Llywodraeth Cymru
Welsh Government

Air Quality in Wales 2019

Welsh *Air Quality* Forum
Fforwm Ansawdd Awyr Cymru

Creating a world fit for the future
RICARDO

This report has been produced by Ricardo Energy & Environment on behalf of the Welsh Government and Welsh Air Quality Forum

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Introduction

This is the 17th annual report on air quality in Wales to be produced by Ricardo Energy & Environment under the auspices of the Welsh Air Quality Forum (WAQF) for the Welsh Government. It aims to provide Welsh citizens and the air quality community with a user-friendly summary of information on local air quality monitoring, and pollution levels and their impacts throughout Wales during 2019. It also details the WAQF's activities alongside major policy, technical and scientific developments.

More detailed information, analysis and data covering air quality in Wales can be found on the Welsh Governments website (https://airquality.gov.wales). All data used in this report are freely available through the website. The website is used by 22 local authorities to submit monitoring data and by thousands more individuals to download data and learn about monitoring sites and measurements that take place. It contains comprehensive data, graphs and information on health effects from a continually increasing number of monitoring stations, together with local forecasts of air quality over the next 5 days. This provides people in Wales with access to reliable and accurate information on the quality of the air they breathe. Openair data analysis tools provide a free and open-source tool to analyse, interpret and understand air pollution data.

The user-friendly, interactive map interface allows users to access and analyse data at a glance. Further features of the website include Local Air Quality Management pages and educational pages for both Primary and Secondary schools.

Chapter 2 presents the WAQF's activities in 2019. Chapter 3 summarises important policy developments that took place in 2019. Chapter 4 presents key air quality statistics from all monitoring networks in Wales and summarises the data from them. The networks include air quality monitoring stations run by Welsh local authorities; and the national monitoring networks run by the Department for Environment, Food and Rural Affairs (Defra) and the Welsh Government. Chapters 5 and 6 discuss long-term trends and the spatial distribution of air pollutants across the country. Chapter 7 reports on topics of special interest – this year it looks at 'Covid-19 Impacts on Air Quality in Wales'. Chapter 8 is from Public Health Wales providing information on 'Public Health Risk Assessment Tool for Outdoor Air Quality in Wales'. Finally, for readers wanting to find out more, additional web-based and published sources of information are summarised in Chapter 9.

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The WAQF and its activities in 2019

The Welsh Air Quality Forum (WAQF) represents the 22 Unitary Councils of Wales and is made up of representatives from Local Authorities, the Welsh Government, Public Health Wales, Natural Resources Wales and several academic institutions. WAQF members direct the operation of the Welsh Air Quality Website and Database, the collection, quality assurance and quality control and dissemination of all data, and the provision of support and training to Local Authorities. The WAQF provides expertise and guidance to ensure that Local Air Quality Management (LAQM) statutory requirements are met and air quality in Wales is reported in an accurate, transparent and timely manner.

WAQF highlights from 2019

- The Air Quality in Wales website (https://airquality.gov.wales) continues to be a valuable resource providing real-time updates and information.
- The Forum worked hard to promote the National Clean Air Day on the 20th June with a wide variety of events taking place across Wales.
- Invited speakers continued to provide relevant additional dialogue and training for officers. The WAQF provides a useful platform for dialogue to enable a more consistent approach to implementing LAQM requirements across Wales.
- Use of the website Discussion Forum continues to enable debate and to promote best practice.

WAQF meetings 2019

4th April: The monitoring network had 39 sites. The Welsh Government updated the Forum on the strategy for the Clean Air Plan for Wales, draft plan by May followed by consultation starting in September. Martin Lowder from Global Action Plan presented on Clean Air Day to be held on 20th June 2019.

11th July: The monitoring network had dropped to 38 sites as a site had closed in Anglesey. Ozone episodes in May and June were discussed. Arrangements for the 2019 Annual Seminar were also discussed.

28th November: The Forum received a presentation from Molly Anderson and Ben Williams, Environment Agency on the Strategic Review of AQ monitoring in the UK. Huw Brunt and Jamie Thomas updated the Forum on the review of LAQM in Wales. The network total was still at 38 sites. Feedback from the Annual Air Quality Seminar was given to the forum.

The Annual Welsh Air Quality Forum Seminar took place on 9th October at Tŷ Pawb, Market St, Wrexham. There were 42 WAQF members and delegates attending the event, at which the 2018 Annual Report was circulated. The topics presented were;

- Health impacts of Air Pollution.
- Welsh Government update.
- Cardiff NO_2 feasibility study.
- Air Pollution from vehicles.
- Non exhaust emissions from vehicles.
- Emissions abatement for non-road mobile machinery.
- Reducing emissions – an automotive industry perspective.

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Welsh Government policy update

Since the last report, there have been significant changes to the way we live due to the coronavirus outbreak. These changes led to a different air quality picture in Wales and brought to the forefront opportunities and challenges of creating a more sustainable transport system. During this period, the Welsh Government published its first Clean Air Plan for Wales: Healthy Air, Healthy Wales. The plan commits us to achieving air quality improvements through building back a better society in terms of the way we live in, and move around, our villages, towns and cities.

