

Interactive comment on “Net ecosystem exchange and energy fluxes in a West Siberian bog” by Pavel Alekseychik et al.

Anonymous Referee #2

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The manuscript presents net ecosystem and energy fluxes from a West Siberian bog measured by eddy covariance technique. This manuscript provides important data from a remote and large but also understudied region which is characterized by high coverage of peatlands. Unfortunately, the data presented here is just for 4 summer months but as it was measured at an established field station more data will surely follow in the future. The topic of the manuscript is well within the scope of the journal and the manuscript meets well the basic scientific quality. However, extensive revisions are necessary before publication of manuscript. Main points of critique 1. It would be important to include some information on vegetation development over the investigated period to better understand the dynamic of the CO₂ fluxes. 2. The gap filling procedures should be described in more detail. It should be clarified in the text and in the figures if modelled or measured data has been used and also discussed how the gap

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filling method might influence the modelled data. If gap filling was not applied it should be discussed which influence it would have on the results. 3. The discussion is weak, maybe that was the reason why results and discussion were merged in one chapter. This chapter includes mainly comparison to other studies and less discussion of the influencing factors which determine the dynamics of CO₂ and heat fluxes. Specific comments: L 38: Please include some examples for measurements in Europe and in Siberia. L 55 Please change to flux tower data L 114 I usually include the measurement section into the methods section L128-130 You do not present winter fluxes here, so you can skip that paragraph or when does the winter start? L205 Why do you use the solar elevation angle and not the widely used PAR<10 $\mu\text{mol}/\text{m}^2\text{s}$ threshold to define the night-time? L 206 Did you try to use other soil temperatures than at 5 cm depth to model the respiration? Please include R2 to the Figure 3. L234-236 You use just the soil temperature at 5 cm depth for modelling, please include this information to the text and skip the information on soil temperatures at other depths. L 310-311 So the range of the values in the Fig 8a show just values from +3 to -9 $\mu\text{mol}/\text{m}^2\text{s}$. L 312 The vegetation might play an important role as well. L 318 Please include the gapfilling methods for the NEE fluxes. L 329 What was the range of daily fluxes in Mukhrino? L 351 It might be interesting to include a figure with a typical diurnal course before and during the passage of the weather front.

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