

BG-2015-17 Editorial Review

Major Comments

There is a general problem with data being discussed which are not presented, therefore the statements referring to them are unsupported. For example, SUVA, deoxyC5/C6 and proportion of plant markers are not stated or plotted for the SOM or soil DOM. Therefore the statement at the beginning of section 4.1 about the provenance of inter-storm river DOM is unsupported, as is the end-member mixing model statement that follows it. Please extend figure 3 and Table 1 to include the missing data. The reader should not have to refer to another paper in order to substantiate the claims made in your text.

You also have the opposite problem of including data which are not discussed. Your discussion does not comment upon or explain the noted changes in SUVA or percentage plant derived markers that you describe in your results section. Please insert a discussion of those data or remove them from your methods and results.

At one point in your response to reviews you use the text copied below. This is a more detailed argument than you employ in your manuscript. Please add the argument given below to the appropriate section of your discussion.

'The partitioning from particulate phase occurs continuously in soils but with a high ratio 29 soil/water creating a specific DOM with a low C/V (around 0.2). During storm event, erosion 30 carries particles in water. These low soil/water conditions induce a displacement of the 31 equilibrium between OM in the solid phase and OM in the dissolved phase, which seems to 32 lead to DOM with a high C/V (higher or equal to 0.8). Since the lignin ratio C/V remains high 33 even after turbidity has decreased to pre-event value, an additional mechanism inducing low 34 soil/water conditions is necessary. This could be the erosion of macropore walls but also as 35 suggested by the first referee, the destabilization and disaggregation of soil aggregates. Those 36 explanations are hypothetical and at this stage need further investigation to be supported.'

Please include the end member mixing model equation as suggested by reviewer 2.

The use of English throughout the manuscript contains minor errors, and these occasionally tend to obscure the intended meaning. Please seek to have the manuscript copy-edited for use of English (the journal can provide this if necessary, but only at additional cost).

Minor Comments

Abstract: Please re-write the first few sentences of the abstract, as the use of English is a little awkward, and one sentence is over-long. This is also true of the first paragraph of the introduction.

Page 3 line 26. You begin a sentence with 'Answering these questions...', but no question has actually been posed. Please re-phrase.

Page 4 line 12. Be more explicit about how your markers allow distinction between DOM from different soil horizons, At the moment this is simply stated rather than explained.

Page 4 line 29; Delete 'do we see trends?' (unnecessary).

Page 16 line 7; replace 'on' with 'in' (October).

Page 8 line 27. You refer to published data here, so please add in the relevant references.

Page 9 line 14. Please add 's' to the end of 'follow'.

Page 10 line 4-5. This sentence does not make sense. Please re-phrase.

Section 3.1. This section makes reference to compounds (specific lignins) which were not mentioned in the methods section. Please clarify in the methods section which aspects of the methods (presumably TMAH GC-MS) involved the identification and quantification of these different lignin compounds. Similarly, you also refer to SUVA data in your results section. Please therefore provide your method for measuring SUVA.

Figure 4. The legend for this figure needs correcting, as it currently does not distinguish between the line for discharge and the line for DOC concentration.

Please add a note to your results text to explain that data are visually presented for example events rather than for all events.

Page 12 line 7. The sentence starting 'The highest value..' is unclear. Please re-word to make the meaning clear (do you mean 'higher' instead of 'highest'?).

Page 12 line 14. Please state exactly what you mean (i.e. what data) by 'other microbial-derived biomarkers'.

Page 12 line 30. Explain what you mean by 'the extreme value'. Extreme value of which parameter? In which figure can this data be seen? Are these last lines of the section referring to your own study or to other previously reported studies? Please clarify.

Figure 6 caption please remove the phrase 'Time diagram'.

Page 13 line 28. Please replace 'liquid' with 'dissolved'.

Figure 7 caption. Please remove the words 'Difference of'.

Figure 7 legend. The black diamonds should be labelled 'entire event', not 'falling limb'.

Page 14, first paragraph. Please explain why disaggregation of aggregates and erosion of macropore walls would transfer lignins into solution but not add to the suspended particle load.