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Wetter und Klima aus einer Hand

DATASET DESCRIPTION

Daily grids of soil moisture under grass for Germany

Version: v2.0

Publication date: 2021

Cite data set as:	Daily grids of soil moisture under grass for Germany, Version v2.0
Dataset-ID:	urn:x-wmo:md:de.dwd.cdc::GRD_DEU_P1D_BF-GRB
Dataset-URL:	https://opendata.dwd.de/climate_environment/CDC/grids_germany/daily/soil_moist_layers/grass

ABSTRACT

The daily grids of soil moisture are calculated for 10 cm layers up to a depth of 2 meters for selected agricultural crops with the AMBAV 2.0 model. The meteorological input fields required for the calculation must be available in hourly resolution and derived from interpolated weather station data. Furthermore, the model is parameterized with soil information from the soil guide profiles of the Bodenübersichtskarte (BÜK 1000) of the Federal Institute for Geosciences and Natural Resources (Geowissenschaftenund Rohstoffe, BGR).
The data have a spatial resolution of 1 x 1 km and cover the whole of Germany. Data outside of Germany are considered as missing values.

POINT OF CONTACT

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DATASET DESCRIPTION

Parameter	soil moisture
Unit(s)	‰ nFK
Statistical processing	daily value
Temporal coverage	1991-01-01 -- ...
Temporal resolution	1 day
Spatial coverage	Germany
Spatial resolution	1 km x 1 km
Projection	DHDN / 3-degree Gauss-Kruger zone 3 (EPSG:31467)
Vertical coverage	-200cm
Vertical resolution	-10cm
Format description	Filename: - grids_germany_daily_soil_moist_layers_grass_{year}_l{depth}.nc - {depth} is the depth of the layer in cm (10, 20, 30, ..., 200) - {year} is the year in YYYY-Format Example: - grids_germany_daily_soil_moist_layers_grass_2021_l30.nc

DATA ORIGIN

The calculations are carried out with the model AMBAV 2.0 (Agrarmeteorologische Berechnung der aktuellen Verdunstung) developed in the Zentrum für Agrarmeteorologische Forschung (ZAMF) of the DWD.
The AMBAV 2.0 model can be operated in a fine grid in 1 x 1 km resolution over Germany in order to achieve better spatial representation. This better spatial representation is further increased by the fact that the typical regional soils are used in the calculation, which were taken from the soil overview map BÜK 1000 of the Bundesanstalt für Geowissenschaften und Rohstoffe (BGR, 2007).
More detailed information can be found in Herbst et al. 2021.

RESOURCE MAINTENANCE

The data for the current year is updated on the 3rd of each month.

ADDITIONAL INFORMATION

The soil moisture values are specified in percentage of usable field capacity. In order to calculate the volumetric water content from these values, the grid files for field capacity (AG_SOILINFO_THETAFC.nc) and wilting point (AG_SOILINFO_THETAWP.nc) can be used.

The volumetric water content can be calculated by:
Theta = PAW * (FC - WP) / 100 + WP

Theta = Volumetric water content
PAW = Soil moisture values in percentage of usable field capacity
FC = Field capacity
WP = Wilting point

AG_SOILINFO_THETAFC.nc
Field capacity for the soil layers of soil moisture raster datasets (with dimension: lyr 1 - 20, 1 == 0-10 cm; 20 == 190-200 cm)

AG_SOILINFO_THETAWP.nc
Permanent wilting point for the soil layers of soil moisture raster datasets (with dimension: lyr 1 - 20, 1 == 0-10 cm; 20 == 190-200 cm)

LITERATURE

Herbst, M., Falge, E., Frühlauf, C. (2021, im Druck): Regionale Klimamodellierung - Perspektive Landwirtschaft. In: Regionale Klimamodellierung II - Anwendungen. Deutscher Wetterdienst (Hrsg.), promet 104, 55-62.

BGR (2007): Bodenübersichtskarte der Bundesrepublik Deutschland 1:1.000.000 (BÜK 1000). Bundesamt für Geowissenschaften und Rohstoffe (BGR), Hannover

REVISION HISTORY

This document is maintained by Deutscher Wetterdienst, KU31 Agrarmeteorologie, last edited at 2023-06-06.