

PM 2.5 monitoring and modelling network in Leicester

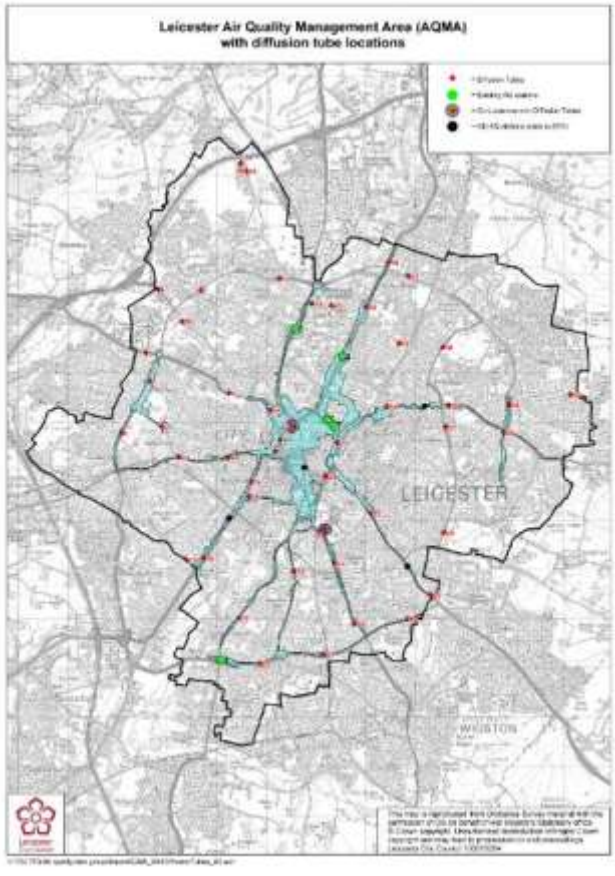
Roland Leigh
and
Dr Jolanta Obszynska

Smoke Control Area in Leicester



- Not long ago ,during 50s this was the skyline of Leicester
- Leicester City Council declared the whole area of the city as a Smoke Control Area through 38 separate Smoke Control Orders between 1958-75
- To make residents and businesses aware of this a single Smoke Control Order on 1 June 2018 was issued

Air Quality Network in Leicester



- Network of 5 Automatic Air Quality Stations – NO₂ and PM₁₀
- 50 Diffusion Tubes

How can we gain more information on PM_{2.5}

- Dedicated network of portable air quality monitors to detect PM_{2.5}
- Identification of likely areas of high PM_{2.5} concentration
- Near real time air quality modelling
- Source apportionment
- Guidebooks
- Engagement with stakeholders

Zephyr[®]

