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European climate of the last millennium: results of the 'Millennium project'

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Many of the climate reconstructions of the last millennium have tended to rely heavily upon tree-ring archives (typically ring width and density) where the strongest signal is summer temperature. In the Millennium project we have produced new palaeoclimate reconstructions based not only on dendrochronological but also on many sources ranging from documentary sources to climate 'proxies' from lakes, mires, ice cores, marine sediments and annually-banded sea shells. The approaches have been innovative and the result is a comprehensive suite of palaeoclimate reconstructions covering different seasons and including changes in sunshine and precipitation estimates as well as temperature. This allows a more synoptic view of the evolution of European climate to be taken, which includes the modulating effects of changes in the North Atlantic. These climate reconstructions will be used to 'score' an ensemble of GCM model runs, with the aim of reducing the uncertainty in climate sensitivity estimates and in the subsequent predictions of future climate change.