

## DATA SET DESCRIPTION

### *Recent hourly station observations of cloud cover, cloud type and cloud height in up to 4 layers for Germany, quality control not completed yet*

#### Version recent

**Cite data set as:** DWD Climate Data Center (CDC): Recent hourly station observations of cloud cover, cloud type and cloud height in up to 4 layers for Germany, quality control not completed yet, version recent, last accessed: <date>.

#### INTENT OF THE DATASET

The "recent" data have not completed quality control yet. They are obtained from DWD stations and legally and qualitatively equivalent partner stations operated for climatological and climate related applications. Comprehensive station metadata (station relocation, instrument change, time zones, change of algorithms) are included.

#### 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  
Mail: [klima.vertrieb@dwd.de](mailto:klima.vertrieb@dwd.de)

#### DATA DESCRIPTION

**Spatial coverage** stations in Germany

**Temporal coverage** rolling: 500 days before yesterday - until yesterday

**Temporal resolution** several times a day

**Format(s)** The station observations (produkt\_\*.txt) are zipped together with the station metadata. The latter are given in \*.txt as well as \*.html. The file Metadaten\_Parameter\* contains a listing of the parameters measured at the station (the parameter portfolio) with begin, end, units, measurement procedures, averaging formulas, measurement times and applied time units which are all related to the station's ID and the station name valid now. The instrument history is sorted according to the parameters (see file Metadaten\_Geraete\*). There the history of sensor height, type of instrument and measurement procedure is given, together with the historical station names. The station's ID is unique and does not change over time. For a convenient documentation of station name change, see Metadaten\_Stationsname\*. The geographical metadata of the station (longitude, latitude, height) is listed in Metadaten\_Geographie\*.txt together with the Stations\_id and the current station name. All these information is combined into a single zip-file for each station: \*\_[STATIONS\_ID]\_[from]\_[to]\_hist.zip An overview over all stations with start and end dates is given in the station list: [Stationsliste](#). Note that for convenience, the list comprises not only stations given here, but also stations with more complicated copyright regulations which may be obtained for certain applications, requiring discussion with the point of contact.

**Parameters** The file produkt\*.txt comprises following parameters:

STATIONS_ID	station identification number	
MESS_DATUM	date	yyyymmddhh
QN_8	quality level of next columns	coding see paragraph "Quality information"
V_N	total cloud cover	1/8

V_N_I	index how measurement is taken	
	P	by human person
	I	by instrument
V_S1_CS	cloud type of 1. layer	code see overview
V_S1_CSA	abbrev. cloud type 1.layer	code siehe overview
V_S1_HHS	height of 1.layer	meter
V_S1_NS	cloud cover of 1. layer	1/8
V_S2_CS	cloud type of 2. layer	code see overview
V_S2_CSA	abbrev. cloud type 2.layer	code see overview
V_S2_HHS	height of 2.layer	meter
V_S2_NS	cloud cover of 2. layer	1/8
V_S3_CS	cloud type of 3. layer	code see overview
V_S3_CSA	abbrev. cloud type 3.layer	code see overview
V_S3_HHS	height of 3.layer	meter
V_S3_NS	cloud cover of 3. layer	1/8
V_S4_CS	cloud type of 4. layer	code see overview
V_S4_CSA	abbrev. cloud type 4.layer	code see overview
V_S4_HHS	height of 4.layer	meter
V_S4_NS	cloud cover of 4. layer	1/8
overview	V_S*_CS	V_S*_CSA
cloud type	cloud type code	cloud type abbreviation
Cirrus	0	CI
Cirrocumulus	1	CC
Cirrostratus	2	CS
Alto cumulus	3	AC
Altostratus	4	AS
Nimbostratus	5	NS
Stratocumulus	6	SC
Stratus	7	ST
Cumulus	8	CU
Cumulonimbus	9	CB
when instrument (not person)	-1	-1
eor	end of record	can be ignored

with missing values are marked as -999. All dates given in this directory are in UTC. All dates given in this directory are in UTC. According to the SYNOP convention, the hour hh refers to the measurement time at hh-10min (e.g., UTC11 is related to the observation of UTC10:50).