Air Quality Sensor

Measures

Standard Cartridge

Nitrogen Dioxide

Nitric Oxide

Ozone

PM₁

PM_{2.5}

PM₁₀

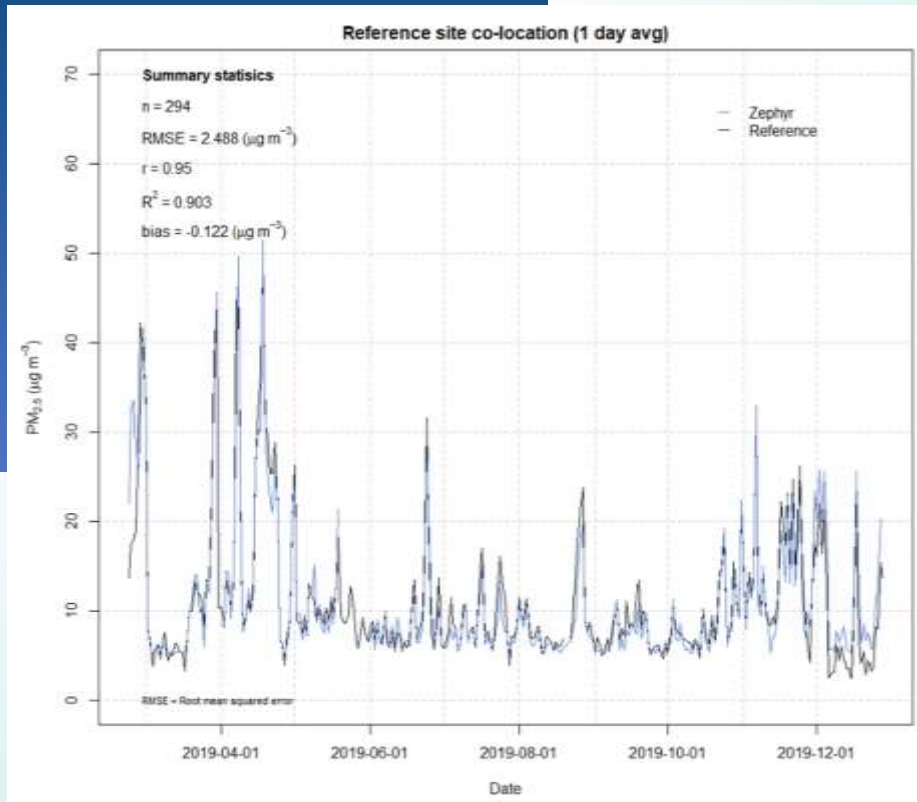
