

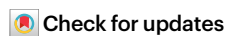


Addendum: Reduced Arctic Ocean CO₂ uptake due to coastal permafrost erosion

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The yearly increase in atmospheric CO₂ due to Arctic coastal erosion (up to 7–13 TgC per year in SSP5-8.5) is between three and four orders of magnitude smaller than anthropogenic CO₂ emissions, currently estimated at about 10 PgC per year¹ (1 Pg = 1,000 Tg). The rate of increase in the atmospheric CO₂ due to erosion increases with warming, which configures a positive climate feedback. The climate feedback from Arctic coastal erosion is two orders of magnitude smaller than the current central estimates of the surface albedo feedback (e.g., melting sea ice), and the cloud feedback (see Table 7.10 in *IPCCAR6 WGI, Chapter 7* (ref. 2)). Any impact of Arctic coastal erosion on the global climate through increasing atmospheric CO₂ concentrations until 2100 is therefore comparatively small.

We find the above context important for the correct interpretation of our results, especially given the response we received after publication.

Moreover in the introduction, the sentence that originally read “More than 90% of the ocean uptake of atmospheric CO₂ occurs in polar and subpolar regions” has been amended to “More than 90% of the coastal ocean uptake of atmospheric CO₂ occurs in polar and subpolar regions”, referring to the work of Dai et al.³. We thank Jean-Pierre Gattuso for bringing this to our attention.

References

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