Climatol: Free software for error detection and homogenization of climatological data

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"Climatol" is a set of routines for climatological applications, freely available at "http://cran.r-project.org/" as a contributed package to the multi-platform statistical system "R". It is mainly devoted to the homogenization of monthly series, though may be applied to daily data as well.

The homogenization method is based on comparing each test series with a reference series constructed for the same station through interpolation of ratios, differences or standardized values of the surrounding stations. This method avoids the use of regression techniques, with the advantage of been more robust and simple, and (most importantly) enabling the use of data from nearby stations when there is no common period of observation.

The comparison of the problem series with their estimated references allows the detection of point errors, shifts and trends through standard statistical tests, optionally showing graphical representations of the results. The computed reference values may be readily used to fill the missing data of the series. Two additional functions are included in the package, to draw wind roses and Walter&Lieth climatic diagrams.