



Mapping environmental insights worldwide

Karin Tuxen-Bettman, Google

Since 2013...
[g.co/earth/airquality](https://www.google.com/earth/airquality)



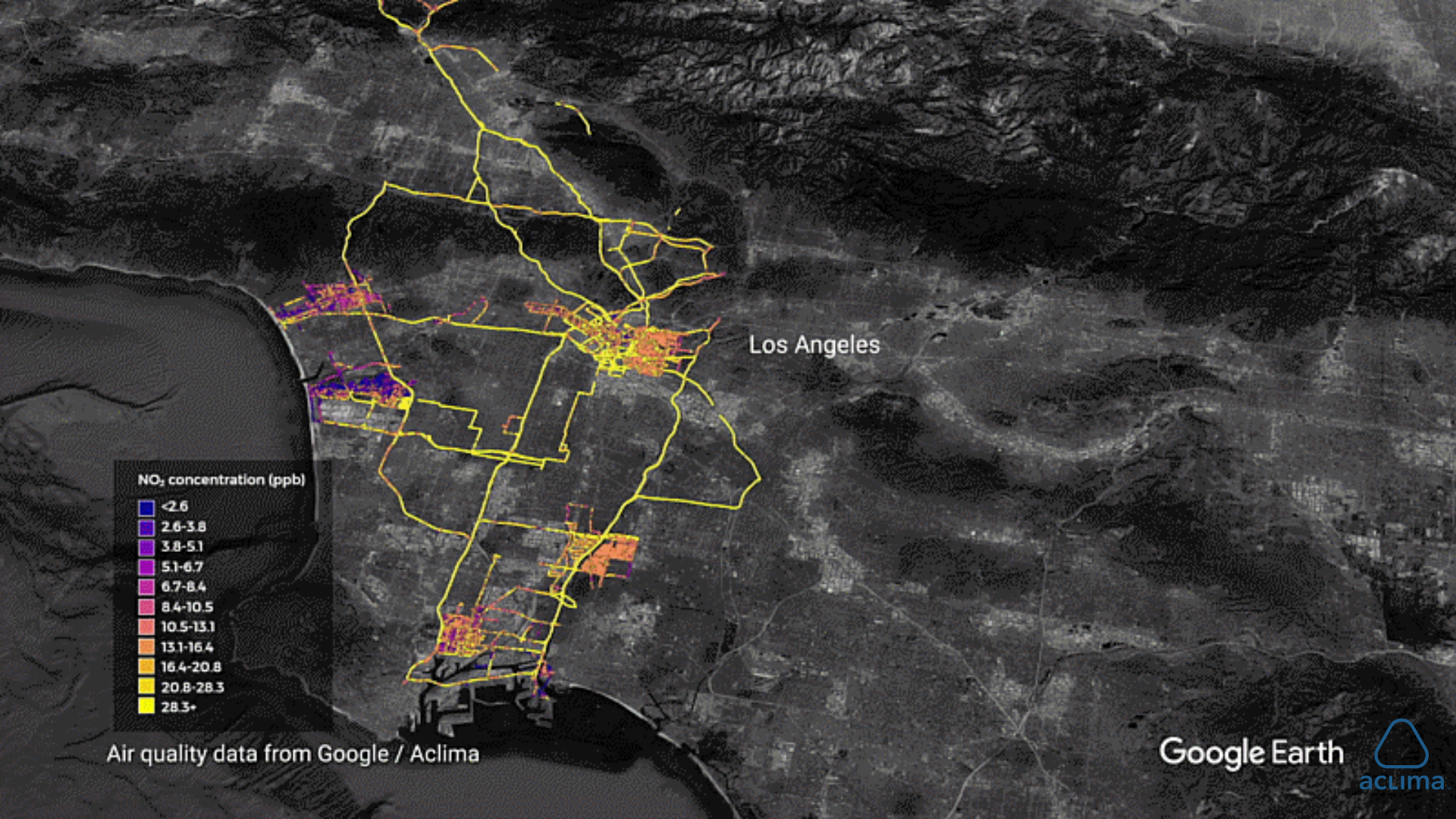
Black Carbon in Oakland, CA

edf.org/airqualitymaps



Apte et al 2017. [“High-Resolution Air Pollution Mapping with Google Street View Cars: Exploiting Big Data”](#) Environmental Science & Technology.





