

Interactive comment on “Modeling soil organic carbon dynamics and its driving factors in global main cereal cropping systems” by Guocheng Wang et al.

Anonymous Referee #2

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This study simulated the spatiotemporal soil C dynamics across the global main cereal cropping systems using the RothC model and databases of soil and climate. The impacts of C input management, and soil and climatic variables on SOC changes were also analyzed. With the right reframing of the questions and additional detail, the study may become more novel and useful for the community. I think the study warrants publication in ACP after minor revision.

Detailed comments: 1. There is a focus on three crop residue retention rates (i.e., 30%, 60% and 90%) throughout the manuscript, yet the reason or context for this is not provided. 2. I suggest authors compare the present results with other modeling

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studies for SOC changes at the global scale. 3. The modeled SOC density would be more valuable if the present results are compared with the observed SOC density in the five continents. 4. If a correction coefficient for RothC model be used to model SOC density in rice paddy, the results would be more reliable. I suggest authors discuss this issue by integrating corrected SOC density in rice paddy. 5. Change “cropland soil organic carbon” to “soil organic carbon in cropland”.

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