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Seasonal climate variability in Medieval Europe (1000 to 1499)

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In his fundamental work on medieval climate Alexandre (1987) highlighted the significance of dealing with contemporary sources. Recently, long series of temperature indices for "summer" and "winter" were set up by Shabalova and van Engelen (2003) for the Low Countries, but the time resolution is not strictly seasonal. This paper worked out within the EU 6th Framework Project "Millennium" draws on critically reviewed documentary evidence from a spatially extensive area of Western and Central Europe (basically England, France, BENELUX, Western Germany, Switzerland, Austria, Poland, Hungary and todays Czech Republic. The narrative evidence is complemented with dendro-climatic series from the Alps (Büntgen et al. 2006). Each "climate observation" is georeferenced which allows producing spatial displays of the data for selected spaces and time-frames. The spatial distribution of the information charts can be used as a tool for the climatological verification of the underlying data.

Reconstructions for winter (DJF) and summer (JJA) are presented in the form of time series and charts. Cold winters were frequent from 1205 to 1235 i.e. in the "Medieval Warm Period" and in the Little Ice Age (1306-1330; 1390-1470). Dry and warm summers prevailed in Western and Central Europe in the first half of the 13th century. During the Little Ice Age cold-wet summers (triggered by volcanic explosions in the tropics) were more frequent, though summer climate remained highly variable.

Results are discussed with regard to the "Greenhouse Debate" and the relationship to glacier fluctuations in the Alps is explored.

References

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