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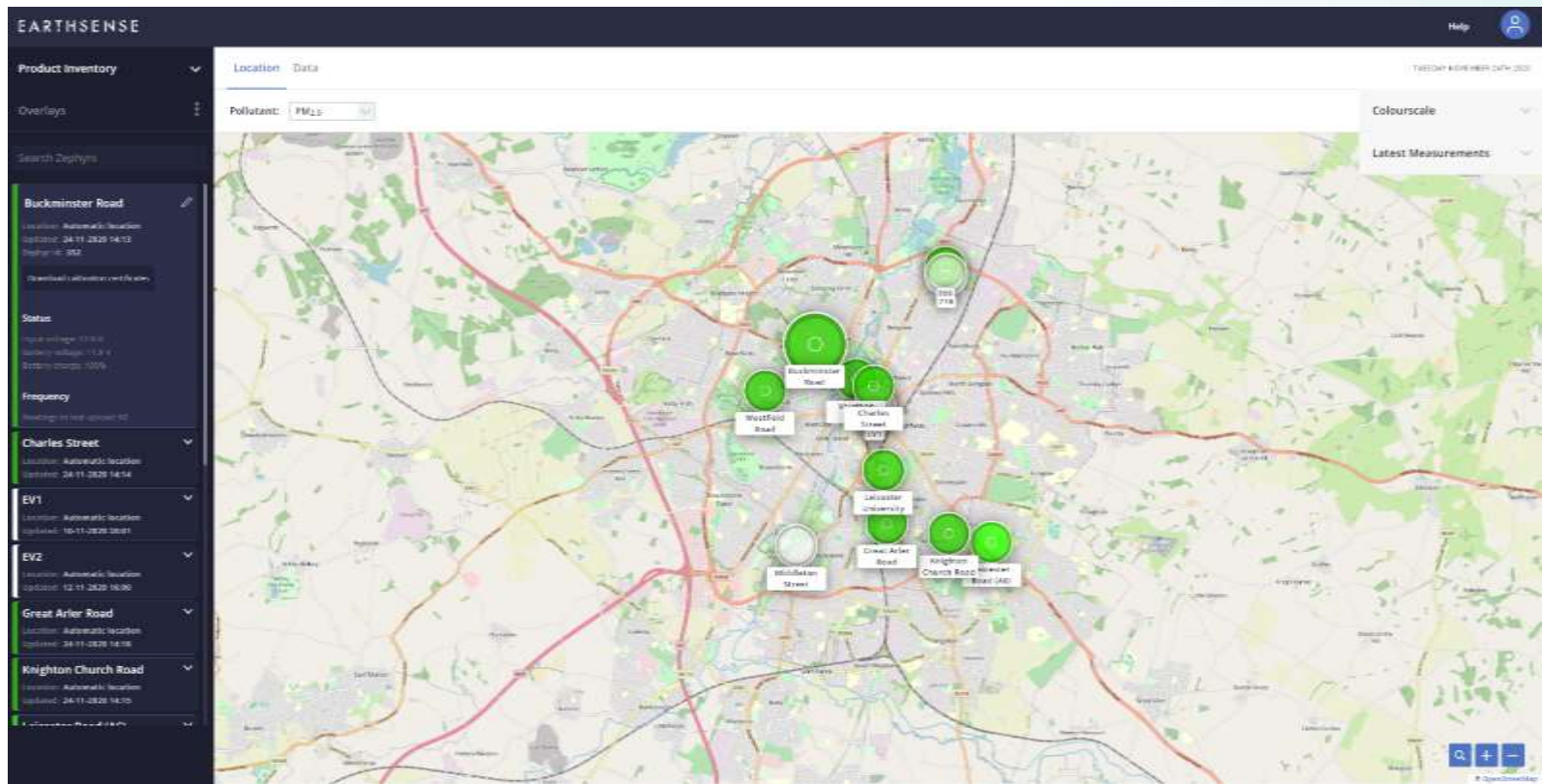
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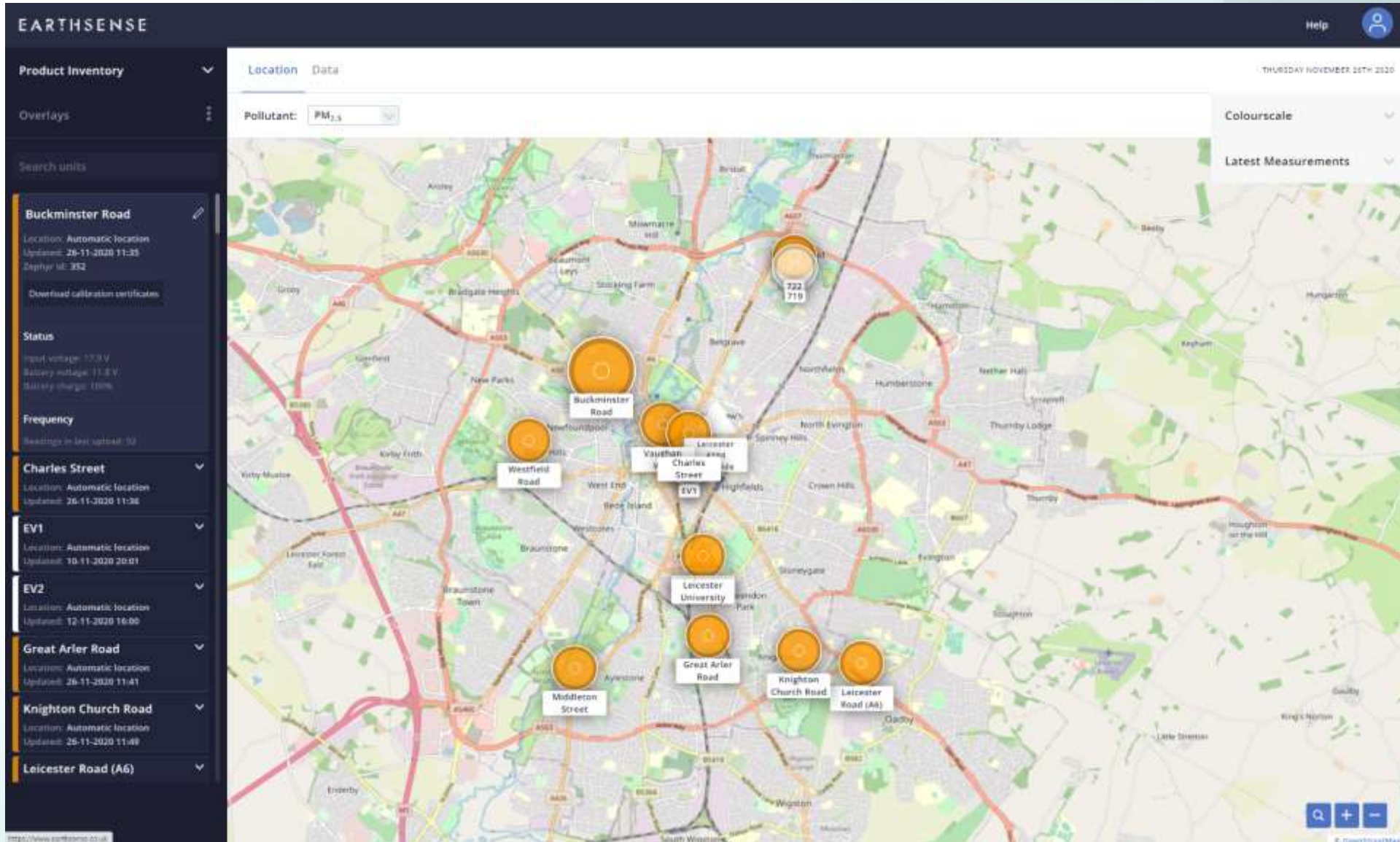


