



Decadal to secular time scales variability in Temperature measurement over France and Europe and its relation with climatic indices.

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Many long instrumental climate records are available and might provide useful information in climate research. However these series are usually affected by artificial shifts, due to changes in the measurement conditions and various kinds of spurious data. Comparison with surrounding weather stations allows one to check the reliability of the series. An adapted penalized log-likelihood procedure is used to detect multiple breaks and outliers in the series. An example of a temperatures series from France confirms that a systematic comparison of the series together is valuable and allows us to correct the data even when no reliable series can be taken as a reference. Using this procedure temperature time series from 1880 to 2000 has been corrected. These, therefore reliable time series, that covers all regions in France from 1880 to 2000, are studied for their decadal, interdecadal and secular variability using different spectral methods.

The series present decadal, interdecadal as well as a secular cycle. However, even though France extent is not large, as well as decadal variability is supposed global than local, the analysis of the time series show differences in amplitude, periodicity and localization of the cycles with time. Although these differences are not strong, it is meaningful of an organization of the different patterns of atmospheric variability with the strength of the modes of variability governing the European continent, which are associated with the North Atlantic Oscillation (NAO) or El Niño Southern Oscillation (ENSO) within others. This is considered and studied in the present investigation.