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Interactive comment on “Measurements of soil respiration and simple models dependent on moisture and temperature for an Amazonian southwest tropical forest” by F. B. Zanchi et al.

Anonymous Referee #3

Received and published: 31 August 2009

In general, I find this manuscript interesting, which tries once again to identify mathematically the main drivers of soil respiration. Their main conclusions are that neither temperature or water content explain (no high correlation) soil respiration immediately. Nevertheless, they find that with monthly averages, these correlations increase, which is what other papers have presented before. My greatest constraint about the manuscript is not methodological, it is about the size of the fragment, which is only 32.5 ha. And there wasn't a single comment on the effect of fragmentation on biophysical properties or structure of the forest. I agree with authors that soil properties must play a major role also on soil respiration and this should be addressed in further research projects. Nevertheless, the topic is very important and the authors address

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all the issues in a proper manner, so this manuscript, with little revisions is appropriate for publication in this journal.

Now the specific comments:

pg 6152, line 22 - one of the abbreviations is Mar, where in the equation it is written Ma (without the r);

pg 6154, ln21 - exchange the word "prejudiced" to "jeopardized" (actually I am also brazilian, so I don't know of a better word, but prejudiced does not sound right to me);

pg 6154, ln24- change "dept" to "depth"

pg 6155, ln1- change "noticed" to "observed"

pg 6156, ln3 - change "others" to "other"

pg 6157 ln6 - change "derivate" to "derived"

pg 6158 ln28 - change "to be possible to understand better" to "in order to better understand"

pg 6160 ln13 - the authors use the term "dry spell", which I haven't read in academic or scientific papers... maybe they could change that

pg 6160 ln14-17. This whole sequence is confusing. Authors should re-write the whole sentences so we can understand clearly what they are trying to say.

pg 6160 ln27 - change "make" to "makes" and "smooth" to "smoothly"

pg 6161, ln2 - change "temperature" to "temperate";

pg 6161, ln9 - change "satisfactorlly" to "satisfactory"

pg 6161, ln25 - change "prejudiced" to "jeopardized"

pg 6162, ln5 - I agree that species composition interfeers in ecosystem properties, such as soil respiration, but I find it hard to relate an emergent property of the ecosys-

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tem with individual tree species or decomposer species. I think this comment could be made somewhere else, but not on the last line of the whole manuscript.

pg6170 graph1 - where is "rain dry period" in the graph, authors forgot to include it. Other thing Rs is equal to Rsoil?

pg 6172 graph 3 - in the inner graph, authors present a scatter plot with 6 sets of data, while in the larger graph there are 13 sets of data for both litterfall and soil respiration. Why didn't they use all 13 sets of data for the regression present in the inner graph?

pg 6174, graph 5 - third line of legend "two models dependence..." this is confusing. Shouldn't it be "model dependent on..." I think the phrase must be re-written.

Interactive comment on Biogeosciences Discuss., 6, 6147, 2009.

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