



Air Quality in Scotland

Welcome to the 21st Scottish Air Quality Database (SAQD) stakeholder's newsletter. This newsletter is produced on behalf of the Scottish Government by Ricardo and is designed to provide regular updates and news regarding the SAQD and local air quality matters to all stakeholders. This may include; updates to the network; new information on air quality issues; updates on changes in policy and procedures; new initiatives and events; technical reports; and how to access data using the Air Quality in Scotland website.

If you have any information which you think would be beneficial to include in a future newsletter, please email us at aq-monitoring-scotland@ricardo.com.

NEWS

2024 APRs request and 2023 Diffusion Tube Data

As 2024 LAQM APRs approvals begin to filter through and in turn published, please can you send through the reports to be uploaded to the Air Quality Scotland Website? If you have any other historical LAQM documents missing from the website (<https://www.scottishairquality.scot/laqm/laqm-reportsplease>) please send them through as well.

Please do not send through your **diffusion tube data (as done previously) for 2023** this is now gather via the NO₂ data entry system.

Scottish Air Quality Maps 2022 Published

The UK PCM methodology has been applied to provide Scotland-specific air pollutant maps of annual mean background and roadside NO_x, NO₂, PM₁₀ and PM_{2.5} concentrations for the Scottish Government for 2022. The methodology was tailored to represent air pollutant concentrations in Scotland, using Scotland-specific measurements from Scottish air quality monitoring sites to calibrate and verify the model.

A technical report describing the work carried out has been produced on behalf of the Scottish

Government as part of the Scottish Air Quality Database project and can be accessed [here](#).

Air Pollutant Inventories for England, Scotland, Wales and Northern Ireland: 2005-2022

The latest version of the Air Pollutant Inventories for England, Scotland, Wales and Northern Ireland report series has been published and can be found here: <https://naei.energysecurity.gov.uk/index.php/reports/air-pollutant-inventories-england-scotland-wales-and-northern-ireland-2005-2022>

Grangemouth Air Quality Improvement

As reported in Issue 19, Falkirk Council started the process of revoking the Grangemouth Air Quality Management Area. This has now progressed to the council notifying its intention to revoke the AQMA for sulphur dioxide (SO₂) in exercise of powers conferred upon it by Section 83(1) of the Environment Act 1995. It states;

“Over recent years the air quality in the Grangemouth area has improved and is consistently meeting the required standards for the pollutant sulphur dioxide (SO₂). SO₂ is a by-product of refining oil in Grangemouth. Falkirk

Council are now proposing to revoke the Air Quality Management Area (AQMA) for SO₂. Further information on the proposed AQMA revocation can be found via the Council's [Air Quality webpage](#) by viewing the following reports 1. 2023 Grangemouth AQMA Revocation Proposal Report and 2. 2024 Grangemouth AQMA Detailed Assessment.”

Comments can be submitted to pollution@falkirk.gov.uk by 27/09/2024.

West Lothian Air Quality Improvement – Written by West Lothian

Newton

The Newton AQMA has now been revoked by way of the West Lothian Council (Newton) Air Quality Management Area Revocation Order 2024 which came in to force on the 7th of October 2024. The order revokes the whole of the Newton AQMA for Particulates (PM₁₀) which have been consistently below the air quality objective for the pollutant over a number of years, resulting in an improvement in local air quality.

Linlithgow

The Linlithgow AQMA has now been revoked by way of the West Lothian Council (Linlithgow) Air Quality Management Area Revocation Order 2024 which came in to force on the 7th of October 2024. The order revokes the whole of the Linlithgow AQMA for Nitrogen Dioxide (NO₂) and Particulates (PM₁₀) which have been consistently below the air quality objectives for both pollutants over a number of years, resulting in an improvement in local air quality.

