

***Interactive comment on “Transformation of dissolved inorganic carbon (DIC) into particulate organic carbon (POC) in the lower Xijiang River, SE China: an isotopic approach” by H. G. Sun et al.***

**L. Cotrim da Cunha (Editor)**

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Dear authors,

I agreed with both reviewers comments on the first version of your manuscript. The processes controlling the transformation of riverine DIC into OC are important when establishing the carbon budgets in large river basins, and haven't been fully studied yet. Your suggestion for a mechanism controlling the "old carbon effect" seems very interesting too. Thank you for thoroughly replying the reviewers' comments, as well as

C5156

for highlighting the changes you have made in the second version of the manuscript. However, before the final decision on the publication, I would like the reviewers to give their second opinion on the revised version of the manuscript. Please also find below a few suggestions to the authors on the "format" of the manuscript.

**COMMENTS:**

Page 3, line 13 – “interim processes” -> do you mean internal processes?

Figure 1 – a) on the bottom panel it is difficult to see understand where the land-sea boundaries are. There is a “loose” river arm, and, although it is closer to the Xijiang basin, it could also belong to the Beijiang basin; b) could you please explain in the figure caption briefly the 3 main branches of the Zhujiang River, and that this study focuses in the lower Xijiang basin?; c) could you please indicate in the figure the outflow of the Zhujiang River (and its delta if possible) to the South China Sea? It could help the reader not used to the regional geography.

Page 5, line 20 – “harmonic fashion” -> what does it exactly mean?

Page 6, line 14 – GF/F filter paper -> I think it is enough to use “GF/F filters” instead.

Page 7, line 9 – I do not fully agree with the use of the expression “horizons” regarding the soil sampling depths. Please refer to comment #8 of Referee #1.

Page 10, lines 13-14 – a) What does “riverbed/shoal” exactly mean?; b) Do you have any data (or data published elsewhere) on chlorophyll concentration for this site?

Page 13, line 18 – Please change to “microbial activity” instead of “activities”.

Page 16, line 19 – “higher clarity” – Do you mean lower turbidity?

Page 22, section 4.6 – Where does the POC flux (4.27 10e5 tC yr-1) in the Xijiang go? Is it transported to the South China Sea or to the Zhujiang River delta? I guess it would add much to the manuscript if this information is found in the manuscript.

C5157

Figures 2, 3, and 4 – This is a suggestion on the format: wouldn't be easier to understand the figures if the stations were plotted "downstream" i.e. following the direction of the water flow?

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C5158