

Interactive comment on “Combined deep sampling and mass-based approaches to assess soil carbon and nitrogen losses due to land-use changes in karst area of Southwestern China” by Yecui Hu et al.

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Dear Referee 1 Our paper has been revised based on your comments. You can see the revised parts with blue color. Best Regards from Zhangliu Du. Comments: This study focused on the change of C and N stocks after conversion from natural vegetation to managed ecosystems, and highlighted the importance of deep sampling and mass based evaluation methods. Generally, the scientific objectives are clear and the results is properly prepared. However, I need to point out that the language of this manuscript needs to be improved; there are some grammar errors throughout the manuscript.

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Reply: Thanks for your comments. We have revised the manuscript in accordance with the comments, and carefully check the manuscript to minimize the typographical, grammatical, and bibliographical errors. Also any changes made to the revised version of our manuscript were highlighted using the blue color character styles.

Detailed comments are below: 1. L16-18, the sentence needs to be revised. Made changes as suggested. In the revised version, we have rewritten this sentences as below. “The results showed that converting forest to cropland and other types significantly led to SOC and TN losses, but the extent depended on both sampling depths and calculation methods selected (i.e., FD or ESM).” 2. L22, change “profiles” to “layers”. Made changes as suggested. 3. L74, insert “cause” before “soil degradation”. Made changes as suggested. 4. L82, replace “equivalent soil mass” and “fixed depth” whit ESM and FD respectively. Made changes as suggested. 5. L92, replace “rainy” with “wet” and delete “from April to September”. Made changes as suggested. 6. L97, delete “the” before “1999”. Made changes as suggested. 7. L102, delete “the” before “each land use type”. Made changes as suggested. 8. L112, delete “these five samples”. Made changes as suggested. 9. L114, change “5 cm high” to “5 cm in height”. Made changes as suggested. 10. L126, change “conducted” to “measured”. Made changes as suggested. 11. L153-154, the order of SOC is in contrast with Table 2. Sorry for our carelessness. In the revised version, we have modified this sentence as blow. “For the 0–40 cm depth, the averaged SOC concentration was in the order of NF > UG > SS = EF, and SS > SF = CF, indicating deforestation significantly reduced SOC level, particularly converted into the croplands (Table 2).” 12. L 166, what do you mean “slightly”? Thanks for your comment. In the revised version, we have deleted this word. 13. L167, insert “from” before 18.9Made changes as suggested. 14. L168, replace “which” with “that”, insert “the” before “other four”. Made changes as suggested. 15. L184, In Fig. 2 “NS” was used while in the text “NF” was used. Thanks for your reminding. We are sorry for our carelessness. In the revised version, we use the NF to stand for the native forest across the Figures and text. 16. L193, In Fig. 3 “NS” was used while in the text “NF” was used. Thanks

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for your reminding. We have replaced the “NS” with “NF”. 17. L205, delete “that”. Made changes as suggested. 18. L206, delete “that of”. Made changes as suggested. 19. L213, insert “a” before “similar”. Made changes as suggested. 20. L219, L222, L224, the value in the parentheses needs to be explained clearly. Thanks for the comments. The value in the parentheses means the selected equivalent soil mass for the specific layers that is used for SOC stock calculation on the ESM basis. The more explanations are given in the “2.3 Soil organic C and total N calculations” subsection. 21. L229, replace “to those of ” with “as”. Made changes as suggested. 22. L229-230. Statistical analysis is needed to compare results from different depths. Thanks for your comments. From the Table 3, we found that effects of land use types, soil depth and their interaction on the soil organic C and total nitrogen stocks were significant ($P < 0.001$). 23. L237, delete “by other studies”. Made changes as suggested. 24. L248, “are only” should be “only are”. Made changes as suggested. 25. L262-264, the meaning of this sentence is not clear. Thanks for your comments. We have written this sentence in the revised version as following. “Using the FD method, the SOC stored in the NF soil was reduced by 11.8 26. L271, what do you mean “temporal trends”? Thanks for your comments. As we already know, the differences in SOC stock among treatments under the land use change conditions may changes with time. In present study, we only consider one sampling occasion (sampling in the 2012), and thus we use the “temporal trends” expression to describe the current trends. 27. L305, insert “of” before “the mechanisms” Made changes as suggested.

Please also note the supplement to this comment:

<http://www.solid-earth-discuss.net/se-2016-57/se-2016-57-AC1-supplement.pdf>

Interactive comment on Solid Earth Discuss., doi:10.5194/se-2016-57, 2016.