

Response to reviewer comments round 2

Dear Experienced Colleagues,

As indicated in my previous comments I can appreciate the observations from a remote location, and would gladly see you publish the measurements that you actually have. What I do not like so much is that you make a few measurements look like they covered a full month or summer or year - we're no longer in year 2000 where you can measure a few days and just guess the rest. We're in the era of monitoring programs and standardized measurement, where quality of the measurements is essential. I recommend that you cut out any extrapolations where you have less than 50% of measured data and present the rest as observations from an extreme climatic location. Then the modelers can do the modelling. For me this is a weird mix that claims to be observations.

We appreciate that the reviewer appreciate our observations from a very remote place on Earth and that he is glad (partly) to see our results published. However, he does not like the gap filling, particularly the long period in August with missing observations. But calling gap filling for 'guesses' is purely nonsense and either the reviewer does not know how the Wutzler et al gap filling works or he just dislike gap filling in general. But maybe it is more related to his comment about us being in "the era of monitoring programs and standardized measurements, where quality of the measurements is essential". For sure quality of measurements are essential but this does not only hold for scientists who are lucky to work in such circumstances, quality is always essential. And we must stress that we have never claimed that the "weird mix" are observations only. But we have tried to make this issue even more visible for instance see L 157-158 and L 222-225 in the revised version.

L: 17: I still don't think it can be justified to estimate summer fluxes or August fluxes based on two day only. Leave August out, and account for June and July, otherwise this adds more to confusion than conclusion.

We don't agree. We assume that a serious reader not only read the abstract but also look in the main text and there it is discussed the issue of gapfilling. Besides the clarifications mentioned above we have also added a paragraph L 408-412 with reference to the supplement where we show a comparison between gap filled and modelled diurnal courses. We believe that most readers will appreciate our attempt to estimate the season fluxes and not only show bits and pieces with maximum data coverage.

Figure 4 what is on the x axis?

It says in the x-axis legend 'Sampling occasion' and we don't think it needs further explanation.

Figure 6. Measured ecosystem respiration (Reco; green dots)- in ½ hourly means?

We added the word 'using chambers' in the legend to make sure that the reader understand from where these measurements come.

Figure 8: is the diurnal cycle in august based on the two last days of the month only? And June on the last 6 days only ? you should then say "Notice that the main part of June and August was gap filled" What about sep? do you have more than 50% data coverage here? Otherwise include that in the sentence as well.

It is clear in the figure legend that the diurnal courses are based on EC measurements during the period 25 June to 17 September and not the full growing season. We already added a notice about the long gap filled period in August.

L: 410 measurement problems.

Don't understand what the reviewer mean with this comment?

Figure 9: to me that looks like the previous ms version fig.8 , which I didn't like, and still don't, because there are no measurements from August and it still looks weird to me. Maybe worse now because it looks like numbers were measured rather than guessed

Maybe the reviewer don't like this figure but we don't get any explanation why it is 'weired'. What is 'weired' with this curve? And again, a reader who read the main text will for sure understand that this curve is based on both measured, gap filled and modelled (at end and beginning of season – clearly stated in main text) data. How can it 'look like' the numbers are measured instead of guessed?