Reykjanes peninsula volcanic eruption causes SO₂ spike

As reported in Issue 20 occasionally elevated levels of SO₂ are measured across Scotland and the wider UK due to eruptions of volcanoes in Iceland. On the 22nd of August, the latest eruption, at the Sundhnúks crater sent a plume

of sulphur dioxide towards northwestern Europe, arriving in the UK on the 24th of August. Elevated concentrations were seen at a number of stations across Scotland and were also seen in Northern Ireland and some stations in northwestern England. More information can be found here [SO₂ from Reykjanes volcano reaches Europe | Copernicus](#).

Measured concentrations and the air pollution forecast are available on the Air Quality in Scotland website. You can track SO₂ (or other pollutant) concentrations across Scotland using the pollution graphs (<https://www.scottishairquality.scot/latest/pollutant-site-graphs>). In Addition, the [AQ Scotland App](#) will also provide you with this information along with alert services that will notify you when levels are elevated in your area or are forecast to be elevated. You can also register to the [know and Respond facility](#) on the website which will provide you with forecast alerts by text, voicemail and email.

SCOTTISH ENVIRONMENT PROTECTION AGENCY – Written by SEPA

Scotland's environment web – air quality content update

The air pollution and air quality content on Scotland's environment web was recently reviewed and updated during October 2024. The content has been refreshed with updated information, new links and split into new sections to allow easier navigation. The landing page within the website can be found at [Air](#), and the content is now split into the following sections:

- [Air Pollution and Air Quality](#) – This section looks at what air pollution is, how we contribute to it, where you can find data and the things we are doing to protect our air quality.
- [Air Pollution Impacts on the Environment](#) – This section looks at some of the direct and indirect impacts of air pollution on our environment.

- [Air Quality and Public Engagement](#) – This section looks at public engagement and how we can change behaviours and make positive changes for the environment.
- [Air Quality Projects](#) – This section contains information and reports on projects that aim to increase the understanding and engagement of individuals and communities for air quality.

Further content will be added to the pages as work continues to improve air quality across Scotland. For further information please contact Graham Applegate or Colin Gillespie at SEPA at airquality@sepa.org.uk.

Local Air Quality Management (LAQM)

Documentation

Local authorities were recently notified via the Scottish Pollution Control Coordinating Committee (SPCCC) of the requirement to check what reports/information they have previously provided to the Air Quality in Scotland website and whether a full record exists for their authority. The reports section can be found at [LAQM reports](#) and each local authority has a link assigned to it.

All local authorities must ensure that the following documents are present:

- All Annual Progress Reports (APRs) from 2016 onwards (first year of APR reporting).
- Where a COVID-19 report has been produced this should be available.

For local authorities with Air Quality Management Areas (AQMA) they must ensure that the following documents are present from 2016 onwards:

- All final Air Quality Action Plans (AQAPs).
- All AQMA Orders (declaration, amendment and revocation).
- All AQMA Revocation Reports.

Where reports/documents are found to be missing these should be supplied to David Hector at Ricardo (David.Hector@ricardo.com)

in pdf format to allow them to be uploaded onto the website.

Additionally, LAQM PG (S) 24 introduced a requirement (Section 2.2) for all historic LAQM reports such as APRs, AQAPs, detailed assessments, AQMA declaration, amendment, revocation orders and revocation reports to be uploaded to the LAQM Portal by each local authority to ensure a full set of LAQM documents is available. Again, local authorities should check their records and where the listed LAQM reports/documents are missing, these should be uploaded to the [LAQM Portal](#) in a similar manner to providing APRs. The purpose of this task is to ensure a fully complete and auditable record of LAQM documents is available for Scotland.

Notification of AQMA revocations

Where a local authority has revoked an Air Quality Management Area (AQMA) these must be notified to the AQMA Database via the LAQM Helpdesk ([LAQM Helpdesk](#)). The Air Quality in Scotland website can only update AQMA revocations after the AQMA database updates the UK-Air website. This has led to several AQMA's being revoked and still appearing as declared and active on the Air Quality in Scotland website.

