

UNIVERSITY OF
BIRMINGHAM



Birmingham Air Quality Supersite

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WM-AIR
CLEAN AIR SCIENCE FOR
THE WEST MIDLANDS



NERC / BEIS Air Quality Infrastructure Investment

- Response to air quality / emissions research infrastructure capital investment call from BEIS / NERC

Project “Advanced UK Observing Network For Air Quality, Public Health and Greenhouse Gas Research” :

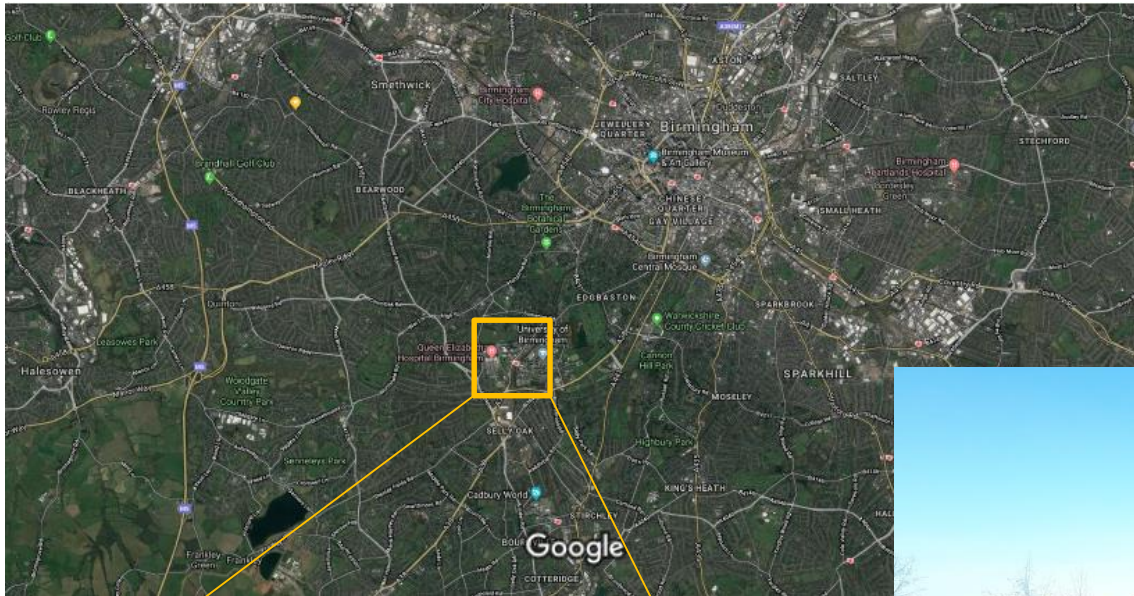
- Establish 3 x urban background air pollution observation facilities (London, Birmingham, Manchester)
- Establish road transport emissions detection capability (remote sensing / real-world approach)
- Upgrade research infrastructure for greenhouse gas source attribution & quantification

Feed into research by host institutions, NCAS, Defra (via AQEG)

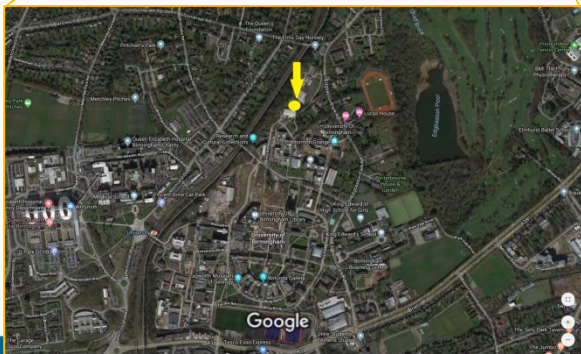


Birmingham Air Quality Supersite

- Highly instrumented air quality station on UoB campus
- Urban Background location with historical context from past measurements
- Limited immediate local anthropogenic sources (traffic)

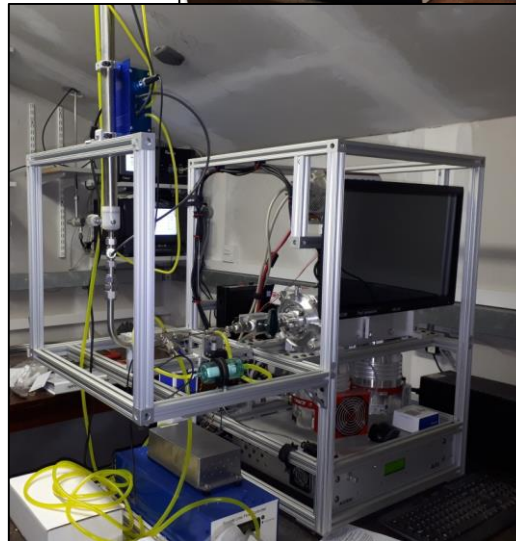


An *urban background* site located on the northern perimeter of the University of Birmingham campus (52.46 N, 1.93 W)



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Instruments / Capabilities

Measurement	Instrument
Gases	
NO ₂	Teledyne T500U CAPS
NO, NO _y	Teledyne T200U
SO ₂	Teledyne 43i TLE (Trace)
CO ₂ /CO/CH ₄	Los Gatos
NH ₃	Los Gatos
O ₃	Thermo 49i
VOCs	GC-MS (Operated by U. York)
Aerosols	
Aethelometer Black/brown Carbon	Magee Scientific AE33
On-line PM chem speciation	Aerodyne QuadMS
Particle size	FIDAS 200S
CPC	TSI 3772-CEN
Metals in Aerosol	Cooper Xact 625i
Met	
Photolysis rates	Metcon + Ocean Optics
Met Station/Disdrometer	BIRAL
Ceilometer	CHM8k



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Next Steps - Science

- Ongoing measurement of (evolving) urban background air composition
- Source Apportionment of PM (biomass burning / woodsmoke, cooking)
- Abundance, trends in nanoparticles
- Trends and source of NH_3 (and ammonium aerosol) – agriculture vs traffic

Next Steps – Data

- All online data (will be) public open access
- Feed into BCC network

Opportunities

- Hosting external projects (e.g. sensor evaluation)
- Interested to talk about other ideas, opportunities...

