

***Interactive comment on “Carbon input control  
over soil organic matter dynamics in a temperate  
grassland exposed to elevated CO<sub>2</sub> and warming”  
by Y. Carrillo et al.***

**Anonymous Referee #3**

Received and published: 6 April 2010

This manuscript describes a set of measurements related to carbon flux at the PHACE experiment, ostensibly to learn about controls on soil carbon cycling in response to global change. While the measurements seem to be of high quality, the overall approach is not well-described and possibly ill-conceived.

The last few sentences of the introduction present a set of expectations that are to be tested against observations. While this may be interesting, it is not a very sound approach to conducting science that will produce generalizable results that are meaningful in other systems. A more rigorous approach would begin with a set of unexplained observations, develop a hypothetical explanation for those observations, and then test

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that explanation. Exploratory work like that described here has place in science, but it can often lead to unfocused work from which it is difficult to draw meaningful conclusions. I think that is the case here. For example, there is no mention of priming in the set of expectations to be tested, or as justification for carrying out these measurements, yet the last sentence of the abstract (the place for the take-home message!) and much of the discussion are devoted to priming – largely based on ideas, tests, methods, and conclusions of other work.

It may be that my interpretation of the work presented here is incorrect, in which case my objections to the construction of the manuscript and the approach could be incorrect. However, I think I am a reasonably astute reader who will raise objections like those of other readers. For this reason, I recommend that this manuscript be rejected in its current form. If the authors can make major revisions that do a better job of framing the observations within the context of hypothesis tests, submission of a revised manuscript may be justifiable.

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Interactive comment on Biogeosciences Discuss., 7, 1575, 2010.

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