

Package: hydrogeologicalghana (via r-universe)

September 24, 2026

Title Hydrogeological Dynamics Data in Ghana

Version 0.0.1

Description This package contains data on boreholes collected to study the hydrogeological dynamics in the greater Accra and Ashanti regions of Ghana.

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URL <https://openwashdata.github.io/hydrogeologicalghana/>,
<https://github.com/openwashdata/hydrogeologicalghana>

BugReports <https://github.com/openwashdata/hydrogeologicalghana/issues>

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Description

This dataset contains measurements of pumping tests that were systematically conducted at each borehole to assess crucial hydrogeological parameters, specifically focusing on pumping rates and drawdown.

Usage

hydrogeologicalghana

Format

A tibble with 12 rows and 10 variables

date Date of the measurement.

region Name of the region where the borehole was drilled.

community Name of the community where the borehole was drilled.

depth Vertical distance from the surface of the ground to the bottom of the borehole, measured in meters (m). The depth of a borehole determines how deep the drilling process goes to reach the desired aquifer or geological layer.

static_water_level Level of water in the borehole when no pumping is taking place. It is measured from the ground surface down to the water surface inside the borehole. This measurement is crucial for determining the natural water table level and the initial conditions of the aquifer.

pumping_rate Volume of water being extracted from the borehole per unit of time, typically measured in liters per minute (l/min). This rate is essential for determining the efficiency and capacity of the borehole, as well as for designing the pump system.

drawdown Difference between the static water level and the water level in the borehole after pumping has started. It indicates how much the water level has dropped due to pumping and is measured in meters (m). Drawdown helps in understanding the impact of pumping on the aquifer and is essential for calculating the sustainable yield of the borehole.

specific_capacity Measure of the productivity of a borehole, defined as the pumping rate per unit drawdown. It is expressed in terms of volume per unit time per unit drawdown, commonly m³/day per meter of drawdown, which can be simplified to m³/day. This parameter helps in assessing the efficiency of the borehole and the aquifer's ability to transmit water to the borehole.

transmissivity Measure of how much water can be transmitted horizontally through the aquifer material over a unit width and is measured in cubic meters per day (m³/day). It is a product of the hydraulic conductivity of the aquifer and the saturated thickness of the aquifer. High transmissivity indicates a highly productive aquifer.

aquifer_material Type of geological materials (such as sand, gravel, limestone, or sandstone) that make up the aquifer from which the borehole extracts water. The characteristics of these materials, including their porosity and permeability, influence the aquifer's ability to store and transmit water. Understanding the aquifer material is critical for assessing the water quality and the potential yield of the borehole.

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* **datasets**

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