

Interactive comment on “Soil greenhouse gases emissions reduce the benefit of mangrove plant to mitigating atmospheric warming effect” by Guangcheng Chen et al.

Anonymous Referee #2

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This well structured paper describes a study of seasonal variations in GHG emissions, balanced by carbon sequestration, at three sites on the Jiulong River Estuary of Eastern China. Although the data are limited to one year (with fieldwork over four months in 2012), the paper provides useful evidence of the variability in mangrove GHG emissions and plant CO₂ sequestration. The content appears suitable for publication in Biogeosciences, but I would encourage the authors to consider the following points in revising their paper:

Abstract: clarifying the extent of the fieldwork outlined in the paper (i.e. number of sites & replicates; and the temporal context).

Introduction: in the second paragraph, it would be useful to include more recent cita-

C1

tions to support the contribution of mangroves to the global terrestrial carbon budget. It would also be helpful to provide some justification for the work on Jiulong Estuary, and some assessment of how typical this ‘highly productive mangrove wetland’ might be, so that the transferability of the results presented here can be assessed. At some stage (possibly in the Introduction) a synthesis of recent work by the lead author, and cited here, would be useful – to highlight the novelty of the current study and how (the current study) builds upon previously published work.

Methodology: It would be useful to have a justification for the sampling design: i.e. why (and how) were three sample sites identified; and are the authors confident that together these sites are sufficient to represent the mangrove soils of this estuary? The description of each sampling area is also unclear (page 3; line 17) and I am not sure that the second paragraph of Section 2.2 is needed: it would be preferable to have a more concise section on the methods adopted in this study. I also wonder why pore-water salinity was apparently not measured (given the comment in the third paragraph of the Discussion on page 8).

Results: Generally the results are presented in a rather descriptive way; it would be useful to see more detail of the soil physical properties (plotted in Fig 3), and error estimates for the data presented in Table 3.

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C2