



## **Model simulations and climate reconstructions over the North Atlantic-European region since 1000 AD**

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Understanding of climate during pre-industrial times leans on reconstruction and model simulation attempts efforts. This work explores climate variability and change at centennial time-scales using several global and regional simulations covering the last millennium and extended until 2100 AD. The global simulations have been produced with the ECHO-g atmosphere-ocean general circulation model forced with estimations of solar irradiance, atmospheric reflectivity due to volcanic eruptions and the concentrations of greenhouse gases since 1000 AD. The regional model simulations have been produced over a domain centered in southwestern Europe with a climate adapted version of the MM5 model driven by boundary conditions provided by the ECHO-g model simulations. The response of the GCM and RCM simulations over the period 1000-1990 AD is compared to climate reconstructions with an emphasis on the North Atlantic and European region and discussed in the context of the climate projections under the A2 and B2 climate change scenarios.