Healthy Air, Healthy Wales: A Clean Air Plan for Wales

The Clean Air Plan for Wales was published in August 2020 following a consultation period which included three consultation events in Aberystwyth, Cardiff and Wrexham. In addition to cross-sector actions to address a range of pollutants, the plan commits the Welsh Government to deliver new air quality targets, a public-health focussed Local Air Quality Management regime and a new monitoring and assessment capability. The plan outlines proposals for a Clean Air Bill and commits to a White Paper consultation before the end of the assembly term. The plan can be viewed at: https://gov.wales/clean-air-plan-wales-healthy-air-healthy-wales

Covid-19 and Air Quality in Wales

In addition to publishing the Clean Air Plan, the Welsh Government and Ricardo published the report Provisional Analysis of Welsh Air Quality Monitoring Data – Impacts of Covid-19. The report outlines key findings from air quality data during the lockdown period, including that from 16th March to 31st May 2020 it is estimated that NO_x and NO_2 concentrations decreased on average by 49% and 36% respectively, compared with BAU at roadside sites. The report can be viewed at: https://airquality.gov.wales/sites/default/files/documents/2020-08/Analysis_of_Welsh_Air_Quality_Data_Impacts_of_Covid-19_Final_Issue2.pdf

Active Travel and Road Safety Funding

In July 2020, the Welsh Government announced the allocation of £38m in grants to local authorities across Wales for active travel and road safety schemes. During the lockdown period, many more people walked and cycled to make everyday journeys. This investment will create routes and connections in towns and cities across Wales to give people the confidence to continue walking and cycling.

Air Quality Compliance

Caerphilly County Borough Council and Cardiff Council have submitted their final plans for achieving compliance to Welsh Government. Work is now underway in both areas to implement the measures identified to secure and maintain compliance. Additionally, the Welsh Government will be publishing its new air quality plan for tackling roadside nitrogen dioxide concentrations in Wales this autumn.

Air Quality Communications

The first ever UN International Day of Clean Air for Blue Skies was held on 7th September 2020. To observe the day, the Welsh Government collaborated with Environment Platform Wales (EPW) to host a public webinar. Panellists Professor Lorraine Whitmarsh and Professor Enda Hayes discussed behaviour change and how we can achieve and maintain cleaner air in Wales.

Clean Air Day was postponed to 8th October this year due to the coronavirus outbreak. A 10 day countdown was held on social media and free, bilingual resources were made available on the Clean Air Day Wales website. In collaboration with Welsh Government, EPW hosted a webinar with panellists from Global Action Plan, Sustrans Transport for Quality of Life who discussed how we can buid back better air quality in Wales.

4

Monitoring networks and data highlights

The Welsh Government and the Welsh Air Quality Forum (WAQF) work closely with air quality experts and the Department for Environment, Food and Rural Affairs (Defra) to monitor and reduce air pollution in Wales. Figure 4.1 illustrates the long-term trends for nitrogen dioxide (NO_2), fine particles (PM_{10}) and ozone (O_3) concentrations in Wales. Apart from ozone, this shows a steady improvement in pollutant concentrations since the 1990s. As ozone is a regional pollutant that is transboundary in nature, it is outside the direct control of the Welsh Government and local authorities.

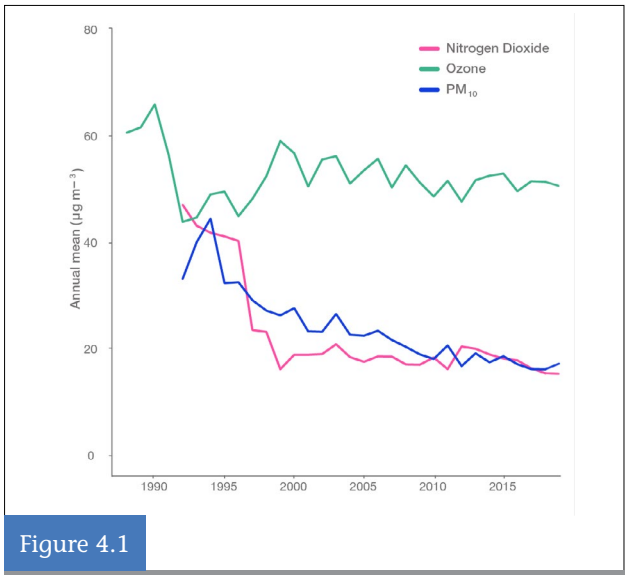

Figure 4.1

Key ambient air pollutant trends in Wales 1990-2019

Local authority monitoring

Air quality monitoring in Wales is undertaken by local authorities and through national networks managed by the Welsh Government. There are two main types of air pollution monitoring – automatic monitoring and passive sampling. Automatic monitoring uses continuous analysis techniques to measure and record ambient concentrations of a range of air pollutants. Passive samplers (such as diffusion tubes) contain a chemical reagent that adsorbs the pollutant from the air. Samplers are exposed for a period of time and analysed in a laboratory. At the start of 2019, there were a total of 39 automatic monitoring sites distributed across Wales that were operated by local authorities, by the end of 2019 this fell to 38 sites. These sites contain equipment that automatically measures carbon monoxide (CO), nitrogen oxides (NO_x), sulphur dioxide (SO_2), ozone (O_3), PM_{10} and $PM_{2.5}$ particulate matter. In addition to these, there were several hundred diffusion tubes measuring monthly mean NO_2 levels. Overall, data capture for the automatic instruments operated by local authorities during the year was 85%, this reflects the fact that 1 site closed part way through the year and therefore lowered the overall figure.

