

OCEAN BIOGEOCHEMICAL CYCLES AND CLIMATE CHANGE

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ABSTRACT: The climate appears to be changing due to the increase of carbon dioxide (CO₂) in the atmosphere because of human activity. The ocean carbon cycle plays a major role controlling atmospheric CO₂ levels. The oceans presently remove about 30% of the annual anthropogenic CO₂ emissions. Variability in the biogeochemical cycles could exert significant feedback effects during conditions of climate change. Given the complexity of ocean biogeochemistry, coupled biogeochemical/ocean circulation models are principal tools to assess and understand the sensitivity to climate change of the ocean carbon cycle. However, substantial improvements are required in the current suite of numerical models if we are to better understand the present ocean biogeochemical state and predict potential future responses to anthropogenic perturbations.

