



Analysis of medium-term temperature changes in Europe for the last millennium

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A comparison of seasonally resolved temperature reconstructions from various regions in Europe shows a high coherence for medium term changes, despite the fact that these reconstructions are derived from different proxies, such as historical documentary data, tree ring parameters and speleotherms, each with different temporal and spatial resolution. Deviations from this coherence do not necessarily reflect errors but can be interpreted as regional climatic signals.

In this article temperature series from different regions in Europe are analyzed to identify periods of coherence or aberration. Coherence is interpreted as primarily climatically triggered and therefore valid. Aberrations were analyzed for climatic consistency, i.e their agreement with observable patterns. This was checked by searching for modern instances of similar temperature patterns using reanalysis temperature fields and instrumental temperature series. Possible reconstruction errors were also taken into account. By means of statistical up-scaling, regional signals were linked to larger scale patterns and subsequently to patterns of planetary circulation.

Periods of divergent and climatically inconsistent regional signals had to be analyzed. In some such cases historical documentary data, with their high temporal and spatial resolution, could be used to explain the differences or the behavior of particular proxies. In cases where no explanations could be found, periods from some series were excluded.