Static Zephyr powered using solar panel, Leicester

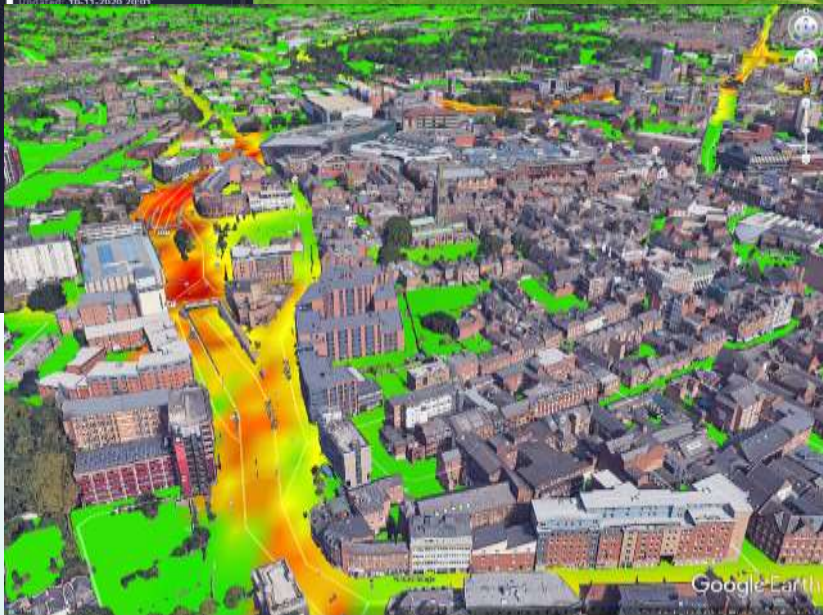
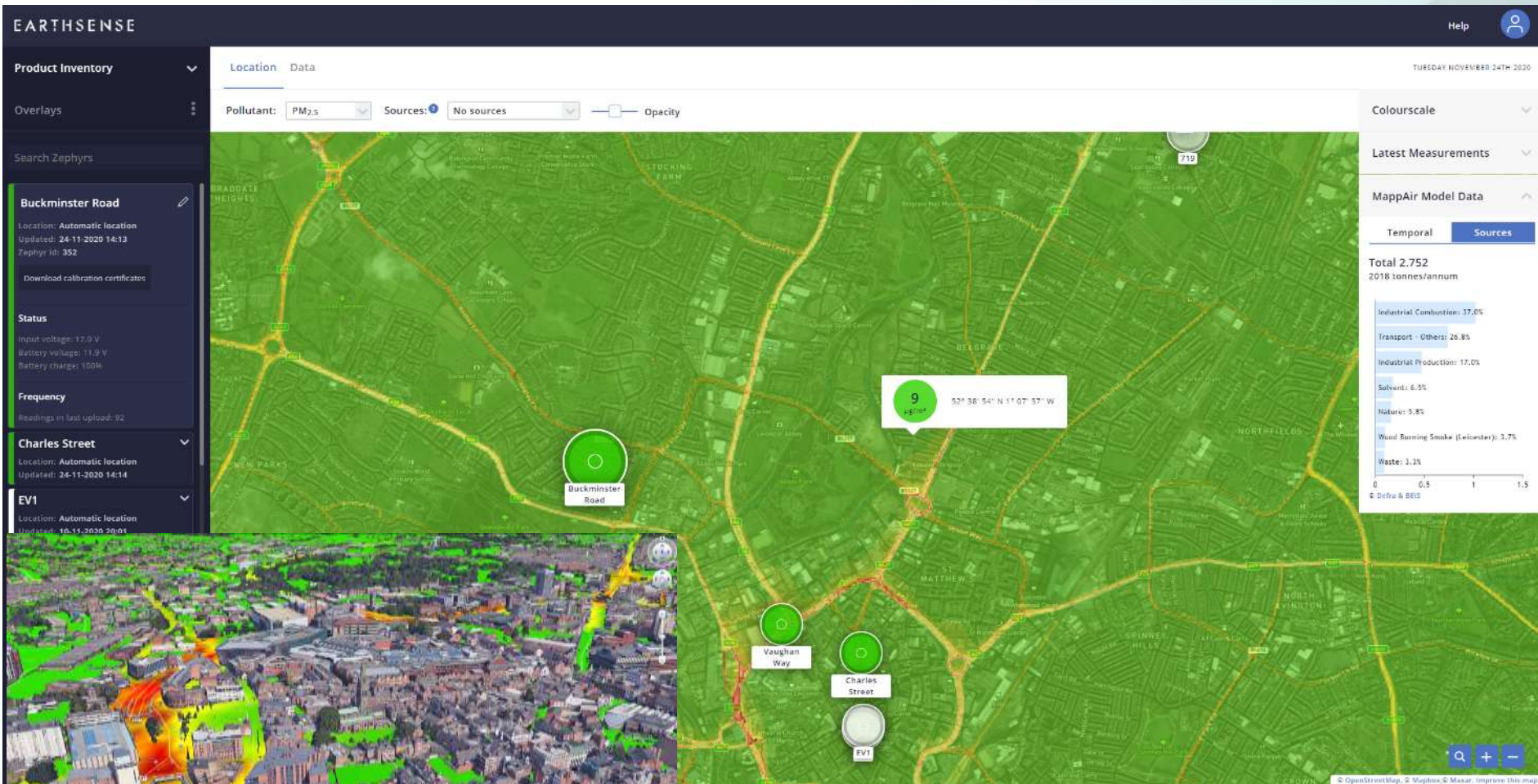




