

# Air Quality in Scotland

Welcome to the fifth Scottish Air Quality Database (SAQD) stakeholder’s newsletter. This newsletter is produced on behalf of the Scottish Government by Ricardo Energy & Environment (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 [info@scottishairquality.co.uk](mailto:info@scottishairquality.co.uk).

## NEWS

### 2017 RATIFIED DATA SETS NOW AVAILABLE!

Please be advised that the ratified 2017 datasets for all automated sites included within the SAQD are now available for use in Local Air Quality Management (LAQM) reports.

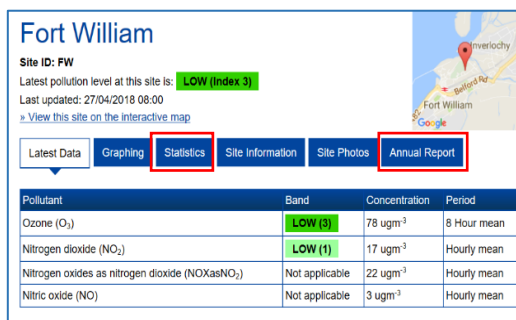


Figure 1. Example of a sites summary page

All required information for LAQM reporting can be obtained by clicking on the required site “Statistics” or “Annual Report” as indicated in Figure 1.

### NEW AIR POLLUTION AND DOMESTIC COMBUSTION INFORMATION AND GUIDANCE

Domestic heating appliances can influence local air pollution. The burnright website and associated guidance document have been created to provide information and guidance on best practise techniques to help reduce their effect. In addition, Defra wood burning practical guide can be downloaded from the UK-AIR

website. For more information, please go to [www.scottishairquality.co.uk/news/index?id=572](http://www.scottishairquality.co.uk/news/index?id=572)

### NITROGEN DIOXIDE (NO<sub>2</sub>) ADJUSTMENT FOR NITROGEN OXIDE (NO<sub>x</sub>) SECTOR REMOVAL FUNCTION

Scottish Government have developed a new NO<sub>2</sub> adjustment for NO<sub>x</sub> Sector removal function on the Air Quality Scotland website <http://www.scottishairquality.co.uk/data/mapping?view=data>

This function was developed in response to Scottish Background maps not being compatible to the current excel based “NO<sub>2</sub> Adjustment for NO<sub>x</sub> Sector Removal Tool” (v6.0) hosted on the LAQM Defra website.

The background maps for NO<sub>x</sub> concentrations are split into source sectors. When removing sectors from the background NO<sub>x</sub> concentrations, to avoid double counting in the modelling process, it is necessary to adjust the NO<sub>2</sub> concentrations in proportion to the reductions in NO<sub>x</sub> as a result of removing the specific source sector(s). The NO<sub>2</sub> Adjustment for NO<sub>x</sub> Sector Removal function recalculates the NO<sub>2</sub> concentrations depending on the NO<sub>x</sub> sector removed.

A user guide, with examples, has been produced to aid users in this new tool, please click [here](#).

## SCOTTISH AIR QUALITY MAPS – ANNUAL MEAN NO<sub>x</sub> NO<sub>2</sub> AND PM<sub>10</sub> MODELLING FOR 2015 – NEW INTERACTIVE REPORTING FORMAT

On behalf of the Scottish Government, and as part of the SAQD project, Ricardo provide mapped concentrations of pollutants for Scotland. The most recent maps are for the year 2015 and provide representation of the spatial distribution of background and roadside annual mean concentrations of gravimetric equivalent PM<sub>10</sub> concentration (PM<sub>10</sub>) and NO<sub>x</sub> and NO<sub>2</sub>.

A technical report was published on 23<sup>rd</sup> January 2018 providing the latest modelling results and maps of the modelled air pollutant concentrations for 2015. For the first time, this report has been published as a webpage and includes interactive elements (e.g. some tables and all maps) to enhance the presentation of the report content and allow the user to extract usable data. Interactive maps of forward projections of NO<sub>2</sub> and PM<sub>10</sub> in future years are presented along with the 2015 maps in the technical report.

