



Ricardo Energy & Environment

Overview of Air Quality in Scotland Scottish Air Quality Database and Website Annual Seminar –

David Hector - Ricardo Energy and Environment 4th March 2020

ee.ricardo.com

Content



- Scottish Air Quality Database and Website (SAQDW) – New Contract
- 2. New Developments in 2019
- 3. Future developments
- 4. SAQD Monitoring Network
- 5. SAQD Data: Exceedances and Analysis
- 6. Regional Pollution Events in Scotland 2019
- 7. Questions



Scottish Air Quality Database and Website Project: 2019 – 2022





Thank you to Scottish Government, SEPA and all stakeholders, (especially the Local Authorities) for the work and support you've provide that makes the project the success it is.

Lets continue to improve!

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		American Language



Air Quality in Scotland Scottish air Quality Database and Website

- Harmonise and Standardise the data quality being produced by local authorities to better inform policy and improve air pollution.
- Provide high quality comparable data that is easily accessible to all.
- Project officially launched April 2007 c.50 monitoring sites in the database
- January 2020 100 automatic monitoring sites
- It is an important component in
 - helping to Deliver Cleaner Air for Scotland Strategy
 - the Implementation of Scotland's LEZs
 - Helping LAs meet LAQM requirements
 - Increasing public awareness



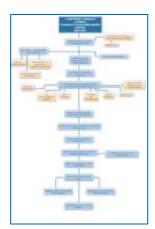




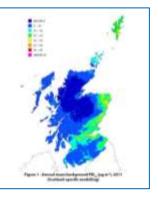
Functions within the Website







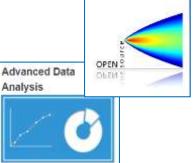




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THARKET

Phase















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Know&Respond

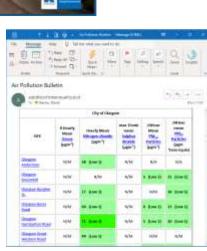
Air Quality in Scotland Scottish air Quality Database and Website Project

- SAQD Annual Seminar
- Stakeholder Meetings
- Annual Report
- Annual Brochure
- Scottish Air Quality Newsletter
- News Alert Emails
- Media Communications
- Ad hoc Local Authority SupportHelpline

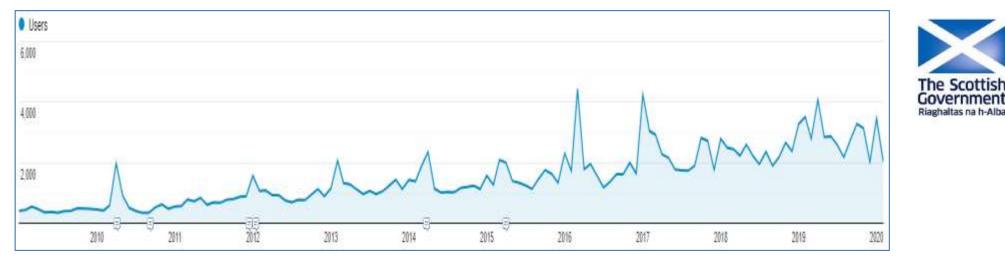


Air Quality in Scotland





Air Quality in Scotland Website Usage



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	City	Users	% Users
1.	Glasgow	9,129	13.91%
2.	Edinburgh	8,844	13.47%
3.	(not set)	8,678	13.22%
4.	London	6,829	10.40%
5.	Dundee	1,846	2.81%
6.	Aberdeen	1,611	2.45%
7.	Montreal	867	1.32%
8.	Stirling	812	1.24%
9.	Livingston	737	1.12%
1(). Perth	671	1.02%
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Data obtained from google Analytics since 2009

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QA/QC of Scottish Air Quality Database Sites

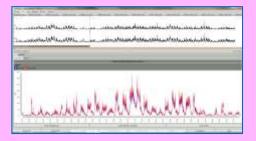


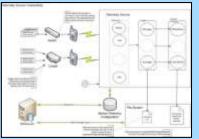
Data Collection, Processing and Dissemination Daily collection and checking of data from each site; Scaling of data from last calibration results; Update to website; On-going data update as new information becomes available; On-going air quality support to Local Authorities Site Checks

