Package: drillingdata (via r-universe)

November 13, 2026

Title Borehole Drilling and Construction Data – Malawi, 2018 - 2024

Version 1.0.1

Description This dataset captures detailed information on borehole drilling and construction activities conducted across selected sites in Malawi in 2018. Data were collected using the mWater digital platform, documenting each stage of groundwater development, from site selection and hydrogeological studies to drilling operations, borehole design, and post-construction assessments.

License CC BY 4.0

Encoding UTF-8

Roxygen list(markdown = TRUE)

Depends R (>= 3.5)

LazyData true

Language en-GB

Config/Needs/website rmarkdown, brand.yml

Date 2026-09-18

URL https://github.com/openwashdata/drillingdata

BugReports https://github.com/openwashdata/drillingdata/issues

X-schema.org-keywords open data, washdata, boreholes, drilling, groundwater, water supply, Malawi

Config/roxygen2/version 8.0.0

Config/washr/funding This project was funded by the [Open Research Data Program of the ETH Board](https://ethrat.ch/en/eth-domain/open-research-data/).

Config/washr/analytics-domain openwashdata.github.io

Config/washr/doi-provider zenodo

Config/washr/zenodo-community openwashdata

Config/washr/brand-source openwashdata/brand

Config/washr/publisher Published by [openwashdata](https://openwashdata.org), a project of [Global Health Engineering](https://ghe.ethz.ch/) at ETH Zurich.

Config/washr/home https://openwashdata.org

Config/washr/catalog https://openwashdata.org/pages/gallery/data/

Config/washr/community This package is part of [openwashdata](https://openwashdata.org). Browse the [data catalogue](https://openwashdata.org/pages/gallery/data/) or get the [newsletter](https://openwashdata.org/pages/newsletter/).

Config/washr/version 1.2.2

Config/washr/brand v1.1.0

Repository https://openwashdata.r-universe.dev

Date/Publication 2026-11-01 08:36:11 UTC

RemoteUrl https://github.com/openwashdata/drillingdata

RemoteRef HEAD

RemoteSha a67fa968f31a56e071183ae39dce1fe71b0c1f4e

Contents

drillingdata 2

Index **7**

`drillingdata` *Borehole Drilling and Construction Data – Malawi, 2018 - 2024*

Description

This dataset captures detailed information on borehole drilling and construction activities conducted across selected sites in Malawi between 2018 and 2024. Data were collected using the mWater digital platform, documenting each stage of groundwater development, from site selection and hydrogeological studies to drilling operations, borehole design, and post-construction assessments.

Usage

```
drillingdata
```

Format

A tibble with 152 rows and 138 variables

date_of_drilling The date when drilling was carried out.

water_point_created Indicates whether the water point has been created

latitude The geographic latitude of the drilling site.

longtude The geographic longitude of the drilling site.

use_of_waterpoint The intended use of the water point

other_useage Any additional usage of the water point not covered by the standard categories.

funding_source The source of funding for the drilling project

wrb1a_form_completed Indicates whether the WRB1A form for the drilling project has been completed.

contract_signed Whether a contract has been signed for the drilling project.

community_agreement Whether an agreement with the community has been made regarding the water point.

gov_supervisor_available Indicates whether a government supervisor is available during the drilling process.

drilling_contractor The name of the contractor responsible for the drilling.

driller_licensed Indicates whether the driller is licensed to carry out the drilling.

staff_experienced Indicates whether the staff involved in the drilling project are experienced.

drilling_rig_model The model of the drilling rig used for the project.

compressor_specs Specifications of the compressor used during the drilling.

equipment_condition The condition of the drilling equipment

safety_features_condition The condition of the safety features of the equipment.

equipment_capability The overall capability of the equipment used in drilling.

equipment_capability_specs Specifications related to the equipments capabilities.

ppe_available Indicates whether personal protective equipment (PPE) is available for the workers.

drilling_equipment_image An image of the drilling equipment used in the project.

