

RC2 Point-by-point response

Process-oriented modelling to identify main drivers of erosion-induced carbon fluxes

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We are happy that the referee acknowledges the relevance of the study and supports the publication. However, we revised the manuscript according to the given recommendations. The referee misses information about the soil survey and points at a number of wording errors. We gratefully thank the reviewer for the careful advices and changed the manuscript accordingly.

10 *Please see the detailed answers (in italics) to the comments below:*

Page 1, Line 20 – I suggest “parent soil” rather than “parent material”. Parent material has a very specific connotation in soil science, and it does not refer to soil materials that have been eroded and transported.

Thank for pointing at this! We will use the term parent soil.

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Page 3, Lines 9-10 – What is the average depth of the Ap horizons?

The average tillage depth is 0.2 m. See the sentence in section 2.1:

“For the established mulch tillage system, the main soil tillage operation was performed with a chisel cultivator (tillage depths approx. 0.2 m).”

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Page 3, Line 27 – Put “(ICBM)” behind “Introductory Carbon Balance Model” and before the references.

Thank you! Will change it accordingly.

Page 5, Line 15 – I believe the authors meant “rigorous validation” here, not “rigid validation”

25 *Thank you for pointing at this wording error! We will use rigorous validation instead.*

Page 6, Line 9 – More detail on the soil survey should be given. Was this a detailed soil survey conducted expressly in support of research conducted in the study fields, or was the raster developed from a more general survey? What was the scale of the mapping? Is this survey readily available somewhere for readers to review? If so, please provide the reference.

30 *Thank you to point us at this missing reference. A detailed description of the soil survey can be found in Sinowski et al. (1997). We add the reference to the sentence in section 2.6:*

“(iii) soil data taken from a 50 x 50 m raster sampled during the soil survey in 1990/91 (Sinowski et al., 1997),”

Page 6, Line 17 – I would refer to these as “loess-derived” soils, not “loess-burden” soils. Same comment on Page 7, Line 8.
We will use the term loess-derived. Thank you!

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Reference

Sinowski, W., Scheinost, A. C., and Auerswald, K.: Regionalization of soil water retention curves in a highly variable soilscape, II. Comparison of regionalization procedures using a pedotransfer function, *Geoderma*, 78, 145-159, 1997.