

Interactive comment on “A new dataset of soil Carbon and Nitrogen stocks and profiles from an instrumented Greenlandic fen designed to evaluate land-surface models” by Xavier Morel et al.

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Thank you very much for your review and your constructive comments on this manuscript. I hope that the explanation given below, and the changes to the manuscript, will provide an adequate response.

Referee comments are indicated as “RC” and author responses as “AR”.

RC : General comments

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This data manuscript describes a survey of soil properties—depth, carbon, nitrogen, bulk density, etc.—from a Greenland fen. Such data are useful and relatively uncommon, although the authors perhaps overstate how valuable this particular dataset will be for models. The methods seem generally sound and clearly described.

AR : Thank you for your comments.

RC : There are some problems. As noted by the other reviewers, the ms has language errors throughout that are distracting and cumulatively make reading difficult.

AR : We agree that the number of grammatical errors and typos is important. We will have the paper corrected by a professional native speaking editor when the reviewers agree with its content.

RC : Specific comments

1. Page 1, line 2: “which makes primary productivity exceed decomposition” – while technically true this is misleading. High water content’s primary effect is to reduce decomposition; reword.

AR : We rephrased that sentence into " They are particularly efficient at sequestering carbon due to their high primary productivity and their high-water content which reduces decomposition rate."

RC : 2. P. 1, l. 11: awkward; “modelisation” isn’t an English word.

AR : Changed to modeling

RC : 3.P. 2, l. 5: attributed to?

AR : It was a typo. We corrected it.

RC : 4. P. 2, l. 13-14: this sentence seems to contradict itself

AR : We reworded it into "Recent projections suggest that peatlands may remain a carbon sink in the future, although a weaker one (Gallego-Sala et al, 2018)"

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RC : 5. P. 2, bottom: good

AR : Thank you for this comment.

RC : 6. P. 5, l. 1-4: awkward and unclear.

AR : Has been reworded into "After the end of the fen, hummocky topography appears (relief characterized by mounds and depressions). The 5 meters resolution of measurement did not allow to distinguish these reliefs. The plot T1-65 was located at the shore of the nearby water stream."

RC : 7. Figure 1 needs proper scale bars and compass roses, not just a pasted-together pastiche of Google Earth images

AR : This was also asked by other reviewers. We will add proper scale bars to each subplot and a compass rose as well. We will also add coordinates of corners points for each subplot of Figure 1 in order to not surcharge figures. For information, coordinates for every sample points (T1-0, T1-5, etc) are available in the data repository (<https://doi.org/10.1594/PANGAEA.909899>). We will mention that in the text, and write explicitly the coordinates of the first and last points of each transect.

RC : 8. Tables 3 and 4: why is the Ct line italicized?

AR : It was a mistake. Solved.

RC : 9. Figure 4: necessary?

AR : This figure may seem anecdotal, but we believe it might help readers to better apprehend the organic-mineral interface discussed several times in the text.

Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2019-225>, 2020.

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