

## Hydrometry

Hydrometry is the science of monitoring water in natural water resources. It focuses on monitoring the natural precipitation of water, such as rain or snow, and the change of water level in all kinds of natural water resources, such as lakes, rivers, underground or storage reservoirs. Level monitoring plays a critical part in hydrometry, as the analysis of even the slightest changes in level of water resources is the primary task of hydrometric measurements. Often hydrometry also integrates chemical analysis systems to measure the quality of the water resource, mainly to detect any kind of contamination.



Rain falling to earth, is quantified by hydrometry to advise the level of rain over various periods. When rain falls or snow melts, hydrometric measurements assist in flood prediction, analyse water quality and monitor flow or level of water in streams and rivers. Lakes, underground water resources like groundwater and aquifers, artificial reservoirs or even the ocean itself – all these water resources are the main scope within the science of hydrometry.

From the point on where rain falls, hydrometric measurements are used to predict when the volume of water going into drains, streams and rivers could cause flood conditions. Level monitoring stations use submersible pressure transmitters to feed back the water level. Water officials can then use this data to warn people of potential floods and control weirs, sluices and penstocks in rivers and streams to minimise the risk of potentially dangerous floods.

On a day to day basis hydrometry will be used to continuously monitor the level in watercourses to ensure optimal flow conditions. Watercourses need a certain amount of water flow to maintain healthy conditions. A water authority will thus advise water extractors of the minimum flow they must maintain in a watercourse to ensure it does not die or run dry. These extraction permits will be based on historic hydrometric measurement data. Where the water flows through a weir or known profile a so called level probe, a submersible pressure transmitter will be mounted. Level monitoring combined with the known shape of the weir or flume allows the level to be used to calculate actual flow at that specific point of the water course.

When hydrometry is used for level monitoring of groundwater, hydrologists chart where the water is concentrated, where it is accessible and analyse its quality. A submersible pressure transmitter will be mounted in monitoring wells to allow monitoring of the water level in underground reservoirs even in large depths.



If natural surface lakes or man-made artificial reservoirs are monitored, these hydrostatic level transmitters will be suspended at a known point and from the known contours of the reservoir, the volume of water can be calculated.

Level and chemical analysis instruments are therefore by far the main water sensor types used in Hydrometry. Flood protection, sustainable exploitation of water resources, inland water navigation, agriculture, reliable and accurate hydrometric measurements provide essential data for many critical public services and industrial processes.

Please find further information on this topic on our information platform [www.wika.com/hydrostatic-level](http://www.wika.com/hydrostatic-level)



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