www.dwd.de

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

DATASET DESCRIPTION

Raster data set of global radiation in W/m^2 for Germany - HYRAS-DE-RSDS

Version: v3.1

Publication date:

Cite data set as:	Raster data set of global radiation in W/m^2 for Germany - HYRAS-DE-RSDS, Version v3.1
Dataset-ID:	urn:wmo:md:de-dwd-cdc:urn:wmo:md:de-dwd-cdc:3fbb3a1b-89a1-4697-8da1-e258dcb5dc3f
Dataset-URL:	https://opendata.dwd.de/climate_environment/CDC/grids_germany/daily/hyras_de/radiation_global/
Dataset-URL:	https://opendata.dwd.de/climate_environment/CDC/grids_germany/monthly/hyras_de/radiation_global/
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.

It should be noted that the data was interpolated bilinearly from ETRS:3034 to ETRS:3035, as the other products are available in ETRS: 3035.

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
Unit(s)	W/m²
Statistical processing	monthly mean, multi-annual averages, daily mean
Temporal coverage	1951-01-01 -- 2020-12-31
Temporal resolution	30 years, 1 month, 24 hours
Spatial coverage	Germany
Spatial resolution	5 km x 5 km
Projection	ETRS89-extended / LAEA Europe (EPSG:3035)
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. rsds_hyras_5_2020_v3-1_de.nc)
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. rsds_hyras_5_2020_v3-1_de_monmean.nc)

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. rsds_hyras_5_1991_2020_v3-1_de_APR.nc)

DATA ORIGIN

The raster data set 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.

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. It should be noted that the data was interpolated bilinearly from ETRS:3034 to ETRS:3035, as the other products are available in ETRS:3035.

LITERATURE

Empfehlungen für Rasterdaten

The ERA5 global reanalysis H. Hersbach, B. Bell, P. Berrisford, S. Hirahara, A. Horányi, J. Muñoz-Sabater, et al. Quarterly Journal of the Royal Meteorological Society 2020 Vol. 146 Issue 730 Pages 1999-2049

COPYRIGHT

REVISION HISTORY

This document is maintained by Deutscher Wetterdienst, Referat Hydrometeorologische Beratungsleistungen (KU41), last edited at 2024-11-21.