

SEVIRI Daily and Monthly Sunshine Duration

Daily and monthly sunshine duration for the UK and Europe have been derived from 15-minute observations of cloud type obtained by the Spinning Enhanced Visible and Infrared Imager (SEVIRI), onboard the Metosat Second Generation (MSG) satellite platform, which is the operational weather satellite at 0 degrees longitude/latitude. The cloud-type data, sourced from the Satellite Application Facility to support NoWCasting and very-short-range forecasting (<http://www.nwcsaf.org/HD/MainNS.jsp>), are used to assign either bright sunshine or no bright sunshine for each SEVIRI observation for each pixel (bright sunshine is defined by the World Meteorological Organisation to be in excess of 120 Wm^{-2}). The proportion of the total number of day time observations assigned bright sunshine is multiplied by the day length to estimate the total sunshine duration for that day. The monthly sunshine duration estimates are simply produced from a sum of the daily values. Evaluation of the products with collocated in situ observations from meteorological stations indicates that the daily satellite sunshine duration estimates are typically within 1-2 hours of the in situ observations.

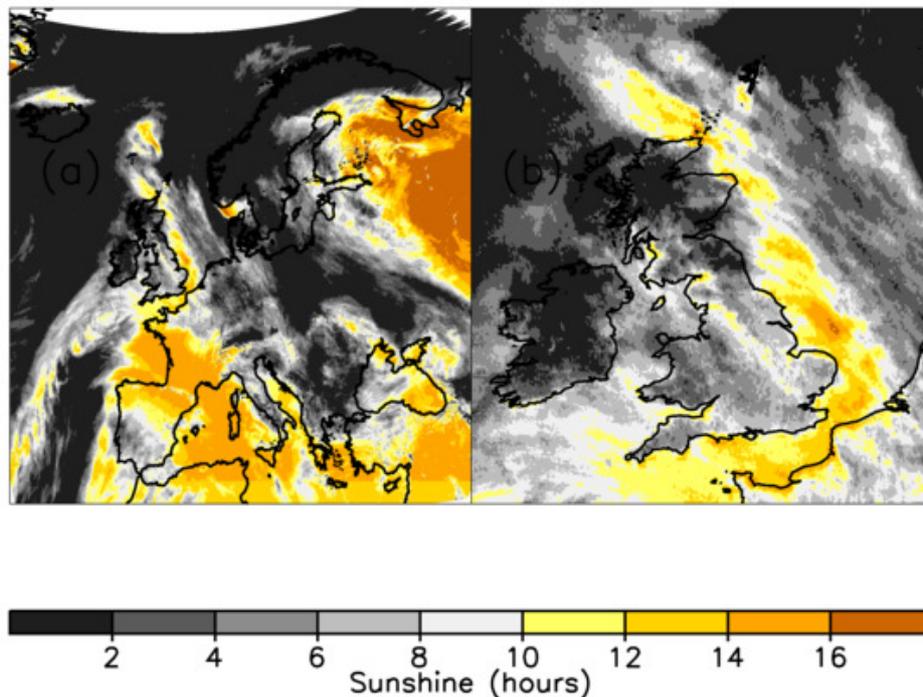


Figure 1: Example of sunshine duration estimated from SEVIRI on 01 July 2007.

Infobox

SPECIFICATIONS

Output data sets

Sunshine duration

Data

Spatial resolution: ~4-10 km

Temporal resolution: Daily & monthly

Grid: SEVIRI native pixel (Irregular grid)

Format: NetCDF

Availability

Area: UK and Europe

Time period: Sept 2009- Feb 2012

Freely available for non-commercial and educational research

Validation

Through comparison with independent station observations.

Outlook

Full resolution SEVIRI is a fixed dataset. A gridded version covering a longer time period at daily and monthly resolution will be produced by DWD in the future and may be available through EURO4M – please check the data set web-link.

References

Good, E., 2010, Estimating daily sunshine duration over the UK from geostationary satellite data. *Weather*, 65: 324-328. doi: 10.1002/wea.619

Kothe, S., Good, E., Obregón, A., Ahrens, B., Nitsche, H., 2013, Satellite-Based Sunshine Duration for Europe. *Remote Sensing*, 5(6): 2943-2972.

Description and Validation

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