

Using the UK Air Data Archive for Your Own Research: Step-by-step Guidance on Accessing Data

Tim Harrison^{1,2}, Prof. Dudley Shallcross^{2,3} and Dr. Alison Trew³

¹Bristol ChemLabs, University of Bristol

²Atmospheric Chemistry Research Group, University of Bristol

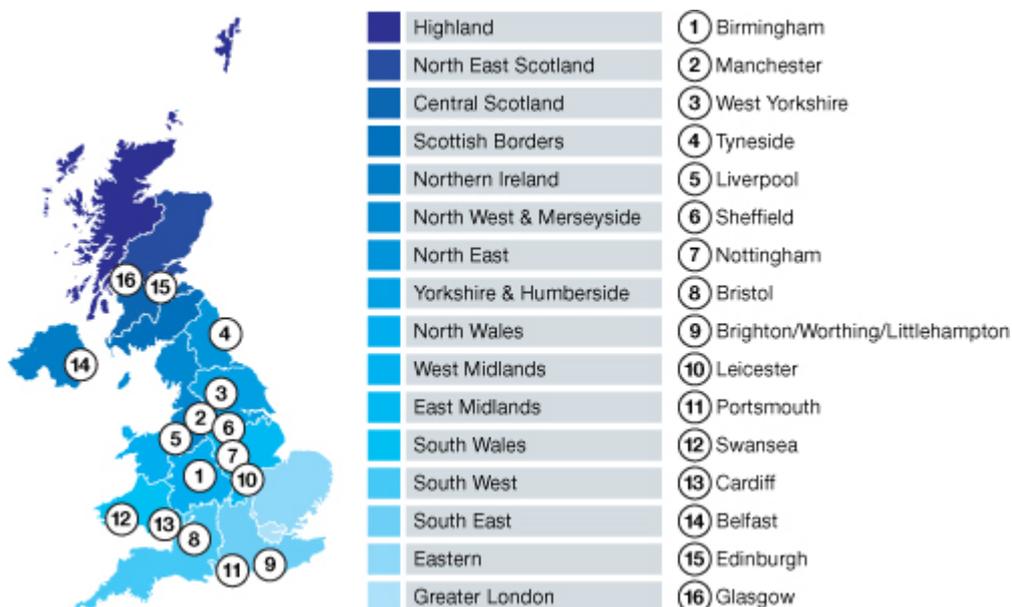
³Primary Science Teaching Trust (PSTT)

Introduction

The data archive is enormous. That said, NOT all monitoring sites will monitor:

- all the pollutants
- during all the periods of interest
- the frequency of monitoring desired
- in the geographical (British Isles) places you want
- in the environments needed

Your first task will be to look to see what data are available.



Some comments about the site. It contains a vast amount of information. The buttons that you need to push are not always evident on the bit of the page you are looking at. You may need to scroll to the top again or even further down page you are looking at.

As with most things in life, the more time and effort you put in, the more you get out. This document will just allow you to scratch the surface.

Getting started

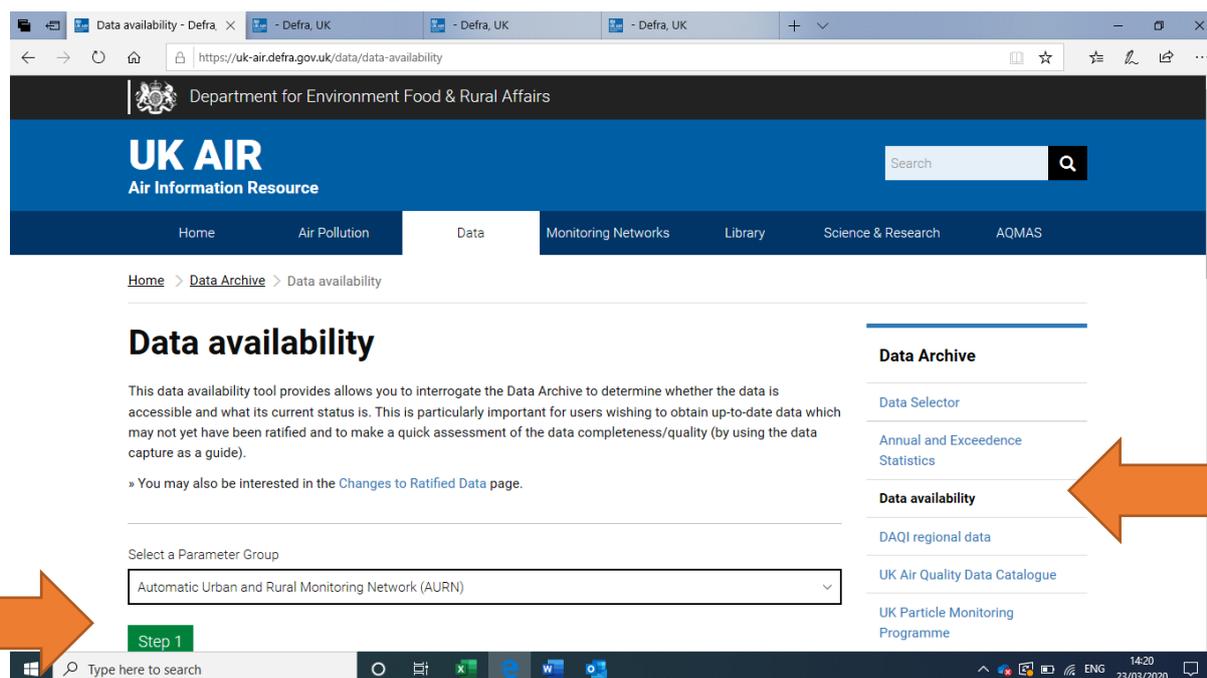
Go to <https://uk-air.defra.gov.uk/data/>

