



## **Marine carbon cycle reponse to Miocene climate simulations, a model-data comparison**

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The climate of the Miocene is still a challenge for Earth system models. Proxy data indicate warmer and more equable climate conditions while models frequently arrive at opposite results. Moreover, marine carbon dioxide reconstructions point to surprisingly low and constant atmospheric levels which, taken at face value, would imply an enigmatic decoupling between CO<sub>2</sub> and climate. Here, we present first results of a modelling sensitivity study in which we investigate the response of marine biogeochemical cycles to environmental changes typical for the Miocene. We employ the results of fully coupled climate simulations to run an offline model of the marine carbon cycle, and validate the results with marine proxy records and CO<sub>2</sub> reconstructions.