

SOIL Discuss., referee comment RC2
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Comment on soil-2021-78

Anonymous Referee #2

Referee comment on "Modelling the effect of catena position and hydrology on soil chemical weathering" by Vanesa García-Gamero et al., SOIL Discuss.,
<https://doi.org/10.5194/soil-2021-78-RC2>, 2021

The manuscript presents a weathering simulation of soils from Spain. The manuscript's introduction does not place well the current work in the historical...why is this study needed? How does this study fill gaps in the previous work. Pedon data and profile morphology must be included. In addition, it is not clear what is the genesis of these soils with respect to site geomorphic history, dust or loess deposition. Micro site topography around pedons is not clear. See examples of 9-component slope models, curvature analysis that could enhance your interpretation. No information is presented on site surface characteristics, percent cover, types of vegetation cover, soil surface integrity, degree of site destabilization due to use (is the area overgrazed?). To make the case for weathering I believe mineralogy data is an absolute requirement. Simply referring to mafic and concluding weathering when there is a difference in chemistry is not strong enough. I imagine dust influence on these pedons is substantial and CDF might not be the best approach because of this. More needs to be considered during results interpretation in terms of the effect of site geomorphology and subsurface horizon characteristics.

I have included an annotated pdf.

Please also note the supplement to this comment:
<https://soil.copernicus.org/preprints/soil-2021-78/soil-2021-78-RC2-supplement.pdf>