

## ***Interactive comment on* “Global soil organic carbon removal by water erosion under climate change and land use change during 1850–2005 AD” by Victoria Naipal et al.**

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Dear Authors, I read with interest your study and I believe that it will contribute meaningfully to the body of knowledge about global soil erosion and SOC dynamics. In the chapter Chapter 3.2 Validation of model results, I found two aspects that you may want to take in consideration.

I would suggest to the Authors to reconsider the use of the term validation. A validation, *sensu strictu*, is generally performed comparing predicted vs. observed values. I understand that for a global modelling application this is a difficult task to perform and I am ok with model comparisons. However, I would suggest to change the term

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validation with model comparison /intercomparison/ evaluation.

The predicted global soil loss flux of 14 Pg y<sup>-1</sup> is also close to the global model recently published by Borrelli et al. (2017) in Nature Communication. For the year 2012 a total annual average soil erosion of 17(+1/-0.7) Pg yr<sup>-1</sup> is predicted. Considering the high-resolution (ca.250 metre cell size) and the modelling advances introduced by Borrelli et al. (2017), the similar estimates between the two studies suggest that Adj.RUSLE is performing well. Moreover, in Table 6 a wider number of global models, rather different and methodologically independent from each other, providing similar estimates suggest a certain consistency to the predicted order of magnitude.

Congratulations, Pasquale

Borrelli et al. (2017). An assessment of the global impact of 21st century land use change on soil erosion. Nature communications, 8, 2013.

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