**Uncertainties**

The stations are nowadays selected and operated according to WMO guidelines. Though these guidelines aim at minimizing possible local effects, still some applications of certain parameters may require the consideration of local and regional effects.

**Quality information**

The quality levels "Qualitätsniveau" (QN) given here apply for the respective following columns. The values are the minima of the QN of the respective daily values. QN denotes the method of quality control, with which erroneous values are identified and apply for the whole set of parameters at a certain time. For the individual parameters there exist quality bytes in the internal DWD data base, which are not published here. Values identified as wrong are not published. Various methods of quality control (at different levels) are employed to decide which value is identified as wrong. In the past, different procedures have been employed. The quality procedures are coded as following:  
 quality level (column header: QN\_)  
 1- only formal control during decoding and import  
 2- controlled with individually defined criteria  
 3- ROUTINE control with QUALIMET and QCSY  
 5- historic, subjective procedures  
 7- ROUTINE control, not yet corrected  
 8- quality control outside ROUTINE  
 9- ROUTINE control, not all parameters corrected  
 10- ROUTINE control finished, respective corrections finished

**DATA ORIGIN**

This climate data are from the station network of DWD, operationally collected in the central MIRAKEL data base and archived, see Behrendt et al., 2011, and Kaspar et al., 2013. For details on current measurement and observation procedures see VuB 3 Beobachterhandbuch (DWD, 2014a), VuB 3 Technikerhandbuch (DWD, 2014b) and VuB 2 Wetterschlüsselhandbuch (DWD, 2013).

## VALIDATION AND UNCERTAINTY ESTIMATE

The quality control (see Spengler, 2002) of this data is not completed yet. Various levels of quality control (see Kaspar et al., 2013) are in progress.

## CONSIDERATIONS FOR APPLICATIONS

For any data analysis, the metadata available in the \*.zip files should be taken into account. Conditions for layer definition: the individual layers were observed dependent on the cloud cover (for both the instrument readings and person observations). Condition for a 1.layer is  $V\_S1\_NS \geq 1/8$ , for 2.layer  $V\_S2\_NS \geq 3/8$ , for 3.layer  $V\_S3\_NS \geq 5/8$ . The 4. layer is only recorded when cumulonimbus (CB) present (this condition is only valid for person observation, not for instrument readings), independent of cloud cover, this layer is defined according to its height.

## ADDITIONAL INFORMATION

For extending the time series into the past, see subdirectories ../historical/. When data from both directories "historical" and "recent" are used together, the difference in the quality control procedure should be considered. For the long term stability consider the uncertainties explained in the data set descriptions within subdirectories /historical/.

## REFERENCES

Behrendt, J., et al.: Beschreibung der Datenbasis des NKDZ. Version 3.5, Offenbach, 15.02.2011.

DWD Vorschriften und Betriebsunterlagen Nr. 3 (VuB 3), Beobachterhandbuch (BHB) für Wettermeldestellen des synoptisch-klimatologischen Mess- und Beobachtungsnetzes, März 2014a .

DWD Vorschriften und Betriebsunterlagen Nr. 3 (VuB 3), Technikerhandbuch (THB) für Wettermeldestellen des synoptisch-klimatologischen Mess- und Beobachtungsnetzes, März 2014b.

DWD Vorschriften und Betriebsunterlagen Nr. 2 (VuB 2), Wetterschlüsselhandbuch Band D, Nov 2013.

Kaspar, F., et al.: Monitoring of climate change in Germany – data, products and services of Germany`s National Climate Data Centre. Adv. Sci. Res., 10, doi:10.5194/asr-10-99-2013, 99–106, 2013.

Spengler, R.: The new Quality Control- and Monitoring System of the Deutscher Wetterdienst. Proceedings of the WMO Technical Conference on Meteorological and Environmental Instruments and Methods of Observation, Bratislava, 2002.

## COPYRIGHT

The instructions in [ftp://ftp-cdc.dwd.de/pub/CDC/Terms\\_of\\_use.pdf](ftp://ftp-cdc.dwd.de/pub/CDC/Terms_of_use.pdf) should be followed. The DWD website provides comprehensive copyright information.

## REVISION HISTORY

The data in this directory are updated daily. This document is maintained by the National Climate Data Centre (NKDZ) of DWD, last edited 18.12.2018.