Beneath **Data Archive** (right hand side menu), select **Data availability** (3rd item down).

For this example, we will search for information about the PM₁₀ particulate levels in Bristol.

The dropdown box allows choice of data. You will need to play around with this to see the availability of pollutant data.

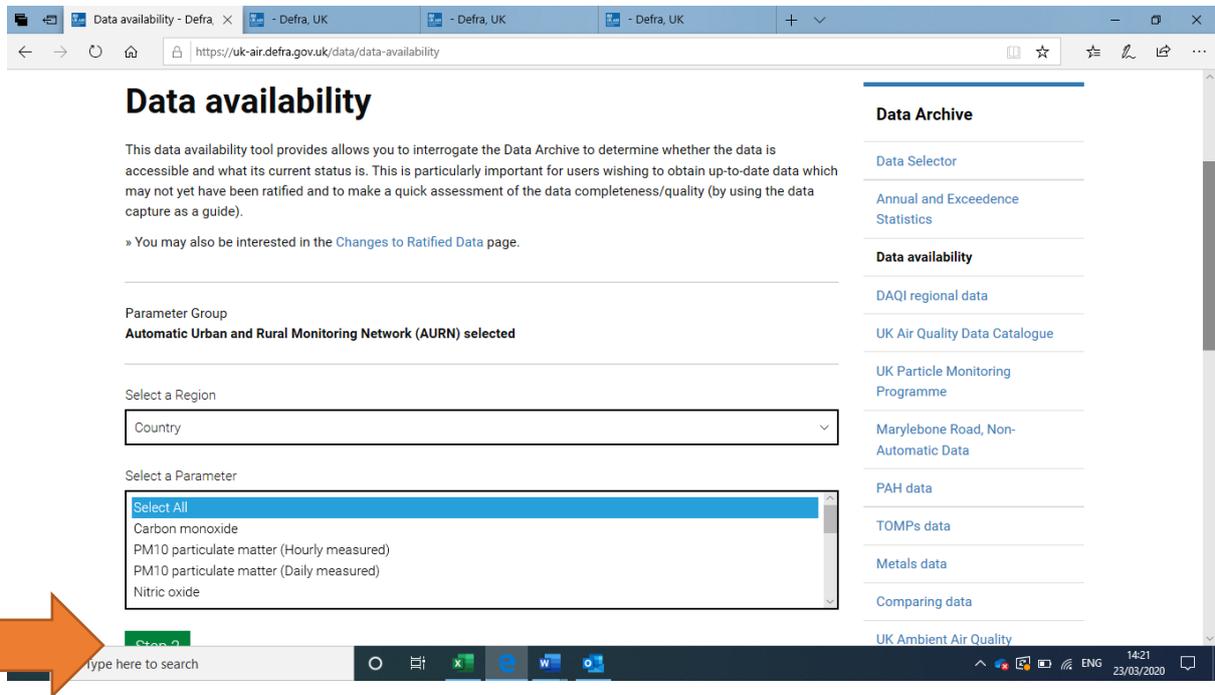
For this example, we will choose the Automatic Urban and Rural Monitoring Network (AURN)'. Click the green **Step 1** box to proceed.



The screenshot shows the 'UK AIR Air Information Resource' website. The navigation menu includes 'Home', 'Air Pollution', 'Data', 'Monitoring Networks', 'Library', 'Science & Research', and 'AQMAS'. The 'Data' menu is active, and the breadcrumb trail is 'Home > Data Archive > Data availability'. The main heading is 'Data availability'. Below it, a paragraph explains the tool's purpose. A link to 'Changes to Ratified Data page' is provided. A dropdown menu labeled 'Select a Parameter Group' is set to 'Automatic Urban and Rural Monitoring Network (AURN)'. A green 'Step 1' button is visible. On the right, the 'Data Archive' sidebar contains links for 'Data Selector', 'Annual and Exceedence Statistics', 'Data availability', 'DAQI regional data', 'UK Air Quality Data Catalogue', and 'UK Particle Monitoring Programme'. Two orange arrows point to the 'Data availability' link in the sidebar and the 'Automatic Urban and Rural Monitoring Network (AURN)' dropdown menu. The Windows taskbar at the bottom shows the search bar and system tray with the date 23/03/2020 and time 14:20.

