

QUICK START

- Install R (Version ≥ 3.6)
<https://cran.r-project.org>
- Install R-Studio
(recommended, not mandatory)
<https://www.rstudio.com/download>
- Install the cmsaf R-package using
the following command in RStudio
`install.packages("cmsaf")`
- Run the Toolbox using the following
command in RStudio
`cmsaf::run_toolbox()`
- Have fun

User Help Desk

In case that a question or problem can not be solved by help of the README or the cmsaf R-package manual contact the CM SAF User Help Desk (contact.cmsaf@dwd.de).

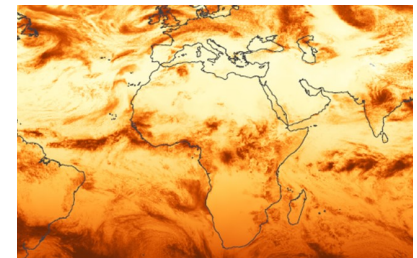


The Satellite Application Facility
on Climate Monitoring

www.cmsaf.eu
contact.cmsaf@dwd.de



The CM SAF R TOOLBOX



R-based tools for an easy
usage of CM SAF NetCDF data

www.cmsaf.eu/R_toolbox



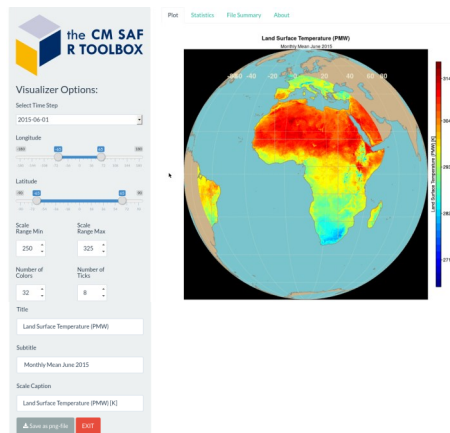
CM SAF data records can be ordered free of charge (wui.cmsaf.eu). The data are provided via https or sftp as tarball.

Use the **Prepare** step to:

- Extract
- Unzip
- Select time range
- Select region
- Merge

CM SAF R TOOLBOX GUI

The usage of the CM SAF R TOOLBOX requires no R or scripting experience. The Toolbox has a graphical user interface (GUI) and guides through all options.



The **Analyse** step provides an easy-to-use interface to the diversity of operators of the *cmsafops* and *cmsafvis* R-packages.

cmsafops & cmsafvis R-packages

The *cmsafops* and *cmsafvis* R-packages provide a collection of functions for analysis, manipulation and visualization of CM SAF NetCDF data. They contain more than 70 operators, such as:

- dayrange – diurnal range
- mon.anomaly – monthly anomalies
- monitor_climate – create climate maps
- monmean – monthly means
- monsum – monthly sums
- ncinfo – content of a NetCDF file
- remap – spatial interpolation
- seas.anomaly – seasonal anomalies
- seasmean – seasonal means
- sellonlatbox – select a region
- selpoint – extract a point or time series
- timmean – temporal mean
- trend – linear trend
- wfldmean – weighted spatial mean
- year.anomaly – annual anomalies
- yearmean – annual means
- yearsum – annual sums
- ymonmean – long-term monthly means

The **Visualize** option provides a powerful tool for the visualization of CM SAF data. It can be used to display 2d maps, 1d line plots or statistical figures. The tool offers several options for customization.