location_selection_methodology The methodology used to select the drilling location.

hydrogeological_study_done Indicates whether a hydrogeological study has been done at the drilling site.

geophysical_survey_done Indicates whether a geophysical survey has been done at the site.

min_distance_50m_from_contamination The minimum distance (in meters) the drilling site is from contamination sources (50 meters or more).

distance_from_contamination The distance of the drilling site from any contamination sources.

location_accessible Indicates whether the site is accessible for drilling.

location_suitable_for_drilling Indicates whether the site is suitable for drilling

distance_from_water_bodies The distance of the drilling site from nearby water bodies

location_photo A photograph of the drilling site location.

perimeter_fence Indicates whether there is a perimeter fence around the site for security.

staff_protected Indicates whether the staff are protected from potential risks

parking_area Indicates whether a parking area is available for vehicles at the site.

emergency_access Indicates whether there is easy emergency access to the site.

suitable_distance_from_power_lines Indicates whether the site is located at a suitable distance from power lines.

distance The distance from a reference point or key feature to the drilling site.

materials_stored_safely Indicates whether the materials are stored safely at the site.

chemicals_stored_safely Indicates whether chemicals are stored safely on-site.

first_aid_kit Indicates whether a first aid kit is available at the site.

fire_extinguisher Indicates whether a fire extinguisher is available at the site.

adquate_welfare_facilities Indicates whether the welfare facilities are adequate for the workers.

welfare_facilities_distance The distance of the welfare facilitiesfrom the drilling site.

site_setup_preliminaries_completed Indicates whether the preliminary setup activities for drilling have been completed.

rig_setup_properly Indicates whether the drilling rig has been set up properly.

reference_point A reference point used for the drilling sites coordinates or location.

reference_point_height The height of the reference point above or below sea level.

rig_level_method The method used to level the drilling rig at the site.

rig_setup_problems Any issues encountered during the setup of the drilling rig.

setup_problems Boolean indicating whether any setup problems were encountered.

drill_rod_length The length of the drill rods used in the drilling operation.

min_diameter_177mm The minimum diameter of the borehole (177mm).

min_diameter The minimum diameter of the borehole for drilling.

casing_stored_properly Indicates whether the casing materials are stored properly.

where_stored The location where the casing materials are stored.

why_not_properly_stored Indicates why the casing materials were not stored properly.

index_1 An index value for referencing in the dataset.

rod_number The number of rods used during the drilling process.

depth_from_1 The starting depth (in meters) for the first drilling operation.

depth_to_1 The ending depth (in meters) for the first drilling operation.

circulation_method The method used for circulating fluids during drilling.

drill_bit_type The type of drill bit used during drilling.

drilling_diameter_mm The diameter of the borehole in millimeters.

time_taken_in_minutes The total time taken for drilling (in minutes).

drilling_comments Comments related to the drilling process.

water_strike_in_miters The depth at which water was first encountered during drilling (in meters).

index_2 An index value for referencing in the dataset.

depth_from_2 The starting depth (in meters) for the second drilling operation.

depth_to_2 The ending depth (in meters) for the second drilling operation.

temp_casing_material The material used for the temporary casing in the borehole.

temp_casing_diameter The diameter of the temporary casing (in millimeters).

index_3 An index value for referencing in the dataset.

depth_from_3 The starting depth (in meters) for the third drilling operation.

depth_to_3 The ending depth (in meters) for the third drilling operation.

rock_or_soil_type The type of rock or soil encountered at the drilling site.

colour The color of the rock or soil encountered during drilling.

weathering The level of weathering observed in the rock or soil encountered.

grain_size_description A description of the grain size of the soil or rock.

sorting The sorting characteristics of the soil or rock (e.g. well-sorted, poorly sorted).

additional_description Any additional description related to the geological formation or drilling process.

formation_name The name of the geological formation encountered during drilling.

index_4 An index value for referencing in the dataset.