The **Select a Region** function allows you to hone in on the place you want via several geographical area types including country, region or local authority. For now, select Local Authority. Later you will be able to select which area or city within the local authority.

The **Select a Parameter** box gives you a choice of pollutant. I am looking for PM₁₀. Make a choice, for example PM₁₀ particulate matter (hourly measured), and click the Green **Step 2** button.

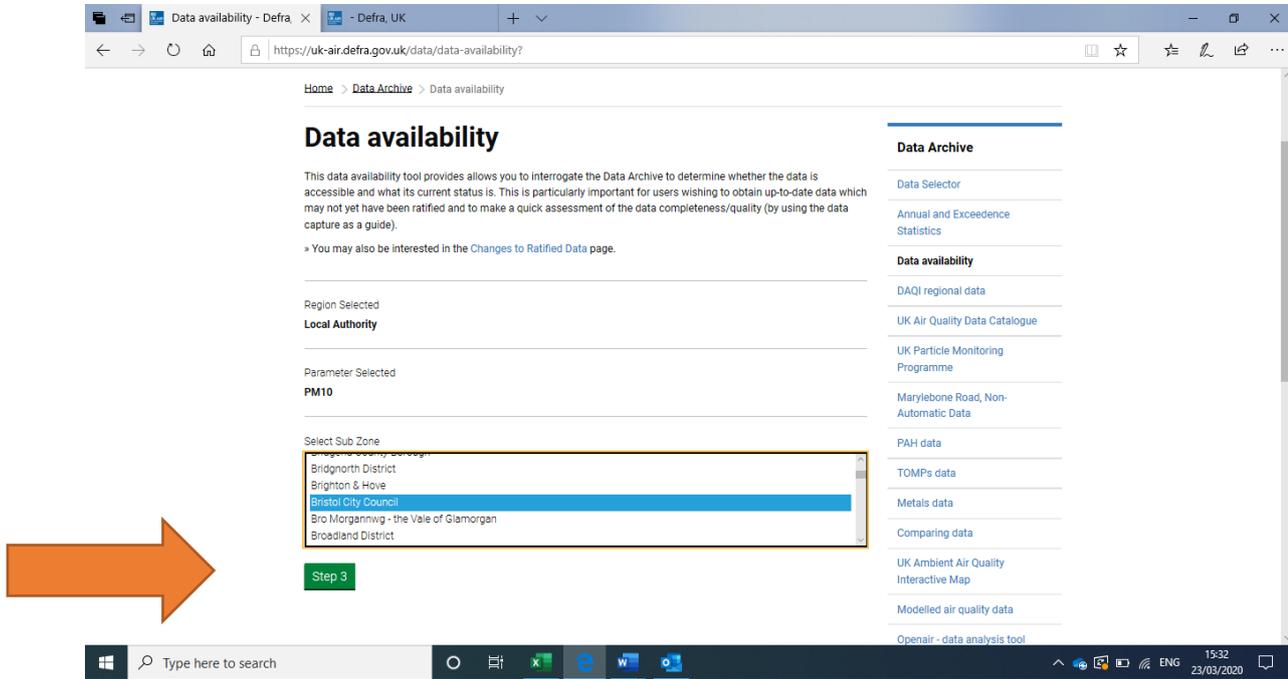


If no data is available, you will be told that on the appropriate choice button:

