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The 18/10/2021 at Toulouse, France,

Dear Editor,

Please find enclosed our revised paper bg-2021-69 that now entitled: "**Partitioning carbon sources between wetland and well-drained ecosystems to a tropical first-order stream - Implications to carbon cycling in the whole watershed (Nyong, Cameroon)**". We have revised the paper according to the first round of reviewer's comments and our detailed response to these that has been previously submitted. Briefly, in the revised manuscript, we added new figures and tables describing the seasonality of river discharges and carbon variables in groundwater and in the different stream orders of the Nyong watershed. In addition, we estimated the riverine DIC, DOC and POC budgets in a first-order catchment located within the Nyong watershed. The estimated fluxes are hydrological inputs of C from the drainage of land (i.e., from groundwater located in a well-drained forest; hereafter referred as non-flooded forest groundwater) and from wetland to the stream, the heterotrophic respiration in the river, the CO_2 degassed to the atmosphere, and the C hydrologically exported at the stream outlet. We explored the role of wetland on riverine C cycling by comparing the seasonality of C concentrations in stream order 1 - in which the wetland dynamic as a riverine C source was understood from the riverine C budget - with respect to the other stream orders. Altogether, this allows to highlight seasonal flush of organic matter (OM) from the wetlands in the first order catchment and from floating macrophytes in higher-order rivers during rainy seasons. Also, this seasonal flush of OM significantly affected downstream metabolism by enhancing heterotrophic respiration in the river. Finally, we estimated CO_2 degassing from rivers and C export to the ocean at the Nyong watershed scale and we compare these fluxes with the terrestrial C budget of the watershed. In the Nyong watershed, these two fluxes represent 10% of the watershed net C sink showing that fluvial C losses are not a significant component of the C budget of the tropical Nyong watershed. Nonetheless, wetland C inputs significantly contributed to fluvial C losses, at least to the tune of 40% in first-order stream, probably more with increasing stream orders, particularly considering larger riparian wetlands in high-order streams and the development of floating macrophytes in river beds during dry seasons. These results are to the best of our knowledge highly originals and important for our scientific community because C cycling in African rivers remains poorly understood and biogeochemical data from these systems are dramatically scarce. Therefore, we believe that the paper could make a significant contribution to tropical limnology and to the knowledge of this ecosystem.

On the behalf of my co-authors,

Sincerely,

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