the CM SAF R Toolbox Cheat Sheet

#3 How to make an anomaly

Background

Climatological Mean

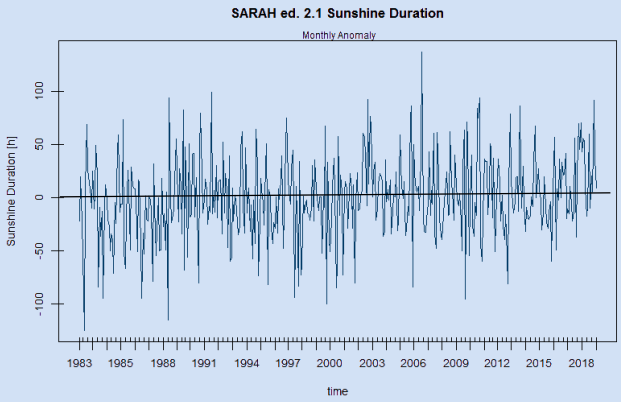
Describes the mean state of a climate variable.

Climate Anomaly

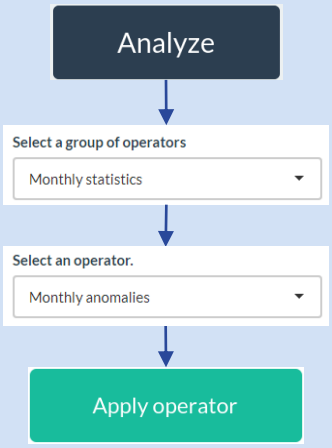
The anomaly of a variable is the difference from a climatological mean. The climatological mean is typically computed by averaging 30 or more years of data.

Formula

Climate anomaly = Actual value – Climatological mean



Workflow



Click on **Analyze** and choose a .nc-file, which contains your Climate Data Record.

Select a group of operators: *Monthly statistics* (Anomalies can also be calculated on seasonal or annual basis).

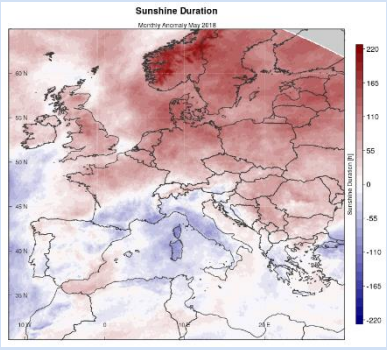
Select an operator: *Monthly Anomalies* provides spatial anomaly maps of each month of the data.

Click on **Apply operator** to start the processing. The resulting .nc-file will be written to your output folder.

Good to know

- An Anomaly can also be calculated by first calculating a climatology (*Multi-year monthly means*) and then subtract it from the actual data (*Subtract fields of two files*)
- You can combine .nc-files of several .tar-files by giving them the same order number (e.g., ORD12345.tar, ORD12345_2.tar)

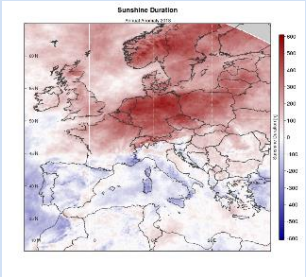
Results



Analyze the distribution of monthly, seasonal or annual sunshine duration anomalies:

- Where are regions with higher than normal values of sunshine duration?
- Was the sunshine duration of the last month below average, normal or above average?
- What kind of patterns and features can be found?

Calculate anomalies by combining CM SAF TCDR and ICDR data. Explore the possibilities!



Have a look at monthly, seasonal and annual anomalies

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