Select a Parameter
No data available for this selection

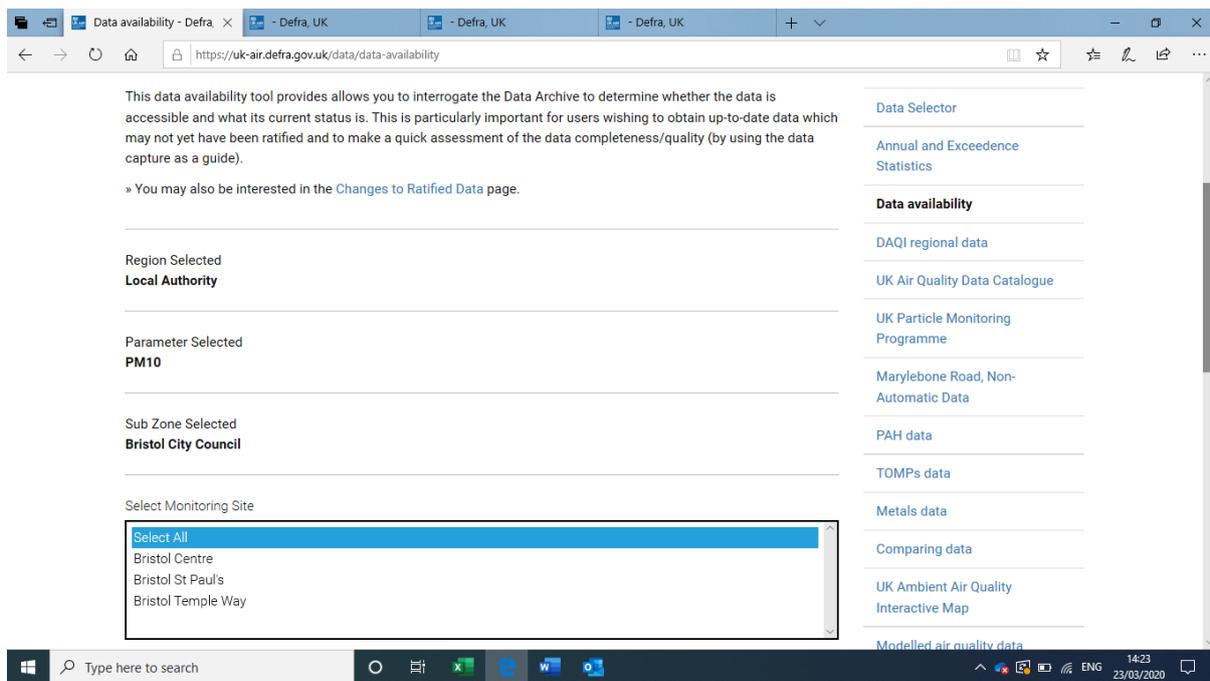
Now you can choose which geographical area you are interested in.

Select the **Sub Zone**, in this case, Bristol City Council. Click the green **Step 3** button.



The screenshot shows the Defra Data Availability tool interface. The 'Local Authority' is set to 'Bristol City Council' and the 'Parameter Selected' is 'PM10'. A dropdown menu for 'Select Sub Zone' is open, showing options like 'Bridgnorth District', 'Bristol City Council', and 'Broadland District'. An orange arrow points to the 'Step 3' button below the dropdown.

We have a choice of monitoring sites, but we don't know which are monitoring when, so we will select them all. Click the green **Step 4** button.



The screenshot shows the Defra Data Availability tool interface. The 'Sub Zone Selected' is 'Bristol City Council'. A dropdown menu for 'Select Monitoring Site' is open, showing options like 'Select All', 'Bristol Centre', 'Bristol St Paul's', and 'Bristol Temple Way'.

Now we can click **Get Data** to see what data is available.

Data availability

This data availability tool provides allows you to interrogate the Data Archive to determine whether the data is accessible and what its current status is. This is particularly important for users wishing to obtain up-to-date data which may not yet have been ratified and to make a quick assessment of the data completeness/quality (by using the data capture as a guide).

» You may also be interested in the [Changes to Ratified Data](#) page.

Region Selected
Local Authority

Sub Zone Selected
Bristol City Council

Parameter Selected:
PM10

Site Selected:
Bristol Temple Way, Bristol Centre, Bristol St Paul's

Get Data

Data Archive

- Data Selector
- Annual and Exceedence Statistics
- Data availability**
- DAQI regional data
- UK Air Quality Data Catalogue
- UK Particle Monitoring Programme
- Marylebone Road, Non-Automatic Data
- PAH data
- TOMPs data
- Metals data
- Comparing data
- UK Ambient Air Quality

If no data is available, you will be told that on the appropriate choice button:

Select Monitoring Site
No data available for this selection

If data is available, you will see a screen like this:

Data availability

This data availability tool provides allows you to interrogate the Data Archive to determine whether the data is accessible and what its current status is. This is particularly important for users wishing to obtain up-to-date data which may not yet have been ratified and to make a quick assessment of the data completeness/quality (by using the data capture as a guide).

» You may also be interested in the [Changes to Ratified Data page](#).

Network: Automatic Urban and Rural Monitoring Network (AURN)
[Make Another Selection](#)

Information last updated 23/03/2020

Averaging Period	Site	Parameter	Start Date	End Date	Availability %	Ratified To
Hourly	Bristol Temple Way	PM ₁₀	01/11/2017	22/03/2020	93.6	31/12/2019
Hourly	Bristol Centre	PM ₁₀	04/01/1993	15/09/2005	94.7	15/09/2005
Hourly	Bristol St Paul's	PM ₁₀	15/06/2006	22/03/2020	91.2	31/12/2019

Data Archive

- Data Selector
- Annual and Exceedence Statistics
- Data availability
 - DAQI regional data
 - UK Air Quality Data Catalogue
 - UK Particle Monitoring Programme
 - Marylebone Road, Non-Automatic Data
 - PAH data
 - TOMPs data
 - Metals data
 - Comparing data
 - UK Ambient Air Quality Interactive Map

Note: Bristol Centre data ended in 2005.

