

Interactive comment on “Ideas and perspectives: Synergies from co-deployment of negative emission technologies” by Thorben Amann and Jens Hartmann

Anonymous Referee #2

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The authors present an overview of how different negative emission technologies might interact and thereby trigger additional carbon uptake. The work is timely and important as such synergies have not been addressed so far in great detail. However, the authors focus on the beneficial effects of enhanced weathering and biochar on afforestation and BECCS while the title suggests a somewhat broader overview. Additionally, some statements would benefit from describing synergies in a more quantitative way. I think the manuscript can be published in Biogeosciences after some changes. The study will encourage further research about the interactions between different types of negative emission technologies.

C1

Specific comments:

- Title: As reviewer #1 I would also move “ideas and perspectives” to the end of the title. Maybe “Synergies from co-deployment of land-based negative emission technologies: Ideas and perspectives” to clarify this paper is about soil/land-based strategies.
- P2, line 1: “of” is repeated three times. Suggestion: “assessing the effects of combined...”.
- P2, line8: “e.g.” implies that there are more nutrients so you can remove “and others”.
- I agree with reviewer #1 that it’s not clear at all how to read Figure 1. Intuitively I would expect benefactors on top of beneficiaries and additional CO₂ sequestration. I was also confused by the two verbs connecting benefactors and beneficiaries. Lastly, the additional CO₂ sequestration is unclear. I assume the downward arrows mean that e.g. EW increases CO₂ sequestration via BECCS or AFF (flux from the atmosphere to the land) but one could also interpret it as a decline.
- P3, line 3: envisions.
- P3, line 21: But only if these new forests are harvested.
- P3, line 25: Higher than other rock types?
- P3, line 29: types
- Figure 2: I think it would be interesting to show the CO₂ capture potential of dunite in this figure as it seems to be a highly relevant rock. After all you show Komatiite which also has very low K and P contents.
- Figure 3: So the extraction range was derived from min/max nutrient contents but what yields were assumed for Miscanthus (range is 40-4400 t/km² according to Table S5.-1)? In addition, Figure 3 seems to not be referred to in the text.
- P4, line 3: I think this isolated sentence would fit better in the second paragraph of

C2

this section.

- P5, line 14: nutrients limit tree growth?
- P6, line 17: Confusing, split this sentence into two sentences.
- P6, line 24: Reference missing in the reference list.
- P7, line3: "where considered to be of concern" sounds awkward, I think it can be removed.
- P7, line 10: Reference seems to be at the wrong position.
- Table 1: The reader is left wondering what values are typical. Can you also provide numbers for some other rock types for comparison?

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2018-500>, 2018.