hole_depth_1 The depth of the hole for the first section of drilling (in meters).

discharge_rate_1 The discharge rate of water from the borehole (in liters per minute or other units).

discharge_measurement_method The method used to measure the discharge rate of the borehole.

ec_ms_cm_1 The electrical conductivity of the water at the first measurement point (in mS/cm).

tds_mgl_1 The total dissolved solids (TDS) in the water at the first measurement point (in mg/L).

ph_1 The pH of the water at the first measurement point.

temp_celcius_1 The temperature of the water at the first measurement point (in Celcius).

comments_1 Comments related to the first measurement point (e.g. water quality, observations).

borehole_depth_miters The total depth of the borehole (in meters).

water_level The water level in the borehole after drilling (in meters).

measurement_date The date when measurements were taken for water level, discharge, etc.

borehole_suitable_further_use Whether the borehole is suitable for further use (e.g. for a pump, additional development).

installation_design_available Whether a design is available for installing equipment in the borehole.

design_agreed_by_driller Whether the design was agreed upon by the driller.

date_casing_installation The date when the casing was installed in the borehole.

materials_meet_standards Whether the materials used in the drilling process meet established standards.

materials_pre_inspected Whether the materials used in the drilling process were pre-inspected.

Index (8) An index value for referencing in the dataset.

inner_diameter The inner diameter of the casing (in millimeters).

outer_diameter The outer diameter of the casing (in millimeters).

material_1 The material used for the first section of the casing.

slot_aperture The size of the slot aperture in the casing (in millimeters).

end_cap_fitted Whether an end cap was fitted to the casing.

centralisers_fitted Whether centralizers were fitted in the borehole casing.

casing_connection_type The type of connection used for the casing segments (e.g., threaded, welded).

index_9 An index value for referencing in the dataset.

depth_from_4 The starting depth (in meters) for the fourth drilling operation.

depth_to_4 The ending depth (in meters) for the fourth drilling operation.

casing_inner_diameter The inner diameter of the casing (in millimeters).

casing_material The material of the casing used for the borehole.

casing_material_strength The strength of the casing material used in the borehole.

slotted Indicates whether the casing is slotted for water entry.

gravel_pack_clean Indicates whether the gravel pack is clean and free of contaminants.

gravel_pack_quality The quality of the gravel pack used in the borehole.

index_10 An index value for referencing in the dataset.

depth_from_5 The starting depth (in meters) for the fifth drilling operation.

depth_to_5 The ending depth (in meters) for the fifth drilling operation.

gravel_min_grain_size The minimum grain size of the gravel used in the pack (in millimeters).

gravel_max_grain_size The maximum grain size of the gravel used in the pack (in millimeters).

gravel_pack_final_level The final level of the gravel pack after installation (in meters).

static_water_level_pre_dev The static water level before development work begins (in meters).

index_11 An index value for referencing in the dataset.

duration The total duration of the drilling process (in hours or days).

method The method used for the drilling process (e.g. rotary, percussion).

index_12 An index value for referencing in the dataset.

time The amount of time taken for specific drilling operations (in minutes).

lift_depth The depth at which the lift occurs during the drilling operation (in meters).

discharge_rate The discharge rate of water from the borehole at a later measurement point (in liters per minute).

ec_ms_cm_3 The electrical conductivity of the water at a later measurement point (in mS/cm).

tds_mg_l_2 The total dissolved solids (TDS) in the water at a later measurement point (in mg/L).

ph_3 The pH of the water at a later measurement point.

temp_c_2 The temperature of the water at a later measurement point (in Celcius).

turbidity_ntu The turbidity of the water (cloudiness) measured in NTU (Nephelometric Turbidity Units).

sediment The amount or type of sediment in the water at a later measurement point.

static_water_level_post_dev The static water level after development work is done (in meters).

final_borehole_design_summary A summary of the final borehole design, including all technical and engineering details.

Index

∗ **datasets**
drillingdata, 2

drillingdata, 2