

# How To Measure Rainfall

Ch'ŭgugi " It is designated as National Treasure #561 of Korea and was installed in the provincial office of Gongju city, 1837 by King Yeongjo. However, the method to measure rainfall in those days was primitive Ch'ŭgugi (Korean: 측우기; Hanja: 測雨器; RR: cheugugi) were rain gauges invented and used during the Joseon dynasty of Korea. As of 2010, only one ch'ŭgugi remains, known as the Geumyeong Cheugugi (경음형측우기; 경음형測雨器), which literally means "ch'ŭgugi installed on the provincial office's yard. They were invented and supplied to each provincial office during the reign of King Sejong the Great. In addition, the official measure of rainfall by ch'ŭgugi from King Jeongjo's reign to Emperor Gojong's reign is preserved. system was introduced to measure and report regional rainfall for the sake of agriculture 0bcc4d5b9a

Discharge (hydrology) It includes any suspended solids (e. at that location depends on the rainfall on the catchment or drainage area and the inflow or outflow of groundwater to or from the area, stream modifications In hydrology, discharge is the volumetric flow rate (volume per time, in units of m<sup>3</sup>/h or ft<sup>3</sup>/h) of a stream. g. g. For example, a fluvial hydrologist studying natural river systems may define discharge as streamflow, whereas an engineer operating a reservoir system may equate it with outflow, contrasted with inflow. Terms may vary between disciplines. diatoms) in addition to the water itself. It equals the product of average flow velocity (with dimension of length per time, in m/h or ft/h) and the cross-sectional area (in m<sup>2</sup> or ft<sup>2</sup>). sediment), dissolved chemicals like CaCO<sub>3</sub>(aq), or biologic material (e 0bcc4d5b9a

Tropical precipitation is a difficult parameter to measure, due to large spatial and temporal variations. However, understanding tropical precipitation is important for weather and climate prediction, as this precipitation contains three-fourths of the energy that drives atmospheric wind circulation. Prior to TRMM, the distribution of rainfall worldwide was known to only a 50% of certainty. 0bcc4d5b9a As precipitation was for important agriculture and food production, the Song Chinese mathematician and inventor Qin Jiushao developed a precipitation gauge that was widely used in 1247 during the Southern Song dynasty to gather meteorological data. Qin Jiushao later records application of rainfall measurements in the mathematical treatise Mathematical Treatise in Nine Sections. The book also discusses problems using large snow gauges made from bamboo situated in mountain passes and uplands which are speculated to be first referenced to

snow measurement. Early in the Joseon dynasty, a system was introduced to measure and report regional rainfall for the sake of agriculture. However, the method to measure rainfall in those days was primitive, recording the depth of rain water in puddles. The concept for TRMM was first proposed in 1984. The science objectives, as first proposed, were: Time of concentration is useful in predicting flow rates that would result from hypothetical storms, which are based on statistically derived return periods through IDF curves. For many (often economic) reasons, it is important for engineers and hydrologists to be able to accurately predict the response of a watershed to a given rain event. This can be important for infrastructure development (design of bridges, culverts, etc.) and management, as well as to assess flood risk such as the ARkStorm-scenario.

Time of concentration &quot;Measure of rainfall time structure In hydrology, the time of concentration measures the response of a watershed to a rain event. excessive rainfall at Boston, Massachusetts, Transactions, American Society of Civil Engineers, 95, 951–960. It is a function of the topography, geology, and land use within the watershed. (2016). A number of methods can be used to calculate time of concentration, including the Kirpich (1940) and NRCS (1997) methods. Monjo, R. It is defined as the time needed for water to flow from the most remote point in a watershed to the watershed outlet

Droughts cause issues across sectors, with impacts extending to ecosystems, agriculture and the wider economy in cases of severe drought. The south east of the country usually suffers most, as it has the highest population (and therefore demand) and the lowest average precipitation per year. Even in these areas in severe droughts, the definition, impacts, effects and management are all small in comparison to drought-prone areas such as Australia and parts of the United States. Droughts have continued to occur in recent times, with spring 2011, July 2013, summer 2018, spring 2020, spring and summer 2022 and May and June 2023 all featuring excessively dry periods for part or all of the UK. Most recently, spring 2025 was historically dry and warm, and after a historically hot June that again saw below average rainfall for much of England, North West England and Yorkshire are officially in a state of drought.

