

Interactive comment on “Sources and transfers of particulate organic matter in a tropical reservoir (Petit Saut, French Guiana): a multi-tracers analysis using $\delta^{13}\text{C}$, C/N ratio and pigments” by A. de Junet et al.

Anonymous Referee #4

Received and published: 18 November 2005

This manuscript examines the changes in particulate organic matter along a transect from the river upstream of a reservoir through to the estuary using a range of tracers. It provides a description of the relative contribution of terrestrial vs. aquatic sources of carbon to infer aquatic processes. It is a generally well designed study providing new information on a tropical river system. This paper is worthy of publication however I have some specific points:

- I am surprised that there is little in the way of cyanobacteria in the water column, particularly in the reservoir. Reservoirs typically provide an ideal environment for cyanobacterial growth – stable water body, long residence time. If the finding is

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

- indeed true, it is a point worthy of discussion.
- Why was zeaxanthin not used as a marker for cyanobacteria? Did it co-elute with lutein and if so, this would affect the lutein estimates?
 - Discussions of differences in stable isotope signatures and C/N ratios between depths and sites should be treated with some caution as there was no replication. An example is on page 1175, line 15 where a high C/N ratio of 21 was found at 3 m depth. Is it not possible that this could be an analytical or sampling aberration since no replicates were taken, rather than a real difference with depth?
 - Typically figures and tables should not be directly referred to in the Discussion unless they are synthesis figures/tables.
 - On Page 1177 the authors suggest that the presence of pheo *a* in the sediment traps is due to biofilms. A mechanism for how biofilms enter sediment traps is needed. Is it not also possible that the differences between the water column and sediment traps signatures is due to the fact that sediment traps are integrating processes in the water column over time, while water samples represent a snapshot of the algal community. Algal communities are very dynamic and depending on the time of sampling the community could have changed significantly. Surely this may also explain the presence of β -carotene and scytonemin?
 - Page 1181, line 16 – the statement about the extreme diversity of aquatic POM is hard to understand. I am not sure what the authors mean by this.
 - Page 1181, line 19 – the authors have not convinced me of the importance of TEP. It is an interesting theory but TEP was not directly measured in the study.
 - Much of Table 1 is repeated in Figures so I would question the need to include it.
 - There are a number of typographical errors throughout

[Full Screen / Esc](#)[Print Version](#)[Interactive Discussion](#)[Discussion Paper](#)

Interactive comment on Biogeosciences Discussions, 2, 1159, 2005.

BGD

2, S706–S708, 2005

Interactive
Comment

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

S708

EGU