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

Anonymous Referee #4

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A paucity of data still exists on carbon fluxes from tropical rivers and as these systems have been shown to be important conduits of carbon from land to ocean and are often under various pressures (climate, anthropogenic, etc.) the data presented in this manuscript are valuable. Furthermore, few studies report both dissolved and particulate organic carbon data together and for that the authors are commended. However, the POC data as described here is really only an estimate via the method used. Although cellulose acetate filters likely caused little contamination at the concentrations of DOC described the authors would have no problems if they had used precombusted 0.7 μm GF/F filters and then they could have measured POC on their filters. I'd recommend this for future studies or ongoing work. I'd encourage the authors not to focus too much on the POC data as really it is an estimate and the findings that POC makes up a small fraction of TOC in blackwater river systems is consistent with previous studies

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and the POC story could be wrapped up in reality with that statement. With respect to DOC the results of this study add to the growing body of literature that shows the importance of the contribution of small blackwater rivers for land-ocean DOC export. The estimate though is based off only 2 sampling seasons and this needs to be discussed and discharge data for the year needs to be shown to see how representative the sampling points are. I'd recommend for a river of this size for a reasonable annual budget to be derived at least monthly sampling of DOC/POC. The discharge data quality used to derive any budget should also be discussed. Without this data it is difficult to put the data into context, as two snapshots particularly in a relatively small river might not be that representative for developing larger flux estimates (then again they could be very valuable but it is difficult to know with the data that is presented). In terms of overall organization the manuscript needs some work and some additional information is required prior to publication. The methods section needs some more details (precision and QA/QC for DOC/POC methodology). The results are not a true results section and need some reorganizing. Some of the Figures appear out of order of reference in the text (e.g. Fig.3. before Fig.2.). The discussion section is missing seem key comparisons to other existing tropical river DOC/POC datasets to provide context for this study. I'd strongly encourage the authors to check the current literature with respect to tropical river carbon work and the referencing generally could do with an invigoration of recent studies. Out of 49 references only 16 references were from 2005 to present – there has been some reworking of budgets for land-ocean carbon fluxes in this time that should be included (mainly highlighting the need for improved sampling across the hydrograph), other studies on blackwater rivers which are missing (e.g. Alkhatib et al., 2007; L&O) and a reassessment of the role of especially DOC in riverine systems. I sincerely hope these suggestions will help the authors strengthen the manuscript and look forward to seeing it in the future.

Interactive comment on Biogeosciences Discuss., 7, 8319, 2010.

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