In 2019, ambient concentrations of PM_{10} were 'moderate' on 40 days, 'high' on 8 days and 'very high' on 3 days (as defined by the Daily Air Quality Index bandings). For NO_2, there were 22 days with 'moderate' concentrations, no days with 'high' or 'very high' levels were recorded. For SO_2, there were no 'moderate', 'high' or 'very high' levels recorded. For O_3, there were 54 days with 'moderate' levels and no days recorded as 'high' or 'very high' – as measured by the monitoring sites operated by local authorities. Overall, pollution levels in Wales were low for 262 days, moderate for 89 days, high for 11 days and very high for 3 days. So, for 72% of the time, pollution levels were low across the whole of Wales. Details of the Daily Air Quality Index banding system used to describe pollution levels for the public during 2019 can be found at https://airquality.gov.wales/about-air-quality/daily-air-quality-index

Summary of exceedances

Exceedance statistics generated from the Air Quality in Wales website show that no monitoring sites in Wales exceeded any Air Quality Strategy (AQS) Objectives (or corresponding EU limit values) for PM_{10}, CO, SO_2, benzene (C_6H_6) or lead (Pb) during 2019.

Three Welsh monitoring sites (Rhondda Mountain Ash, Caerphilly Hafodyrynys and Newport M4 Junction 25,) exceeded the annual mean objective of 40µg m^{-3} for NO_2. Caerphilly Hafodyrynys also exceeded the AQS Objective for hourly mean nitrogen dioxide concentration on more than the permitted 18 occasions in 2019.

Three sites in Wales exceeded the AQS Objective for O_3 (100µg m^{-3} as a maximum daily 8-hour mean) on more than the permitted 10 occasions. These were Aston Hill, Cwmbran and Swansea St. Thomas DOAS. These exceedances are most likely due to the prolonged hot weather in the summer of 2019. Marchlyn Mawr which has had ozone exceedances in past years was offline until July 2019 so some exceedances earlier in the year may not have been captured.

The national air quality monitoring networks operating in Wales

There are several national air quality monitoring networks operating across Wales. These report air pollution levels in Wales that can be assessed against regulatory requirements and to provide information for air quality researchers, the medical community and members of the public.

Automatic Urban and Rural Network

There are 11 air quality monitoring sites in Wales that are part of the UK Automatic Urban and Rural Network (AURN). The techniques used for monitoring the gaseous pollutants in the AURN are the reference methods of measurement defined in the relevant EU directives. For particulate matter, the AURN uses methods that have demonstrated equivalence to the reference method, but which (unlike the reference method) allow continuous monitoring and provision of this information in 'real time'.

Heavy Metals Network

There are six monitoring sites in Wales for heavy metals and they belong to the UK Heavy Metals Network. Airborne particulate matter is sampled and analysed for metals concentrations in PM_{10}. The metal concentration data are then combined with the local meteorological data (such as rainfall) to calculate values for wet deposition (from precipitation), dry deposition (such as dust settling) and cloud deposition (condensation of cloud droplets).

PAH Monitoring Network

Wales has four polycyclic aromatic hydrocarbon (PAH) network sites. These monitor compliance with Directive 2005/107/EC (the 4th daughter directive), which includes a target value of 1ng m^{-3} for the annual mean concentration of benzo[a]pyrene ($C_{20}H_{12}$) as a representative PAH, not to be exceeded after 31st December 2012. This network uses the PM_{10} 'Digitel™' sampler. Ambient air is sampled through glass fibre filters and polyurethane foam pads, which capture the PAH compounds for later analysis in a laboratory.

Black Carbon Network

Black carbon is fine, dark carbonaceous particulate matter produced from the incomplete combustion of materials containing carbon (for example coal, oil and biomass (such as wood)). It is of concern due to possible health impacts and as a suspected contributor to climate change. There is one monitoring site in Wales that measures this parameter. The site, in Cardiff, is part of the Black Carbon Network. This uses an automatic instrument called an aethalometer that measures black carbon directly using a real-time optical transmission technique.

UK Eutrophying and Acidifying Pollutants network

The UK Eutrophying and Acidifying Atmospheric Pollutants (UKEAP) network provides information on the deposition of eutrophying and acidifying compounds in the UK and assesses their potential impacts on ecosystems. Other measurements – including SO_2, NO_2 and particulate sulphate – have also been made within the programme, to provide a more complete understanding of precipitation chemistry in the UK.

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Air quality trends

The number of automatic monitoring sites in Wales has increased greatly in recent years. While this helps to improve our understanding of air quality across the country, it potentially complicates the investigation of how air quality has changed over time. If such investigations are based on all available data, discontinuities and false trends may be introduced because of changes in the composition of the network. Therefore, in this report, investigation of changes has been based on subsets of long-running sites rather than on every site in the network. This should lead to a more robust assessment.

Nitrogen Dioxide

In Wales (and the rest of the UK), the most widely exceeded limit value is the annual mean nitrogen dioxide (NO_2) concentration (40µg m^{-3}). Figure 5.1 shows how annual mean NO_2 concentrations have varied with time.

