



Borehole temperatures and ECHO-g paleoclimatic simulations: steps towards comparison over Europe.

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Projections of future climate change gain confidence if climate models prove effective in simulating past changes as evidenced by paleoclimatic reconstructions. Advances in the convergence between GCM simulations and reconstruction approaches will require reducing the uncertainty on both sides, and also the realization that model output and paleodata comparisons are in practice subjected to the particularities of each proxy and to the limitations inherent in model simulations. In the context of borehole climate reconstructions, first steps have been taken in designing means of comparison of the information provided by borehole temperature profiles (BTPs) with 1000-a model simulations performed with the ECHO-g AOGCM. Results suggest that BTPs can be compared to paleoclimate simulations by diffusing the simulated temperatures into the ground in order to produce synthetic BTPs that can be assigned to collocated, real BTPs. First comparisons suggest sensitivity of borehole temperatures to changes in external forcing over the last centuries. This work compares synthetic BTPs generated using control and forced 1000-a simulations with the ECHO-g AOGCM and observed BTPs from several European regions. Similarity of spatial changes in the amplitude of late millennium warming, sensitivity to changes in external forcing and consistency with other independent proxy reconstructions are also assessed.