



## **ClimIndVis: an R package to generate climate indices products**

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ClimIndVis is an R package for the generation of graphical products of different climate indices for both climatological and seasonal forecast information. The package has been developed within the Climandes project (a pilot project of the Global Framework for Climate Services led by WMO [<http://www.wmo.int/gfcs/climandes/>]) for the automatic generation of climate products for the agricultural sector. The goal of the developments was to provide easy to use functions for creating graphics of commonly used climate information indices such as those of the Expert Team on Climate Change Detection and Indices (ETCCDI) and some additional indices of particular relevance for agriculture in the Andes.

The main features of the package are:

- Calculation of indices (most ETCCDI indices, threshold indices, consecutive threshold indices, SPI, rainy season indices)
- Calculation of trends
- Verification of seasonal forecasts
- Visualizations of results (as time series, maps, or seasonal forecast graphics)

The package works with gridded as well as station data and can handle observational, reanalysis and ensemble seasonal forecast data. Indices may be calculated for different time aggregations, i.e. seasonal, monthly, user defined time periods or annually varying time periods. This is especially valuable for the tailoring of climate products as the users are often more interested in a specific time of the year than the yearly indices often used in climate science.

For convenience the package contains a set of wrapper functions combining the above functionalities. They enable the user to create a particular climate product, e.g. a comparison of time series of different indices or a seasonal forecast map including skill, using only one function.