River and sea levels online

Frequently asked questions

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1. Why are you making this information available?

We are providing information on river and sea levels so people living in flood risk areas are better informed and can decide what actions to take as the water levels change. People that use rivers for recreation such as anglers and boaters will also be able to use this information to check the water levels before they set off.

2. How do you measure river and sea levels?

We have monitoring stations across England and Wales that measure the levels of rivers, lakes, sea and groundwater. Most of the measurements are taken electronically by sensors in the river, stored on site and then automatically sent back to us via our telemetry systems to databases used by our forecasting systems. River and sea water level measurements are now also sent from our telemetry systems to our website and published online.

3. What is the difference between river level and river flow?

River level is the depth of water at a monitoring station, measured in metres to a specified datum. Flow is the volume of water passing a monitoring site, measured in cubic metres per second. Flow can be measured directly or derived from continuous measurements of river level and water velocity.

4. Is river flow always a function of river level?

As flow is a function of river level and velocity it is possible to get different values of flow for the same level. This can happen if the characteristics, for example, roughness of the channel, change as the result of a flood or from the growth of vegetation. Most level monitoring sites are located in relatively stable reaches to minimise this.

5. Does the river level on the internet represent the depth of the water at that site?

River levels or depth of water in a river can vary with flow and the characteristics of the channel. Differences in the channel and the arrangements in place for measuring level mean that the values shown for a site on the internet are not always the same as the depth of water in the river. For example, if there is not a weir or similar structure levels may be measured against a local datum that is generally near but not necessarily on the bed of the river. The local datum will be equivalent to zero but not necessarily the bed of the river.

6. What datum has been used to measure the river and sea levels?

River levels are either measured against a local datum or ordnance datum. Ordnance datum (mAOD) is based on the mean sea level at Newlyn in Cornwall and is used as the reference point to calculate height above sea level in the UK. Where this is the case the datum in mAOD is displayed in the Station Summary box. Levels at the sites that use mAOD can be in 100s of meters.

To make it easier for users to interpret the data on the website levels plotted in the graphs are always shown against a local datum. Measurements in mAOD have been converted to a local datum, based on the lowest recorded value. This value is equal to zero and is used to set the lower limit of the y axis.

7. How often is the information updated?

We monitor river levels across the UK in near real time to help us with our work. Data is recorded at 15 minute intervals, stored onsite and sent back to our offices once a day, usually in the morning. River and sea level information on our website is then updated automatically. On some occasions, especially during flooding, when data is retrieved more frequently, the website will be updated more than once per day.

Please note that if you are unable to see the latest data your computer may need refreshing. You can check by clicking the refresh icon on your Internet browser or pressing ctrl and F5 on your keyboard. This should then bring up the current version of the website page.

We understand that many users would like the river level information on the website to be updated more frequently. The website is updated as soon as the data is sent from the site. There is a cost to retrieving the data from site and this is one reason why we normally only collect the data once or twice a day. Also, as many of our sites are in remote places and are powered by batteries we need to be careful how often we retrieve the data to maximise battery life and to ensure that our equipment is available to meet operational needs.

Currently we have no plans to increase the frequency at which data is collected, although we have logged the issue and will consider it when we review what changes to make to the service in the future.

8. How accurate is the data?

We work hard to provide you with accurate and relevant information. Because the measurements are sent straight to our website they are unverified and may occasionally be incorrect. There may also be occasions when data will not have been collected from a monitoring station; therefore results will not appear on our website until the next data collection. If there are persistent problems with incorrect or missing data we may temporarily suspend a site until the issues have been resolved.

Whilst every effort has been made to ensure the accuracy of the information provided, neither the Environment Agency, nor its employees or agents can be held responsible for any inaccuracies or omissions, whether caused by negligence or otherwise.

9. Is information available for all rivers?

We have an extensive network of monitoring stations. These stations cover all the major rivers in England and Wales as well as many smaller rivers and some streams and brooks. Some smaller water courses do not have monitoring stations because we do not need to monitor them to meet our operational needs.