Please visit [www.scottishairquality.co.uk/news/reports?view=technical&id=563](http://www.scottishairquality.co.uk/news/reports?view=technical&id=563)

## SCOTTISH AIR QUALITY DATABASE AND WEBSITE ANNUAL SEMINAR – MONDAY 22<sup>ND</sup> JANUARY 2018 PRESENTATIONS

The Scottish Air Quality Database and Website Annual Seminar was held on Monday 22<sup>nd</sup> January 2018 at the IET Teachers Building in Glasgow. The seminar was very well received by those who attended, with 10 speakers presenting on a variety of air quality related subjects. The seminar agenda and presentation slides can be viewed on the Air Quality Scotland Website [here](#).

## NEW REPORTS PUBLISHED BY DEFRA AND DEVOLVED ADMINISTRATIONS

Defra and devolved administrations published the following reports which can be downloaded from the [Technical reports](#) page.

- Assessment of particulate emissions from wood log and wood pellet heating appliances
- Airborne particles from wood burning in UK cities

## UPDATED SCOTLAND SPECIFIC AIR POLLUTION FORECAST PAGES

The Scotland Air Pollution Forecast has recently been enhanced with forecasts now more detailed to Scotland at a local level, and with the addition of new supporting information on weather forecasts. Previously, air pollution maps and data were published on the website based solely on UK data provided by the Met Office. Now, more detailed analysis, interpretation and commentary specific to Scotland is provided by Ricardo's experienced Air Quality forecasting team. Please find the pollution forecast map [here](http://www.scottishairquality.co.uk/latest/forecast):

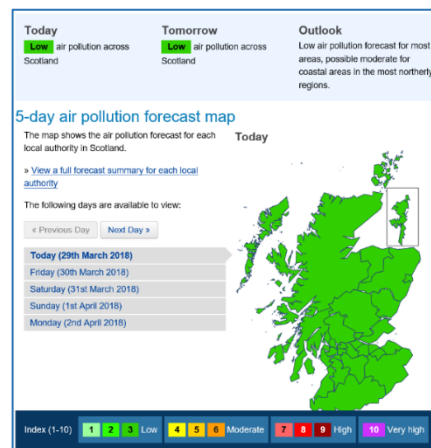


Figure 2. The updated pollution forecast page on Air Quality in Scotland website

## SCOTTISH ENVIRONMENT PROTECTION AGENCY (SEPA)

In 2016, as part of the Cleaner Air for Scotland (CAFS) strategy, the Scottish Government launched a revised system for implementing LAQM which included a change to reporting (bringing in Annual Progress Reports (APRs)) and a change to reporting timescales (30<sup>th</sup> June of each calendar year). At this time, SEPA also introduced a new procedure for enforcing these reporting requirements (a series of reminder and warning letters) to assist local authorities with their submissions.

Table 1 shows the improvement in performance by local authorities in submitting their APRs within required timescales. The majority are now submitted on-time, and although some local authorities have still to improve their performance this improving trend is very welcome and anticipated to continue. This has been hugely beneficial to Scottish Government, SEPA and the local authorities and is an excellent example of collaborative working under CAFS.

Table 1. Local authority APRs submissions since 2015

Year	2015	2016	2017
APRs submitted early or on date	7	11	19
APRs submitted 1-2 months after date	7	14	7
APRS submitted 3-4 months after date	5	5	4
APRs submitted more than four months after date	13	2	2

SEPA will be contacting local authorities at the start of May 2018 to provide a reminder of this year's reporting cycle. SEPA will also be contacting local authorities which have declared Air Quality Management Areas (AQMAS) to seek an update on air quality action planning (in relation to progress with developing action plans or the status of existing action plans regarding review and revision).

**Contact:** Colin Gillespie

## SCOTLAND'S FIRST LOW EMISSION ZONE

Glasgow plans to have Scotland's first Low Emission Zone (LEZ) in place as 2018 draws to a close. The new zone (Figure 3), covering the city centre, is due to come into effect at 23:59 on 31 December 2018. It will mark the start of a journey which will ultimately lead to all vehicles which enter the zone being fully compliant by 31<sup>st</sup> December 2022. The dates were confirmed for the first time in a recent council report. The report [Environment, Sustainability and Carbon Reduction City Policy Committee](#), outlined the work undertaken by Glasgow City Council and partners including Transport Scotland, Strathclyde Partnership for Transport (SPT) and SEPA to address the various technical and legal matters associated with establishing a LEZ in Glasgow.