Urban background sites are represented by the longest running site of this type (Cardiff Centre (since 1992)), and a subset of four long-running sites that have all been in operation since 2003, with annual data capture of at least 50% – Cardiff Centre, Cwmbran, Newport St Julians and Port Talbot (replaced by the nearby Port Talbot Margam site in 2007 – the two Port Talbot sites are treated as one for the purpose of the graph). Cardiff Centre shows a clear decrease from 1992 to 2018 but the annual mean rose in 2019. The mean for the long-running urban background sites shows a decrease from 2003 to 2018, with a slight increase in 2019.

Urban traffic sites (those within 10m of a major road) are represented by the longest-running roadside site (Swansea Morriston (since from 2001)), and a subset of two long-running sites that have been in operation since 2002 – Swansea Morriston and Wrexham. The urban traffic locations shown a decrease in NO_2 concentrations for the last three years.

Particulate Matter

Figures 5.2 and 5.3 show how annual mean concentrations of fine particles, both PM_{10} and $PM_{2.5}$ have generally decreased in recent years at urban traffic sites. This is due to the diverse range of sources contributing to Particulate matter, of which vehicle emissions have been most substantially reduced in recent years. Urban background sites concentrations have been stable in recent years.

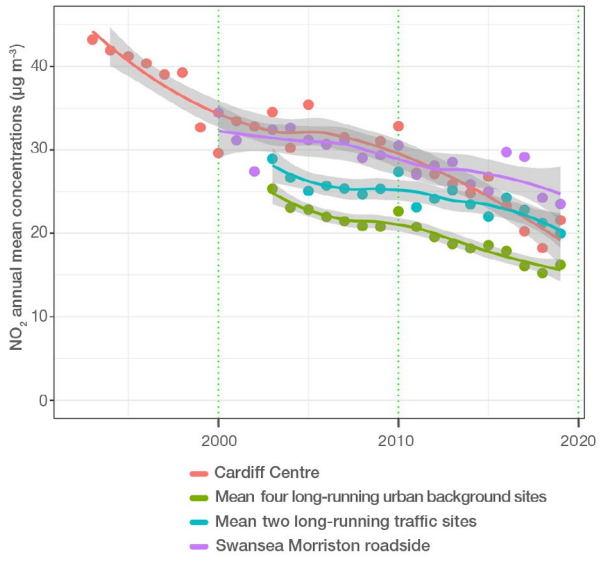


Figure 5.1

Annual mean nitrogen dioxide concentration at long-running sites in Wales

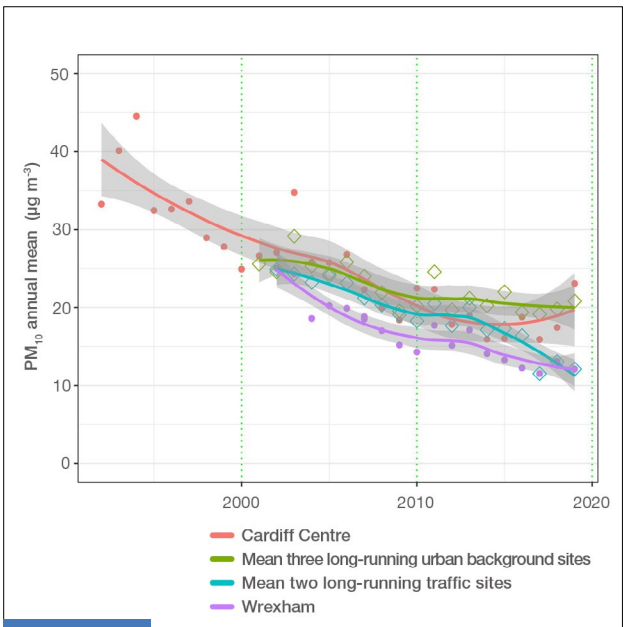


Figure 5.2

Annual mean PM_{10} concentrations at long-running sites in Wales

Urban non-roadside sites in Figure 5.2 are represented by the mean of three long-running sites from 2001 (Cardiff Centre, Cwmbran and Port Talbot/Port Talbot Margam – again, the latter two are treated as one site for this purpose). Please note that Port Talbot/Port Talbot Margam is classified as urban industrial rather than urban background as it is located in the vicinity of a large steelworks. It has been included because there are few long-running urban non-roadside sites.

Urban traffic sites in Figure 5.2 are represented by the mean of two long-running sites from 2002 – Rhondda-Cynon-Taf Nantgarw and Wrexham. Wrexham (the longest-running traffic site) is also shown individually.

Urban $PM_{2.5}$ sites in Figure 5.3 are represented by the mean of three long-running sites from 2008 (Cardiff Centre, Newport St Julians Com School and Port Talbot Margam)

Cardiff Centre (which has operated for longer than any other site) is also shown individually in Figure 5.2. Cardiff Centre shows an increase in PM_{10} concentrations in 2018 and 2019. All sites have at least 70% annual data capture except for Cardiff Centre in 2010.

