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Discussions

Interactive comment on "Field-warmed soil carbon changes imply high 21st century modeled uncertainty" *by* Katherine Todd-Brown et al.

Anonymous Referee #3

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This is a well-written and original paper with findings that are relevant to the Biogeosciences community. The code documentation is particularly great.

I have reviewed for an earlier version of this manuscript, and they have successfully addressed my previous comments, adding some discussion of how a systematic change in input rates (which I understand is not in the dataset but is nevertheless likely) would affect carbon stocks and Q10, and justifying the use of a one-pool model. From the other referee comments, these points may warrant some additional discussion. Therefore, I recommend publication after minor revision.

Two additional thoughts: Most versions of the Century soil model embedded in a number of the ESMs listed as 'cascade' models (e.g., the CLM family models) are feedback models where some soil C is transferred from the slow and passive to the active pool.

These versions of Century may well be simplified to the 'cascade' model type, but that development is not clear from the descriptions of the ESM soil models.

I know it's hot of the press, but because the authors base their analysis off of the Crowther et al. 2016 dataset, they could also mention the potential implications of the expansion on their analysis in the Van Gestel et al. comment.

van Gestel, N., Shi, Z., van Groenigen, K. J., Osenberg, C. W., Andresen, L. C., Dukes, J. S., ... & Reich, P. B. (2018). Predicting soil carbon loss with warming. Nature, 554(7693), E4.

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