

## ***Interactive comment on “Shift in the chemical composition of dissolved organic matter in the Congo River network” by Thibault Lambert et al.***

**Anonymous Referee #2**

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### General Comments

The submitted manuscript characterizes the downstream changes in DOM composition in the Congo River with a seasonal component. The study covers a large spatial scale in an important basin in the context of the global carbon cycle. Additionally, the African continent has been underrepresented in studies of this kind. This paper is an important contribution to the field of aquatic carbon biogeochemistry. The measurements (SUVA, PARAFAC,  $\delta^{13}\text{C}$ -DOC) are commonly used in the field and thus can be easily compared to future studies.

The authors did commendable work interpreting the data in the discussion. I believe their conclusions about photodegradation and production of aliphatic-like DOM are well supported by the cited literature. Additionally, the insights into the role of landscape

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morphology on DOM composition are sound. The incorporation/comparisons to the chemostat hypothesis and pulse-shunt concept were insightful and are supported by the authors' interpretation of the results. I would recommend the article be accepted with minor revisions. The English could be improved throughout the manuscript. It would benefit from additional proofreading for mistakes and general language flow. Additionally, the authors must address methodological concerns with regards to sample storage/preservation.

### Specific Comments

L141-L151 Samples for fluorescence and absorbance were filtered and kept in the dark but how long were they exposed to ambient temperatures before refrigeration and then analysis? Given the respiration measured after 24 hour incubations at ambient temperature this is a major concern and must be addressed.

### Technical Errors

L20 Should be second largest basin/discharge as mentioned in the introduction/methods

L225 "wwereas"? Should be were

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