- Site audits ensures traceability; (164 site audits per year)
- LSO Training
- Collection and storage of all calibrations, service records, and ad hoc info;

Data Ratification and Reporting

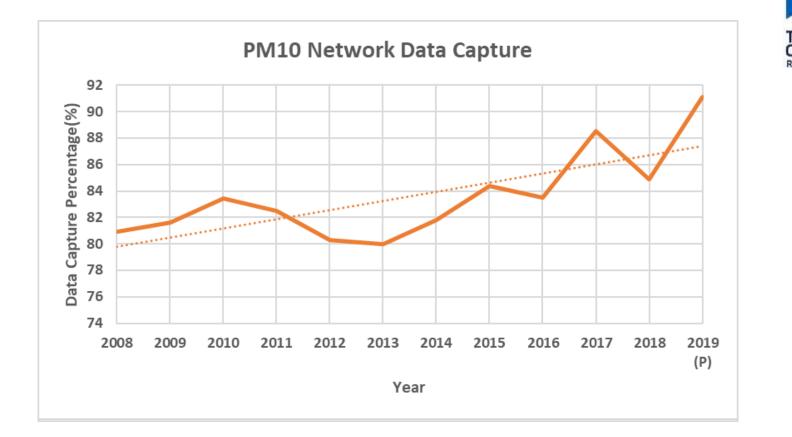
- 3-monthly data ratification; (over 250 individual parameters)
- Quality Circle data review;
- lock data as ratified and upload it to the website;
- LAQM Assistance to local authorities:







Network data capture rate monitoring, 2008 – 2019







Core Project Team:





Sam Copsey



Sion Carpenter



Jasmine Wareham



Susannah Telfer



Paraic Marry



Dr Rebecca Rose





David Hector

Ashleigh Norrie



Xingyu Xiao



Stephen Stratton



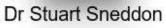
Stephen Gray



Trevor Davies



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Victoria Thomson



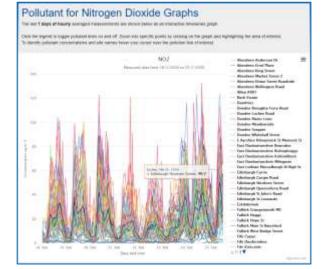


Developments in 2019

- NO₂ Diffusion Tube Map (June 2019)
- Redevelopment and upgrade of the Air Quality Scotland App (June 2019)
- Interactive Pollution graphs (April 2019)











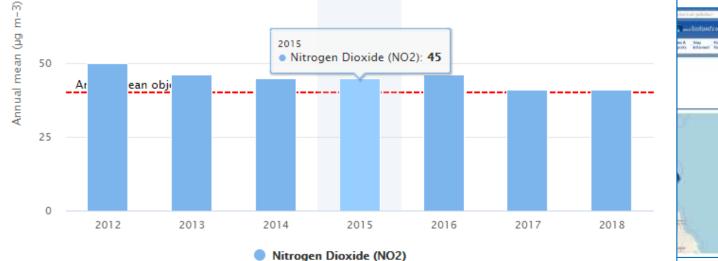
New Developments in 2019: NO₂ Diffusion Tube Map





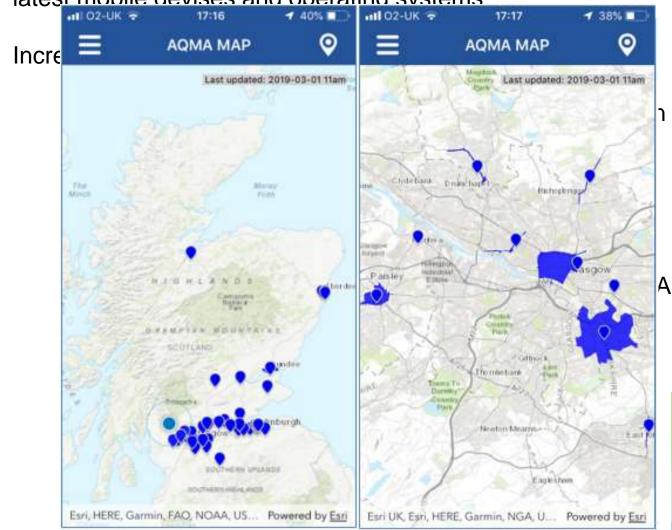
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Went Live in June 2019 (104) • Provides published bias corrected annual mean diffusion tube data • in a formatithatise easy to understand Interactive [Vap format.] • For all Diffusion Tube sites in Scotland (1142 individual sites) ٠ Provide sites information (i.e. site type, location coordinates, • historical data) Graphics that easily identifies whether the site is meeting the ٠ Annual mean objective Provides information on what diffusion tube data is and what its ٠ used for. 2015 Nitrogen Dioxide (NO2): 45 50



