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Comment

Interactive comment on “Fluvial organic carbon losses from a Bornean blackwater river” by S. Moore et al.

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General:

The article presents original data of particulate and dissolved organic carbon concentrations from a blackwater river in Indonesia. As this kind of data for tropical peat swamp forests are still rarely found in the international literature, they contribute to more precisely constrain fluxes to oceans at both regional and global scales. The estimation of this flux and its extrapolation for Indonesia represent the major contribution of this research. Additively, the authors present longitudinal pattern of POC and DOC concentrations from source to mouth. Unfortunately, no data or experiments help to delineate basin or in-river processes explaining the longitudinal pattern observed. While some proxies easily accessible and now commonly used may help to identify the

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origin and components of dissolved and particulate organic carbon (stable isotopes, fluorescence, etc) and the process driving concentrations (oxygen concentration, respiration, degradation, etc), I deeply regret that these data/techniques were not used in this study. Moreover, concentrations in tributaries were not tentatively put in relation with land cover while various land occupation were present. These absences clearly diminish the interest of the paper, and to my opinion, do not align this contribution to the standards generally published in Biogeosciences.

At least, I recommend taking into account the following remarks/comments.

Major comments:

p. 8324, §Sample preparation and analysis:

The methodology used for quantifying particulate matter is not clearly stated. Was the filter simply weighted? If yes, oven drying the filter 2 h at 80°C is an uncommon procedure leading to (1) combustion (and loss) of labile organic matter due to higher temperatures, (2) overestimation of the dry weight due to incomplete drying (too short duration). Moreover, data from the same system should be presented to demonstrate that approximations used are correct, i.e. (1) total suspended matter is mainly constituted of organic matter, and (2) %POC/TSM is near 50% in this system (while even in black water system it commonly vary from 30 to 50%). We may argue that POC values are low in comparison with DOC concentrations observed in this system and that consequently errors in the estimates of POC concentrations have little influence on the total estimate of organic fluxes from the Sebangau river to the Java Sea. But (1) if this the case, why present erroneous or lacking-precision data? and (2) observed/calculated POC values are not low in comparison with concentrations generally observed in tropical black waters.

Minor comments:

p. 8321, l. 26: Add a paragraph sign at the end of the sentence

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p. 8323, l. 2: Add a coma after “the River Sebangau”

p. 8324, l. 12: “Baum et al. (2007) reported horizontal . . .”

p. 8324, §2.2 Sample collection: Could you locate more precisely where the samples from tributaries were collected? And could you explain in more details the methodology used for estimate discharges?

p. 8324, l. 24: “. . . water was filtrated through a 0.45 μm . . .”

p. 8324, l. 26: “The filter was retained and . . .”

p. 8325, l. 5: “. . . dilute sulphuric acid.”

p. 8325-8329, the Results section: The entire section should be written in the past form.

p. 8325, l. 14: Remove “as expected”

The numbering of Fig. 2 and Fig. 3 should be inverted in order to present the figures in increasing order.

p. 8326, l. 7: “The EC vs DOC relationship. . .”

p. 8326, l. 11-17: This section should adequately be moved to M&M section.

p. 8326, l. 22-25: The estimate of C flux at the mouth must not be considered as conservative because some DOC is removed during transport from peats to the sea. The estimated flux actually represents the real flux to the sea at the time when the data were collected.

p. 8326, l. 26-28: The figure 4 shows a longitudinal pattern of POC concentration much more complex than described in the text.

p. 8327-8328, § 3.3: This section should adequately be moved to the Discussion.

p. 8327, l. 23-26: This affirmation is largely speculative and must be at least stated as

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it is.

p. 8328, l. 12-13: Could you detail the processes and mechanisms you suppose lead to an increase of POC release during the dry season? It is unclear and appears few demonstrated.

p. 8328, l. 15-18: This section should be presented into the M&M section.

p. 8328, l. 18-20: Change the unit in order to diminish the number of decimals (use e.g. kg).

p. 8329, l. 1-12: This section should be moved to the Discussion section.

p. 8330, l. 11: "At the opposite of our observations,..."

p. 8332, l. 1-3: This sentence is unclear. Could you clarify?

p. 8333, l. 9: Could you give here the estimate made by Baum et al. (2007)?

Table 1: Could you add discharge data?

Figure 1: Could you add coordinates? And the straight lines on the East side of the watershed as well as the East border of the watershed are unclear. Could you clarify this figure?

Figure 2: Were the conductivity data corrected for temperature effect? If not, it might be more appropriate. If yes, it must be specified.

Figure 5: Redundant with Figs 3 and 4.

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