



LGM Simulations with the MPI-ESM

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The paleo version of the MPI-ESM was used to study the the climate of the Last Glacial Maximum. The model consists of the ECHAM6 AGCM (resolution T63) and the MPIOM-OGCM (setup GR1.5) including the marine biogeochemistry module HAMOCC. The model was, starting from the results of a PMIP2 model simulation, spun up for approximately 2000 years. The setup follows the PMIP3 protocol with prescribed vegetation.

Results indicate a general cooling with maxima over high latitudes and the Laurentide and Fennoscandian ice sheets, and generally enhanced sea ice cover.

North Atlantic heat transport is enhanced, which is a consequence of enhanced Atlantic overturning and a stronger subtropical gyre in the North Atlantic. In the North Pacific the subpolar gyre is enhanced as well.

Marine productivity in the LGM simulation is enhanced in the North Atlantic and North Pacific subpolar gyres, as well in the upwelling region off Morocco. Denitrification is generally enhanced.

In a shorter sensitivity experiment the effect of interactive vegetation is investigated. Main result is a strong regional cooling in Siberia.