Comment on bg-2021-276, line 95–96: aim

Henk van Hardeveld (Referee)

Referee comment on "Cutting peatland CO2 emissions with water management practices"
by Jim Boonman et al., Biogeosciences Discuss.,
https://doi.org/10.5194/bg-2021-276-RC2, 2021

Two questions regarding your aim. First, a minor technical point, can you try to state your aim without using brackets? Surely, every part of your aim must by definition be important? Second, more importantly, can you try to allign your aim and your narrative more closely? I think the most important legacy of this paper will be that you introduce a novel method to more accurately assess the impacts of water management strategies on peat decomposition and greenhouse gase emission. So, must your new approach not take central stage? in your aim you mention various strategies, hydrological settings and meteorological conditions. But this strikes me as merely an afterthought. Once you have designed a better approach, by definition it will allow you to betrer explore the effectivity of strategies in different settings. It is nice that you do, don't get me wrong, but I think its is merely to demonstrate the added value of your approach.

In addition, please focus your Introduction on the processes that your approach addresses, avoid too much focus on anecdotal case studies such as you decribe in line 80–85, using vague phrases like "was suspected" and "the authors think". You might be aware that there has been much controversy about drain irrigation systems, sparked by a paper in bulletin 2018-06 of the International Mire Conservation Group. Arguably, the essence of this "knowledge war" is about a wide range in observed effectivities of these systems, and the question to what extent it is valid to use estimations based on water tables to estimate their effectivity. You method may help to settle this debate. For instance, in line 581–588 you make a strong point by using your method to explain why previous case studies in various settings come up with different conclusions.

Moreover, as your method might pave the way for better impact assessments, the comparison with previous methods should be better addressed in the Introduction section. I think Section 4.4 is one of the hightlights of your work, yet the previous methods are only discussed in very general terms in line 87–91.