www.dwd.de

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

DATASET DESCRIPTION

Raster data set of daily sums of precipitation in mm for Germany - HYRAS-DE-PRE

Version: v5.0

Publication date: 2024

Cite data set as:	Raster data set of daily sums of precipitation in mm for Germany - HYRAS-DE-PRE, Version v5.0
Dataset-ID:	urn:x-wmo:md:de.dwd.cdc::GRD_DEU_P1D_RR_HYRAS-DE
Dataset-URL:	https://opendata.dwd.de/climate_environment/CDC/grids_germany/daily/hyras_de/precipitation/

ABSTRACT

HYRAS-DE-PRE is a precipitation product for Germany in a 1 km x 1 km grid for the period 1931 to the previous day and is based on daily measured values of precipitation height. 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.

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	precipitation height
Unit(s)	mm
Statistical processing	daily sum
Temporal coverage	1931-01-01 -- ...
Temporal resolution	24 hours
Spatial coverage	Germany
Spatial resolution	1 km x 1 km
Projection	ETRS89 / LCC Europe (EPSG:3034)
Format description	: The grids are written to a NetCDF file. The file of the current year is extended every day. The name of the NetCDF file is defined as follows: parameter_productname_resolution(in km)_year_version_region.nc (e.g. pr_hyras_1_2021_v5-0_de.nc)

DATA ORIGIN

The interpolation is based on the daily measured values of the precipitation height (6UTC - 6UTC of the following day). The daily updates measurements do not undergo a complete quality control. These measured values are initially only checked for threshold values and a simple grid control is performed. At the beginning and middle of each month, the previous month is recalculated and overwritten with quality-controlled measurements to ensure high quality of the raster data.

The method for regionalizing observed daily precipitation heights is essentially based on the interpolation of anomalies with respect to long-term mean values (background field). The monthly background fields are determined by a multiple linear regression, in which mean monthly station measurement from the period 1971-2000, longitude and latitude, height above sea level and direction and amount of exposure are used as input variables. The station measurements used to determine the background field undergo a quality control. To calculate the daily grids, anomalies are calculated from the station data and these are interpolated, distance weighted, to unoccupied grid centers using the four closest stations to the grid point.

RESOURCE MAINTENANCE

The data is extended every day. It should be noted that at the beginning and middle of each month, the previous month is recalculated with quality-controlled measurements and the data of the current year is overwritten.

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

VALIDATION AND UNCERTAINTY ESTIMATE

see Rauthe et al., 2013.

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.

LITERATURE

Rauthe, M., Steiner, H., Riediger, U., Mazurkiewicz, A., Gratzki, A., 2013: A Central European precipitation climatology – Part I: Generation and validation of a high-resolution gridded daily data set (HYRAS) Meteorologische Zeitschrift Vol. 22 No. 3, p. 235 – 256, 2013

COPYRIGHT

REVISION HISTORY

This document is maintained by Deutscher Wetterdienst, KU41 Hydrometeorologische Beratungsleistungen, last edited at 2024-07-24.