

Interactive
Comment

Interactive comment on “Conservation of soil organic carbon, biodiversity and the provision of other ecosystem services along climatic gradients in West Africa” by E. Marks et al.

E. Marks et al.

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Answers to the comments on the manuscript:

Conservation of soil organic carbon, biodiversity and the provision of other ecosystem services along climatic gradients in West Africa

By

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To the Biogeosciences editors and reviewers of our manuscript:

We would like to thank the two contributing referees for their helpful comments. We

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have made amendments to the paper to address comments and concerns voiced in both of these critical reviews found in Biogeosciences Discussions.

Reviewer #1

The paper is a nice overview of the current knowledge on soil carbon of african ecosystem. It also highlights some potentials in carbon sequestration through different land management options. However it is to me a review more than a research paper. From this point of view the editors should decide whether it is appropriate in this section of the journal. In any case I find useful to have a general overview on this topic and it fits well on the ongoing special issue on African carbon cycle.

(answer) The paper was intended, from the beginning, to be a review paper. We agree with the referee on the usefulness of such a paper on the special issue on African carbon cycle.

To be completed the paper should address also the potential implications of climatic changes on soil carbon oxidation and release to the atmosphere. If the aim of the paper is to generate some expectation that an improved land use can contribute to mitigation of ghg emissions, it has also to be discussed the potential of drawbacks such as the vulnerability of soil carbon pools to climate effects and the risk that this could impair the mitigation potentials. Of course this type analysis should be carried out across different African regions where climate drivers can have different impacts. The paper would also benefit of some more original data of the Authors who I believe are in position to present their results of ongoing reserach. In conclusion the paper need to be complemented with additional information and can be published as a review, if appropriate.

(answer) New material and references have been added towards the suggestions of the referee to integrate climate change effects on soil carbon stocks and the ability of soil to mitigate predicted climate changes. This new material is found under sub-sections 2.1 and 2.2.

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Reviewer #2

The paper addresses a critically important issue for Africa as a whole and Western Africa as the focus region. That is to explore the potential synergies of carbon sequestration along with the provision of other ecosystem services important for the livelihoods, agricultural production, and conservation agenda of Western Africa. A sectorial approach of carbon in this part of the world would be inappropriate and set to fail, so the authors have set an excellent integrative framework. The value of the paper is in reviewing the scarce information available from this part of the world and in support of an integrative approach. For this, I support the ultimate acceptance and publication of the ms. but not quite in the current format. The paper is perhaps too long for the amount of information that is being reviewed. In general, I find that there are too much background information on soil sciences and climate change which, yet it is valuable for context, distracts the reader and prevent the ms. from being a richer paper in information on the topic. In general, the paper as it stands reads a bit light with valuable information too diluted. My suggestion is to shorten the paper at least 1/3 and focus more on the topic of the paper. When possible, provide more quantitative information on the topic.

(answer) New references have been added to complete meaningful quantitative information when possible.

More general information on climate change and soil sciences is not always necessary as this is in the end a specialists journal on biogeosciences. I would also suggest the authors not only present the paper as a review but more of a synthesis in which conclusions are drawn in term of future possibilities for implementing the framework described. Following there are a few examples of text from the first part of the paper that yet provide good scientific context it often becomes too general and tend to dilute the content which could come across in a much stronger and richer way: p. 4418. lines 1 to 15. p. 4419. lines 20-27 p. 4420. lines 1-13 p. 4421. lines 1-26 etc. I am not suggesting removing the text above necessarily; these are examples of very general

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text which dilutes the ms. Possibilities are shorten the text or in some cases delete it.

Sections have been shortened and condensed throughout the article towards the observation that some of the original material was found to be a bit superfluous for a specialists journal such as BGS, particularly in areas which provided contextual information and discussion of well-recognized management techniques.

The changes are indicated in the file bg-2008-0128-changes.doc (blue: inserted text; red: eliminated).

We hope that with these changes the manuscript will be suitable for publication in Biogeosciences.

Sincerely,

The authors

Interactive comment on Biogeosciences Discuss., 5, 4413, 2008.

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