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# Last millennium climate simulations and reconstructions. A state-of-the-art comparison.

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An analysis of paleoclimate simulations spanning periods of the last 1000 yrs with several high complexity general circulation models (AOGCMs), such as ECHO-G, HADCM3, CCSM, COSMOS, CNRM and IPSL, and their later comparison with available paleoclimatic reconstructions is proposed. The suite of simulations are forced with different estimates of natural and anthropogenic external forcings, including solar activity, volcanic aerosols and atmospheric concentrations of different greenhouse gases.

The analysis is focused on the temperature and circulation response in the various model simulations, paying special attention to the the internal variability and its sensitivity to the external forcing. The temperature response is studied in a global and hemispherical scale, while the circulation one is evaluated for different known dynamical patterns, such as the annular modes: the Arctic Oscillation (AO) and the Antarctic Oscillation (AAO). Of particular interest for Europe, the regional scale changes in the North Atlantic Oscillation (NAO) are also analyzed in both model and reconstruction pool.