

Interactive comment on “Sources and transfer mechanisms of dissolved organic matter during storm and inter-storm conditions in a lowland headwater catchment: constraints from high-frequency molecular data” by L. Jeanneau et al.

Anonymous Referee #1

Received and published: 27 March 2015

The intent of this manuscript was to study DOM character during storm events using molecular biomarkers determined using THM-GC-MS. The authors compared this data against – isotopic data, UV and fluorescence values, and results and EMMA analyses from prior studies in this catchment. The questions were well posed and the paper was generally well written.

The authors report some interesting trends in the molecular biomarkers during storm

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events and the comparison of this data against isotopic and spectrofluorometric data was valuable. My main concern in this manuscript is about the very specific mechanisms provided to explain the molecular biomarker signatures. These include – destabilization of microbial biofilms from macropores and erosion of macropore walls due to high soil water velocity. I am not sure that the authors have the evidence to back up some of these explanations. There could be alternate, simpler, explanations for some of the results that they see. Such as simple microbial lysis in the soils over the dry period and flushing of these byproducts during the wetting-up phase, destabilization and disaggregation of soil aggregates during storms, etc. I think the authors could include some of these alternate hypotheses to explain their results and tone down the very specific hypotheses they provide. Some additional description on results from previous studies that have used these biomarkers would have also been beneficial.

Specific comments – The manuscript could be improved for grammar and overall writing. For example, page 3351, lines 6 and 12 – “research” is singular. Page 3350, line 12 – replace “inherited” with “derived”. Page 3355, line 9 – feds should be feeds. Line 10 – what do you mean by “increases uphill”. Page 3359, line 1 – no internal standards were used. Does this weaken your methods and approach? Line 17 – can you provide a reference here for your assumption? Page 3367, line 5 and 6 – you did not provide any specific evidence to support this. This is a speculation or hypothesis. Figures 2-7 – please provide legend of the figures so that we can easily associate the symbols with the parameters. We should not have to read the caption to understand the symbols.

Interactive comment on Biogeosciences Discuss., 12, 3349, 2015.

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