All local authorities who have revoked AQMA's since 2016 should check the AQMA section of the Air Quality in Scotland website ([Air Quality Management Areas](#)) and ensure the AQMA information is up to date for their authority. If the information is not correct, please e-mail the LAQM Helpdesk to update the AQMA database with the relevant information. Further guidance can be found in Section 4.5 of LAQM PG (S) 24 or by contacting SEPA at airquality@sepa.org.uk.

Local Authority Activities

South Lanarkshire Low-cost portable sensor monitoring study – written by South Lanarkshire council

South Lanarkshire received funding from Scottish Government to support short-term air quality monitoring and review utilising low-cost portable sensors. Ricardo was contracted to

undertake this work focusing on investigating non-road based sources of pollution and their contribution to ambient air quality, in particular solid fuel combustion.

Research was conducted using nongasmap.org, a detailed map of gas connectivity in Great Britain created for “Affordable Warmth Solutions” in conjunction with the Department for Business, Energy and Industrial Strategy, to identify locations in the council area where domestic properties may be more likely to have solid fuel burning appliances.



Figure 1: Map of gas connectivity, using nongasmap.org, in Stonehouse

The darker the shade of blue on the map, the fewer properties connected to the gas grid. This research led to the rural village of Stonehouse, a small linear village running south-west to north-east in the Avon water valley being chosen for the monitoring campaign for the following reasons:

- Its small size meant that significant coverage by the sensor network could be achieved.
- The percentage of non-gas properties ranged from 4.7% to 39.1% within the village.
- The A71 runs through the village providing some traffic emissions for comparison.

The study utilised nine solar powered Airly Gas+PM sensors, one co-located at the South Lanarkshire Lanark automatic monitoring reference station, and eight more located in the rural village of Stonehouse.

The study ran for just over four months between the end of September 2023 and end of January 2024. The main pollutant of concern when identifying solid fuel burning is Particulate Matter (PM_{10} and $PM_{2.5}$) and so greater emphasis was placed on this during the analysis.

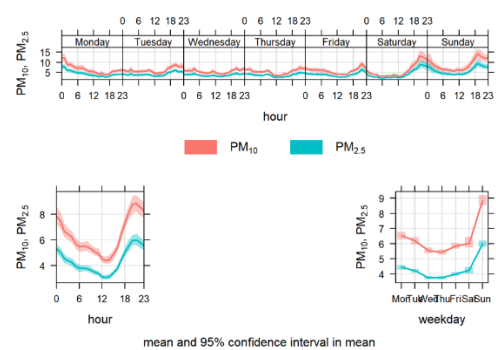


Figure 2: Time variation plot showing hourly and daily averaged measurements

The weekday plot shows that the highest concentrations were generally seen on Sundays and were lowest during the middle of the week.

The hourly plots illustrated in Figure 2, show that the highest concentrations were measured during the evenings with this being most evident on Friday, Saturday and Sunday nights. In urbanised areas weekends generally see the lowest PM concentrations due to reduced commuter traffic. This indicates that sources of PM pollution in this study are not traffic related in this area.

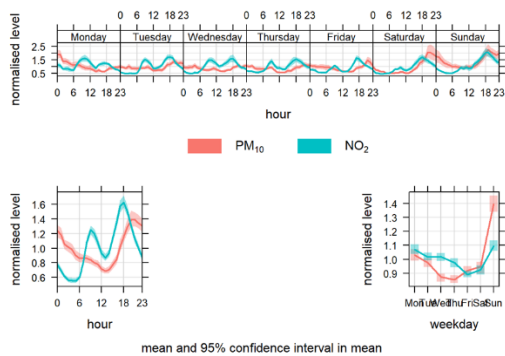


Figure 3: Time variation plot showing hourly and daily averaged measurements.

Figure 3 shows data for both NO₂ and PM₁₀, it can be seen in the hourly plot that the NO₂ shows a standard urban pattern of morning and evening rush hour peaks due to commuter traffic. The PM₁₀ peak is offset to the evening rush hour peak, further suggesting a non-traffic source.

Further investigation into the temporal and metrological influences on the data set also indicated that PM concentrations were influenced by air temperature with elevated concentrations being recorded at lower temperatures.

