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Interactive comment on "Soil Greenhouse Gas Emissions under Different Land-Use Types in Savanna Ecosystems of Kenya" *by* Sheila Wachiye et al.

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This is interesting study conducted in semi-arid parts of Kenya, where similar data are quite scarce. The set-up is an area characterized by a series of activities. It is a surprised that there is some form of cultivation/farming in an area that looks more like Tsavo national Park. Nonetheless, the study provides valuable data that extend our knowledge of ecosystem gas fluxes in this part of the world. The study was conducted in a relatively poor soil. What the authors failed to mention, especially for the cropped and grazed sites was the slope of the field. I tend to imagine that erosion must be playing a critical role in mineralization processes in this place. It

looks like the organic/humus, top soil layer is completely gone and what remains is mainly the mineral soils. Unfortunately, the paper is already too long and I won't recommend inclusion of more information on land use history, which would have been helpful in understanding/interpreting these results. It's very surprising that temperature and soil moisture had no influence on soil CO2 fluxes. Could it be the method of data collection, with significant data collection gaps that led to this? For future, the authors need to consider higher frequencies of data collection. In such arid ecosystems, evaporation is quite high and it is likely that critical information is lost by not collecting data more regularly. CH4 seems to contribute little to this paper, why not exclude it completely? I don't see the two lines of discussion on CH4 are of major benefit to the readers. The paper is already too long and probably removing all the descriptions on CH4 could reduce the number of pages. The word "Soil Organic Carbon SOC" is introduced in the introductory part of the Ms. In the methods, there is total soil carbon and in the results, I met Soil Carbon. In the discussions, SOC becomes the main discussions line. The authors need to be consistent in the use of these terms, otherwise the readers get confused. Ln 65. Not all savanna belongs to the ASALs. The humid savannas are relatively wet, with green vegetation almost throughout the year. It is therefore not right to make such a sweeping statement.

Please also note the supplement to this comment:
https://www.biogeosciences-discuss.net/bg-2019-407/bg-2019-407-RC2-supplement.pdf

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