

RESPONSES TO REVIEWER 2

Suggestions for revision or reasons for rejection (will be published if the paper is accepted for final publication)

The authors did a thorough job responding to the reviews and incorporating the comments into the manuscript. I just have two more general comments, and a few minor things to be cleaned up.

We thank you for agreeing to review the manuscript again and for your positive comments.

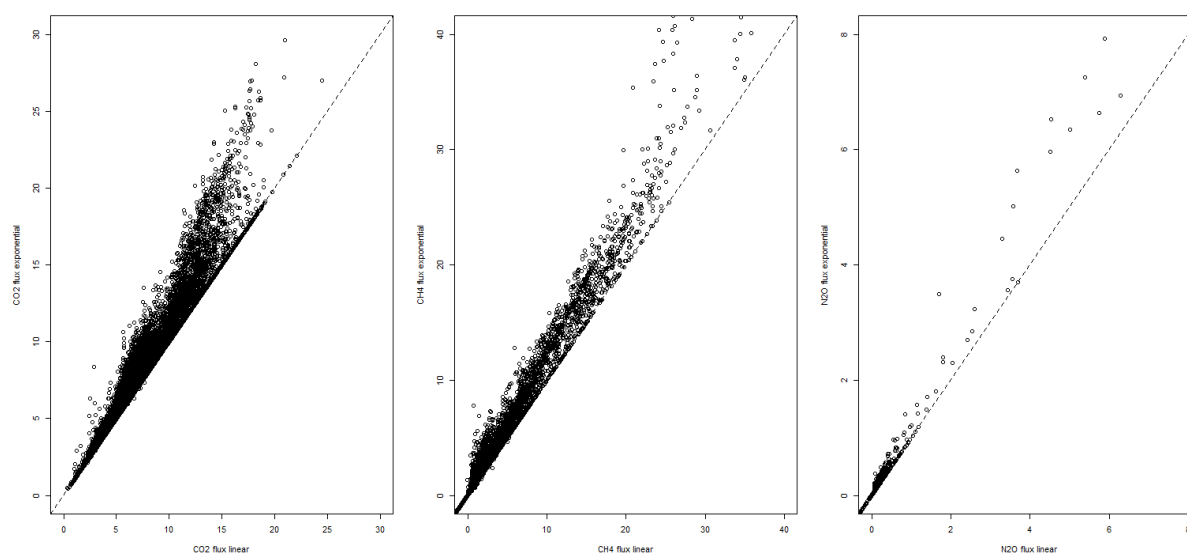
General comments

I still have one question about the flux calculation procedure. You write that all fluxes are calculated using exponential fitting in the Soil Flux pro software. Does that mean you really calculated an exponential flux for each measurement or did you use purely the results from the “Exp Flux” column? The two things are not identical. If the software decides that a linear fit is more suited for a curve, the nonlinear coefficients are set based on the linear fit.

We recomputed all fluxes using exponential fits and then used the Exp_Flux column. It is clearly stated in Soil Flux pro manual (p. 58) that this value corresponds to exponential fit of the data.

I know it is not the primary scope of the manuscript, but it would have been nice to see a comment about the effect of the flux calculation on the calculated fluxes. There is a significant difference in the shown flux distributions when you compare Fig. 3 from the revised manuscript with Fig. 2 from the original manuscript. Most notably for N₂O. This could eventually impact annual or seasonal balance estimates.

You can find below a figure presenting the comparison between linear (x-axis) and exponential (y-axis) of the same measurement for all the fluxes. Linear estimation are clearly underestimating fluxes for high fluxes. This figure is now integrated in the supplementary material of the new version of the manuscript.



Specific comments

Page 1, line 32: Start the sentence with, “After water vapour,…”

Corrected

Page 2, line 6: “change” instead of “increase (or decrease)”

Corrected

Page 4: Sometimes you write “Li-“ instead of “LI-“ for the LI-COR instruments”. Also “Soil Flux pro” and “Soil flux Pro”

Corrected throughout the manuscript

Page 4, line 16: Add “sensors” after “water content”

Corrected

Page 5, line 21: At the end of the sentence add “if fluxes are calculated linearly.”

Corrected

Page 6, line 19: “with previous or following” you mean “adjacent”, right?

You are right. We used adjacent in the new version of the manuscript.

Page 6, line 34: “varied” instead of “varies”

Corrected

Page 7, line 11: “could” instead of “can” ; the average flux value and the uncertainty value should have the same decimal

Corrected

Page 7, line 15: one redundant full stop

Corrected

Page 8, line 1: “that” instead of “than”

Corrected

Page 8, line 5: a comma or “and” missing before “(4)”; “could” instead of “can” (same in the N₂O section);

Corrected

Page 8, line 20: “displayed” instead of “display”

Corrected

The conclusions can be shortened. There are some repetitions in it.

The conclusion has been shortened.

Figure 6: In contrast to what the caption says, y-axis don’t have the same limits.

Corrected