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Milankovitch variations in climate and associated variations in methane sources in the late Quaternary

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Milankovitch variations in climate are simulated in a suite of experiments for the late Quaternary with the CLIMBER-2 atmosphere/ocean/vegetation model. Variations in greenhouse gas levels and ice-sheets are prescribed as a time-varying forcing, based on ice-core data and an off-line 3-D ice-sheet model, rather than interactively modelled. The insolation forcing due to variations in the Earth's orbital parameters and reconstructed ice-sheets and greenhouse gas levels are applied in different combinations of one or more factors. We examine the role of the various factors for variations in different climatic parameters, seasons and geographical regions. In addition, we study the implied variations in methane sources related to e.g. variations in monsoon strength, atmospheric temperatures and permafrost area.