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A multi-model ensemble of past simulations for the last glacial maximum, the mid-Holocene and the last millenium

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The Paleoclimate Modelling Intercomparison Project (PMIP) is a long standing initiative that has provided an efficient mechanism for coordinating paleoclimate modelling activities that provide valuable information on the mechanisms of climate change, the identification of key feedbacks operating in the climate system and, through model evaluation, the capability of climate models to reproduce climates different from today. With data syntheses, e.g. using pollen or planktonic fossils, and rigorous model-data comparisons, the mid-Holocene climate (ca. 6000 yr BP) and the Last Glacial Maximum (LGM; ca. 21,000 yr BP) are now recognized as benchmark periods for climate models. The LGM simulation allows to examine the climate response to the presence of large ice sheets and lowered greenhouse gas concentrations. The mid-Holocene simulation allows to examine the climate response to a change in the seasonal and latitudinal distribution of incoming solar radiation caused by known changes in orbital forcing. The last millennium provides long term perspective for detection and attribution studies and to determine the ability of climate model to reproduce multidecadal variability.

These time periods have been selected as part of tier1 and tier2 of the CMIP5 set of simulations that is expected to lead to climate information and knowledge of particular relevance to future international assessments of climate science (Taylor et al. 2009). The poster will present the rationale of the boundary conditions chosen to drive the past climate simulations, as well as the value added of a multimodel ensemble of past simulations run with the same model version than the one used for future climate projections.