



The last glacial termination: targets for climate modelling and proxy-based reconstructions

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During the last glacial termination, the climate system experienced a major reorganisation, making this time interval a crucial period for our understanding of climate change. Despite a basic understanding of these changes and a reasonable level of agreement between data and model simulations, a deeper understanding of the last glacial termination remains a long standing goal: we are still faced with the dual challenge of reconstructing the climate history from incomplete and uncertain proxy data, and accurately simulating the climate history with physics-based climate models. There are, however, significant advantages in attempting to reliably integrate palaeoclimate data with model simulations, not least because it is necessary to examine the limitations of both current models and palaeoclimate records before testing possible forcing mechanisms. For the model studies, palaeodata play a crucial role, both as a source of (1) climate forcings for the modelling experiments and (2) palaeoclimate information that is required for model evaluation. Therefore, interaction between the modelling and data communities is essential. For this purpose, and with the last termination as a target, a working group has been set up within the INTIMATE (INTegration of Ice core, MArine and TERrestrial records of the last termination) COST Action (<http://cost-es0907.geoenvi.org>). We report on the outcome of a workshop of this working group, discussing the state of knowledge of the forcings and various aspects of climate variability during the last termination. We focus in particular on the main uncertainties in the climate signals and the forcings. We discuss the major problems that must be solved to make further progress in our understanding. This requires a joint effort of paleodata, chronology, and climate modelling communities. A number of specific targets for these communities are identified.