

Interactive comment on “Meeting climate targets by direct CO₂ injections: What price would the ocean have to pay?” by Fabian Reith et al.

Anonymous Referee #2

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CO₂ emissions are increasing at an unprecedented rate into the earth's atmosphere. By and large, global political leadership have recognized the consequences of such emissions for human kind and ecosystems. As a result, the 2015 Paris Agreement has set the target of limiting global warming to below 2°C. To achieve such a target, academicians have been discussing some unconventional methods – known as geo-engineering. To the same effect, in this study, Reith and co-workers have presented this excellent and very thorough analysis of consequences of injecting atmospheric CO₂ into the deep oceans. Their analysis looks robust (I am not a modeller though!). I have just a couple of comments that might be discussed in the revised version of the manuscript:

1. I am not sure if the trade-off between the amount of CO₂ released back to the at-

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mosphere in collecting CO₂ from the atmosphere and injecting it into the deep CO₂ has been considered. By which way(s) the atmospheric CO₂ can be collected from the atmosphere and put into the deep ocean, and how much CO₂ will be emitted back (through the instruments used for such huge task) to achieve both the actions. I know this might not be feasible to incorporate in the model but it needs to be discussed/mentioned.

2. Can (gas chromatographically) CO₂ alone be collected from the atmosphere on such a large scale? Or will CO₂ be part of the mixture of all the atmospheric gases and particles (aerosols)? Was the model tuned for injecting of natural air rather than only CO₂ into the deep ocean? How sensitive mixture would become for ocean chemistry?

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