New Developments in 2019: AQ Scotland App

 App was completely redeveloped to ensure compatibility with latest mobile devises and operating systems

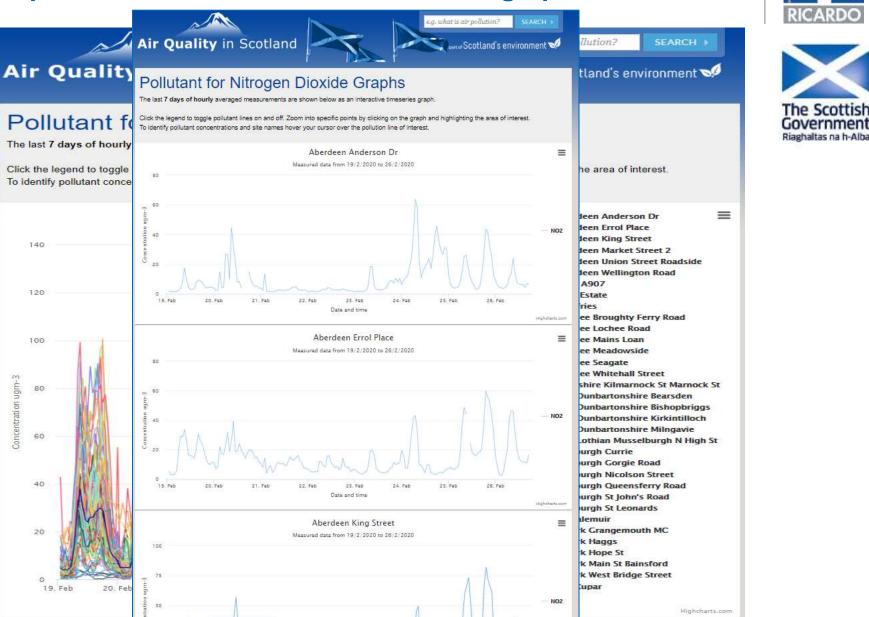








New Developments in 2019: Interactive Pollution graphs



Ideas for Future Developments

Website updates:

- Access to all Scottish monitoring network sites via the site map and Data selector
 - Ammonia, PAH, Hydrocarbon, Black Carbon, TOMPs, Heavy Metals, Precip Net, Acid Gas and Aerosol, Rural NO2, Automatic Mercury.
- NO₂ Diffusion tube data selector tool
- An AQMA and LEZ interactive Map for the Website
- Interactive Pollution Emissions graphs and Charts
 - Annual Air Quality Pollutant Inventories Report data
 - https://airquality.gov.wales/maps-data/emissions/national-airquality
- Updated Annual statistics reports
 - Provision of additional annual data analysis for LAQM
- Ammonia Information Pages
- Domestic Combustion information pages

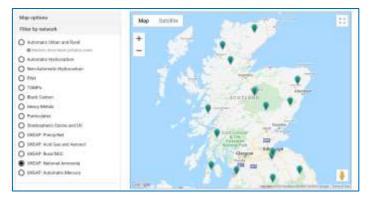
AQ Scotland App Updates:

- Diffusion tube map
- Interactive LEZ.
- LEZ entry notification alerts

Scottish Government are open to suggestions from stakeholders for future developments.

