

Interactive comment on “Increased carbon capture by a silicate-treated forested watershed affected by acid deposition” by Lyla L. Taylor et al.

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Overall, I thought this paper was excellent. The manuscript is polished, thorough, and well structured in way that presents a data-heavy study in a concise manner. Testing ways to remove carbon dioxide from the atmosphere is critical for mitigating the response to anthropogenic climate change, which makes this paper of particular significance. I only have one query which I would like some comment on in the discussion, with a couple of minor comments. I recommend that the paper is accepted after these are addressed.

Discussion: The long term efficacy of carbon capture and storage, both in geological and modern examples, seems to hinge on whether organic (via biomass) or inorganic

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(via carbonate) carbon are the dominant sinks for increases in atmospheric CO₂. Given that this study concludes that uptake into biomass is an important factor for carbon storage in the catchments, what does this mean for the ability of experiments such as this to function on longer time scales (i.e. >100 years). Is this a one-off procedure that can be implemented on a catchment, or can it be repeated with a minimum repose time? Will the draw down via organic and inorganic pathways change with repeated treatments perhaps? I know this is going to be speculative, but I think it would be beneficial for the authors to share their thoughts on how this may be able to be integrated into long term catchment management strategies.

Minor comments:

Line 30: 71 degrees west, rather than -71 degrees east

Line 120: Repetition of "Mohseni and Stefan"

Line 127: What does "mm/time" mean?

Line 192: Repetition of "Battles et al."

Line 350: Replace "3.4 4" with "3.44"

Line 418: A possibility for a low cost alternative to wollastonite could be volcanic ash (see e.g. Longman et al., 2020; <https://doi.org/10.1016/j.ancene.2020.100264>), particularly in catchments with volcanic deposits nearby.

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