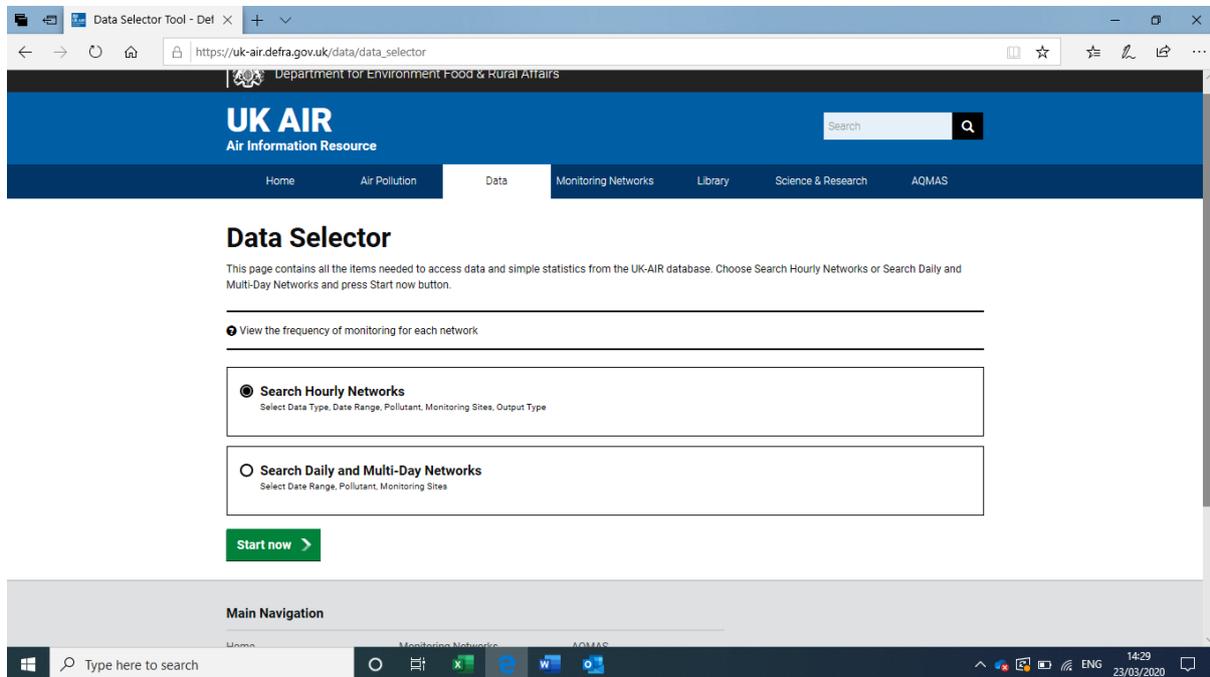
We want to see more recent UK data (2018) so we will choose Bristol St Paul's.

Hit **Data Selector** on the RHS menu. This takes us to https://uk-air.defra.gov.uk/data/data_selector

Again, there is a choice of data.

Choose one of the networks.

We want hourly data. Hit the green **Start now** button.



Decision time: you will need to select many options.

Start at the top: **Select Data Type**.

From the list, you can only choose one option each time.



Here we have chosen Daily Mean.

Click the Green **Save Selection** button.

Now work down the list of selection options.

Select Date Range allows you to choose different periods of time.

Here we used the **Custom Data** option to select start and finish dates, via the calendars provided.

Click the Green **Save Selection** button.

The screenshot shows a web browser window titled "Data Selector - Defra, U" with the URL https://uk-air.defra.gov.uk/data/data_selector_service?q=1992087&s=dr&l=1#mid. The main content area is titled "Selection Options" and contains the following elements:

- Selected Data Type:** A section with "Edit" and "Reset" buttons. Below it, a green bar indicates "Selected data type: Daily Mean".
- Select Date Range:** A section with a "Cancel" button and a list of radio button options: Today, Yesterday, Last Week, This Month, Last Month, This Year, Last Year, and Custom Date (below). The "Custom Date (below)" option is selected.
- Date from:** A text input field containing "01/01/2018".
- To:** A text input field containing "31/12/2018".
- Instructions:** A section titled "Instructions" with the text "1 of 5 items selected". Below it, a sub-section "Selecting a date range" contains the text: "Please select a Date Range and click the Save Selection button. You may choose one of the pre-defined options (such as Today, or Last Week) or select your own Date Range by entering start and end dates in the boxes provided." At the bottom of this section, it says "The Date Range is limited to a maximum of 5 years, but depending on the data you have selected".

