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Interactive Comment

Interactive comment on "Simultaneous measurements of CO₂ and water exchanges over three agroecosystems in South-West France" by P. Stella et al.

Anonymous Referee #2

Received and published: 22 April 2009

There are three significant issues I have with the manuscript. First, the open-path LI7500 measurements at LeBray and Bilos do not include any information on the heating error correction which is a significant problem with this sensor. Over the winter, we have found the sensor to have an error in cumulative NEE up to 100 g C m-2 when compared to a closed-path system (two systems using the same sonic anemometer). During the daytime, it looks as if there is photosynthesis when in fact the field is void of living vegetation. This correction will not have a minor impact during the growing season GPP and Re but a substantial impact on non-growing season Re. Information on this correction can be obtained from the Licor website. This is an important correction and cannot be ignored.



The measurement period is only 11 months and the results are being compared to 12 month accumulations periods in other studies. There is also no mention of carbon removed from grain harvest in the maize field. This information is important to get a true sense of the annual carbon exchange.

Finally, the discussion showing the reduction in GPP during the dry period and control of VPD is not very clear at all. Just showing diurnal patterns is far too qualitative. It needs to be more quantitative. You have to show relationships between parameters to quantify the impact. For example, show midday GPP plotted against midday PPFD for days with low midday VPD and on days with high VPD or show one day of GPP vs PPFD on a day with good moisture compared to a day with low soil moisture. This allows the reader to quantify the impact of dry conditions.

One smaller item, WUE calcuated on a growing season basis is also interesting information to present to readers, especially since WUE using GPP in agricultural crops is not as common as using biomass or yield. It does contain valuable information nonetheless. WUE is defined as the ratio of growing season GPP to growing season ET.

Interactive comment on Biogeosciences Discuss., 6, 2489, 2009.

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