

## QUICK START

- Install R  
[www.r-project.org](http://www.r-project.org)
- Install R-Studio  
(recommended for R beginners)  
[www.rstudio.com/download](http://www.rstudio.com/download)
- Get CM SAF R TOOLBOX  
[www.cmsaf.eu/tools](http://www.cmsaf.eu/tools)
- Start R or R-Studio and source the script `Install.Packages4Toolbox.R`
- Start the main script  
`CMSAF-R-TOOLBOX.R`
- 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](mailto:contact.cmsaf@dwd.de)).

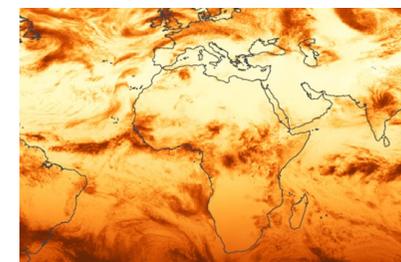


The Satellite Application Facility  
on Climate Monitoring

[www.cmsaf.eu](http://www.cmsaf.eu)  
[contact.cmsaf@dwd.de](mailto:contact.cmsaf@dwd.de)



## The CM SAF R TOOLBOX



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

[www.cmsaf.eu/tools](http://www.cmsaf.eu/tools)

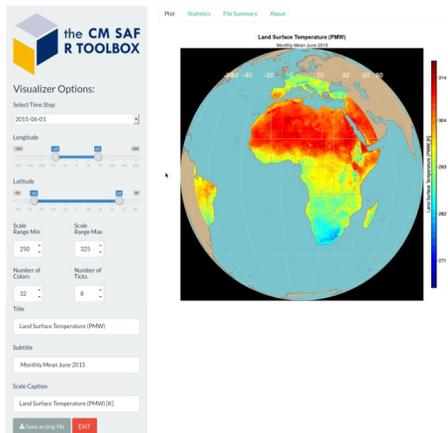


CM SAF data records can be ordered free of charge via [wui.cmsaf.eu](http://wui.cmsaf.eu). The data are provided via ftp as tarball. Apply the **Prep.Data.R** script to:

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

### CM SAF R TOOLBOX scripts

The CM SAF R TOOLBOX consists of several prepared R-scripts, which require no R or scripting experience. After starting a script the user is guided through all options.



The **Apply.Function.R** script serves as simple to apply interface to the diversity of functions of the *cmsaf* R-package.

### cmsaf R-package

The *cmsaf* R-package is a collection of functions for basic analysis and manipulation of CM SAF NetCDF data. It contains more than 60 useful operators, such as:

- dayrange – diurnal range
- fldmean – mean of a 2d field
- mon.anomaly – monthly anomalies
- monmean – monthly means
- monsum – monthly sums
- ncinfo – content of a NetCDF file
- remapbil – bilinear 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 2d field mean
- year.anomaly – annual anomalies
- yearmean – annual means
- yearsum – annual sums
- ymonmean – long-term monthly means

The script **CMSAF\_Visualizer.R** is a GUI-based tool for the visualization of CM SAF data. The Visualizer can be used for plotting of 2d maps, 1d line plots or to plot statistical figures. The tool offers several options for customization.

