



Temperature and precipitation fluctuations in the Czech Republic based on instrumental, documentary and proxy data in comparison with model simulations, 1701–2010

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The paper analyses monthly, seasonal and annual temperature and precipitation fluctuations in the Czech Lands during the past 310 years based on the following data: (i) homogeneous long-term instrumental series of Czech stations (temperatures for Prague-Klementinum from 1775 and precipitation/drought indices for Brno from 1803); (ii) reconstructions based on series of temperature and precipitation weighted indices derived from interpretation of documentary sources; (iii) long-term temperature reconstruction based on the series of winter wheat harvest dates; (iv) temperature reconstruction from spruce tree-rings in the Krkonoše Mts. and precipitation reconstruction from fir tree-rings in southern Moravia. Different statistical methods are used to characterise and analyse temporal and spatial coherence among series studied. These series are compared with millennium model simulations ERIK1 and ERIK2 of the ECHO-G climate model and also with the regional climate model MM5. Particular attention is devoted to the extraction of high- and low-frequency climate signal with respect to existing uncertainties in the above series and model simulations applied.