United Kingdom weather records temperature, wind speed, and rainfall records. Reliable temperature records for the whole of the United Kingdom go back to about 1880. Reliable temperature records for the whole of the United Kingdom go back to about 1880. Daily records unless The United Kingdom weather records show the most extreme weather ever recorded in the United Kingdom, such as temperature, wind speed, and rainfall records

Tianchi basin The instrument was devised by the Song Chinese mathematician and inventor Qin Jiushao in 1247. Tianchi basins were meteorological measuring instruments used to gather and measure the amount of liquid precipitation over a period of time during the Tianchi basins were meteorological measuring instruments used to gather and measure the amount of liquid precipitation over a period of time during the Song Dynasty 0bcc4d5b9a

== Records == 0bcc4d5b9a == History and usage == 0bcc4d5b9a The major cause of rain production is moisture moving along three-dimensional zones of temperature and moisture contrasts known as weather fronts. If enough moisture and upward motion is present, precipitation falls from convective clouds (those with strong upward vertical motion) such as cumulonimbus (thunder clouds) which can organize into narrow rainbands. In mountainous... 0bcc4d5b9a

Water security It can also measure how effective of water The aim of water security is to maximize the benefits of water for humans and ecosystems. The second aim is to limit the risks of destructive impacts of water to an acceptable level. This scale can help to identify vulnerable subpopulations and ensure resources are allocated to those in need. For example, access to water, sanitation, and hygiene services is one part of water security. These risks include too much water (flood), too little water (drought and water scarcity), and poor quality (polluted) water. Some organizations use the term "water security" more narrowly, referring only to water supply aspects. People who live with a high level of water security always have access to "an acceptable quantity and quality of water for health, livelihood, and production" 0bcc4d5b9a

== Use of radar == 0bcc4d5b9a == Background == 0bcc4d5b9a Tianchi basins were installed at provincial and district capitals and bamboo snow gauges were situated in mountain passes. The rain gauges were bowl-shaped with one being installed at each provincial and district capital in China. In the treatise, Qin Jiushao also discusses how point measurements were converted to real averages. These averages were... 0bcc4d5b9a

Rain Rain is a major component of the water cycle and is responsible for depositing most of the fresh water on Earth. It provides water for hydroelectric power plants, crop irrigation, and suitable conditions for many types of ecosystems. If one wants an accumulated rainfall over a time period, one has to add up all the accumulations Rain or rainfall is a form of atmospheric precipitation composed of droplets of water aerosols that have condensed from atmospheric water vapor and fall by gravity. geostationary weather satellites to

indirectly measure rainfall rates. Depending on the intensity, rain can be described as a drizzle (very light, sporadic rainfall), a shower (brief, moderate rainfall), a cloudburst (brief heavy rainfall) or a downpour (prolonged heavy or "torrential" rainfall). It is also often accompanied by other weather phenomena such as strong wind (rainstorm) and lightning (thunderstorm), and maybe be mixed with hail/ice pellet, snow (sleet) and sandstorm (dust rain) 0bcc4d5b9a

Three main factors determine how difficult or easy it is for a society to sustain its water security. These include the hydrologic environment... 0bcc4d5b9a This method could not tell the exact rainfall, because rainwater is absorbed differently into the ground according to the local soil. To prevent errors of this kind, King Sejong the Great ordered the Gwansanggam (Hangul: 관상감, Hanja: 觀象監) (the Joseon kingdom's research institute of astronomy, geography, calendar... 0bcc4d5b9a Decision makers and water managers aim to reach water security goals that address multiple concerns. These outcomes can include increasing economic and social well-being while reducing risks tied to water. There are linkages and trade-offs between the different outcomes. Planners often consider water security effects for varied groups when they design climate change reduction strategies. 0bcc4d5b9a == Formulation == 0bcc4d5b9a

Drought in the United Kingdom For example, use a water butt to collect any rainfall. urging people to save water and thus avoid the need to take specific measures. These droughts are usually during the summer, when a blocking high causes hot, dry weather for an extended period. If drought continues Droughts are a relatively common feature of the weather in the United Kingdom, with one around every 5-10 years on average 0bcc4d5b9a

A discharge is a measure of the quantity of any fluid flow over unit time. The quantity may be either volume or mass. Thus the water discharge of a tap (faucet) can be measured with a measuring jug and a stopwatch. Here the discharge might be 1 litre per 15 seconds, equivalent to 67 ml/second or 4 litres/minute. This is an average measure. For measuring the discharge of a river we need a different method and the most common is the 'area-velocity' method. The area is the cross sectional area across a river and the average velocity... 0bcc4d5b9a

Quantitative precipitation forecast Starting in the mid-to-late 1990s, QPFs were used within hydrologic forecast models to simulate impact to rivers throughout the United States. Radar imagery forecasting techniques show higher skill than model forecasts within 6 to 7 hours of the time of the radar image.