10. Why are there no river levels shown for my river/area?

We have an extensive network of monitoring stations, and these cover all the major rivers in England and Wales as well as many smaller rivers, streams and brooks. We are not currently able to feature all our monitoring stations on our website. Some sites do not have enough contextual information or data available to make the measurements relevant to the public. We are always developing and improving our website and services and may add more sites and information in the future.

11. Are there plans to increase the number of monitoring stations?

We have no plans to significantly increase the number of sites we have in the field but we are always developing and improving our website and services and may add more sites and information in the future. This is likely to include a number of sites that, for various reasons, we were unable to feature in the initial website launch.

12. What does ‘Typical Range’ mean?

The typical range gives an indication of the usual range of water levels throughout the year. It is calculated from historical water level data collected at that station. We have generally only included stations on the site that have been in operation for a few years and there is enough data to give a good indication of the typical range of levels. At some monitoring stations the upper or lower limit of the typical range may be amended to reflect local flood and water management triggers, for example where river levels are controlled for navigation purposes.

Drought or water management measures may be in place when levels are in the typical range. Please check our website (www.gov.uk/environment-agency) for the latest information on water resources in your area and whether any restrictions are in place.

13. What does 'Flooding is Possible' mean?

'Flooding is possible' is an indication of when river levels are high but does not replace our flood warning service or mean flood warnings will be issued. Our river levels are only an indication of local river conditions. It does not mean that flooding is or is not occurring elsewhere within the river catchment. While rivers are the main source of flooding, other sources including surface water runoff can also lead to floods, especially after intense rainfall. You should still check if a flood warning is in place for your area. You can do this by checking the flood warnings on our website (www.gov.uk/flood) or by calling our Floodline service on 0345 988 1188.

When one or more flood warnings are in force, a link will also appear on the river levels on the internet site directing people to our online live flood warning information.

14. Are flood defences taken into account?

At some sites the bottom of the 'Flooding is Possible' range has been adjusted to take flood defences into account. For example where there are defences such as the Thames barrier, the "flooding is possible" level takes into account the protection offered by the defence. This can result in the 'flooding is possible' level being higher than at other sites. 'Flooding is possible' is an indication of when river levels are high but does not replace our flood warning service or mean flood warnings will be issued. You should still check if a flood warning is in place for your area. You can do this by checking the flood warnings on our website (www.gov.uk/flood) or by calling Floodline on 0345 988 1188.

When one or more flood warnings are in force, a link will also appear on the river levels on the internet site directing people to our online live flood warning information.

15. On some sites the highest river level recorded states 0.00 metres, why is this?

Where we do not have this information the system defaults to displaying 0.00 metres. This issue will be addressed in the future.

16. What does 'highest astronomical tide' mean?

Highest astronomical tide (HAT) is the highest level that can be expected to occur under average meteorological conditions. HAT are not extreme levels, as certain weather conditions can cause a ‘storm surge' which can result in very high sea levels and large waves.

17. What period of record is the maximum recorded level based on?

The maximum recorded level has been identified from the full period of level record. In a few cases, where there have been significant changes in datum and this was clear in the level record the maximum recorded level may be identified from a shorter more recent period. Where the datum has changed significantly over time and this was not obvious when the contextual data was collated the maximum recorded level may be based on an old datum. Users need to be aware of this potential limitation. The highest recent level relates to is the highest level recorded within the last 5 years.

18. How do I receive flood warnings?

To check if you are at risk from flooding, please check our website (www.gov.uk/flood). If you live in an area at risk of flooding you can sign up to our free flood warning service online or by calling Floodline on 0345 988 1188.

19. Why does the river level sometimes rise or fall suddenly?

River levels rise and fall in response to how much rain falls. However, some river levels are also affected by other factors such as:

- the opening and closing of dams and sluices.
- debris collecting in culverts. When Environment Agency and Local Authority staff clear the debris away it can also result in the river levels suddenly dropping.
- tides causing the river levels at some monitoring stations to periodically rise and fall.

20. What does it mean when it states 'sorry the last measurement was invalid?

'Sorry the last measurement was invalid' will be displayed in situations where data has not been provided (for example, the data feed is broken) or when the data is outside of range that can be displayed on the graph.