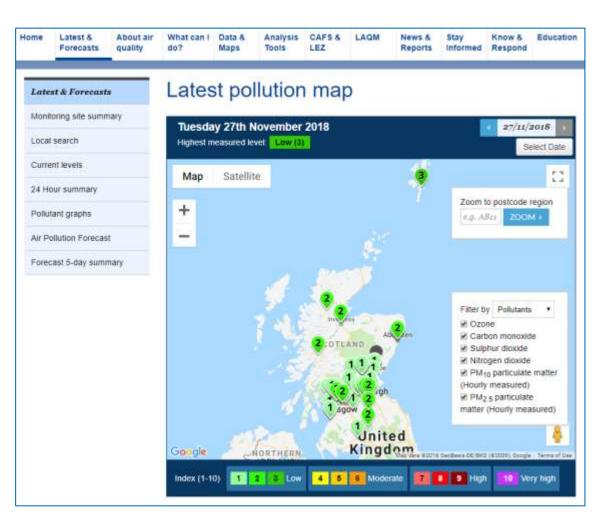


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Scottish Air Quality Database Monitoring Network



- 100 automatic monitoring sites on Scottish Website
- 23 AURN
- 4 funded by Scottish Grant Scheme
- 80 site operated under this project
- Six sites split between SAQD and AURN: Dundee Mains Loan, Edinburgh Nicolson St, Lerwick, Aberdeen Union St and Wellington Rd, Greenock A8, Grangemouth Moray (23 + 4 + 80 - 7 = 100)
- New Sites added during last 12 months:
- Renfrew Inchinnan Road
- Inverness Academy Street (1st Floor)
- N Lanarkshire Uddingston New Edinburgh Rd
- N Lanarkshire Coatbridge Sunnyside Road
- N Lanarkshire Airdrie Kenilworth Drive
- Site closures:
- Paisley St James St
- Glasgow Abercromby Street
- N Lanarkshire Motherwell CC
- 1142 Diffusion tube site data



Interesting New S Academy Street 1

- Installed a Second Automati Academy Street
- The analyser will run along s level and one at 1st Floor of exposure
- The aims is to compare the
- The data will then be used to in the AQMA
- Unfortunately there is no data
- Additional QAQC issues to t
 - Inlet less than 10
 - Synchronise ana

