



## **Analysing the temporal and spatial variability of daily surface solar radiation in Europe**

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The spatial and temporal variability of the surface solar radiation is driven by the annual solar cycle and the variability of the cloud coverage. An improved understanding of this variability increases our understanding of the climate system; in addition this information helps to select locations for solar power plants to ensure the highest stability of the availability of solar energy.

Here we present results of the analysis of the temporal and spatial variability of the surface solar radiation in Europe on the daily time scale. The analysis is performed using the new satellite-based CM SAF climate data record of surface radiation (SARAH - Solar Surface Radiation Dataset – Heliosat) available from 1983 to 2013 with a spatial resolution of 0.05 deg. The validation of SARAH against surface measurements from the DWD network shows the high quality of the data set in reproducing the features of the daily solar radiation.

The analysis of the data reveals meteorological singularities, i.e. certain days throughout the year that have a significantly higher likelihood of high surface solar radiation. The spatial extend of these singularities as well as their connection to the Großwetterlagen will be discussed in this contribution.