

Future trends and climate feedbacks on the biological carbon pump

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Without the ocean's biological carbon pump, atmospheric CO₂ concentrations would be approximately 50% higher than pre-industrial levels. However, much of the functioning of the pump remains poorly known due to its complexity and the difficulty in adequately observing its many components. As a result, it is challenging to develop or validate biogeochemical models suitable for investigating the functioning of the biological carbon pump. Climate model estimates of future pump strength and efficiency diverge and therefore the response of the biological component of ocean carbon storage to climate change is poorly constrained. In this talk, I will discuss the contemporary functioning and future projected changes in the biological carbon pump and the implications for climate feedbacks. I will also highlight the potential for new observations to inform improved estimates of the ocean's biological carbon sink.