

Assessing the carbon sink potential, climatic limits and impacts of artificial photosynthesis (CITRONE)

Within CITRONE we explore the interactions between a recently proposed negative emission technology [1,2], the land surface, the large-scale global circulation, and the carbon cycle. We consider past and future scenarios on different scales, taking into account stochastic and deterministic components of the forcing.

[1] May, M. M. and Rehfeld, K.: *ESD Ideas: Photoelectrochemical carbon removal as negative emission technology*, *Earth Syst. Dynam.*, 10, 1–7, <https://doi.org/10.5194/esd-10-1-2019>, 2019.

[2] May, M. M. and Rehfeld, K.: *Negative Emissions as the New Frontier of Photoelectrochemical CO₂ Reduction*, *Advanced Energy Materials*, [DOI:10.1002/aenm.202103801](https://doi.org/10.1002/aenm.202103801), 2022.