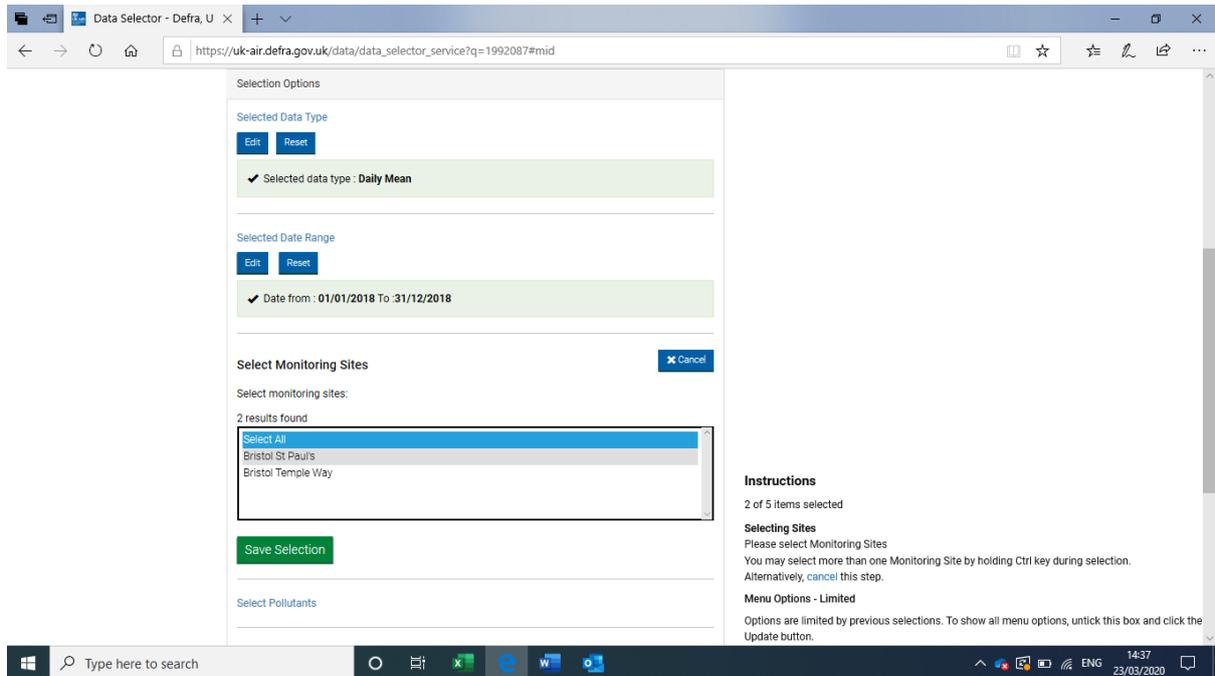
At the bottom of the page, a yellow banner states: "The earliest date available for the parameters selected is 28/03/1972 latest date is 22/03/2020". The Windows taskbar at the bottom shows the search bar, task view, and system tray with the date "23/03/2020" and time "14:35".

Select Monitoring Sites

We selected the site by first going to Local Authority (we could have gone via country or region), then in a second box, selected St Paul's.

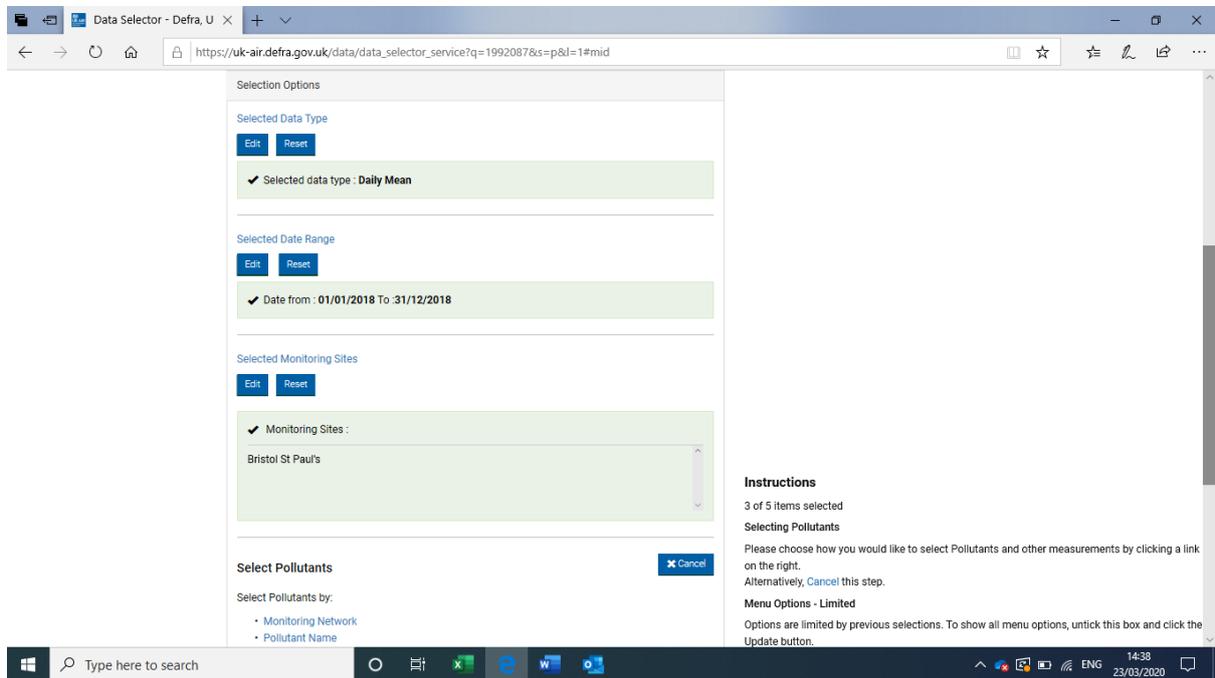
We repeat this process: choose Local Authority, then Bristol City Council and select all.