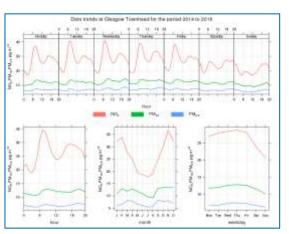


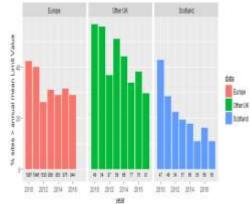




SAQD Network, Exceedances and Data Analysis

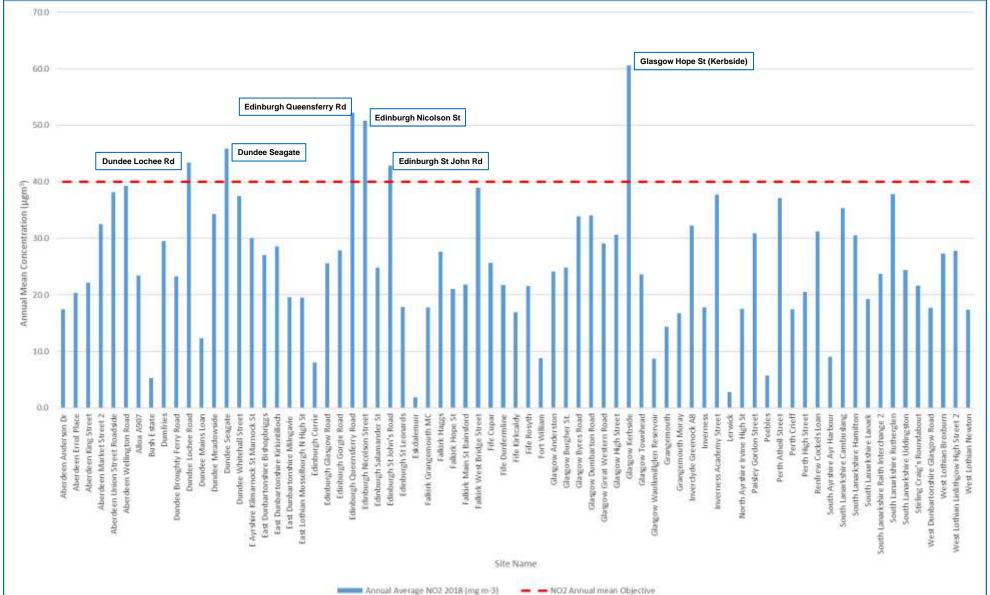




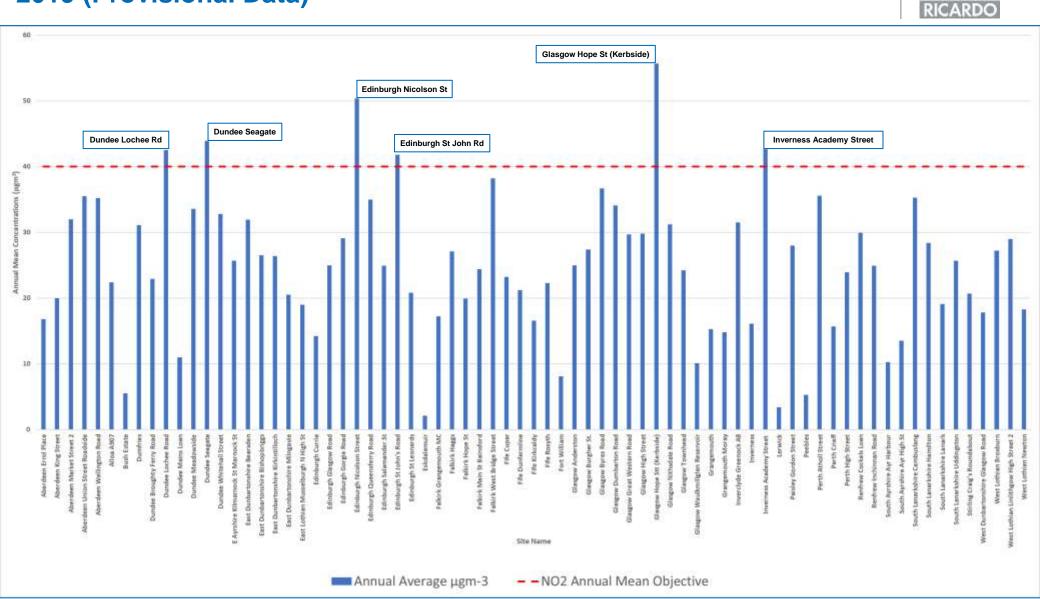


Annual Average NO₂ concentrations (µg m⁻³) for all SAQD sites in 2018 (fully Ratified)





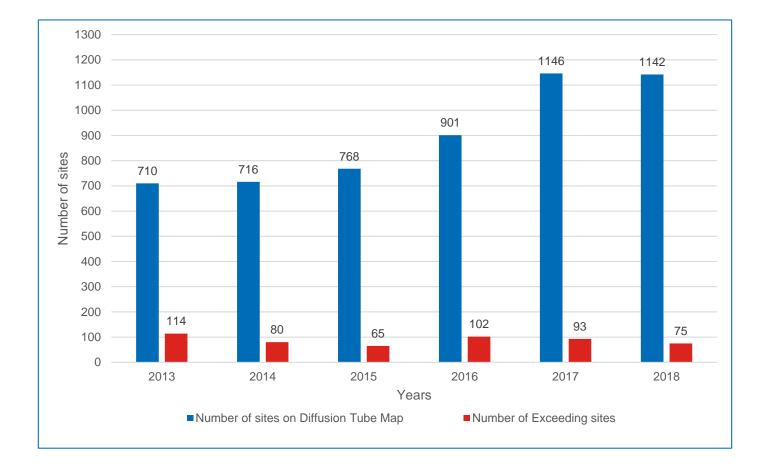
Annual Average NO₂ concentrations (µg m⁻³) for all SAQD sites in 2019 (Provisional Data)



