

Measurement of groundwater level

Groundwater is water that has permeated into the surface of the earth. It permeates down to an impermeable layer and forms into underground lakes called Aquifers. If these aquifers are used for water extraction or monitored by hydrometry, a reliable and accurate measurement of groundwater level is essential.



Aquifers will always follow the contours of the permeability of the soil. They will consist of underground pockets held in the soil or fragmented rock and may not have a flat level surface, due to local impermeable layers above and below the aquifer. To establish more information and to quantify or test the water resource in the soil, monitoring wells will be sunk in to the ground for measurement of groundwater level, mineral content, location and water quality.

The measurement of groundwater level is often logged to survey and chart an aquifer. It is used to inspect the groundwater resource, where it is, how much volume it contains and at what depth it is located. Separate aquifers may be located at differing depths and thus require multiple sensors for a complete measurement of groundwater level. This measurement of groundwater level may also be recorded to determine the effect of precipitation, seasonal changes and water extraction.

When a well or deep bore well is commissioned for extracting water, the water company running the extraction uses the measurement of groundwater level in the extraction well and in surrounding monitoring wells to make sure that they are not pulling the water level down too quickly and to secure that the resource can recover from the extraction. By pumping in set cycle times, they compare the data from the measurement of groundwater level before and after the pumping cycle at varying periods. Thereby they are able to determine the recovery rate of the aquifer and how the underground water resource is affected by local weather, especially how much and how fast it reacts to certain amounts of precipitation.



The measurement of groundwater level is mostly performed by a submersible pressure transmitter. These hydrostatic level transmitters are small in diameter and directly suspended by their cable into the well, borehole, deep bore well or monitoring well. The measurement of ground water level may be logged locally or transmitted back to the control unit or PLC by telemetric systems or underground line.

Please find further information on this topic on our information platform www.wika.com/hydrostatic-level

Application Note



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