Network of 11 sensors installed in Q2 2020.
 Aim to measure Woodburning emissions over winter 2020/2021.
 A mixture of Traffic, Woodburning, background and control sites.



10m PM2.5 Model for Leicester



EARTHSENSE

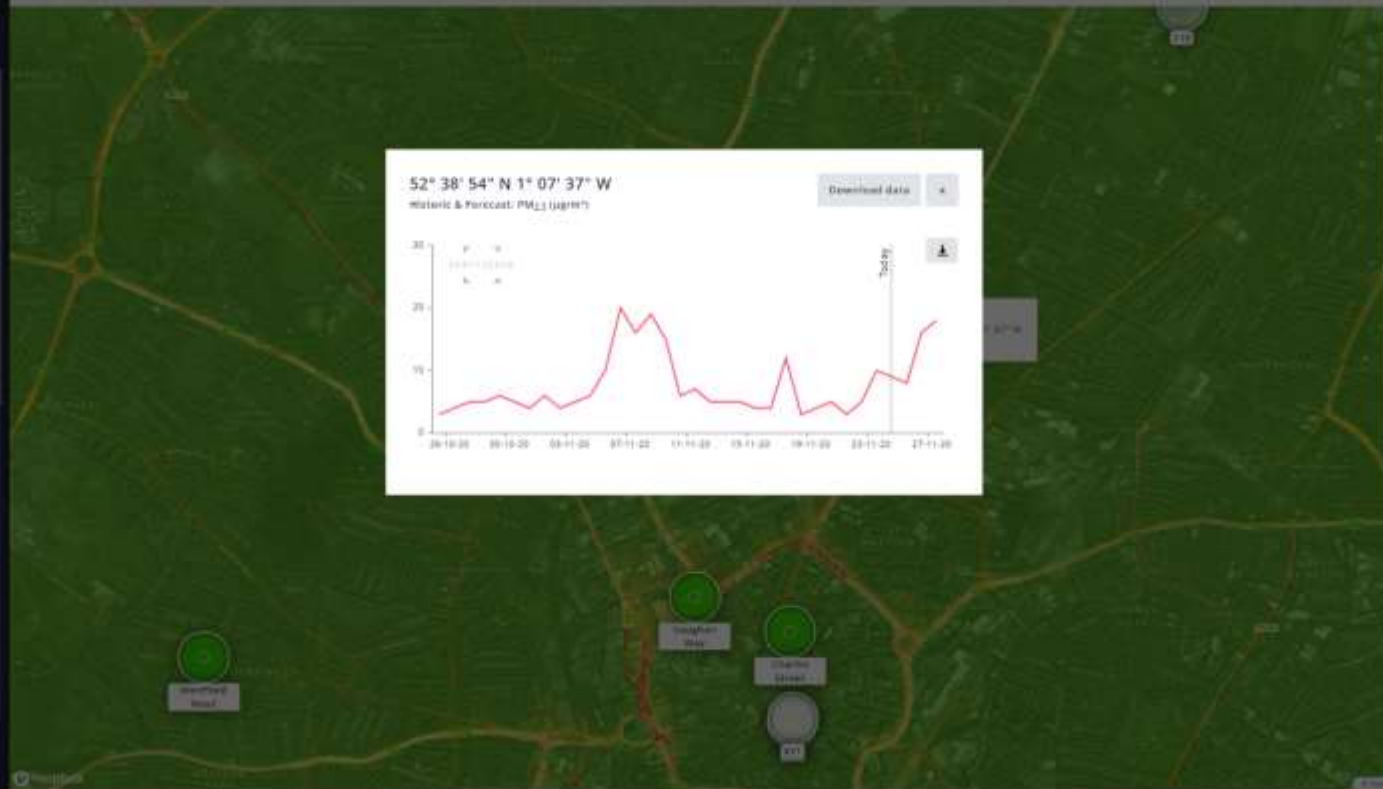




- Product Inventory
- Overlays
- Search Results
- Rockminster Road**
 - Coordinates: 52° 38' 54" N 1° 07' 37" W