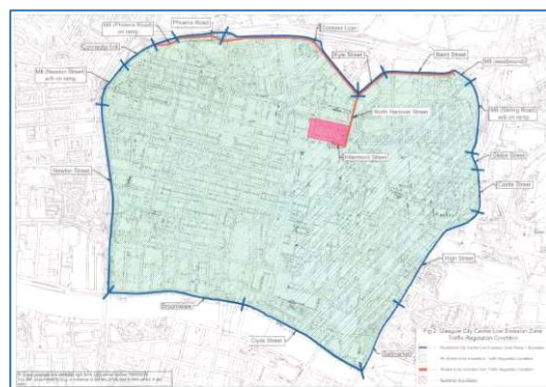


Figure 3. Glasgow's Low Emission Zone boundary

The council has engaged with relevant stakeholders, major bus operators and SPT to outline potential scope of the LEZ and gain an insight on how Scottish Government funding for retrofitting of the bus fleet will be used by them to deliver a compliant bus service/fleet.

Councillor Anna Richardson, City Convener for Sustainability and Carbon Reduction, said: "We are making real progress on our plans to have Scotland's first LEZ in place by the end of the year. Glasgow's LEZ will be the first of its kind in Scotland and has been modelled as being capable of making significant reductions in levels of air pollution in the city centre."

“While we continue to work with the bus industry to improve services – services which are vital to the lives of Glaswegians - it’s recognised that the introduction of a LEZ needs to be proportionate and managed in such a way that ambition and practicality can be balanced.

“That is why the initial phase of the LEZ will address local buses through Traffic Regulation Conditions (TRC’s) set by the Traffic Commissioner. All buses will be expected to meet Euro VI emission standard by December 2022. All other vehicles will also have to be compliant by that date, so we will be engaging widely with residents and businesses to ensure that everyone is aware of and prepared for the LEZ.

“Glasgow is forging a national path towards cleaner air – air that we will all benefit from. Poor air quality is a significant public health concern and a major social justice issue for Glasgow.

“Cleaner buses going through the city centre LEZ will also be travelling elsewhere and throughout our city’s neighbourhoods and this is a really positive step forward in how we, as a city and as a country, go about creating healthy, liveable streets.”

The timescales set out by Glasgow are subject to the Traffic Commissioner for Scotland agreeing to impose a Traffic Regulation Condition following a regulatory impact assessment. It is anticipated this process will take at least six months.

**Contact:** Vincent McNally

**CLEAN AIR DAY – 21<sup>ST</sup> JUNE 2018**

Excitement is building with little more than a month to go until Clean Air Day.

Environmental Protection Scotland (EPS) – which is co-ordinating the event on behalf of the Scottish Government’s Cleaner Air for Scotland (CAFS) strategy – has been impressed with the

enthusiasm shown by local authorities across the country, schools and campaigners towards the event on Thursday June 21st.

The colourful toolkits aimed at workplaces, health workers, motorists and school children went live last week and take a few seconds to download by filling in your details here - <https://www.cleanairday.org.uk/clean-air-scotland>

They set out simply and clearly how people can take part in activities to promote cleaner air with handy messaging tips and fliers. There’s also an extensive social media toolkit, with memes containing some striking visual messages. EPS kindly asks that anyone tweeting about Clean Air Day activities held in Scotland use the hashtags [#EPScotland](#) [#cleanairday](#).

Initiatives to engage the public are well under way at Scotland’s 32 local authorities. The country’s first two cities planning to introduce Low Emission Zones, Glasgow and Edinburgh, will host flagship events.

Glasgow City Council has secured George Square on Clean Air Day for an event that will see members of the public allowed to test ride electric bicycles around a special course and there will be other festivities, a display of electric vehicles – and even a hybrid ‘Hackney Cab’. City of Edinburgh Council also has plans for an event in the capital, with details currently being finalised.

Aberdeen and Dundee are also planning outdoor events to make the public aware of Clean Air Day and how everyone can work to improve air quality. The Highland Council’s Carbon Clever team are also working on key initiatives to link the region in with Clean Air Day. There’s a whole range of other organisations, including Ricardo, Cycling Scotland, Sustrans Scotland, Home Energy Scotland, the British Heart Foundation in Scotland and the British Lung Foundation which are contributing to making the event a success.

