EGUsphere, referee comment RC1
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Comment on egusphere-2022-1034

Anonymous Referee #1

Referee comment on "Shapley values reveal the drivers of soil organic carbon stock prediction" by Alexandre M. J.-C. Wadoux et al., EGUsphere, https://doi.org/10.5194/egusphere-2022-1034-RC1, 2022

Review for “Shapley values reveal the drivers of soil organic carbon stocks prediction”

In this paper, Shapley values are used to interpret soil organic carbon variations nationwide in France using Shapley values. According to the results, this approach can explicitly explain the effect of soil-forming factors on SOC variation. This study was well-structured, well-written, and well-designed. There are, however, a few minor corrections and modifications that need to be made before publication, as listed below.

Abstract.

Currently, the abstract is mainly narrative, so some quantitative results would provide a better insight into the research.

L30-31: Please provide citations to support the statement, “there has been studies that attempted…”

L64: remove “, Challenge 3” it is unnecessary.

L67: There was no explanation of the "SHAP" in this abbreviation.

L73: A key issue is convincing of the novelty of the research and highlighting the current research gap in the existing research. This is missing from the present manuscript.

L80: “carbon stocks” replace with “SOC stocks” in case it is related to soil organic carbon.

L80-92: adding citations to this section is necessary.

L89: Leptosols

L209: By adding a workflow of the study, the authors will make it easier for readers to follow the method's steps and understand the results.

L224 “Fig. 2b further shows that the four most important covariates have”