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Deutscher Wetterdienst
Wetter und Klima aus einer Hand

DATASET DESCRIPTION

Phenological observations of crops from sowing to harvest (annual reporters, historical)

Version: v010

Publication date: 2024

Cite data set as:	Phenological observations of crops from sowing to harvest (annual reporters, historical), Version v010
Dataset-ID:	urn:x-wmo:md:de.dwd.cdc::obsgermany-phenology-annual_reporters-crops-historical
Dataset-URL:	https://opendata.dwd.de/climate_environment/CDC/observations_germany/phenology/annual_reporters/crops/historical

ABSTRACT

The phenological data provide an overview of plant development in Germany over the year. The data are collected by volunteer observers and reported to DWD.

POINT OF CONTACT

Deutscher Wetterdienst
CDC - Vertrieb Klima und Umwelt
Frankfurter Strasse 135
63067 Offenbach
Tel:+ 49 (0) 69 8062-4400
Fax:+ 49 (0) 69 8062-4499
E-Mail:klima.vertrieb@dwd.de

DATASET DESCRIPTION

Parameter	meadows, oat, sunflower, potato, winter wheat, green pea, winter rye, green bean, white cabbage, winter oilseed rape, tomato, winter barley, beet, spring wheat, spring barley, red clover, alfalfa
Temporal coverage	1951-01-01 -- 2022-12-31
Spatial coverage	Germany
Projection	WGS 84 (EPSG:4326)
Format description	Phenological observations of crops from sowing to harvest : Each file PH_Jahresmelder* contains the observation of a certain species (e.g., oat), with fixed object_id (e.g., 208). The rows are sorted according to Stations_id, reference year, phase_id. Each row corresponds to one observation. The list with all phenological stations and corresponding meta-data can be found at: https://opendata.dwd.de/climate_environment/CDC/help/PH_Beschreibung_Phaenologie_Stationen_Jahresmelder.txt .

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application schema

csv dialect description

delimiter	line terminator	header	quote char
;	\\r\\n	true	\"

csv content description

column name	description	uom	type	format
Stations_id	DWD Station ID		VARCHAR2	
Referenzjahr	year corresponding to phase		NUMBER	YYYY
Qualitaetsniveau	quality flags		NUMBER	numerical code
Objekt_id	identifier of the phenological object		NUMBER	990
Phase_id	identifier of the phenological stage		NUMBER	
Eintrittsdatum	date of observation		NUMBER	YYYYMMDD
Eintrittsdatum_QB	quality flag		NUMBER	
Jultag	day of the year		NUMBER	DDD

Quality Information

The QUALITAETS_NIVEAU (QN) shows the quality control procedure applied for a data report (of several parameters) for a certain reporting time.

QN = 1 : only formal control;
QN = 7 : second control done, before correction;
QN = 10 : quality control finished, routine corrections finished (individual corrections later still possible).

The QUALITAETS_BYTE (QB) denotes whether the value was objected to and/or corrected.

QB = 1 : had no objections;
QB = 2 : corrected;
QB = 3 : confirmed with objection rejected;
QB = 5 : doubtful;
QB = 8 : incorrect;
QB = 10 : meadows continous green, a new greening could not be observed.

DATA ORIGIN

A fixed observation area is assigned to every phenological observer. Each observation area has a station-id assigned by the network administration. The observer registers the beginning of determined growth stages (pheno phases) and notes the date in the phenological observation journal, as soon as it occured. Crops are observed from sowing to harvest on the same field. At the end of the year, the observer send the completed observation sheet to the network operator for data recording. In the long run, this system will be replaced by online data transmission (2020: about 50 % of the observers).

VALIDATION AND UNCERTAINTY ESTIMATE

During the operational handling of phenological data each year a gross error check and an additional spatial quality control has been performed. Each year 1 - 2 % of the data are flagged to be wrong. Causes could be confusion of months and phases.

UNCERTAINTIES

Factors for uncertainties include:
(1) change of observer (2) change of plants.

CONSIDERATIONS FOR APPLICATIONS

When using phenological data, it is advisably to use several stations characteristically of a natural area or natural area group. In this way, the data have less gaps and the specifics of a single station are less
prominently in influencing the results. The classification of natural areas and natural area groups used by Deutscher Wetterdienst (DWD) for phenological data is based on the map "Naturräumliche Gliederung und Waldverbreitung" (Meynen und Schmithüsen, 1953-1962).

ADDITIONAL INFORMATION

PH_Jahresmelder_Landwirtschaft_Kulturpflanze_Notiz.txt

PH_Beschreibung_Pflanze.txt
Englische und lateinische Bezeichnungen der Pflanzen

PH_Jahresmelder_Landwirtschaft_Kulturpflanze_Mais_Spezifizierung.txt

PH_Beschreibung_Phasendefinition_Jahresmelder_Landwirtschaft_Kulturpflanze.txt
BBCH_Code (crop stage definition)

PH_Beschreibung_Phase.txt

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PH_Beschreibung_Phaenologie_Besonderheiten_Zeitreihen.txt
Erfahrungsgemäß werden einige Pflanzenarten an manchen Beobachtungsorten nicht, nicht kontinuierlich oder nur teilweise beobachtet. Ab 1991 (Westdeutschland)/1992 (Ostdeutschland) gilt ein geändertes Beobachtungsprogramm.

Beobachteranleitung

LITERATURE

Bruns, E., van Vliet,A.J.H.: Standardisation of phenological monitoring in Europe. Wageningen University, Deutscher Wetterdienst, 2003.

DWD, Anleitung für die phänologischen Beobachter des Deutschen Wetterdienstes, Vorschriften und Betriebsunterlagen Nr. 17, Deutscher Wetterdienst Offenbach 1991, überarbeitet 2021.

Emil Meynen, Josef Schmithüsen (Herausgeber): Handbuch der naturräumlichen Gliederung Deutschlands. Bundesanstalt für Landeskunde, Remagen/Bad Godesberg, 1953–1962.

Kaspar, F., K. Zimmermann, and C. Polte-Rudolf: An overview of the phenological observation network and the phenological database of Germany's national meteorological service (Deutscher Wetterdienst). Adv. Sci. Res., 11, 93-99, doi:10.5194/asr-11-93-2014, 2014.

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REVISION HISTORY

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