



Modelling the climate in the late Holocene

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The late Holocene has recently attracted a lot of attention by the modelers because it is a time period in earth's history with the same distribution of continents as today and the same chemical composition of the atmosphere but mainly without interference from mankind. It is therefore seen as the ideal case for climate variability studies before industrialization. Particularly the question whether the climate change observed recently is the results of men's activity or just an expression of natural variability, has initiated a lot of modeling activities.

A large amount and variety of proxy data have been collected, which have exclusively been used to reconstruct the climate of the Holocene. In the recent years the computers have become powerful enough to be able to simulate time periods of several thousands of years with 3d climate models, thus providing now an additional data source to assess the climate of the Holocene. As driver for the climate models, new datasets have been compiled which give estimates of the solar forcing, of the volcanic activities and of the trace gases during this period.

The first experiments have focused on the last millennium. The model simulations show larger amplitudes of the historical temperature variations in comparison to the ones reconstructed from proxy data. The model experiments allow an estimate of the sensitivity of the climate system and a separation of the effects of the natural and anthropogenic forcings.