

Interactive comment on “The role of watershed characteristics, permafrost thaw, and wildfire on dissolved organic carbon biodegradability and water chemistry in Arctic headwater streams” by J. R. Larouche et al.

Anonymous Referee #1

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The ms entitled “the role of watershed characteristics, permafrost thaw, and wildfire on dissolved organic biodegradability and water chemistry in Arctic headwater streams” presents interesting data concerning the effect of the degradation of arctic (by several factors) on the DOC lability and concentrations in several watersheds across Alaska. Relationships between these characteristics, soil “type”, age and water chemistry was also presented. The paper is clearly presented, scientific corrected and the references support the discussion and conclusions of the authors. The experimental design is also adequate and the analytical methods are often used for this purpose. I believe

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that this ms can be accepted for publication on this special issue of Biogeosciences if the authors performed a revision to the initial version: My comments are as follows:

1. The number of figures is too high compared to the length of the ms. Moreover in some parts of the results and discussion sections are difficult to follow since in a same phrase we have to look for several graphs in different figures. I don't have any suggestion about this but I think that the quality of the ms will improve if a different choice would be made. Probably by merging some of the figures the paper will become more clear (e.g. 2 and 3)
2. The main hypothesis was not supported by data and, indeed, the authors made a good discussion on this subject. The authors claimed that the site characteristics (soil, age, water chemistry etc) are key factors for the lability/biodegradability of DOC. This conclusion is of course supported by the data. However I would think that this was an important issue even not doing this experiment. Therefore I suggest that the authors should clearly point the importance of this conclusion trying to make it general thus presenting the new science obtained with this study.

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