Deutscher Wetterdienst
Wetter und Klima aus einer Hand

DATA SET DESCRIPTION

Seasonal grids of monthly averaged daily air temperature (2m) over Germany

Version v1.0

Cite data set as: DWD Climate Data Center (CDC): Seasonal grids of monthly averaged daily air temperature (2m) over Germany, version v1.0, 2018.

INTENT OF THE DATASET

The grids are derived from DWD stations and legally and qualitatively equivalent partner stations in Germany run for climatological and climate related applications.

POINT OF CONTACT

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DATA DESCRIPTION

Spatial coverage   Germany

Temporal coverage   01.03.1881 - last season

Spatial resolution   1 km x 1 km

Temporal resolution   seasonal

Projection   3-degree Gauss-Kruger zone 3, Ellipsoid Bessel, Datum Potsdam (central point Rauenberg), EPSG:31467, see http://spatialreference.org/ref/epsg/31467/. o define the spatial projection in GIS, the file https://opendata.dwd.de/climate_environment/CDC/help/gk3.prj can be used. Help is given on importing into ESRI ArcGIS in https://opendata.dwd.de/climate_environment/CDC/help/Hilfe_Gauss-Krueger-Raster2GIS.pdf.

Format(s)   The file in ESRI-ascii-grid-format has in the header the coordinates for the lower left grid cell, including the definition of its center [XLLCENTER],[YLLCENTER] or its corner [XLLCORNER],[YLLCORNER]. It contains a table of 654 x 866 numbers. Each row goes from West to East. The first row is the northernmost one (654 values with 4 digits). Missing values are marked with -999.

Parameters   Seasonal mean of the monthly averaged mean daily air temperature in 2 m height above ground, given in 1/10 °C.

Uncertainties   Uncertainties are caused by the interpolation method, and erroneous or missing observations. When comparing grid fields for different periods, it should be considered that the measurement network has changed over time.

DATA ORIGIN

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The grids are based on the DWD station data [Kaspar et al., 2013]. The seasonal grid is the sum of the three monthly grids, in accordance with the WMO-Standard [WMO, 2012].

VALIDATION AND UNCERTAINTY ESTIMATE

The given resolution of 1 km x 1 km is the resolution of the employed digital height model. The gridded data miss processes relevant for local climate (like urban heat island or cold air pools) which are not covered by observations of the station network or cannot be reproduced by the gridding method explained above. The actual information density depends on the station network. 1881 the monthly means of 150 stations were used in the gridding routines. The number of used stations grew steadily to 200 stations at the begin of the 20th century, and 400 before World War II. After the war, the number of stations decreased a short time, growing again to above 500 since 1951. Changes in station height caused by station relocations are accounted for with the interpolation to the reference height.

CONSIDERATIONS FOR APPLICATIONS

The grids are visualized from the year 2000 onwards at the DWD website http://www.dwd.de/DE/leistungen/klimakartendeutschland/klimakartendeutschland.html.

REFERENCES

Kaspar et al.: Monitoring of climate change in Germany – data, products and services of Germany`s National Climate Data Centre. Adv. Sci. Res., 10, 99–106, 2013.

Maier, U. und Müller-Westermeier, G.: Verifikation klimatologischer Rasterfelder, Berichte des Deutschen Wetterdienstes 235, Selbstverlag des Deutschen Wetterdienstes, Offenbach am Main, 2010.

Müller-Westermeier, G., Walter, A., Dittmann, E.: Klimaatlas Bundesrepublik Deutschland, Teil 1-4, Selbstverlag des Deutschen Wetterdienstes, Offenbach am Main, 2005.

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REVISION HISTORY

This document is maintained by DWD division National Climate Monitoring, last edited 18.12.2018.