**Biogeosciences
Discussions**

Interactive comment on "Sensitivity analysis of the GEMS soil organic carbon model to land cover land use classification uncertainties under different climate scenarios in Senegal" *by* A. M. Dieye et al.

Anonymous Referee #1

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Dieye et al. studied the impact of the accuracy of land cover land use change information on simulated soil organic carbon in biogeochemical models. Tests were performed for three different climate change scenarios.

I recommend publishing this paper in BG after addressing following issues:

1) There is a significant scale mismatch between climate and landcover data. How does this impact on the SOC estimates and the main findings of this study? Figure 3 for example reveals an unnatural chessboard pattern of the SOC map which blanks out

variations caused by the landcover data. 2) I do not understand the climate scenarios set out in eq 1-4. What is the meaning of the additive constants. I understand a temperature change of 0.0133 deg per year. But why -26.6? 3) The dominant land cover of the study area is savanna and rainfed agriculture. Both exhibit a very high classification accuracy and low SOC. It can be expected that any statistic derived in this study is dominated by these two classes, restraining more interesting features. It would be interesting to separate the statistics for each class or at least to comment on it. The authors made a first attempt by stating that the area average show little variation between the scenarios but more significant changes are observed locally. But still the main findings are presented for the entire study area.

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