Environmental Protection Scotland’s also grateful for the continued support and

enthusiasm shown by the Scottish Government, SEPA, Transport Scotland, NHS Scotland/Health Protection Scotland.

The Glasgow-based charity's Policy and Communications Officer, John Bynorth, is to speak to fleet buyers about the Clean Van Commitment at Greenfleet Scotland's Motor Trade Show at the Royal Highland Showground in Edinburgh on Friday May 3rd.

The initiative comes from Clean Air Day's UK organisers, Global Action Plan (GAP), with the aims to encourage companies buying vans to make a public 10-year pledge that their fleets will have zero tailpipe emissions by 2028. Details of the event can be found by visiting [www.royalhighlandcentre.co.uk/events/greenfleet-scotland/](http://www.royalhighlandcentre.co.uk/events/greenfleet-scotland/).

John said: "Things are gearing up for a successful Clean Air Day and we have been impressed by the enthusiasm and ideas being put forward by local authority teams across the country. Clean Air Day is getting into its stride and will play a major role in helping people to improve air quality through their individual actions. We're just hoping for good weather – and air quality, of course - on the day!"

Meanwhile, Luke Wynne, Head of Youth and Schools at GAP, showed his support for Clean Air Day by wearing one of the t-shirts commissioned by EPS before competing in the heat of the London Marathon (Figure 4). He passed the finish line with a time of 3 hrs 25 mins.

These t-shirts are available for anyone staging events and can be obtained from the EPS offices.



Figure 4. Luke, centre, showing his support for Clean Air Day during London Marathon

GAP's story about how King's College London had measured NO<sub>2</sub> levels in streets closed off during the marathon made a number of newspapers and news sites.

They found that after the streets were closed off for the event to all vehicle traffic, NO<sub>2</sub> emissions fell by a steep 89 per cent.

The full story can be read here - <http://www.thisismoney.co.uk/money/cars/article-5646509/Air-pollution-London-fell-89-marathon-driving-restrictions.html>

Contact: John Bynorth

### LOCAL AUTHORITY

In this section, we plan to showcase local authority's contribution to Local Air Quality Management (LAQM). The aim of this section will be to provide information on what air quality initiatives the local authority is undertaking and the experiences gained. If you would be interested in contributing, please send an email to [info@scottishairquality.co.uk](mailto:info@scottishairquality.co.uk). Many thanks to Nick Glover, Principal Environmental Health Officer at Aberdeen City Council, for contributing to this issue!

#### ABERDEEN CITY COUNCIL

Aberdeen City Council has three air quality management areas across the city due to NO<sub>2</sub> and PM<sub>10</sub> emissions from vehicles.

Over the past year, officers from the Environmental Protection team at Aberdeen City Council, have been involved in many campaigns to promote air quality awareness. We had a great response from the public at our National Clean Air Day information stands in St. Nicholas Square in the city centre last June. Colleagues from transport strategy and sustainable transport were on-hand to help us promote the many alternative means of transport available. Many people took the opportunity to check out the Co-Wheels demonstration electric vehicle and to learn more about Electric Vehicle (EV) availability across the city scheme. We look forward to

being there again for this year's event in June. We also launched our 'Don't Be an Idler' campaign, which included patrols outside primary schools within or near air quality management areas, a new information leaflet and radio advertisements.

In September 2017, the annual "In Town Without My Car" day attracted large crowds, many of whom stopped by our stand to talk about air quality in the city. It's clear the level of interest amongst the public in air quality issues is increasing. It was encouraging to hear residents tell us about how they are doing their bit to help continue the downward trend in pollutant levels across Aberdeen city that we have seen in recent years. Additionally, officers were invited to talk to students at Robert Gordon School as part of their Environmental Week, and the level of interest and knowledge about air quality amongst the students was very encouraging.

In general, over the past 5 years there has been a decrease in pollutant levels for NO<sub>2</sub> and PM<sub>10</sub>. Over the past year we have increased our PM<sub>2.5</sub> monitoring network from two stations to five. We have also added several additional NO<sub>2</sub> passive monitoring sites to our network in response to the city's expanding infrastructure network.

