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Results of PMIP2 coupled simulations of the Mid-Holocene and Last Glacial Maximum – Part 1: experiments and large-scale features

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Abstract. A set of coupled ocean-atmosphere simulations using state of the art climate models is now available for the Last Glacial Maximum and the Mid-Holocene through the second phase of the Paleoclimate Modeling Intercomparison Project (PMIP2). This study presents the large-scale features of the simulated climates and compares the new model results to those of the atmospheric models from the first phase of the PMIP, for which sea surface temperature was prescribed or computed using simple slab ocean formulations. We consider the large-scale features of the climate change, pointing out some of the major differences between the different sets of experiments. We show in particular that systematic differences between PMIP1 and PMIP2 simulations are due to the interactive ocean, such as the amplification of the African monsoon at the Mid-Holocene or the change in precipitation in mid-latitudes at the LGM. Also the PMIP2 simulations are in general in better agreement with data than PMIP1 simulations.

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