

## DATA SET DESCRIPTION

### *Multi-annual grids of number of frost days over Germany*

#### Version v1.0

**Cite data set as:** DWD Climate Data Center (CDC): Multi-annual grids of number of frost days over Germany, version v1.0.

#### 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, considering the height dependencies.

#### POINT OF CONTACT

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#### DATA DESCRIPTION

<b>Spatial coverage</b>	Germany
<b>Temporal coverage</b>	01.01.1961 - 31.12.2010
<b>Spatial resolution</b>	1 km x 1 km
<b>Temporal resolution</b>	30 years multi-annual
<b>Projection</b>	3-degree Gauss-Kruger zone 3, Ellipsoid Bessel, Datum Potsdam (central point Rauenberg), EPSG:31467, see <a href="http://spatialreference.org/ref/epsg/31467/">http://spatialreference.org/ref/epsg/31467/</a> . To define the spatial projection in GIS, the file <a href="https://opendata.dwd.de/climate_environment/CDC/help/gk3.prj">https://opendata.dwd.de/climate_environment/CDC/help/gk3.prj</a> can be used. Help is given on importing into ESRI ArcGIS in <a href="https://opendata.dwd.de/climate_environment/CDC/help/Hilfe_Gauss-Krueger-Raster2GIS.pdf">https://opendata.dwd.de/climate_environment/CDC/help/Hilfe_Gauss-Krueger-Raster2GIS.pdf</a> .
<b>Format(s)</b>	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.
<b>Parameters</b>	Number of frost days. Definition of frost day: minimum air temperature < 0°C.
<b>Uncertainties</b>	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

The multi-annual grids are calculated from the respective annual grids.

## 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.

## CONSIDERATIONS FOR APPLICATIONS

These grids are visualized within the German Climate Atlas [www.dwd.de/klimaatlas](http://www.dwd.de/klimaatlas).

## 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.

Müller-Westermeier, G.: Numerische Verfahren zur Erstellung klimatologischer Karten, Berichte des Deutschen Wetterdienstes 193, Selbstverlag des Deutschen Wetterdienstes, Offenbach am Main, 1995.

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## REVISION HISTORY

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