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Interactive comment on “Composition of eroded carbon during its journey through a tropical watershed: a clue to the question whether it is source or sink of CO₂” by C. Rumpel et al.

Anonymous Referee #2

Received and published: 6 February 2014

This is an interesting paper as it reports on a multi-scale assessment of soil and carbon redistribution. The paper examines the evolution of the biochemical composition of eroded SOC from the plot to the catchment scale. Overall, the paper is well written and I have no issues with the main gist of the paper. The experimental setup is original and the framework that is used in the discussion of the results (whereby erosion-induced (lateral) changes are compared to vertical differences in soil profiles) is novel.

However, in my opinion the manuscript is very short and in some sections insufficient information is presented and some issues lack an in-depth discussion: (i) the complex layout of the plots is described in a few sentences. This setup requires an improved description of this layout and some basic information on the locations of the plots/weirs

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within the geomorphic cascade. Adding a descriptive table or a figure/map where this information is given could be very informative. An important issue that I could not fully understand from the text is how the data were temporally integrated: are the reported results based on the average values of the 34 storm events? This is not clearly explained. (ii) one of the objectives is to compare the erosion-induced changes in biochemical composition with vertical profile differentiation. This is interesting but this objective does not follow logically from the information presented in the introduction. A short paragraph that provides context for this specific objective should be considered.

The following items should be discussed in more detail: (iii) the manuscript only addresses qualitative changes at different spatial scales. What is needed to give quantitative estimates of fluxes and in particular sink vs source behavior? (iv) in relation to (iii), the link between changes in EOM characteristics and sink-source behavior is not well-defined. (v) based on fig 2: is it possible that fresh plant derived material enters the aquatic system and that this may explain, at least partially, the observed jump in $\delta^{13}C$? (vi) the authors should consider to provide some additional guidance for fig 3.

Line 23 pare 18178: spelling

Interactive comment on Biogeosciences Discuss., 10, 18175, 2013.

BGD

10, C8504–C8505, 2014

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