Ozone

Ozone (O_3) concentrations tend to be highest at rural locations. Figure 5.4 shows how annual mean rural O_3 concentration has changed over time. This is based on the mean concentration measured by three long-running sites in Wales (shown by the blue line) – Aston Hill, Marchlyn Mawr and Narbeth. All have been in operation since 2003 with data capture of at least 70%. Also shown is Aston Hill alone – this site has been monitoring ozone since the late 1980s. Although there are no clear trends, concentrations vary considerably from year to year because of the variation in meteorological factors.

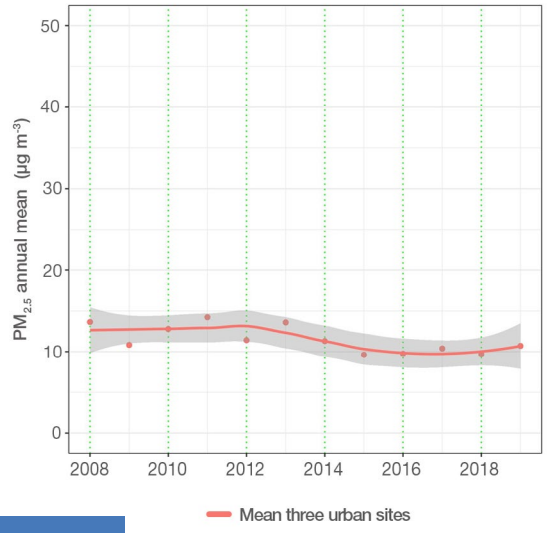


Figure 5.3

Annual mean $PM_{2.5}$ concentrations at long-running sites in Wales

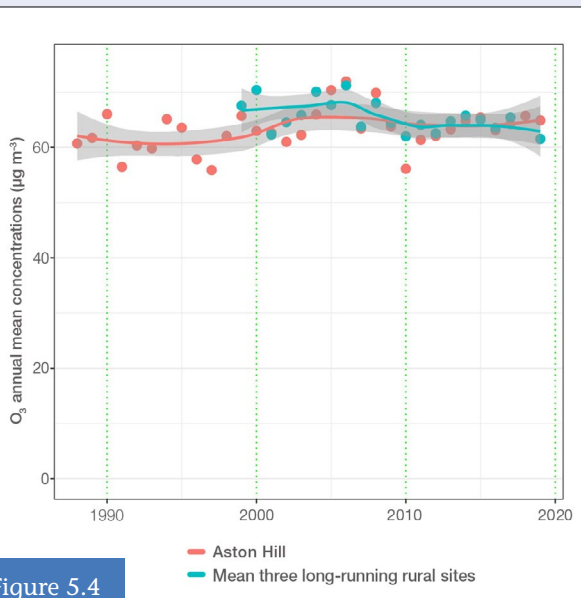


Figure 5.4

Annual mean ozone concentrations at long-running sites in Wales

6

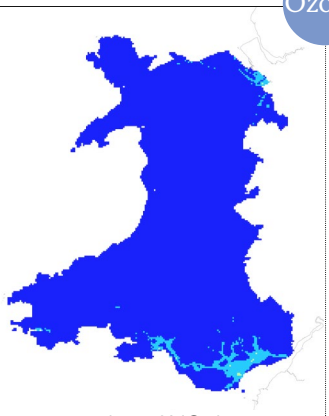
Maps of air quality

The maps in Figure 6.1 present 2019 background concentrations for nitrogen dioxide (NO_2), ozone (O_3), PM_{10} and $PM_{2.5}$ particulate matter. These modelled maps of ambient concentrations were calculated from National Atmospheric Emissions Inventory (NAEI) data using a dispersion modelling approach. The model output was calibrated using monitored data from the national monitoring networks. These modelled maps were then verified against the local authority monitoring data. A more detailed report comparing the Welsh air quality monitoring data to modelled concentrations will be published in due course. In these maps, the modelled ambient concentrations are compared with EU limit values.

NO_2

Annual mean (µg m^{-3})

- <10
- 10-20
- 20-30
- 30-40
- >40

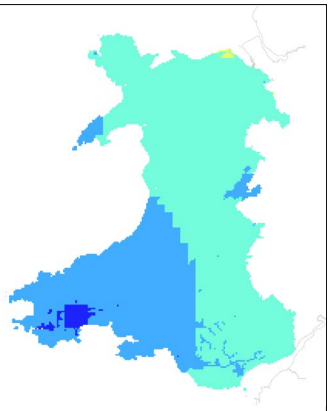


The limit value for annual mean concentration of NO_2 is 40 µg m^{-3}. This background map shows elevated NO_2 levels are associated with urban areas and principal road links.

Ozone

(number of days)

- <2
- 2-4
- 4-6
- 6-8
- 8-10
- >10

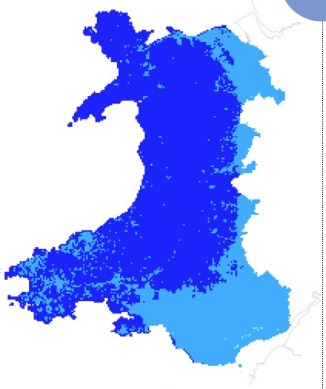


The target value for O_3 is 120 µg m^{-3} as an 8-hour mean, not to be exceeded more than 25 times per year averaged over 3 years. The map shows the number of days the concentration was above the target value in 2019.