This study therefore suggests non-traffic based emission sources, namely solid fuel burning, were the major contributor to measured PM concentrations.

For further details please contact Bronah.byrne@southlanarkshire.gov.uk.

SAQD QAQC ACTIVITIES

Ricardo are now preparing to undertake the winter 6 monthly audits. An auditor will contact you prior to the audit to arrange access and again after the audit to provide a summary.

If an audit summary has not been provided after the visit has been completed, or you are unclear on any of the recommended actions, please contact either the auditor who undertook the visit or aq-monitoring-scotland@ricardo.com. Could you please then pass these on to your ESU's in advance of the

service so that any issues can be investigated. If you would like to have any refresher LSO training, or if you have any new LSO's who require training then please let Ricardo know in advance of the winter audit.

QUESTION AND ANSWERS SECTION

This section will provide answers to frequently asked questions that relate to different aspects of LAQM ranging from Local Site Operator (LSO) duties to advanced data analysis queries. If you have a question you would like to be answered in this section, please contact aq-monitoring-scotland@ricardo.com.





Q: What is the difference in monitoring site classifications?

A: Monitoring sites can be classified according to the type of environment in which they are located, to permit more meaningful evaluation of data. The site description will generally reflect the influence of a specific pollutant source or of overall land use. Typical monitoring location types, as used in national automatic monitoring networks, are described in the table below.

Description	Source	Objectives
Urban		
Urban	Vehicle, commercial, space heating.	Identification of long-term urban trends
Kerbside		
A site sampling within 1m of the kerbside of a busy road.	Local traffic.	Identifying vehicle pollution blackspots. Assessing worst case scenarios. Evaluating impacts of vehicle emission control technologies. Determining impacts of traffic planning/calming schemes.
Roadside		
A site sampling between 1m of the kerbside of a busy road and the back of the pavement. Typically this will be within 5m of the road, but could be up to 15m.	Local traffic.	Assessing worst case population exposure. Evaluating impacts of vehicle emission controls. Determining impacts of traffic planning/calming schemes.
Suburban		
A location type situated in a residential area on the outskirts of a town or city.	Traffic, commercial, space heating, regional transport, urban plume downwind of a city.	Traffic and land-use planning. Investigating urban plumes.
Urban Background		
An urban location distanced from sources and therefore broadly representative of city-wide background conditions e.g. urban residential areas.	Vehicle, commercial, space heating.	Trend analysis. Urban planning. Traffic and land-use planning.
Urban Centre		
An urban location representative of typical population exposure in towns or city centres e.g. pedestrian precincts and shopping areas.	Vehicle, commercial, space heating.	Identification of long-term urban trends.
Urban Industrial		
An area where industrial sources make an important contribution to the total pollution burden. Intermediate. 20-30m from the kerb of a busy road.	Industrial, motor vehicles.	Assessing local impacts on health and amenity. Process optimization. Source attribution/identification. Providing model input data. Model development/validation. Local planning and plant authorization.
Intermediate		
20-30m from the kerb of a busy road.	Vehicle, commercial, space heating.	Identification of long-term urban trends.

Airport		
Monitoring within the boundary of an airport perimeter.	Aircraft, vehicle, commercial, space heating.	Determine air quality impact of airport.
Other		
Any special source-orientated or location category covering monitoring undertaken in relation to specific emission sources such as power stations, car parks or tunnels.	As specified.	As specified.
Rural		
An open countryside location, in an area of low population density distanced as far as possible from roads, populated and industrial areas.	Regional long-range transport, urban plume.	Ecosystem impact studies. Assessing compliance with critical loads and levels for crops and vegetation. Investigating regional and long-range transport. Identification of ozone hot spots.
Remote		
A site in open country, located in an isolated rural area, experiencing regional background pollutant concentrations for much of the time.	Regional/hemispheric background.	Assessing unpolluted global or hemispheric background conditions. Long-range transport studies. Long-term baseline trend analysis.

STAY CONNECTED

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