



Influence of external forcing on atmospheric circulation, precipitation and cloudiness in the past millennium as simulated by the model ECHO-G

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The temperature response to future anthropogenic greenhouse gas forcing will be modulated by a number of climate feedbacks, mediated by changes in different atmospheric variables, such as humidity, circulation and cloudiness. The strength and even sign of some of these feedbacks is still uncertain. The climate of past millennium can offer the possibility of mechanistically validating some of the feedback processes simulated in climate simulations, provided that the global proxy coverage is widened and new proxies are incorporated to the existing data sets.

In this contribution, two millennial simulations over the past millennium performed with the model ECHO-G are analysed, with the aim to identify the signal of the external forcing in the simulated variations of atmospheric circulation, precipitation, cloudiness and humidity, which have received much less attention than temperature. The influence of the external forcing can be identified in distinctive large-scale zonal spatial patterns in all these variables. Thus some important feedback processes present in this model could be potentially be tested in proxy-based reconstructions.