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Modelling the climate of the last millennium: what causes the differences between models?

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An ensemble of simulations performed with a coarse resolution 3-D climate model driven by various combinations of external forcing is used to investigate the causes of the differences noticed in recent simulations of the climate of the past millennium. Our results strongly suggest that differences in the models' formulation could be responsible for temperature changes than differ by more than a factor two between two models. In addition, the spin-up procedure could explain some differences between the simulations during the first centuries of the second millennium AD. On the other hand, the choice of the forcing reconstruction plays a smaller role in the configurations analyzed here.