Again, click the Green **Save Selection** button.



Select the pollutants

Another choice: select by **Pollutant Name** - PM₁₀

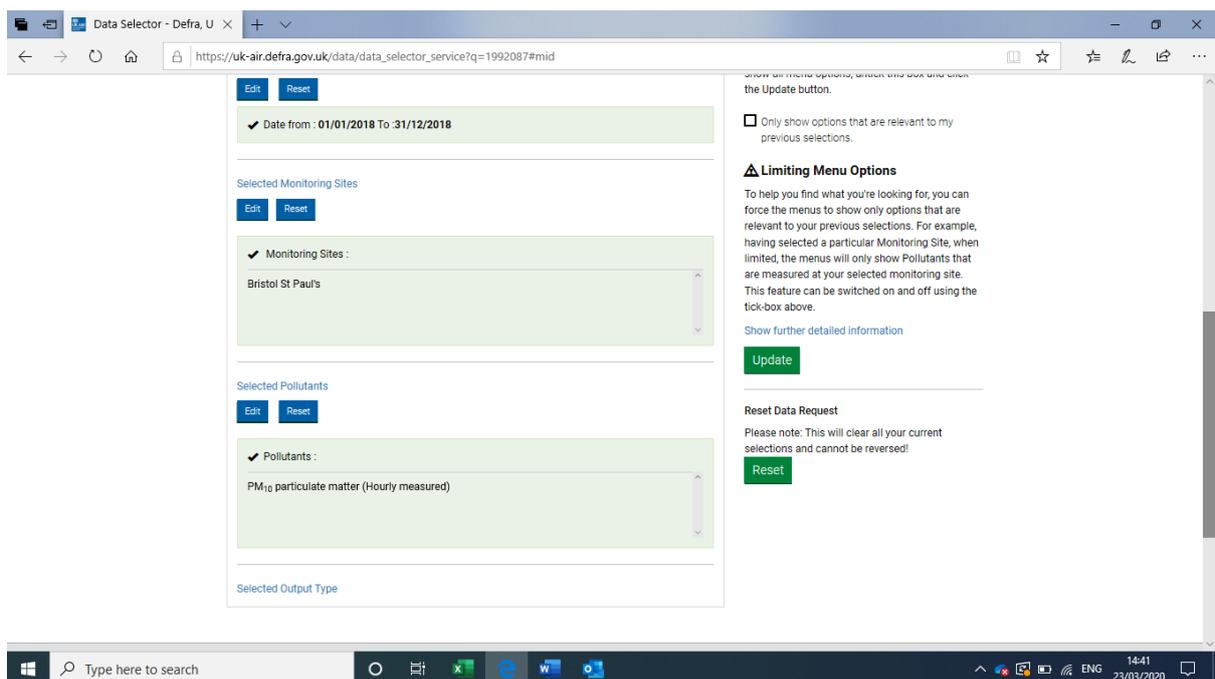


The screenshot shows the 'Data Selector - Defra, U' web application. The 'Selected Data Type' is 'Daily Mean'. The 'Selected Date Range' is '01/01/2018 To 31/12/2018'. The 'Selected Monitoring Sites' is 'Bristol St Paul's'. The 'Select Pollutants' section is active, showing 'Monitoring Network' and 'Pollutant Name' as options. The 'Instructions' panel on the right indicates that 3 of 5 items are selected and provides guidance on selecting pollutants and menu options.

Note: there can be different types of PM₁₀ (particulate matter, non-volatile and volatile).

We are interested in PM₁₀ particulate matter.

Click the green **Save Selection** button.



The screenshot shows the 'Data Selector - Defra, U' web application with the 'Update' button highlighted in green. The 'Selected Date Range' is '01/01/2018 To 31/12/2018'. The 'Selected Monitoring Sites' is 'Bristol St Paul's'. The 'Selected Pollutants' section is active, showing 'PM₁₀ particulate matter (Hourly measured)'. The 'Instructions' panel on the right provides information on 'Limiting Menu Options' and a 'Reset Data Request' button.

Now choose **Output Type**

Not all data allows results to be emailed. We chose **Data to Screen**.

Some allow a straight download of the data. Data downloads could be used to make more detailed comparisons between different locations or for different pollutants.

