.

- The discussion seems to me to be well constructed, however I find it unfortunate not to have carried out a specific discussion figure, in particular regarding the dynamics of fires, since Feuredean et al., cite several studies on the scale of Siberia but also of Russia, it would have been beneficial to put their results directly in comparison with those cited, within a summary figure.

R: We will give our best to integrate the regional published results on fire metrics into the summary figure.

- I find it more prudent to nuance the conclusion about the water table, given that on the 2 sites studied, only 1 showed a significant result indicating that the fire regime was greater from the 20 cm threshold. And I will add to the conclusion that further studies from different sites would be necessary to regionally confirm this.

R: We agree with this observation. We will run correlation analyses at the two published

sites from Plotnikovo Mire (Fig.1) and add some words of caution on the necessity of performing such analyses at more sites in the region.

Here are more specific comments:

L38: "Pinus sylvestris-Betula"

R: Replaced *Pinus- Betula* with *Pinus sylvestris-Betula*.

L60: references are missing

R: Wildfire is the most common type of disturbance in boreal forests (Kharuk et al., 2021 and refs therein).

L76: You can not write "wildfire regime" and then include human activities within. Rather use just "fire regime".

R: Thank you, rephrased with "A fire regime emerges from the combination of ignition sources, climatic conditions, fuel properties and human activities...".

L176-109: the meaning of the sentence was not very clear, I would suggest: "In this region, the forest is made up of both light taiga (...) but also dark taiga (...), in greater proportions.

R: Rephrased to: "In this region, the forest is made up of both light taiga (*Pinus sylvestris*, *Betula pubescens*, *B. pendula*, *Populus tremula*), and dark taiga (*Pinus sibirica*, *Picea obovata*, and *Abies sibirica*), the latter in greater proportions towards the east.."

L659: I would change "grey rectangle" by "grey time windows".

R: Done