NO₂ Diffusion tube sites Exceeding the NO2 Annual mean objective in 2018

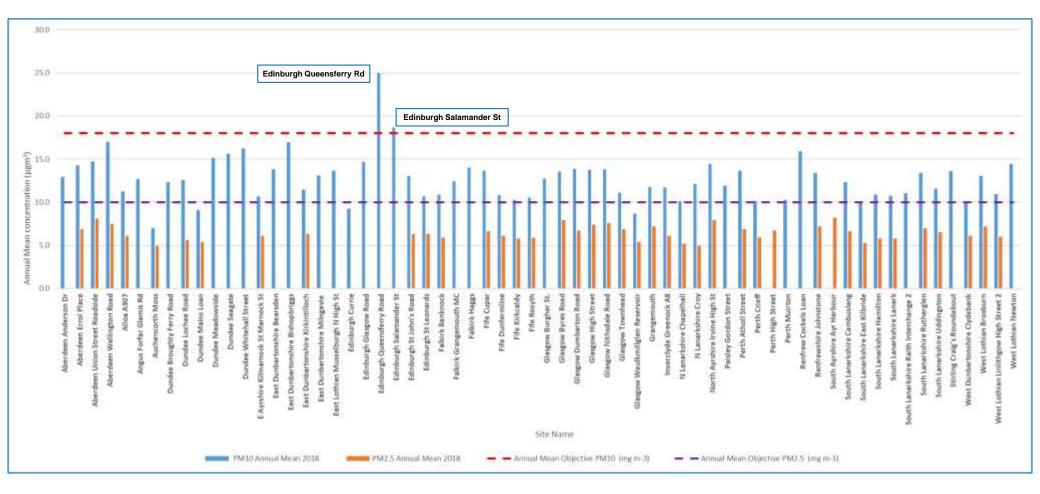


- **75** sites exceeded the NO₂ Annual mean objective of 40 μg m⁻³
- 10 Local Authorities

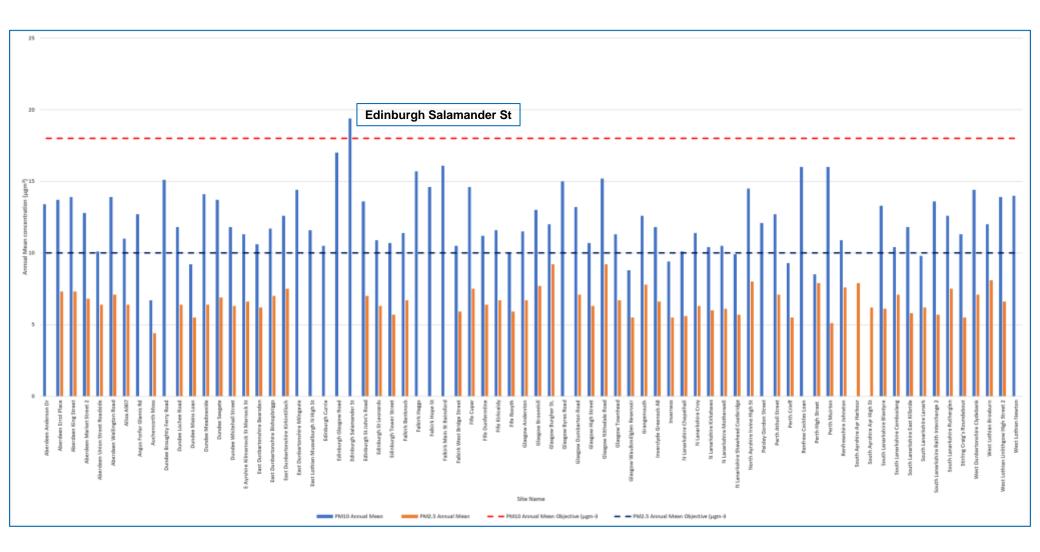


Annual Average PM₁₀ and PM_{2.5} concentrations (µg m⁻³) for all SAQD sites in 2018 (fully Ratified data)





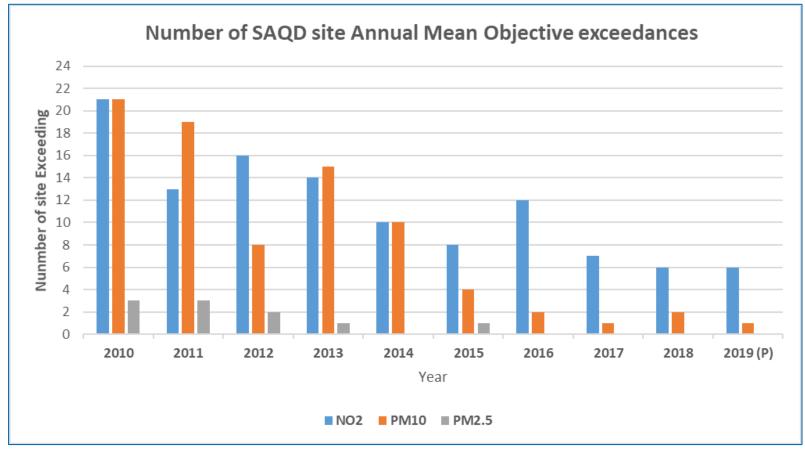
Annual Average PM₁₀ and PM_{2.5} concentrations (µg m⁻³) for all SAQD sites in 2019 (Provisional Data)