Contact: Nick Glover

### [SAQD QAQC ACTIVITIES](#)

Ricardo have completed the winter six monthly audits. After each local authority audit, a summary of the auditor's findings should have been emailed to you. If you have not received an audit summary, please contact [info@airqualityscotland.co.uk](mailto:info@airqualityscotland.co.uk).

The SAQD experts have completed the final Quality Circle meeting for the 2017 datasets. Final revisions of the data have been carried out and the data sets are now marked as ratified for 2017.

### [UPDATED QR STICKERS](#)

Ricardo, on behalf of the Scottish Government, have obtained replacement QR stickers for all the sites within the SAQD. These will be deployed during the Summer 2018 six monthly audits. If your site has recently been upgraded or the current QR sticker is damaged, please let Ricardo know in advance of the Summer audits.

These stickers, once scanned, will direct the user to the appropriate site information page on the SAQD website. These QR codes can be scanned using any QR code reader app on your smart phone.



Figure 5. QR Sticker

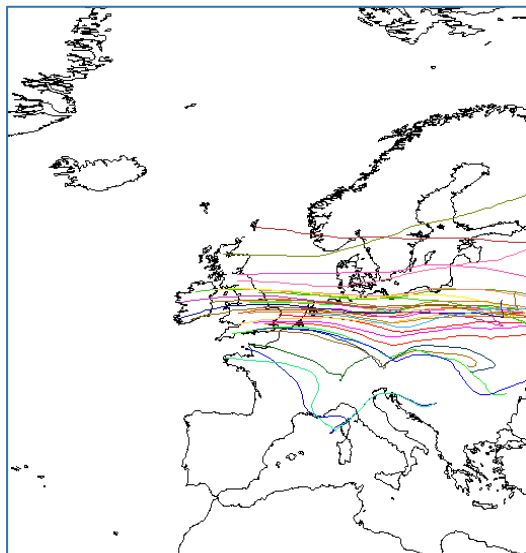
### [LOW EMISSION ZONES & CLEANER AIR FOR SCOTLAND \(CAFS\) UPDATED SECTIONS ON SAQD WEBSITE](#)

Please be advised that there have been a couple of recent updates to the Air Quality in Scotland website. The Cleaner Air for Scotland (CAFS) Strategy information page (<http://www.scottishairquality.co.uk/air-quality/CAFS>) has been updated with Meeting Minutes for the CAFS Governance Group, dating from February 2016 to present. These are available at <http://www.scottishairquality.co.uk/air-quality/CAFS>

In addition, a new Low Emission Zone page (<http://www.scottishairquality.co.uk/air-quality/low-emission-zone>) has been introduced providing information and updates on where Scottish Government is in its commitment to introducing LEZs in Scotland. This includes LEZ leadership Group Meeting Minutes.

## POLLUTION EVENTS

### “BEAST FROM THE EAST” AND “STORM EMMA” INFLUENCE ON SCOTLAND’S NITROGEN DIOXIDE (NO<sub>2</sub>)



Between 15:00 Wednesday 28<sup>th</sup> February 2018 and 10:00 Thursday 1<sup>st</sup> March 2018, the Met Office issued an ‘Amber’ and ‘Red’ warning of heavy snow showers and strong winds from the east, popularly known as the ‘Beast from the East’ and ‘Storm Emma’ (Figure 6 illustrates the airmass trajectory on the 1<sup>st</sup> March 2018). The severe weather caused substantial travel disruptions throughout Scotland.

The reduction in traffic, coupled with good dispersion conditions (high winds), resulted in significantly lower NO<sub>2</sub> concentrations in Scotland, particularly throughout the central belt. This is evident in Figure 7 (based on provisional SAQD data).

