

Interactive comment on “Warming mobilises young and old soil carbon equally” by F. Conen et al.

F. Conen et al.

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Thank you for your comments and for pointing out where more clarification is needed. We also appreciate your technical corrections, which we included in a revised manuscript.

We assume that the possible effect of sample treatment on de-stabilising old SOM has been negligible for both soils (see above). As pointed out in our reply to the first referee, both soils are tilled and macro-aggregates are short-lived under these conditions. The more important micro-aggregates (< 0.25 mm) and clay micro-structures will, if stable and of significance regarding protection of SOM, have hardly be disrupted by gentle crumbling and sieving through a 2 mm mesh.

Our discussion of possible mechanisms for the observed ^{13}C enrichment in CO_2 with

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increasing temperature are purely speculative and based on the studies cited in this context. We were surprised by this trend and thought it necessary to provide a possible explanation for it, albeit it was not the immediate issue of our study. The speculative nature of the links made to other studies will be underlined in a revised version by adding the following sentence at the beginning of our speculation: 'Since we have not further investigated the cause of the temperature dependence of $\Delta 13\text{C}$ in our control treatments, we can only speculate about possible mechanisms involved.'

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