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Simulating Milankovitch variations in climate

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Orbital signals in climate are simulated in a suite of experiments with the intermediate-complexity climate model CLIMBER-2. This model contains atmosphere, ocean/sea-ice and vegetation components. The insolation forcing due to variations in the Earth's orbital parameters is prescribed following Laskar. We carry out different transient experiment: (i) with orbital forcing only and (ii) with orbital forcing combined with variations in ice-sheets and greenhouse gas levels (over the last 650,000 yr), which are prescribed based on ice-core data and an off-line 3-D ice-sheet model. These experiments can be regarded as being representative for orbital climate signals of (i) the pre-Quaternary and (ii) the late Quaternary. We examine the role of the various forcing factors for variations in terrestrial climate (temperature, precipitation), in different seasons and geographical regions.