 - Address: 24 11 0020 14 14
- Charles Street
- EV1
- EV2
- Great Arter Road
- Knighton Church Road

Location: Data

Pollutant: PM_{2.5} Sources: No sources Quality



Colourscale

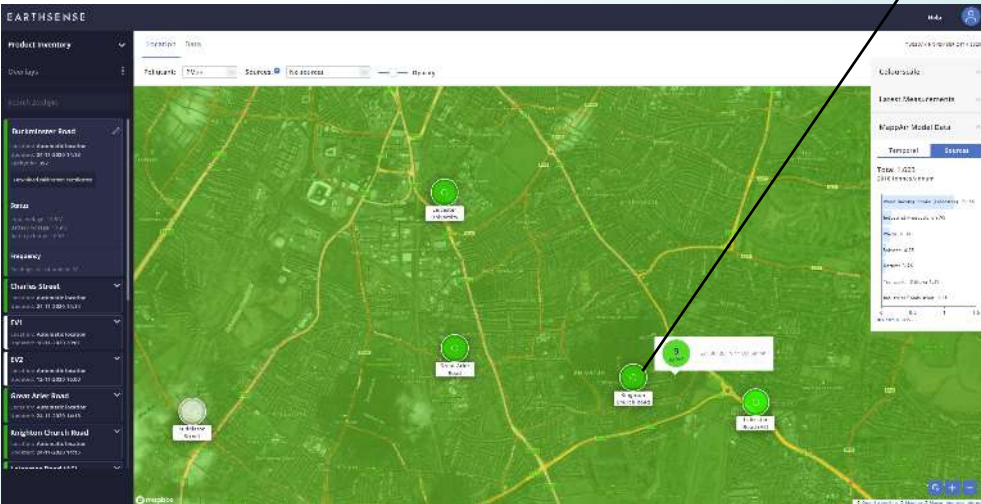
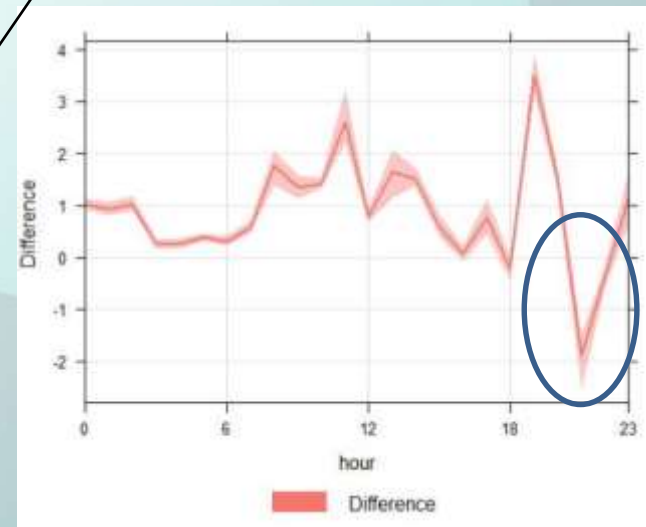
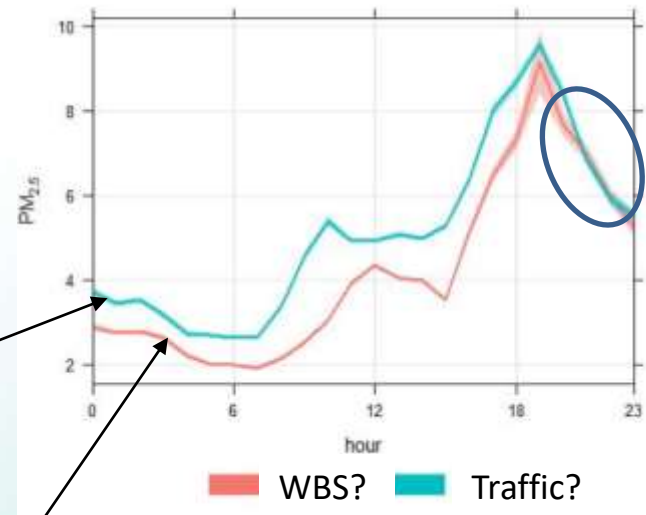
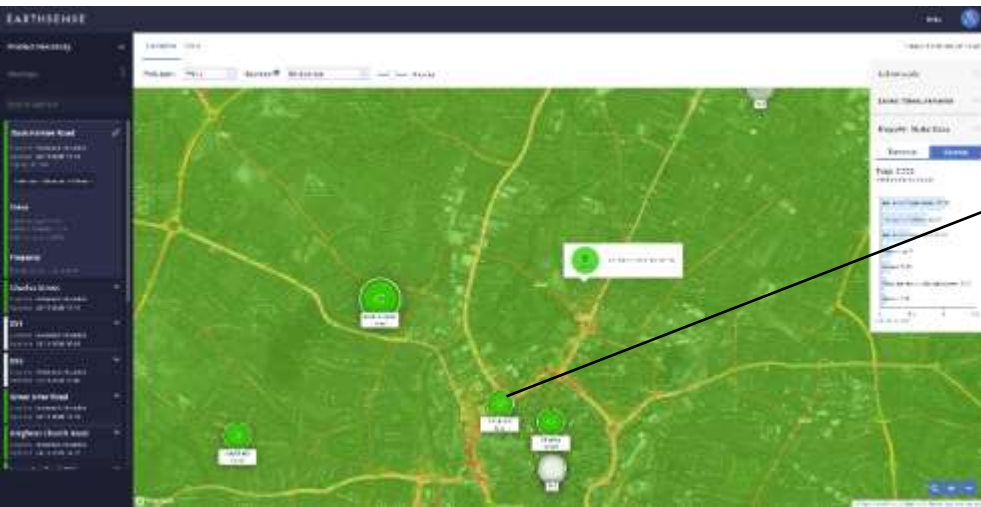
Latest Measurements

