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Interactive comment on "Process-oriented modelling to identify main drivers of erosion-induced carbon fluxes" *by* F. Wilken et al.

Anonymous Referee #2

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This study represents a novel and needed step in the modeling of soil carbon redistribution and dynamics as a function of soil erosion and redistribution. It is well written and well documented and assumptions and limitations are clearly communicated. It is unfortunate that a decades long data set is not available to validate the model, but to the best of my knowledge, such a data set is not currently available. This does point to the need for funding for long-term monitoring at selected sites that would, eventually, provide the types of data needed to provide true validation of this and similar models. It may be worth providing a call for such monitoring in the conclusions to this study.

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.

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Discussion paper

Page 3, Line 7 – do not capitalize loess.

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

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

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

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.

Page 6, Line 17 – I would refer to these as "loess-derived" soils, not "loess-burden" soils. Same comment on Page 7, Line 8.

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