DATA SET DESCRIPTION

Annual grids of several phenological plant stages in Germany

Version 0.x

Cite data set as: DWD Climate Data Center (CDC): Annual grids of several phenological plant stages in Germany, version 0.x, current date.

INTENT OF THE DATASET

This document describes the freely available data of the DWD Climate Data Center (CDC). About 50 phenological phases from the annual phenological network are gridded for each year.

POINT OF CONTACT

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DATA DESCRIPTION

Spatial coverage Germany

Temporal coverage 01.01.1992 - last year

Spatial resolution 1 km x 1 km

Temporal resolution annual

Projection 3-degree Gauss-Kruger zone 3, Ellipsoid Bessel, Datum Potsdam (central point Rauenberg), EPSG:31467, see http://spatialreference.org/ref/epsg/31467/. The appropriate prj-file can be downloaded at: ftp://ftpcdc.dwd.de/pub/CDC/help/gk3.prj.

Format(s) The ascii file 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 Values in the grids are running days of the respective year (with 28th and 29th Februay counted as a single day). In the subdirectories you can find following plant stages:

APFB	apple - beginning of flowering
APFF	apple - fruit ripe for picking
APSBF	apple, late ripeness - autum leave fall
BEIB	common wormwood - beginning of flowering
DGRERG	meadows - beginning of turning green
DGRHS1	meadows - first cut for hay
DGRSS1	meadows - first cut for silage
EBEBF	rowan - autumn leave fall
EBEF	rowan - first ripe fruit
ELABF	European larch - autumn needle fall
ESCB	ash - beginning of flowering

FSYB	forsythia - beginning of flowering (indicator beginning of vegetation)
HASB	common hazel - beginning of flowering
HBIB	silver birch - beginning of flowering
HEIB	common heather - beginng of flowering
HUFB	coltsfoot - beginning of flowering
KKIF	cornelian cherry - first ripe fruit
LOEB	dandelion - beginning of flowering
RBUBF	European beech - autumn leave fall
RBUBO	European beech - beginning of unfolding of leaves
RBUBV	European beech - autumn leave colouring
RJOF	red currant - fruit ripe for picking
RKAF	horse chestnut - first ripe fruit
ROBB	black locust - beginning of flowering
SCNB	common snowdrop - beginning of flowering
SERB	European alder - beginning of flowering
SHOB	black elder - beginning of flowering
SHOF	black elder - first ripe fruit
SKIB	cherry - beginning of flowering
SLIB	large leaved lime - beginning of flowering
STABO	gooseberry - beginning of unfolding of leaves
STEBF	pedunculate oak - autumn leaf fall (indicator end of vegetation)
STEBO	pedunculate oak - beginning of unfolding of leaves
STEBV	pedunculate oak - autumn leave colouring
STEF	pedunculate oak - first ripe fruit
SWEB	goat willow - beginning of flowering
WFUAB	meadow foxtail - general flowering
WFUB	meadow foxtail - beginning of flowering
WIRAB	winter rye - general flowering
WIRAE	winter rye - beginning of heading
WIRB	winter rye - beginning of flowering
WIRE	winter rye - harvest
WKNAB	orchard grass - general flowering
WRAB	winter oilseed rape - beginning of flowering

Uncertainties Uncertainties are caused by the interpolation method, and erroneous or missing observations. When comparing grid fields for different years, it should be considered that the measurement network has changed over time. Every kind of interpolation is difficult whenever the phase occurrence is observed in successive waves. Such waves occure especially at the early observations in a year caused by cold weather periods where flowering is interrupted and starts in other adjacent regions later. In this case the interpolation fits a date in the cold period, which is not correct.

Quality information without quality flags

DATA ORIGIN

For each year all available data of the phenological annual reporters will be included for interpolation. Germany is divided in 20 regions of overlapping circles of the same size. All observations within each region were processed by a multiple linear regression. Regression coefficients are height, longitude and latitude. The calculated regression coefficients of the four surrounding circles for a given location were weighted with the distance to circle centres. This form of interpolation does not match the observation days at each location, but yields a most plausible smoothed fit.

VALIDATION AND UNCERTAINTY ESTIMATE

The resulting grids depend strongly on the used interpolation. Plausibility tests showed good performance.

REFERENCES

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REVISION HISTORY

This document is maintained by DWD unit KU21, last edited on 19.12.2018.