



A peak and decline in North Atlantic CO₂ uptake

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The oceans play a vital role in mitigating climate change by removing anthropogenic CO₂ from the atmosphere. Presently, only around half of human-emitted CO₂ remains in the atmosphere, with the rest being taken up by the land and ocean carbon sinks in approximately equal proportions. Of the ocean's CO₂ uptake, that occurring in that high-latitude North Atlantic is the most intense. We develop a theoretical framework which proposes that Subpolar North Atlantic CO₂ uptake is likely to peak and decline within the coming century. Considering the CMIP5 models within this framework, and comparing their behaviour to observations, we find that the CMIP5 models underestimate how close the real world's Subpolar North Atlantic CO₂ uptake is to reaching peak uptake.