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Air temperature "singularities" as a tool for the comprehension of the climate diversity in Europe

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Air temperature „singularities" were used to study climate diversity in Europe.
The basis of analysis were data of mean daily air temperature for 50-years period (1951-2000) from 66 European meteorological stations.
Multiyear mean air temperature values were counted for the each day of the year at first (29th February was omitted). Next a theoretical sine curve of annual air temperature course was created with help of the Fourier's analysis for the each station. Differences between theoretical and observed mean vales of daily air temperatures were counted in the next step. The biggest of these differences (below the lower quartile and above the upper quartile) lasting at least 3 days can be treated as thermal "singularities".
A cluster analysis was used to find similarities of the singularities occurrence in analyzed stations. As a result 8 clusters were distinguished representing regions with different thermal "singularities" occurrence pattern.