Guidance on accessing Hydrometric information from SEPA

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# Accessing SEPA Hydrometric data

Thank you for your interest in SEPA hydrometric data. SEPA holds a range of hydrometric data that is available through a new [**self-service API**](https://timeseriesdoc.sepa.org.uk/) as well as other online resources outlined below. You can contact SEPA Hydrometry staff at [Hydrometry-requests@sepa.org.uk](mailto:Hydrometry-requests@sepa.org.uk) for advice or assistance.

You can also request datasets through the [SEPA Access to Information Team](https://www.sepa.org.uk/about-us/access-to-information/) at [foi@sepa.org.uk](mailto:foi@sepa.org.uk) .

**Data Reuse** - SEPA is pleased to advise that our hydrometric data is available for you to use under the [Open Government Licence 3.0](http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3).

# Information available self-service

Table 1 – self-help options available

|  |  |  |  |
| --- | --- | --- | --- |
| Source | Data type and resolution | Notes | Data Reuse |
| SEPA API  Access guidance pages and examples at:  <https://timeseriesdoc.sepa.org.uk/> | All current and archived river flow, river level, loch level, tide level and rainfall datasets. Various resolutions from 15min time steps to annual figures |  | [Open Government Licence 3.0](http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3) |
| <https://nrfa.ceh.ac.uk/data/search> | Mean Daily Flow  Catchment average rainfall  AMAX and POT |  | [NRFA data licence](https://eidc.ceh.ac.uk/licences/nrfa-data-terms-and-conditions-for-api-access-to-time-series-data-and-metadata/plain) is available on the website |
| WIN-FAP software available at <https://www.hydrosolutions.co.uk/> | AMAX and POT | The WIN-FAP software is a commercial product supplied by Wallingford HydroSolutions (WHS) | WHS licence applies – see [website](https://www.hydrosolutions.co.uk/knowledge-base/winfap-licence-information-expiry-date/) for more detail |
| <https://www2.sepa.org.uk/WaterLevels/> | River level data | Most recent 5 days on a station-by-station basis | [Open Government Licence 3.0](http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3) |
| <https://www2.sepa.org.uk/rainfall> | 15min rainfall totals | * Descriptive information about the stations * 7 days of hourly totals * 1 year of daily totals * 10 years of monthly totals | [Open Government Licence 3.0](http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3) |

# Information available on request

The main hydrometric data types available are river flow, water level (tide, loch and river) and rainfall. Indicative water temperature is also available at some gauging stations.

Table 2 – Data types and resolution available

|  |  |
| --- | --- |
| Type | Resolution available |
| River Flow (Q) | 15-minute values; mean/max/min daily/monthly/annual aggregates |
| Water Level (SG) | 15-minute values; mean/max/min daily/monthly/annual aggregates |
| Event Rainfall (RE) | 15-minute/hourly/daily/monthly/annual accumulations (instantaneous 'event tips' are also available at some gauges) |
| Storage Rainfall (RS) | Daily |

When making a request for hydrometric data via [foi@sepa.org.uk](mailto:foi@sepa.org.uk) please consider:

* Specific stations and/or locations of interest, and/or a shapefile/map showing the area
* Data type (see Table 2)
* Time period of interest
  + Note that all aggregate time series (daily/monthly/annual) are based on the industry standard UK hydrometric day, which begins at 9am GMT.
  + Note that annual figures will be based on the UK hydrological year (1st October to 30 September) unless an alternative is requested
* Data resolution (see Table 2)
* The default format we supply data is \*.csv. If you require another file format, then please state this.

Note that the principal dataset from a river gauging station is flow, measured in cubic meters per second (cumecs). The use of a river level record as an archive is limited and its primary purpose is the derivation of flow.

# Tips

**Tips for Identifying Sites**

The API <https://timeseriesdoc.sepa.org.uk/> service gives instructions as to how you can download a station list which you can query or turn into a map.

You can also view the location of key gauging stations (River, Loch and tide) and tipping bucket raingauges on SEPA’s water level and rainfall websites;

<https://www2.sepa.org.uk/WaterLevels/>

<https://www2.sepa.org.uk/rainfall>

The majority of SEPA’s river gauging stations that produce river flow estimates can be viewed on the National River Flow Archive (NRFA) website <https://nrfa.ceh.ac.uk/data/search> including stations that are no longer operational. Once a station is selected, you can view and download data direct from this website via the ‘daily flow` tab. The standard dataset is mean daily flows (referred to as gauged daily flows on NRFA). Note mean daily flows are submitted in arrears after calibration and quality control. Hence the mean daily flow archive will be missing from at least the current year.

Around 150 SEPA stations on the NRFA website have Peak Flow status, which means they are deemed suitable for use in flood estimation methods using the AMAX and POT datasets, which are available on the website and replicated in the WIN-FAP software. When a station is selected on the NRFA website, Peak Flow stations have a dedicated ‘Peak Flow` tab that provides additional information such as pictures, ratings, gaugings and stations notes that are all useful for understanding station performance and data confidence. There are also catchment shapefiles available to download which can be useful when you are specifying a study area.

Alternatively, station list is available on the [SEPA website](https://www.sepa.org.uk/environment/environmental-data/). This can be incorporated into a GIS project.

## Glossary

|  |  |
| --- | --- |
| A2I | Access to Information – SEPA’s Access to Information Team |
| AMAX | Annual maximum flood series |
| EIR | Environmental Information Requests |
| FOI | Freedom of Information Requests |
| API | An application programming interface, or API, enables companies to open up their applications’ data and functionality to external third-party developers, business partners, and internal departments within their companies |
| Hydrological day | The industry standard for daily figures is the hydrometric day, which starts at 9am GMT |
| Hydrological year | The industry standard for annual data is the hydrological year which is the period from 1st October to 30 September. For example, in the UK, the 2005 hydrological year is the period from the 1st October 2005, 0900 to 30th September 2006, 0845. |
| Hydrometric Information | A term that encompasses the data, meta data and any supporting comments and caveats on confidence etc. |
| Instantaneous 'event tips' | A tipping bucket records the time every 0.2mm of rainfall. As standard SEPA’s aggregates these into total rainfall in every 15minute period. At some stations an additional series exists that records the time of every tip (0.2mm). This higher resolution allows analysis of intense downpours. |
| Meta Data | Information that helps understand the data and put it into context |
| NetHelpDesk | The application for managing requests for information from SEPA |
| NRFA | National River Flow Archive |
| Parameter | Refers to what is being measured. For example, River Discharge/Flow (Q) and Event Rainfall (RE) are parameters |
| POT | Peaks over threshold series |
| SEPA | Scottish Environment Protection Agency |
| Stage | Another term for water level, often with the abbreviation SG |
| Times series | Each parameter has different time series (resolutions) available. For example, 15minute flow and daily mean flow are two different time series from the same parameter |
| WIN-FAP | Commercial software that incorporates flood estimation methodology and Peak Flow Datasets, supplied by <https://www.hydrosolutions.co.uk/> |