

Detailed comments:

P. 1, l. 17: Delete “In this aim”; i.e. start with “We randomly selected...”

R: done.

P. 1, l. 25: The phrase “In conclusion” comes too soon, as you follow this with further detail of our analysis. I suggest you delete here and may use the phrase for the last sentence (but it’s not obligatory there).

R: “In conclusion” was moved to the last sentence

P. 2, l. 23: This should be “IRGAs”, as the A of IRGA stands for Analyser, so “IRGA analyser” doesn’t strictly make sense.

R: done.

P. 2, l. 31/32: I propose different punctuation to make this clearer: “In the case of humid forests, both approaches are used, and in the case of annual estimates using manual chambers, measurements are usually done only once per day and during daytime (Table 1).”

R: done.

P. 3, l. 3-5: Can I suggest a rephrasing also here to help clarity? “Temperate forests present ecosystems with a high degree of shading compared to ecosystems with sparser vegetation, including agricultural land uses. Nevertheless, variations of $\pm 25\%$ of the daily Rs flux have been reported for a temperate mixed hardwood forest, and mid-morning measurements identified as best suited to estimate daily mean fluxes (Davidson et al., 1998).”

R: done.

P. 4, l. 13/14: Annual rainfall should be on the order of 2 m in these systems. Do you mean average daily rainfall here? Or should this in fact be “2,000 – 2,500 mm”? If you state this in metres, this avoids any confusion.

R: There was a mistake. We changed to point by comma.

P. 4, l. 23: The depth of collars is an important issue for soil respiration measurements, as a deep insertion can affect root transport of carbohydrates to the rhizosphere. Please state here how deep the insertion of your collars was.

R: We added the approximate depth (10 cm)

P. 6, equations 2 and 3: Please check this – your method of calculating standard deviations and RMSE seem identical.

R: The equations are correct. They are slightly different.

P. 7, l. 11: Add units to values of soil moisture (2 instances in this line). Also please check the agreement of values stated here and Figure 4. The range shown in panel C of Figure 4 is much higher (in fact too wet to be realistic).

R: We added the units and corrected the values in the text.

The values are OK. We added a sentence to explain that the values are realistic given that these are organic soils. Their water holding capacity is around 0.9, which is explained by the low bulk density and high carbon content.

Table 1: In the first row, indicate what you mean by period (I presume it's months?), and what M and A means for "Type of Sampling".

R: We added more information to the headings row.

I don't normally request that authors cite my work, but I wonder if you consider our efforts to estimate annual soil respiration in a montane forest in Germany as fitting into your category of "humid forest". If yes, you could include it too: (Subke J-A, Reichstein M, Tenhunen JD, 2003. Explaining temporal variation in soil CO₂ efflux in a mature spruce forest in Southern Germany. *Soil Biology and Biochemistry*, 35, 1467-1483.) I don't think there are implications for the text from this inclusion, and it's purely for a more complete representation of studies in the table. Nina Buchmann estimated annual soil respiration using a non-continuous approach in the same stand (but a different year), which could also be included (Buchmann N, 2000. Biotic and abiotic factors controlling soil respiration rates in *Picea abies* stands *Soil Biology and Biochemistry* 32, 1625-1635).

R: we included both citations in Table 1.