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Interactive comment on “Effect of land use on carbon dioxide, water vapour and energy exchange over terrestrial ecosystems in Southwestern France during the CERES campaign” by N. Jarosz et al.

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We thank the referee for the several specific comments, suggestions and corrections that we considered carefully. Here is the list of the different corrections we applied following your comments.

The analysis presented in this paper is only based on 6 weeks of data (duration of the CERES campaign). Multi-year data are needed but it is also difficult to do this kind of experiment where sites covering large ecosystem types are followed continuously.

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However, the dataset presented here provide a good basis to be used in models and finally quantify the effect of the different land use at regional scale. We try to make this clear in the introduction of the paper. Moreover, to analyze the significance of the results, we also add some statistical analysis in Figure 4 and Figure 5.

Second, the description of sites and instruments has been summarized in one table in order to make the Material and Method section easier to read.

Details: Abstract line 6: which ecosystems???

It was forest ecosystems. We make it clear in the text.

line 14: what is meant with: plant growth behaved as sources of CO2?

In fact, it is “summer crops before irrigation and plant growth”. In order to avoid misunderstanding, we turn the sentence as follows “Both summer crops before irrigation and following plant growth and the clearcut behaved as sources of CO2, whereas the vineyard, the mature forest and winter crops acted as sinks.”

line 19: cleacut should be clearcut.

This has been corrected in the manuscript.

head of section 2.3 should be 'Meteorological and soil measurements'

This has been modified as suggested.

p2765: In three following sentences is written: 'the weather was particularly hot'. please less repetitions.

The repeating sentences have been deleted.

p2767, line 24: I do not understand how a 6 week measurement period can result in a conclusion 'at a yearly scale'.

Indeed, that is the reason we use “it is likely that”. As it doesn't change the meaning of the paragraph, we delete the sentence.

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p2770 last sentence 'the slopes between CO₂ fluxes and evaporation show a strong linkage between carbon gain and water loss'. Of course! CO₂ flux informs about carbon gain and evaporation informs about water loss. I guess that the authors want to say something else, but it is not clear from their formulation what is meant.

We meant that ecosystem with high carbon uptake use water more efficiently. This has been clarified in the manuscript.

p2771 second sentence is poor english. could be improved by starting with 'Energy and mass flux.....'.

The sentence has been changed as follows: "Magnitude and dynamics of energy and mass flux exchange with the atmosphere are highly specific of ecosystem types".

Table 3. Please explain a negative soil heat flux at site COU during a period with increasing temperatures when the soil should warm up from above.

G at COU was +19 MJ m⁻², instead of -19 MJ m⁻². It has been corrected.

Figure 1. The explanation of the symbols in the figure is too small.

The symbols have been enlarged as suggested.

Figure 3 and Figure 4 have been changed in order to take into account 95% confidence interval. Besides, graphs have been selected in order to keep only one example of sites representative of forest, clear-cut, summer and winter crops.

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