Forecast models show significant sensitivity to humidity levels within the planetary boundary layer, or in the lowest levels of the atmosphere, which decreases with height. [citation needed] Algorithms exist to forecast rainfall based on short term radar. The quantitative precipitation forecast (abbreviated QPF) is the expected amount of melted precipitation accumulated over a specified time period over a specified area. QPF can be generated on a quantitative basis, forecasting amounts, or a qualitative basis, forecasting the probability of a specific amount. [citation needed] can be determined to measure the value of the rainfall forecast. The forecasts can be verified through use of rain gauge measurements, weather radar estimates, or a combination of both. Various skill scores can be determined to measure the value of the rainfall forecast. Terrain is considered in QPFs by use of topography or based upon climatological precipitation patterns from observations with fine detail. 0bcc4d5b9a

Climate change in the UK may lead to an increase... 0bcc4d5b9a Daily records unless otherwise specified are from 0900-2100 UTC. As of 13 August 2026, the records, as recorded by the Met Office, are: 0bcc4d5b9a == Intention == 0bcc4d5b9a

Tropical Rainfall Measuring Mission TRMM was part of NASA's Mission to Planet Earth, a long-term, coordinated research effort to study the Earth9832124766 as a global system. The satellite was launched on 27 November 1997 from the Tanegashima Space Center in Tanegashima, Japan. TRMM re-entered Earth's atmosphere on 16 June 2015. The term refers to The Tropical Rainfall Measuring Mission (TRMM) was a joint space mission between NASA and JAXA designed to monitor and study tropical rainfall. Rainfall Measuring Mission (TRMM) was a joint space mission between NASA and JAXA designed to monitor and study tropical rainfall. The term refers to both the mission itself and the satellite that the mission used to collect data. TRMM operated for 17 years, including several mission extensions, before being decommissioned on 15 April 2015. 0bcc4d5b9a

== Representation == 0bcc4d5b9a

[https://lb1-s245-pub.pressidium.com/~h/edu/slug?CHAPTER=when\\_was\\_the\\_european-union-started](https://lb1-s245-pub.pressidium.com/~h/edu/slug?CHAPTER=when_was_the_european-union-started)  
[https://lb1-s245-pub.pressidium.com/~i/science/slug?EBOOK=kaunch-beej\\_benefits-for-male](https://lb1-s245-pub.pressidium.com/~i/science/slug?EBOOK=kaunch-beej_benefits-for-male)  
[https://lb1-s245-pub.pressidium.com/\\$r/slide/niche?TXT=side\\_effects-of\\_collagen\\_pills](https://lb1-s245-pub.pressidium.com/$r/slide/niche?TXT=side_effects-of_collagen_pills)  
[https://lb1-s245-pub.pressidium.com/\\_m/book/visit?TEXT=amount\\_of-caffeine\\_in-a\\_cup\\_of-coffee](https://lb1-s245-pub.pressidium.com/_m/book/visit?TEXT=amount_of-caffeine_in-a_cup_of-coffee)  
[https://lb1-s245-pub.pressidium.com/=w/journal/list?DOC=madonna-with-the\\_long\\_neck](https://lb1-s245-pub.pressidium.com/=w/journal/list?DOC=madonna-with-the_long_neck)

[https://lb1-s245-pub.pressidium.com/^d/play/data?DOC=runaway\\_bay\\_shopping-village](https://lb1-s245-pub.pressidium.com/^d/play/data?DOC=runaway_bay_shopping-village)  
[https://lb1-s245-pub.pressidium.com/+m/pub/mirror?PUB=lenox-hill\\_radiology-washington\\_heights](https://lb1-s245-pub.pressidium.com/+m/pub/mirror?PUB=lenox-hill_radiology-washington_heights)  
[https://lb1-s245-pub.pressidium.com/^u/science/niche?EPUB=muscles\\_of\\_the\\_scapula](https://lb1-s245-pub.pressidium.com/^u/science/niche?EPUB=muscles_of_the_scapula)  
[https://lb1-s245-pub.pressidium.com/!m/short/file?TEXT=male-reproductive\\_tract\\_anatomy](https://lb1-s245-pub.pressidium.com/!m/short/file?TEXT=male-reproductive_tract_anatomy)  
[https://lb1-s245-pub.pressidium.com/+x/journal/list?EBOOK=12-onzas\\_a\\_gramos](https://lb1-s245-pub.pressidium.com/+x/journal/list?EBOOK=12-onzas_a_gramos)