PM_{10}

Annual mean (µg m^{-3})

- <10
- 10-15
- 15-20
- 20-30
- 30-40
- >40

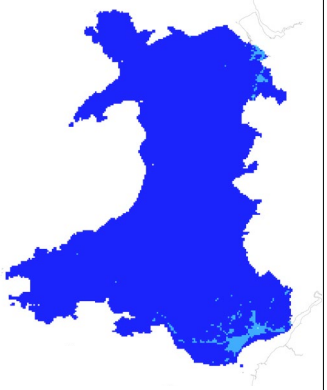


The PM_{10} limit value for annual mean concentration is 40 µg m^{-3}. The map shows that elevated levels of PM_{10} are associated with urban areas and major roads.

$PM_{2.5}$

Annual mean (µg m^{-3})

- <8
- 8-10
- 10-15
- 15-20
- 20-25
- >25



The $PM_{2.5}$ target value is 25 µg m^{-3}. The map shows that elevated levels of $PM_{2.5}$ are associated with urban areas and major roads.

Figure 6.1

Maps showing background concentrations of nitrogen dioxide, ozone, PM_{10} and $PM_{2.5}$ particulate matter.

Welsh Government OS licence number - 100017916

7

Covid-19 impacts on Welsh air quality

The impacts of Covid-19 during 2020 have had been unprecedented on societies around the world. From an air pollution perspective, the dramatic reduction in travel following lockdown on 23rd March across the UK had direct impacts on the emissions of many important air pollutants. While an immediate reaction to these changes might be to assume that air pollution would improve, further analysis reveals a more complex picture that depends on the pollutant in question.

A central issue addressed in the analysis of Covid-19 impacts on air quality in Wales is the role of the weather. Variations in weather conditions can easily mask or emphasise changes in pollutant concentrations that are not associated with an underlying change in emissions. To address this issue, sophisticated statistical models that 'account' for meteorology have been developed to help reveal the changes in concentrations that are related to changes in emissions rather than changes in the weather. These techniques have been applied to sites across the Welsh Air Quality Monitoring Network (WAQN).

Novel approaches have also been applied to show how concentrations of pollutants deviated from 'business as usual' (BAU) i.e. the concentrations that would be expected if Covid-19 did not happen. By considering how measured concentrations compared with predicted BAU concentrations, it is possible to quantify the impact Covid-19 has had on a range of air pollutants. Figure 7.1 shows how concentrations deviated from BAU for NO_2 across all WAQN sites using a so-called Cusum (cumulative sum) plot. In essence, the cusum plot helps to show how much concentrations deviated from normal conditions and also the timing of any change – which for most sites coincides with the introduction of lockdown.

Figure 7.2 shows the site-specific changes in NO_2 concentration by site type. Up to 31st May it was predicted that NO_2 concentrations at roadside sites were about 36% lower than expected under normal conditions, which is a considerable decrease.

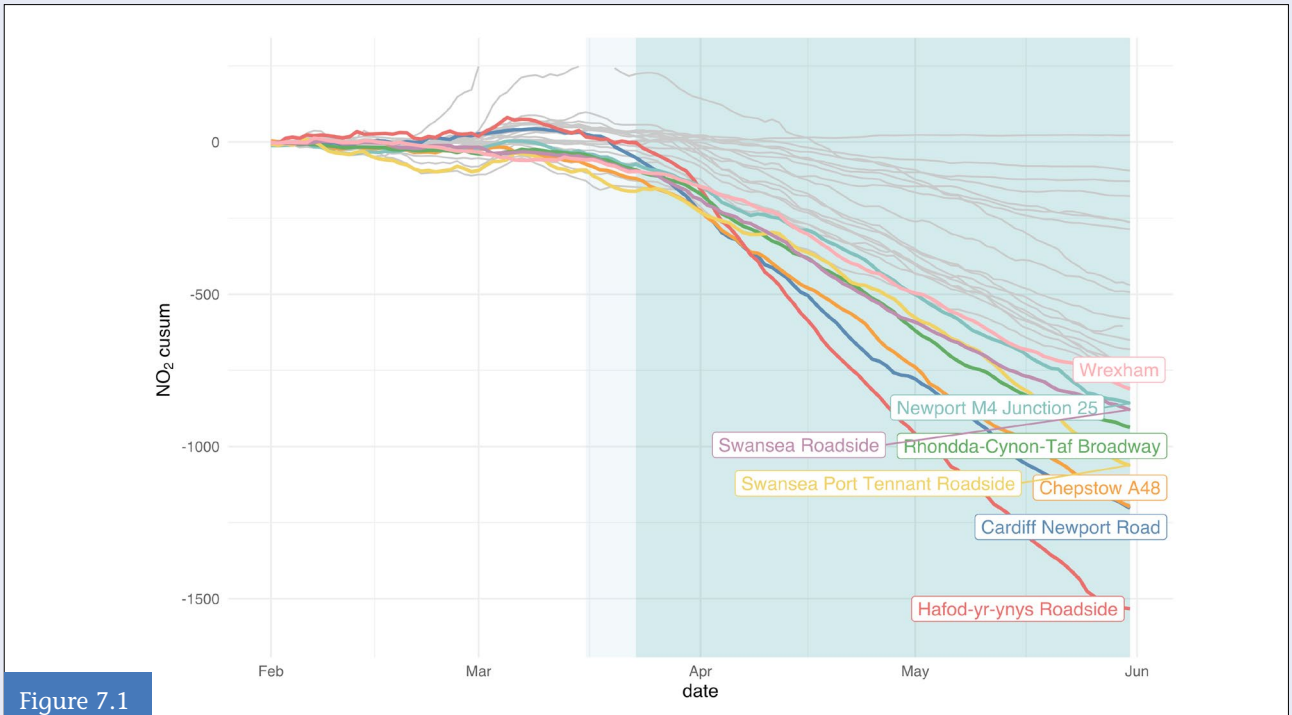


Figure 7.1

A 'cusum' plot highlighting how concentrations of NO_2 deviated from expected value for WAQN sites. The darker shaded region shows the period of lockdown.

