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## Mid-Holocene climate change in Europe: a data-model comparison

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**Abstract.** We present here a comparison between the outputs of 25 General Circulation Models run for the mid-Holocene period (6 ka BP) with a set of palaeoclimate reconstructions based on over 400 fossil pollen sequences distributed across the European continent. Three climate parameters were available (moisture availability, temperature of the coldest month and growing degree days), which were grouped together using cluster analysis to provide regions of homogenous climate change. Each model was then investigated to see if it reproduced 1) similar patterns of change and 2) the correct location of these regions. A fuzzy logic distance was used to compare the output of the model with the data, which allowed uncertainties from both the model and data to be taken into account. The models were compared by the magnitude and direction of climate change within the region as well as the spatial pattern of these changes. The majority of the models are grouped together, suggesting that they are becoming more consistent. A test against a set of zero anomalies (no climate change) shows that, although the models are unable to reproduce the exact patterns of change, they all produce the correct signs of change observed for the mid-Holocene.

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