

## DATA SET DESCRIPTION

### *Recent hourly precipitation level (hourly total), temporary observed at MME-operated urban climate stations, for selected urban areas in Germany*

#### Version recent

**Cite data set as:** DWD Climate Data Center (CDC): Recent hourly precipitation level (hourly total), temporary observed at MME-operated urban climate stations, for selected urban areas in Germany, version v19.3, recent date.

**Dataset-ID:** urn:x-wmo:md:de.dwd.cdc::obsgermany-climate\_urban\_prov-hourly-precipitation-recent

#### INTENT OF THE DATASET

This document describes the freely available urban climate data from the DWD Climate Data Center (CDC). The measurements are performed in cities for comparison with the rural areas and for evaluating the climatological effect of urban development. These data are not compliant to the usual World Meteorological Organisation (WMO) standards for climate data because of their urban positioning, but they follow the guidance of WMO "Instruments and Observing Methods Report No.81: Initial guidance to obtain representative meteorological observations at urban sites" (Oke, 2006). Station metadata are included. The data check currently does not go beyond an individual check of the data records.

#### POINT OF CONTACT

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#### DATA DESCRIPTION

**Spatial coverage** Germany

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

**Temporal resolution** hourly

**Format(s)** The station observations (produkt\*.txt) are provided zipped (stundenwerte\*.zip)

**Units** Hourly precipitation levels (hourly totals) are given as sum of the six 10min intervals measured in the previous hour (e.g., at UTC 11, the sum of precipitation during UTC 09:51 - UTC 10:50 is given). The file produkt\*.txt comprises:

STATIONS_ID	station identification number	
MESS_DATUM	yyyymmdd	
QUALITAETS_NIVEAU	see below	
NIEDERSCHLAGSHOEHE	precipitation height	mm

with missing values are marked as -999.

<b>Uncertainties</b>	Uncertainties in urban areas are dominated by local influences (e.g., screening effects).
<b>Quality information</b>	<p>The QUALITAETS_BYTE (QB) denotes whether the value was objected to and/or corrected.</p> <p>Explanation for QB:</p> <hr/> <p>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.</p> <hr/> <p>The QUALITAETS_NIVEAU (QN) shows the quality control procedure applied for a data report (of several parameters) for a certain reporting time.</p> <p>Explanation for QN:</p> <hr/> <p>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.</p> <hr/> <p>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.</p> <hr/>

## DATA ORIGIN

These data are not compliant to the usual World Meteorological Organisation (WMO) standards for climate data because of their urban positioning, but they follow the guidance of WMO "Instruments and Observing Methods Report No.81: Initial guidance to obtain representative meteorological observations at urban sites" (Oke, 2006). The location of the urban climate stations was chosen according to the following criteria:

- (1) inner city location, no suburbia,
- (2) the point of measurement has to be typical for the respective district or quarter,
- (3) preferably in central location within a continuous building development,
- (4) no transition areas between quarters of varying characteristics,
- (5) surface area of the station should be representative of the surrounding environment (sealings, grass, gravel, etc.)
- (6) point of measurements should be chosen half of the typical local distance between houses, but not less than 5m distance to the next house.
- (7) location is not in parks and not below trees.

## VALIDATION AND UNCERTAINTY ESTIMATE

The data check currently does not go beyond an individual check of the data records.

## CONSIDERATIONS FOR APPLICATIONS

The Deutsche Wetterdienst recommends that users of urban climate data always consider the limited representativity and quality of the data in their usage and further analysis, and communication to third parties. Weather records for Germany are not determined from the station data located in urban surroundings given here, but instead from WMO compliant climate stations (located outside cities).

## **ADDITIONAL INFORMATION**

Climate stations (non-urban) are provided in the directory [https://opendata.dwd.de/climate\\_environment/CDC/observations\\_germany/climate/](https://opendata.dwd.de/climate_environment/CDC/observations_germany/climate/).

## **REFERENCES**

Oke, T.R., Initial guidance to obtain representative meteorological observations at urban sites, WMO Instruments and observing methods report No. 81, WMO TD Nr. 1250, 2006.

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The instructions in [https://opendata.dwd.de/climate\\_environment/CDC/Terms\\_of\\_use.pdf](https://opendata.dwd.de/climate_environment/CDC/Terms_of_use.pdf) should be followed. The DWD website provides comprehensive copyright information.

## **REVISION HISTORY**

This document is maintained by the Climate Data Center (CDC) of DWD, last edited on 2020-10-22.