

Interactive comment on “Is the content and potential preservation of soil organic carbon reflected by cation exchange capacity? A case study in Swiss forest soils” by Emily F. Solly et al.

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Received and published: 6 March 2019

Thank you! We realize that we have to clarify the purpose of our exercise. Our intention was not to describe a mechanistic relationship. We rather propose to explore if CEC eff. can act as an extensively available “integrative proxy” to substitute for those variables probably controlling SOC stabilization but which are difficult or impossible to quantify for large areas. If successful, this integrative proxy could allow to produce large scale SOC inventories, but if CEC eff. could help to improve mechanistic soil models remains an open question (this will be specified in lines 41-24, and 285-387).

To briefly summarize our arguments in the introduction sections (lines 70-126): Indeed

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it is well known that in the topsoil SOC and CEC are highly correlated and mechanistically linked (i.e. SOC contributes to CEC). Fortunately, SOC is a variable that can be measured directly. But other variables important for SOC preservation potential are more difficult to measure, especially for large areas. Those variables require methods that can be too costly or time-consuming for large sample sets (quantification of clay content, clay mineralogy, specific surface area, Al-, Fe- organo-metal complexes), or robust methods for quantification do not yet exist (e.g. quantification of short range order minerals). CEC eff. however, could act as an “integrative proxy” for all of the variables mentioned before. CEC eff. is an edaphic property which is intimately associated to both the conditions that shaped the soil and the current edaphic physicochemical conditions. And CEC eff. is measured routinely to assess soil fertility for agricultural and forest use, and a wealth of data of past and present CEC eff. already exists.

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2019-33>, 2019.

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