

Interactive comment on “Agricultural peat lands; towards a greenhouse gas sink – a synthesis of a Dutch landscape study” by A. P. Schrier-Uijs et al.

Anonymous Referee #1

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General comments

The subject matter of this article (the effects of land-use/ land management changes on the greenhouse gases budget of a site) is interesting and relevant to Biogeosciences. Three sites with varying degrees of management were studied for several years and greenhouse gases budgets derived. The clarity of the paper leaves a little to be desired at times as does the quality of the language. The paper refers to related literature quite extensively and does not provides an adequate overview of the methodology used. One would have to read several other papers pertaining to studies made at the sites of interest in order to gain a full understanding of the experimental setup and methodology.

Specific comments

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1. The paper, and the results section in particular, was at times confusing and the information difficult to tease out. Better use could have been made of tables. The budget terms (sections 3.1 - 3.5) could have been summarized in one table for ease of reference and comparison. It would also help if units were standardized throughout the manuscript.
2. Section 2.1: provide ranges (winter/summer) for WT depth at each site.
3. Page 9702, line 11: define "top layer" and substantiate the statement that it is aerated.
4. Page 9703, lines 11-14: more details about the derivation of the weighting factors and the non-linear regression algorithms are needed here.
5. Page 9703, line 20: Elaborate on footprint calculations (what model is used, what time resolution...?).
6. Page 9705, line 21: provide value or reference to substantiate the approximation that carbon inputs and outputs from feed and milk/meat are indeed negligible.
7. Page 9706, line 1: is the C emitted as CH₄ only from ecosystem sources or were animal contribution taken into account?
8. Page 9706, line 1: define "production efficiency".
9. Equation 2: the emission factors seem to have become subscripts, and coefficient Ed is actually missing.
10. Page 9712, line 18: this sentence is unclear. What does succession mean in this context?
11. Page 9713, line 8: same comment as under point number 8.
12. Page 9713, lines 26-28: this last sentence seems unfinished.
13. Page 9717, lines 23-26: does this mean that the GHG emissions from the farm are

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much greater than those of the ecosystem?

14. Tables: use consistent notation; use either the full site name or the abbreviated version.

15. Table 7: I don't understand how open water areas can be rewetted or how their management can be downgraded.

16. Figures 3, 5 & 7: the font size is too small and the text unreadable.

Technical comments

Below are some technical comments but this list is far from exhaustive.

17. Page 9699, line 20: "10 mmyr-1" to "10 mm yr-1".

18. Page 9699, line 21: "30yr" to "30 years".

19. Page 9701, line 6: "-1.8 ma.s.l." to "-1.8 m a.s.l.".

20. Page 9701, lines 12-13: poor English; replace "with dynamic mean annual ground water tables at 0.55 m..." with "dynamic WT of mean annual depth of 0.55 m" or similar.

21. Page 9701, line 18: "fertilizers are" to "fertilizers have been".

22. Page 9701, line 23: "water table is dynamic since 2006"; poor English, please rephrase.

23. Page 9703, line 15: "Additional" to "In addition".

24. Page 9703, line 24: I don't understand "...were over the entire landscape".

25. Page 9704, line 12: I would prefer Wdir or Wd to denote wind direction rather than D.

26. Page 9705, line 22: the year of publication of the Hensen et al. paper is 2006 and not 2005 according to the reference list.

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27. Page 9710, lines 10-11: reshuffle this sentence. E.g. "Measured cumulative NEE of N2O was previously determined over a three year period at the intensively managed site".

28. Page 9712, line 18: here again I wonder what "succession" means.

29. Page 9712, line 24: replace "synchronous to" with something like "synchronised with" or "consistent with".

30. Page 9713, line 8: meaning of "succession" here again!

31. Page 9715, line 1: "application has stopped" to "application stopped".

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