



## **Coupled Ocean-Atmosphere Climate Simulations of the Callovian (Middle Jurassic) with Full Topographic Surface**

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A new approach for generating pal eo-Digital Elevation Model (pal eo-DEM) has been developed to convert plate tectonics reconstruction maps into 3D, i.e. to propose full synthetic topographies (bathymetries and hypsometries) all around the globe at any reconstructed geological time. Using such pal eo-DEM, we have run several coupled ocean-atmosphere climate simulations for the Earth in the Callovian (Middle Jurassic) using the MITgcm code on a cubed-sphere grid.

We discuss the differences with respect to previously published studies where the CO<sub>2</sub> content in the atmosphere has been varied but constant elevations were used. It has been therefore possible to highlight the major role of the topography on global models of the past climate. Our results show that climate models for deep time — as complex as they may be — remain oversimplified if 3D pal eogeography is not taken into account.