Figure 7.2

Predicted change in NO_2 concentrations from lockdown to the end of June 2020 and how they compare with expected (Business as Usual, BAU) values.

The wider picture on Covid-19 impacts on air quality is however more complex and will take time to fully understand. In urban areas the clearest change in pollutant concentrations was for concentrations of NO_x and NO_2. However, these reductions in primary pollutants also led to increased urban ozone concentrations, largely offsetting the reduction in NO_2. From a human health perspective, it is not clear whether increases in O_3 at the expense of NO_2 is beneficial or indeed would largely have a neutral effect.

The situation for PM_{10} and $PM_{2.5}$ is more complex to understand. Like the rest of the UK, a large fraction of PM concentration is from contributions outside Wales. This situation makes it difficult to quantify a 'Covid-19' effect for PM. However, there is some evidence that at busy traffic sites there were small reductions in local-generated PM. However, looking more widely, the initial analysis of PM measurements throughout the UK suggests very little change in the regional contribution to PM. This finding is important because it suggests that even with significant reductions in NO_x emissions across Europe, there is currently little evidence there was much impact on $PM_{2.5}$ formation – suggesting more ambitious emissions reductions will be needed and the likely need to control other emissions such as ammonia (NH_3). The full report is available at https://airquality.gov.wales/reports-seminars/reports.

8

Public Health Risk Assessment Tool for Outdoor Air Quality in Wales

Understanding variations in outdoor air pollution (NO_2 and $PM_{2.5}$) and exposure is important to determine public health risks, especially at local level. Given that air pollution can interact with other determinants to affect the health of individuals and communities, there is merit in assessing risks and impacts in the broadest possible public health context.

Recognising this, Public Health Wales has worked with local authorities and the Welsh Government to design an interactive Public Health Risk Assessment Tool for Air Quality in Wales. The evolving resource is easy to access and free to use (https://public.tableau.com/profile/public.health.wales.health.protection#!/vizhome/AirQualityinWalesHealthImpactAssessmentTool/LandingPage). It represents the first stage in an ambitious programme of work to build an environmental public health surveillance system for Wales.

The tool comprises four different components:

- **Short-term air pollution (daily variation)**; the proportion of days where air pollution was Low, Moderate, High or Very High using the Daily Air Quality Index (DAQI) data.
- **Annual air pollution (long-term variation)**; population weighted annual mean pollutant concentrations.
- **Population vulnerability and susceptibility to air pollution**; exposure risk by different sub-populations by age and socio-economic status.
- **Health effects of long-term air pollution exposure**; mortality burden estimates of air pollution exposure.

The different components of the tool intend to complement common risk assessment approaches used by local authorities, in order to inform communications and actions which can reduce risks from, and exposures to, air pollution.

Of particular public health relevance is the population vulnerability, susceptibility and impact component. Air pollution is not an isolated environmental problem; this information can help frame air pollution problems (and solutions) in a broader context which links directly with wider public health issues, networks, communications and intervention. For example, air quality assessments which look beyond air quality data to solve problems can reach and connect with multi-disciplinary work on active travel, overweight and obesity, deprivation and inequalities.

The population vulnerability and susceptibility component assesses risks amongst those who may live in areas where air pollution concentrations are higher, and amongst those who are more at risk because of age and/or socio-economic deprivation. The 'health effects' tab allows users to access data which estimate mortality from combined exposures to fine particulate and nitrogen dioxide pollutants (using recent methods recommended by the Committee on the Medical Effects of Air Pollution). These should be interpreted using Public Health Wales' air pollution and health fact sheet (https://phw.nhs.wales/services-and-teams/environmental-public-health/air-quality/air-pollution-and-health-fact-sheet/).

How will this help in Local Air Quality Management?

The Local Air Quality Management (LAQM) regime aims to protect public health from the effects of air pollution. To facilitate this, local authorities periodically assess local air pollution problems and compare them with health-based Air Quality Objectives (AQO's) using a prescribed risk assessment process. This tool aims to assist local authorities in adopting a broader approach to risk assessment and management, placing public health as a core consideration. Doing so can not only improve public health integration and collaboration in LAQM but also create opportunities for innovative solutions to local and regional air pollution problems.

If you have any suggested improvements for the tool, Public Health Wales would like to hear from you. Please contact Huw Brunt (huw.brunt@wales.nhs.uk) or Amber Horton (amber.horton@wales.nhs.uk).

