Biogeosciences
Discussions

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Interactive comment on "Historic carbon burial spike in an Amazon floodplain lake linked to riparian deforestation near Santarem, Brazil" *by* Luciana M. Sanders et al.

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General Comments: Sanders and co-authors analyzed a core from an Amazon floodplain lake in order to assess whether the lake's C accumulation is related to anthropogenic changes in the region. This manuscript does a good job of introducing the topic and appears to have performed data collection in an appropriate manner. However, the ultimately analyses of collected data are lacking, and I recommend the authors to further their exploration of this data set. In particular, additional or alternative plots showing mass accumulation rates as well as cumulative burial would be welcome. The authors attribute changes in carbon burial rates to anthropogenic disturbance, but

neither back this claim up in a statistically rigorous manner nor do they seriously (i.e., in a statistically rigorous manner) consider alternative causes for their burial rate changes. These problems of data analysis need to be resolved before the merits of this study can be fully judged. Specific Comments: Line 213: I am not sure what is meant by 'important' here, consider clarifying or removing. Line 214-216: Given that a much better separation is found between d15N and OC source (Figure 6), why not regress d15N against the instantaneous C accumulation rate as you did for d13C in Figure 7? Line 232-235: This bit about data processing should likely be in the methods. Line 259: Do you have evidence of the 'silting up' of this lake? Perhaps in the form of mass accumulation rates rather than OC, or, alternatively, looking for changes in DBD with depth. Line 264-272: An ANOVA (or similar approach) would be an appropriate test here to help put some weight behind this statement. Figures 6 and 7: The C accumulation rates should probably be g/m2/yr, right?

Interactive comment on Biogeosciences Discuss., https://doi.org/10.5194/bg-2017-151, 2017.