Figure 6. Air trajectory on 01/03/2018

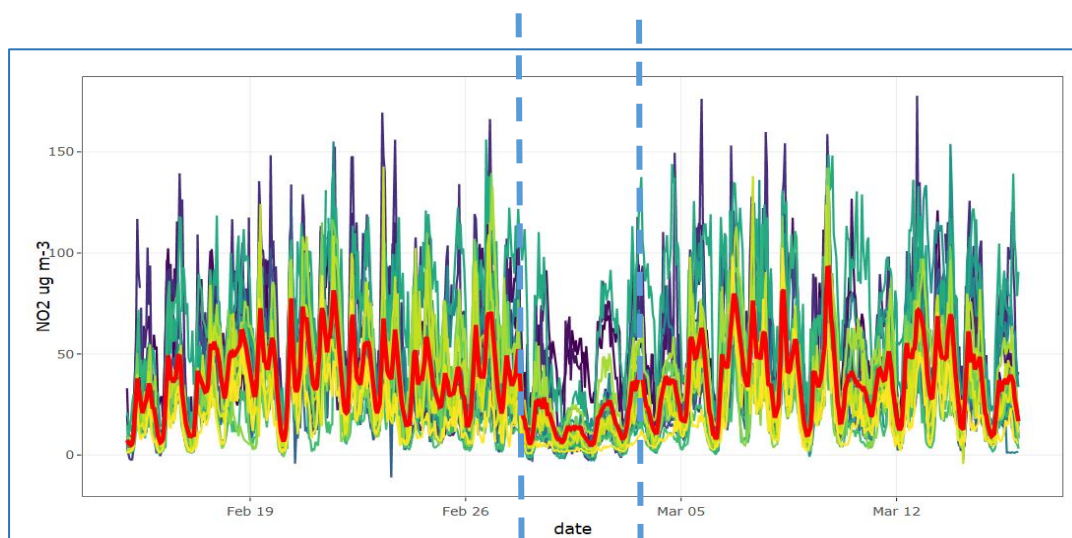


Figure 7. Nitrogen Dioxide plot for Scottish sites during end of Feb/start of March (please note: the red line shows the average of all sites).

## POLLUTION EVENTS

### “BEAST FROM THE EAST” AND “STORM EMMA” INFLUENCE ON SCOTLAND’S PARTICULATE MATTER 2.5 (PM<sub>2.5</sub>)

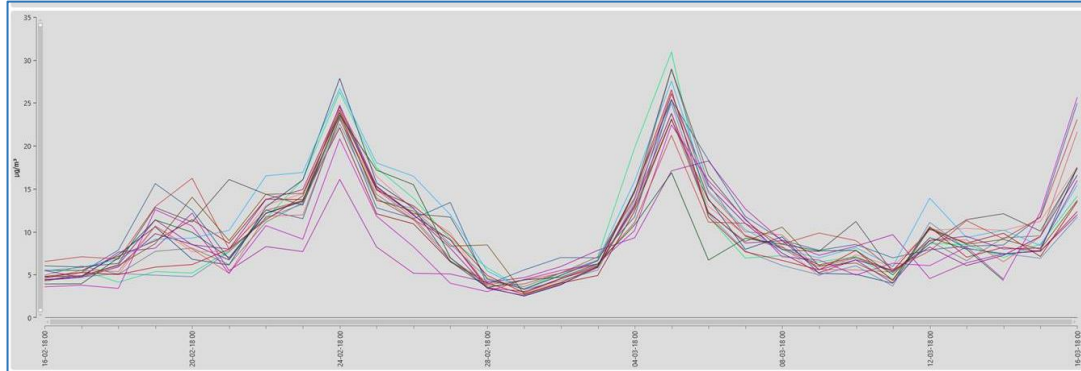


Figure 8. Particulate Matter 2.5 plot for Scottish sites during the end of Feb/start of March

Overall, the “Beast from the East” and “Storm Emma” lowered air pollution in Scotland, but it is worthwhile noting that, based on provisional SAQD data, Particulate Matter 2.5 (PM<sub>2.5</sub>) increased before and after the storms hit (see Figure 8).