9

More information

The Air Quality in Wales website

Figure 9.1

The Air Quality in Wales website

The Air Quality in Wales website (https://airquality.gov.wales/) is available in English and Welsh. It provides information on all aspects of air pollution in Wales. The site is one of a family of air quality websites produced by Ricardo Energy & Environment, which includes air quality websites for the UK, Northern Ireland, Scotland and England.

The website has been designed to be a user-friendly and interactive resource containing comprehensive information on all aspects of air pollution:

- A colour coded OpenStreetMap™ showing the overall pollution situation at sites across Wales.
- Latest data from all automatic monitoring sites in Wales, accessible from this map.
- Air pollution forecasts for the whole of Wales.
- Information on the latest, developments and publications.
- Detailed information on automatic monitoring sites.
- A wide range of background information on air pollution sources, health impacts, monitoring techniques, standards and policy issues.
- Access to air quality data and statistics – for automatic and sampler sites – going back to 1986.
- Provision to submit data via innovative web forms to the archive.
- Headline air quality indicators, trends and modelled future scenarios.
- Links to national and global information resources on air quality.
- A password-protected area for members of the Welsh Air Quality Forum (WAQF).
- Overview of the data ratification and verification procedures.

To access data used in this Annual Report, follow these simple steps:

- From the home page, select ‘Maps & Data’ from the main menu.
- Click on ‘Measurements’.
- Click ‘Download/Submit Data’.
- Click ‘Download Data’.
- Select ‘Parameter Group’ (type of data required).
- Select ‘Pollutant Species’.
- Select ‘Local Authority Region’.
- Select ‘Statistic Type’ (for example, daily mean).
- Select ‘Date Range’.
- Select ‘Specific Monitoring Site(s)’.

Then, provide your email address and the data will be emailed to you with a few seconds.

Current and forecast air quality (national and local)

In addition to the Air Quality in Wales website, current and forecast air quality is rapidly available in a user-friendly form from:

- The Air Pollution Information Service on freephone 0800 556677.
- The UK Air Information Resource (https://uk-air.defra.gov.uk/).

Health effects of air pollution

Information on the health effects of air pollution and the UK pollution banding system can be found on the Department for Environment, Food and Rural Affair's (Defra) website (https://airquality.gov.wales/about-air-quality/daily-air-quality-index).

General information on air quality

- The Welsh Government Environment and Countryside links (https://gov.wales/environment-climate-change).
- The UK Air Information Resource (https://uk-air.defra.gov.uk).
- The National Atmospheric Emissions Inventory (http://naei.beis.gov.uk).
- The Defra Air Quality Information Web Resource (https://uk-air.defra.gov.uk).
- The Northern Ireland Air Quality website (https://www.airqualityni.co.uk/).
- The Scottish Air Quality website (http://www.scottishairquality.scot/).
- The Air Quality in England website (www.airqualityengland.co.uk).
- The Pollutant Release and Transfer Register (https://www.gov.uk/guidance/uk-pollutant-release-and-transfer-register-prtr-data-sets).
- The Environment Agency (https://www.gov.uk/government/organisations/environment-agency).
- Natural Resources Wales (www.naturalresourceswales.gov.uk).

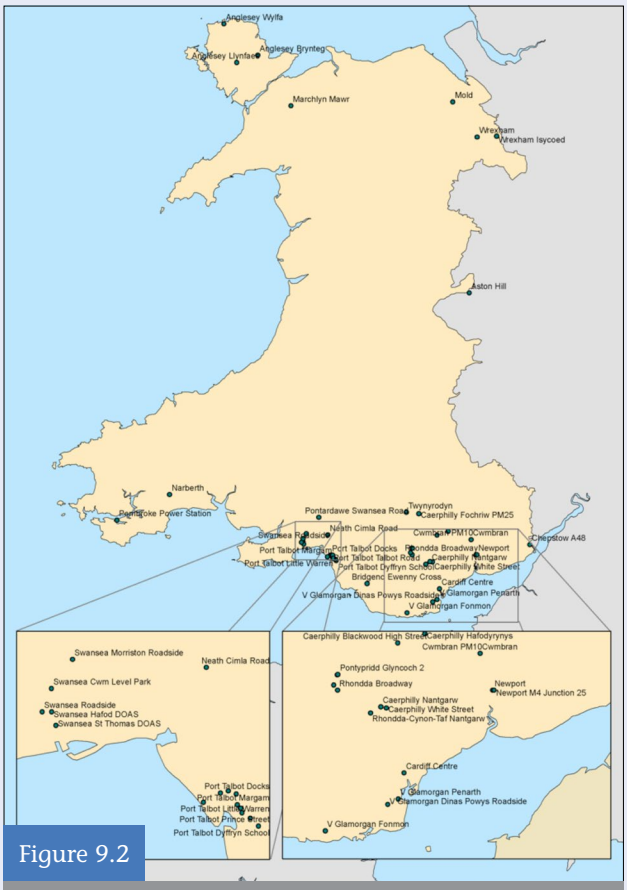


Figure 9.2

Welsh automatic monitoring sites in 2019

Local air quality issues

For further information on air quality issues in your area, please contact the environmental health department at your local district council office. Further information on Local Air Quality Management may also be found on:

- The Defra website (http://aqma.defra.gov.uk).
- The local authority support site (http://laqm.defra.gov.uk).