

Interactive comment on “Reviews and syntheses: Greenhouse gas exchange data from drained organic forest soils – a review of current approaches and recommendations for future research” by Jyrki Jauhiainen et al.

Ben Bond-Lamberty (Referee)

bondlamberty@pnnl.gov

Received and published: 25 August 2019

General comments

This manuscript describes a review and synthesis of greenhouse gas (GHG) emissions from drained organic soils. This is an interesting and important topic, at least regionally, and appropriate for Biogeosciences. The text is well written, if a bit dense at times. I applaud the authors' goal of providing recommendations going forward.

C1

There are a few problems. A few points in the text should be reconsidered for clarity or balance (see below). I was a bit surprised that neither the introduction nor the methods mentioned the global soil respiration database—see Bond-Lamberty and Thomson 2010 and <https://github.com/bpbond/srdb>—which seems relevant (but perhaps not?). Finally, one weakness of this kind of bespoke review is that it's not really reproducible, although the authors do a good job of describing their (somewhat subjective) criteria for inclusion/exclusion in the methods. Nothing really to do be done about this, but perhaps note it.

Overall, this is a careful and interesting synthesis that need minor revisions.

Specific comments

1. Lines 102-104: might move this sentence somewhere more prominent, e.g. at very end of introduction
2. L. 225- and supplementary material: this seems a bit unbalanced to me. EC has strengths, such as integrating over a large spatial area, but it also has weaknesses—vulnerable to storage errors, low-turbulence conditions, advection, etc. See Wang et al. (2018, <http://dx.doi.org/10.1016/j.agrformet.2017.07.023>) and/or Barba et al. (2018, <https://doi.org/10.1016/j.agrformet.2017.10.028>) for example
3. L. 240-: confusing. Why are models the only way to quantify Rh? Later you mention trenched plots for instance
4. L. 284: probably start a new paragraph here for readability
5. L. 385-: agreed!
6. L. 468-: these are all good recommendations; what here is new/unexpected? That might be worth highlighting
7. Figure 1: this seems to omit CH₄ from plants; is that intentional? Cf. Covey and

C2

Megonigal (2018, 10.1111/nph.15624)

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2019-261>, 2019.