

Response to editor

Gorham et al., Opinion: Exploring potential atmospheric methane removal approaches: an example research roadmap for chlorine radical enhancement

Dear Authors,

Thank you for answering the reviewer comments and improving the manuscript. The response is adequate and I am pleased to accept the revised manuscript as an Opinion article in ACP after the following change has been made. The motivation for the proposed work should be briefly reiterated in the conclusions section as to why it is of interest to investigate methane removal approaches rather than just focusing on reducing methane emissions that we can control (see Reviewer #1's comment 5). As long as anthropogenic methane sources dominate, targeted emission reductions can probably limit and even reduce atmospheric methane more easily and with less risk. However, if natural sources (e.g. permafrost thawing) become uncontrollable due to climate change, an artificial methane sink as discussed in the paper could become an option to stabilise methane levels. This point is worth mentioning again in the conclusions.

Best regards,

Andreas Hofzumahaus

We thank the editor for their thoughtful comments, and for directing our attention to revisit Reviewer #1's comment 5. We have revised and expanded content in the conclusion section accordingly (see Author Track Changes).

Line 343-345: Revised "It is essential that atmospheric methane removal approaches are researched in addition to, not replacing, crucial anthropogenic greenhouse gas emission reductions and carbon dioxide removal" to "Atmospheric methane removal approaches should only be researched in addition to, not replacing, crucial anthropogenic greenhouse gas emission reductions and carbon dioxide removal."

Line 345-348: Added "Atmospheric methane removal approaches could play a future role in overall climate change mitigation alongside aggressive anthropogenic emissions reductions, for example by dampening the impacts of anthropogenically-amplified natural methane emissions (e.g., from wetlands or permafrost thawing), particularly if they become uncontrollable due to climate change."