



DATASET DESCRIPTION

Raster data set of multi annual mean global radiation in W/m² for Germany - HYRAS-DE-RSDS

Version: v3.0

Publication date:

Cite data set as: Raster data set of multi annual mean global radiation in W/m² for Germany - HYRAS-DE-RSDS, Version v3.0

Dataset-ID: urn:x-wmo:md:de.dwd.cdc::GRD_DEU_P30Y_RAD-G_HYRAS-DE

Dataset-URL: https://opendata.dwd.de/climate_environment/CDC/grids_germany/multi_annual/hyras_de/radiation_global/

ABSTRACT

HYRAS-DE-RSDS is a global radiation product for Germany in a 5 km x 5 km grid for the period 1951-2020 and is based on daily measured values of sunshine duration and global radiation. The data set can be used, for example, for the analysis of past climate, for bias adjustment of regionalized climate projection data and as input data for hydrological modeling. The data set is determined from the monthly averaged global radiation grids.

POINT OF CONTACT

Deutscher Wetterdienst
Hydrometeorologische Beratungsleistungen
Frankfurter Str 135
63067 Offenbach am Main
Tel:49 (0) 69 8062-0
Fax:
E-Mail:Hydromet@dwd.de

DATASET DESCRIPTION

Parameter	global radiation
Statistical processing	multi-annual averages
Temporal coverage	1951-01-01 -- 2020-12-31
Temporal resolution	30 years
Spatial coverage	Germany
Spatial resolution	5 km x 5 km
Projection	ETRS89 / LCC Europe (EPSG:3034)
Format description	The grids are written to a NetCDF file. The name of the NetCDF file is defined as follows: parameter_productname_resolution(in km)_year_version_region.nc (e.g. rds_hyras_5_2020_v3-0_de_*.nc)

DATA ORIGIN

The raster dataset of global radiation (RSDS) is created by a combination of station measurement data (sunshine duration and global radiation), satellite data and ERA5 data. Background fields of global radiation are calculated, using the patterns of the principal component analysis of the CM-SAF dataset, as well as altitude, longitude and latitude in a multiple linear regression. For the station measurement data, sunshine duration measurements are converted to global radiation using an extended Angstrom approach including atmospheric cloud liquid water content from the ERA5 reanalysis data via regression. All results are interpolated by inverse distance weighting. This data set is determined from the monthly averaged global radiation grids. Thereby, the data is averaged over a period of 30 years.

RESOURCE MAINTENANCE

The DWD reserves the right to update or provide a new version of the data set at its own discretion.

UNCERTAINTIES

Uncertainties may result from the interpolation method used. Incorrect measurements also result in uncertainties in the grid field. For the interpolation of the grids, a different number of stations were used over time, as the measurement network has changed. This must be considered when comparing different years.

COPYRIGHT

The Ordinance to Determine the Conditions for Use for the Provision of Spatial Data of the Federation ("Verordnung zur Festlegung der Nutzungsbestimmungen für die Bereitstellung von Geodaten des Bundes" - GeoNutzV) shall apply, for details turn to "http://www.geodatenzentrum.de/docpdf/geonutzv_eng.pdf" and "http://www.dwd.de/EN/service/copyright/copyright_artikel.html".

REVISION HISTORY

This document is maintained by Deutscher Wetterdienst, KU41 Hydrometeorologische Beratungsleistungen, last edited at 2023-06-22.