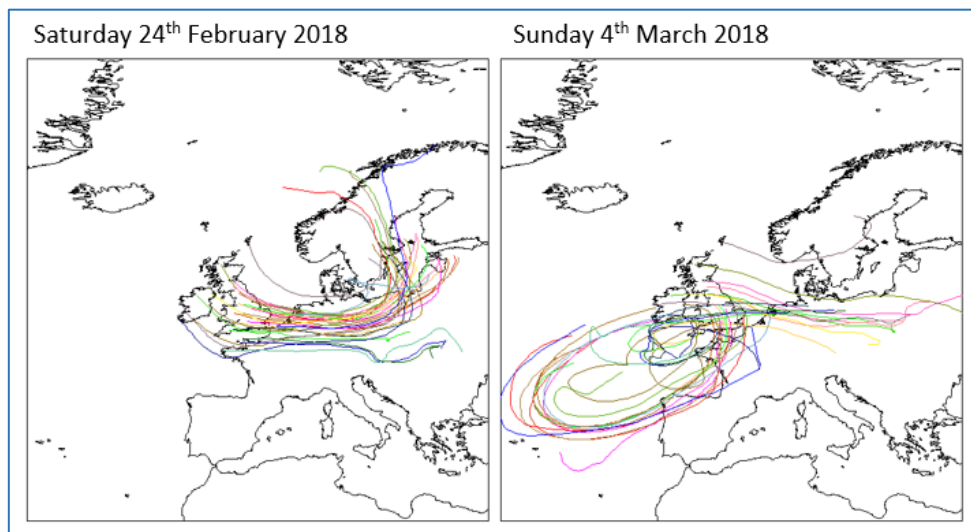


Figure 9. Air trajectories for the 24<sup>th</sup> February and 4<sup>th</sup> March

Figure 9 illustrates the air trajectories on Saturday 24<sup>th</sup> February, when PM first peaks, and on 4<sup>th</sup> March, when PM peaks again. Based on this information stated, it can be presumed that on the 24<sup>th</sup> February and 4<sup>th</sup> March, cold, still weather conditions and air masses from continental Europe caused transboundary pollutants to combine with locally source pollutants resulting in a national increase in PM<sub>2.5</sub> concentrations.

Kings College London also investigated these episodes in the rest of the UK and concluded that sulphate particles (indicative of particles from coal burning areas) from East Europe heavily influenced UK PM<sub>2.5</sub> concentrations.

<sup>1</sup> Kings College London. Available at [http://www.londonair.org.uk/london/asp/publicepisodes.asp?species=All&region=0&site=&postcode=&lat\\_id=&level=All&bulletindate=02%2F03%2F2018&MapType=Google&zoom=9&lat=51.4750&lon=0.119824&VenueCode=&bulletin=explanation&episodeID=PM10PM25earlyMarch2018&cm-djtdk-djtdk](http://www.londonair.org.uk/london/asp/publicepisodes.asp?species=All&region=0&site=&postcode=&lat_id=&level=All&bulletindate=02%2F03%2F2018&MapType=Google&zoom=9&lat=51.4750&lon=0.119824&VenueCode=&bulletin=explanation&episodeID=PM10PM25earlyMarch2018&cm-djtdk-djtdk)



## QUESTION AND ANSWERS SECTION

This section will provide answers to frequently asked questions that relate to different aspects of LAQM ranging from LSO duties to advanced data analysis queries. If you have a question you would like to be answered in this section please contact [info@scottishairquality.co.uk](mailto:info@scottishairquality.co.uk).

*Q: What can I do about air pollution?*

*A:* Reducing emissions to the air from our everyday activities will help improve local air quality. Everyone can do their bit to reduce air pollution:

- Take public transport or car share
- Walk or cycle on short journeys (reduces the traffic and in turn reduces the emissions)
- Drive efficiently
- When buying a new vehicle, consider buying an electric or hybrid powered. If buying a petrol or diesel vehicle, look for the “Euro standard” ranging from “Euro 1” (old) to “Euro 6” (latest)
- Travel out with peak periods (i.e. rush hours)
- keep your car efficient, saves fuel and reduces emissions
- Limit engine idling – switch off your engine when stationary
- Care for your vehicle – check tuning, tyre pressure, brakes and fuel consumption – regular servicing helps



Figure 10. Urban traffic

*Q: How can I reduce my exposure to air pollution?*

*A:* When cycling or walking, plan to avoid busy main roads – use quieter side roads and off-road routes if available. If you are exercising outside avoid busy roads. Be aware of days when air pollution is high

by registering for the Know & Respond service or using our free app for iPhone or Android smartphones.



Figure 11. Know and Respond logo

Please visit <http://www.scottishairquality.co.uk/what-can-i-do/protecting-health> for more information.

## STAY CONNECTED

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