21. When I click on a dot on the map it states 'Page Not Found' – why is this?

'Page not found' will be displayed when we have removed a site (for any reason) between updates.

22. Can I download river level data from our website?

You cannot download river level information directly from our river level pages. We recognise that this data is of value to people and have made it available as an open data feed. Details of our open data feeds are available on our website www.gov.uk/government/statistics/uk-floods-2014-data. The data files can also be found on at http://flooddata.alphagov.co.uk/

Use of the data is subject to terms and conditions (www.nationalarchives.gov.uk/doc/open-government-licence/version/3/).

Some of our river flow data is available from the National River Flow Archive (http://www.ceh.ac.uk/data/nrfa/index.html). If you need peak flow data then you can download some of it from the Centre of Ecology and Hydrology (http://www.ceh.ac.uk/data/nrfa/peakflow_overview.html).

If you would like further information or data please email us at enquiries@environment-agency.gov.uk or phone us on: 03708 506 506 (Monday to Friday, 8am to 6pm).

23. I have an abstraction license, can I use this information?

The river and sea level data on our website is un-validated and should not be used by abstractors to meet specific conditions of their licence. If you would like further information or data please email us at enquiries@environment-agency.gov.uk or phone us on: 03708 506 506 (Monday to Friday, 8am to 6pm).

24. Are you able to show the duration and frequency (return periods) for each site?

To produce return periods from river and sea level information is technically complex, expensive and will not always provide reliable results. Therefore, we currently have no intentions to publish return periods for recorded levels at each gauging station.

Experienced hydrologists can find hi-flow data on the Centre of Ecology and Hydrology website for over 1000 sites (http://www.ceh.ac.uk/data/nrfa/peakflow_overview.html).

You will also find advice and links to the Flood Estimation Handbook which sets out the methods needed to calculate return periods. http://www.ceh.ac.uk/feh2/fehintro.html

25. Are you going to publish rainfall and flow information online?

At the moment our website does not include live rainfall or river flow information. We do routinely publish summary rainfall data and recent information on river flow as well the amount of water stored below ground in aquifers and above ground in reservoirs in our water situation reports (www.gov.uk/government/collections/water-situation-reports-for-england).

We are continually improving our website and adding new services so we may provide information on rainfall, flow or other information in the future. We have already received suggestions to include additional information on whether levels are rising or falling, as well as pictures from cameras, information on water temperature, the clarity of water and what else is going on upstream. We are logging all suggestions and will consider them when we next update the system.

If you would like further information or data please email us at enquiries@environment-agency.gov.uk or phone us on: 03708 506 506 (Monday to Friday, 8am to 6pm).

26. I am struggling to use your maps to locate my town/village or relevant monitoring station.

Our website currently features maps based on the Environment Agency boundaries. You can navigate to your area by, river catchment, and Environment Agency Area. Alternatively, you can find your way using the tables following the link on provided. We are already looking at ways to improve this service including adding more user friendly maps.

27 The information on your website says that the monitoring station is unavailable, what does this mean?

This means that data is not currently available for that monitoring station. This could be because we are carrying maintenance, or we may be receiving poor quality data or no data at all. We will update the site as soon as possible.

28. Why is the information on your website different from the information on Rivercall?

Rivercall is a tailored telephone service for anglers that provides river level for about 70 sites across England and Wales. Information on river levels are described as above or below normal summer flow. This was felt to be the best way to present this information for the angling community.

Our online river and sea levels information service has been primarily designed to meet the needs of people living in flood risk areas. The approach used on the internet was based on their feedback. We recognise that this may mean that other users may find the information a little more difficult to interpret. We are in the process of deciding how we make this data more widely available. Others can then potentially present the data differently.

29. Why does the website use Greenwich Mean Time (GMT) rather than British Summer Time (BST)?

We have used Greenwich Mean Time as this is the standard method for collecting hydrometric data. The website was tested with the public before we decided upon the design.

30. Why are metric measurements used rather than imperial measurements?

The information displayed on the system is taken directly from the equipment which collects the measurements and it is standard practice for these systems to record in metric. At the moment there are no plans to change or include imperial measurements.