The screenshot shows a web browser window titled "Data Selector - Defra, U" with the URL https://uk-air.defra.gov.uk/data/data_selector_service?q=1992087&s=ot&l=1#mid. The interface is divided into several sections:

- Monitoring Sites:** A list containing "Bristol St Paul's".
- Selected Pollutants:** A section with "Edit" and "Reset" buttons, and a list containing "PM₁₀ particulate matter (Hourly measured)".
- Select Output Type:** A section with a "Cancel" button and two radio button options: "Data to Screen" (selected) and "Data to Email Address (CSV)". Below these is a text input field labeled "Please enter a valid email address:" and a "Save Selection" button.
- Instructions:** A section on the right with the following text:
 - 4 of 5 items selected**
 - Output Type**
Please select an Output Option on the right and click the Save Selection button. If you select to have data sent by email, please be sure to enter a valid email address. Alternatively, [Cancel](#) this step.
 - Reset Data Request**
Please note: This will clear all your current selections and cannot be reversed!

The Windows taskbar at the bottom shows the search bar with "Type here to search", task view, and icons for Edge, Excel, Word, and Outlook. The system tray on the right shows the time as 14:42 and the date as 23/03/2020.

On the right-hand side is now a choice of how you want the data to be presented: tabulated data or a graphical readout. Not all data will have a graphical data option.

The screenshot shows the 'Data Selector - Defra, U' web application. The interface is divided into several sections for data selection:

- Selected Data Type:** A dropdown menu with 'Daily Mean' selected.
- Selected Date Range:** A date range from '01/01/2018' to '31/12/2018' is selected.
- Selected Monitoring Sites:** 'Bristol St Paul's' is selected.
- Selected Pollutants:** 'PM₁₀ particulate matter (Hourly measured)' is selected.

On the right side, there are two buttons: 'Get Data' and 'Graph Selected Data'. An orange arrow points to the 'Graph Selected Data' button. Below the buttons, there are instructions and menu options.

Instructions
Ready! Click the 'Get Data' button to submit your data request

Your data selections are now complete.

- Use the **Get Data** button below to view your data.
- You can also view your data selection as a graph by clicking **Graph Selected Data**.

Get Data **Graph Selected Data**

Bookmark this page if you would like to re-use this data request at a later date.

Menu Options - Limited
Options are limited by previous selections. To show all menu options, untick this box and click the Update button.

Only show options that are relevant to my previous selections.

Limiting Menu Options
To help you find what you're looking for, you can force the menus to show only options that are relevant to your previous selections. For example, having selected a particular Monitoring Site, when limited, the menu will only show Pollutants that

The tabulated or graphical data will open in a new tab.

Here is the **Graphical Data** from one of the sites we selected in Bristol.

The screenshot shows the 'UK AIR Air Information Resource' website. The main content area displays a line graph titled 'Bristol St Paul's' with the subtitle 'Daily mean from 01/01/2018 to 31/12/2018'. The y-axis is labeled 'Concentration µg/m³' and ranges from 0 to 60. The x-axis is labeled 'Date and time' and shows months from Jan '18 to Jan '19. The graph shows a fluctuating blue line representing PM₁₀ concentration, with peaks around 40-50 µg/m³ and troughs around 10-20 µg/m³. A legend on the right identifies the line as 'PM10'.

Main Navigation

- Home
- Air Pollution Data
- Monitoring Networks Library Science & Research
- AQMAS

The graph can be saved or copied by right clicking on the image.

If you choose the **Get Data** option, you will see tabulated data.

Here is a snapshot of a huge tale of data.

The screenshot shows a web browser window with the URL https://uk-air.defra.gov.uk/data/data_selector_service#mid. The page title is "Data Selector - Defra, U". The main content area is titled "Search Hourly Networks" and includes a sub-section "UK AIR - Data and Statistics" with the text "Daily Mean - All Data are GMT hour ending". Below this, there is a legend for "Status" with options: **N** - Not Verified, **P** - Preliminary Verified, and **V** - Verified. A table titled "Daily data" for "Bristol St Paul's" is displayed, showing PM10 concentrations in $\mu\text{g}/\text{m}^3$ (TEOM FDMS) for each day from 01/01/2018 to 11/01/2018.

End Date	PM ₁₀	Status/units
01/01/2018	11	V $\mu\text{g}/\text{m}^3$ (TEOM FDMS)
02/01/2018	23	V $\mu\text{g}/\text{m}^3$ (TEOM FDMS)
03/01/2018		
04/01/2018		
05/01/2018		
06/01/2018		
07/01/2018		
08/01/2018		
09/01/2018	22	V $\mu\text{g}/\text{m}^3$ (TEOM FDMS)
10/01/2018	21	V $\mu\text{g}/\text{m}^3$ (TEOM FDMS)
11/01/2018	29	V $\mu\text{g}/\text{m}^3$ (TEOM FDMS)

Have fun!