SAQD Data – Number of Annual Mean Objective Exceedances



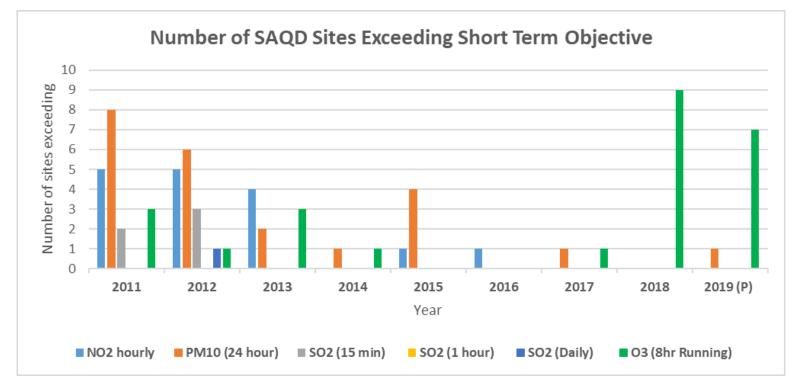




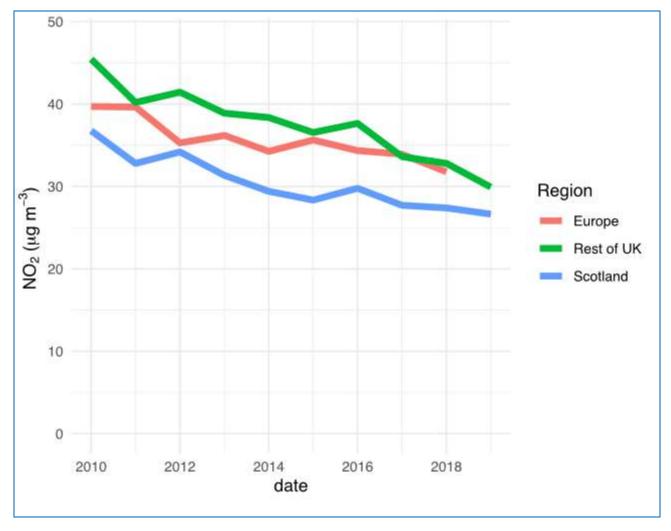
SAQD Data – Short Term Objective Exceedances







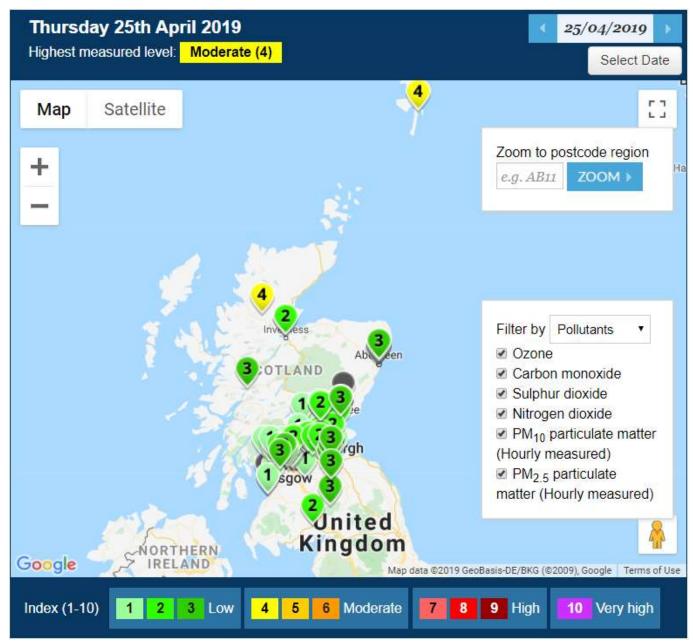
SAQD Data Comparison : Average Concentration at NO₂ Roadsides sites





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Regional Pollution Events in the last 12 months: 24th April 2019







Your Scottish Air Quality Database and Website





Your feedback and suggestions are important

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