Meppair Model Data

Historic & Forecast
Meppair PM_{2.5} (µg/m³)

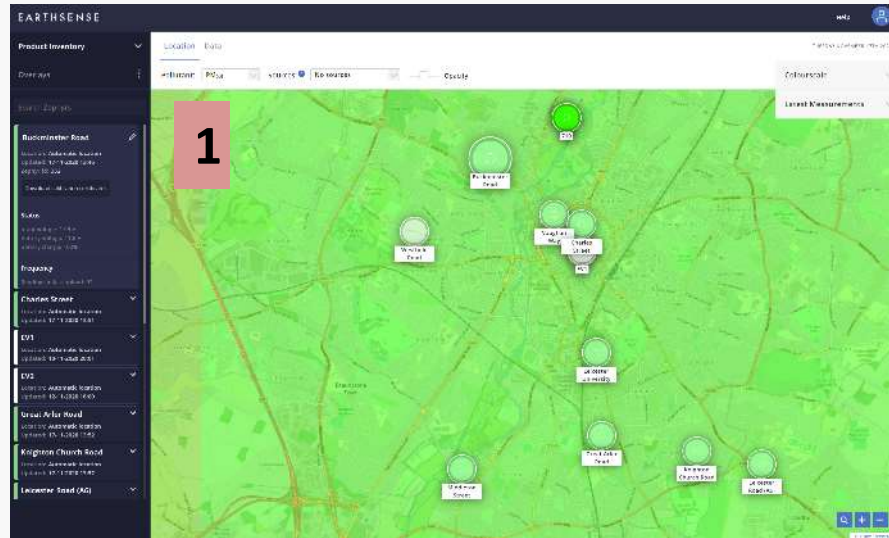


Some very early data: 12th-23rd November (After bonfire/firework spikes)



Three Primary Portals

1. The Professional Portal
2. The Public Web Portal
3. The Public Mobile Portal



Summary

- Detailed measurement network established for PM2.5 in Leicester (11 Zephyrs)
- 10m Model established, with dedicated WBS module.
- A range of portals created for both local authority use, and public communication.
- A range of advise documents created.
- So far so good – key findings to be communicated in 2021!

