



DATASET DESCRIPTION

Historical daily observations of snow height and water equivalent for Germany

Version: v22.3

Publication date: 2023

Cite data set as: Historical daily observations of snow height and water equivalent for Germany, Version v22.3
Dataset-ID: urn:x-wmo:md:de.dwd.cdc::obsgermany-climate-daily-water_equiv-historical
Dataset-URL: https://opendata.dwd.de/climate_environment/CDC/observations_germany/climate/daily/water_equiv/historical

ABSTRACT

These data originate from the stations of the DWD and legally and qualitatively equivalent partner networks. Extensive station metadata (station relocations, instrument changes, change of reference time, changes in algorithms) are included in the download. Quality control has been completed for the data.

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	height of set snow, snow water equivalent, snow depth
Unit(s)	cm, mm
Statistical processing	daily value
Temporal coverage	1927-12-14 -- 2022-12-31
Spatial coverage	stations in Germany
Projection	WGS 84 (EPSG:4326)
Format description	For each station in the historical/ folder a zip archive is provided . The zip archive contains the data and meta information on the station, instruments and algorithms. The naming scheme of the zip archives is: {product_code}_{station_id}_{begin_date}_{end_date}_hist.zip

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	
MESS_DATUM	reference date for the measurement		NUMBER	YYYYMMDD
QN_6	the code of the quality level reflects the quality control procedure applied for the data		NUMBER	numerical code
ASH_6	height of set snow in cm; missing value = -999	cm	NUMBER	9990.0
SH_TAG	snow height in cm; missing value = -999	cm	NUMBER	9990.0
WASH_6	Wasseräquivalent der Gesamtschneehöhe in mm; missing value = -999	mm	NUMBER	9990.0
WAAS_6	Wasseräquivalent ausgestochene Schneehöhe in mm; missing value = -999	mm	NUMBER	9990.0

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

Data before and including 1980 can reach as best quality check level QN=5. Data after 1980 can reach QN=10 as best quality check level.

QN = 1 : only formal control;
 QN = 2 : controlled with individually defined criteria;
 QN = 3 : automatic control and correction;
 QN = 5 : historic, subjective procedures;
 QN = 7 : second control done, before correction;
 QN = 8 : quality control outside ROUTINE;
 QN = 9 : not all parameters corrected;
 QN = 10 : quality control finished, all corrections finished.

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

QB = 0 : denotes not flagged,
 QB = 1 : had no objections (either checked and not objected, or not checked and not objected, this can be interpreted only when considering QN);
 QB = 2 : corrected;
 QB = 3 : confirmed with objection rejected;
 QB = 4 : added or calculated;
 QB = 5 : objected;
 QB = 6 : only formally checked;
 QB = 7 : formal objection;
 QB = -999 : quality flag does not exist.

DATA ORIGIN

The data are taken from the station measuring networks of Deutscher Wetterdienst as well as its predecessor organisations. The dataset is regularly updated with recent as well as with recovered historical data. From 1997 onwards, the data have been imported operationally into the central specialist database and archived, see Behrendt et al., 2011, and Kaspar et al., 2013. Note that when going back to historical times, guidelines on observation procedure, instruments and observation times were issued by the authority in charge (see, e.g., Freydank, 2014), and might be incompletely recorded in the metadata. As explained in Kaspar et al., 2013 in the early years numerous meteorological agencies were active in the area of today's Germany. After establishment of the der International Meteorological Organization (IMO) in 1873, the various standards were gradually harmonized, resulting in a single standard 1936. After 1945, the standards in East and West Germany developed differently, and were harmonized again after re-unification in 1990. Between the end of the nineties and 2009 many stations were changed from manual to automated.

RESOURCE MAINTENANCE

The records in the */historical/ directories are replaced by new versions approximately every year in order to include newly digitised historical data and to make corrections and improvements. In addition, the versioned data is extended in time by the previous year. Compared to the previous version, this version shows an extension of the historical station inventory.

VALIDATION AND UNCERTAINTY ESTIMATE

The automatic quality control was run to identify and eliminate random gross errors.

UNCERTAINTIES

It should be kept in mind that the snow pack can be locally highly variable.

CONSIDERATIONS FOR APPLICATIONS

When investigating long term changes or trends, consider changes in station location, changes in instrumentation, measurement procedures and observation intervals - see the various metadata information provided Metadaten_Parameter*, Metadaten_Geraete* und Metadaten_Geographie*. Starting in the nineties, the metadata are electronically recorded and provided together with the station measurements. For the time before, efforts are continuing to digitize the most relevant metadata based on the paper records however, many gaps are still remaining. For detailed studies, DWD can grant access to the station records.

ADDITIONAL INFORMATION

For extending the time series with recent data (where quality control is not completed yet), see subdirectories ../recent/. When data from both directories "historical" and "recent" are used together, the difference in the quality control procedure should be considered. There are still issues to be discovered in the historical data. We welcome any hints to improve the data basis (see contact).

LITERATURE

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

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.

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

Freydank, E.: 150 Jahre staatliche Wetter- und Klimabeobachtungen in Sachsen. Tharandter Klimaprotokolle Band 21, 2014.

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

COPYRIGHT

The Ordinance to Determine the Conditions for Use for the Provision of Spatial Data of the Federation ("Verordnung zur Festlegung der Nutzungsbestimmungen für die Bereitstellung von Geodaten des Bundes" - GeoNutzV) shall apply, for details turn to "http://www.geodatenzentrum.de/docpdf/geonutzv_eng.pdf" and "http://www.dwd.de/EN/service/copyright/copyright_artikel.html".

REVISION HISTORY

This document is maintained by Deutscher Wetterdienst, CDC - Betrieb, last edited at 2023-05-30.