Air quality data from Google / Aclima

Air quality

Current Average

Breathe London monitors

- Monitor sites
- On-road (NO2 only)

Other monitors

- Regulatory networks

Pollutant

- NO2
- PM2.5
- Coming soon
- PM10
- O3

Concentration ($\mu\text{g}/\text{m}^3$)

- > 200
- 100 - 200
- 60 - 100
- 40 - 60
- 20 - 40



Air quality

Current Average

Breathe London monitors

Monitor sites

 On-road (NO2 only)

Other monitors

Regulatory networks

Pollutant

NO2

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Coming soon

PM10

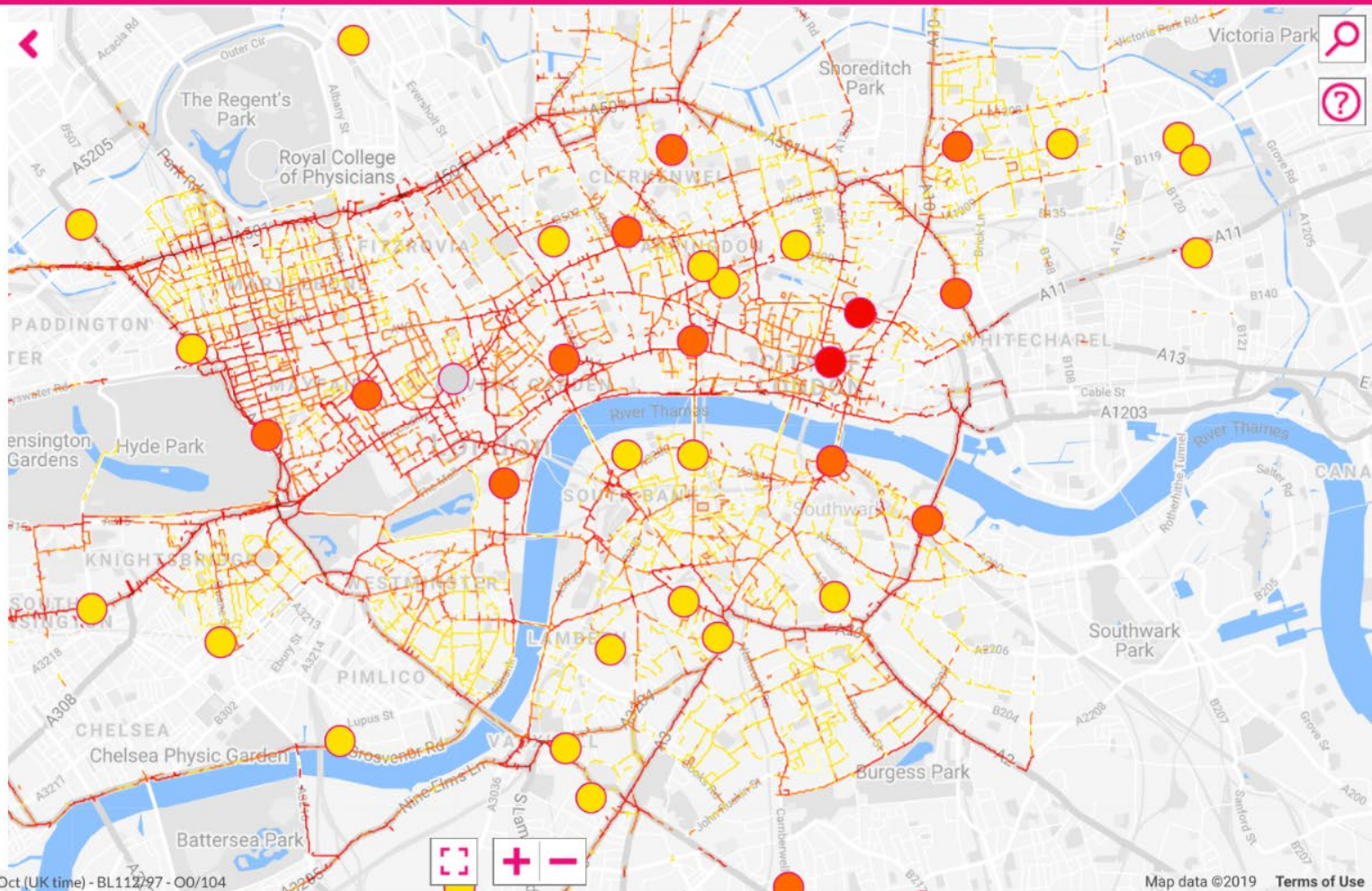
O3

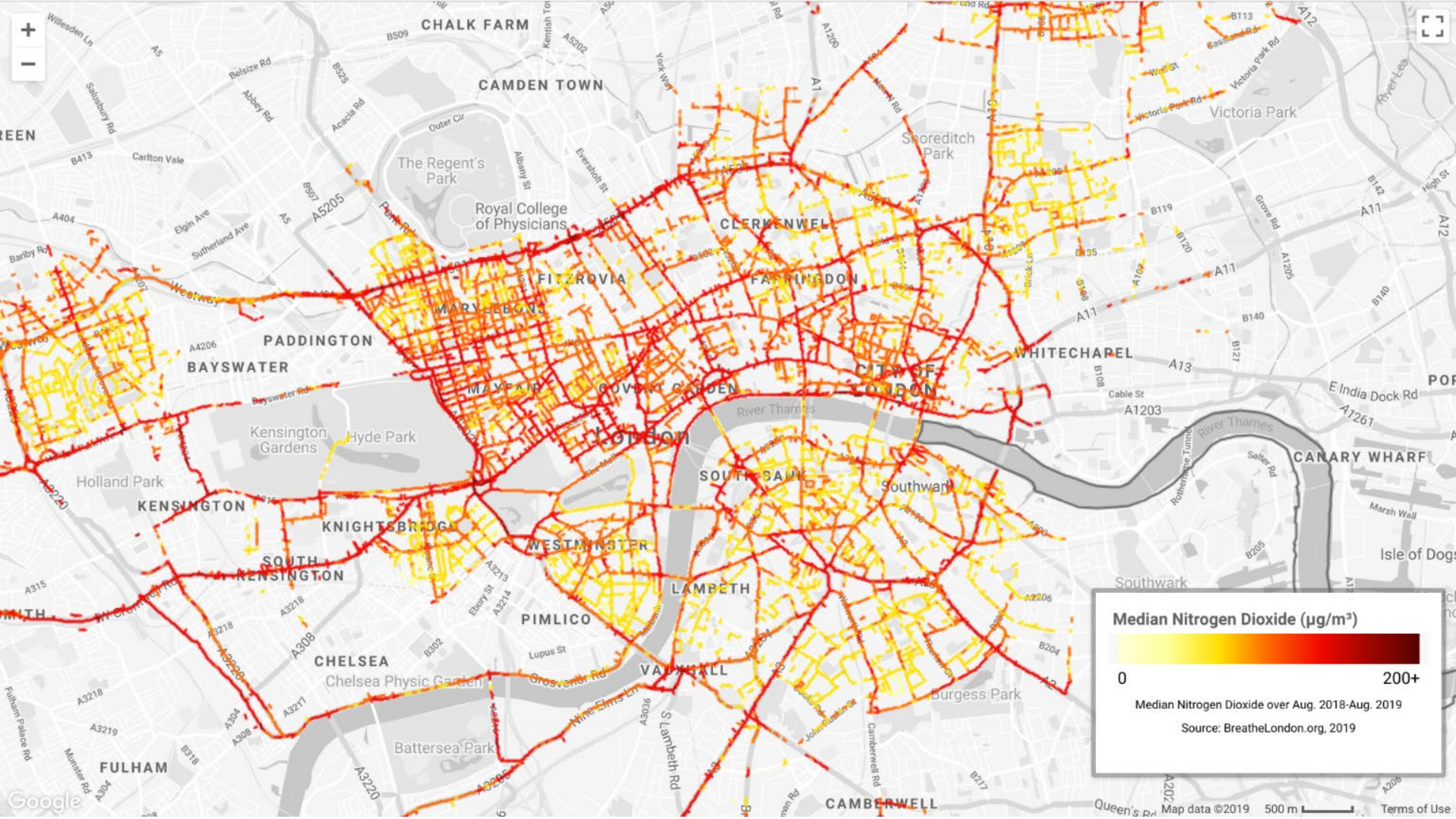
Concentration ($\mu\text{g}/\text{m}^3$)

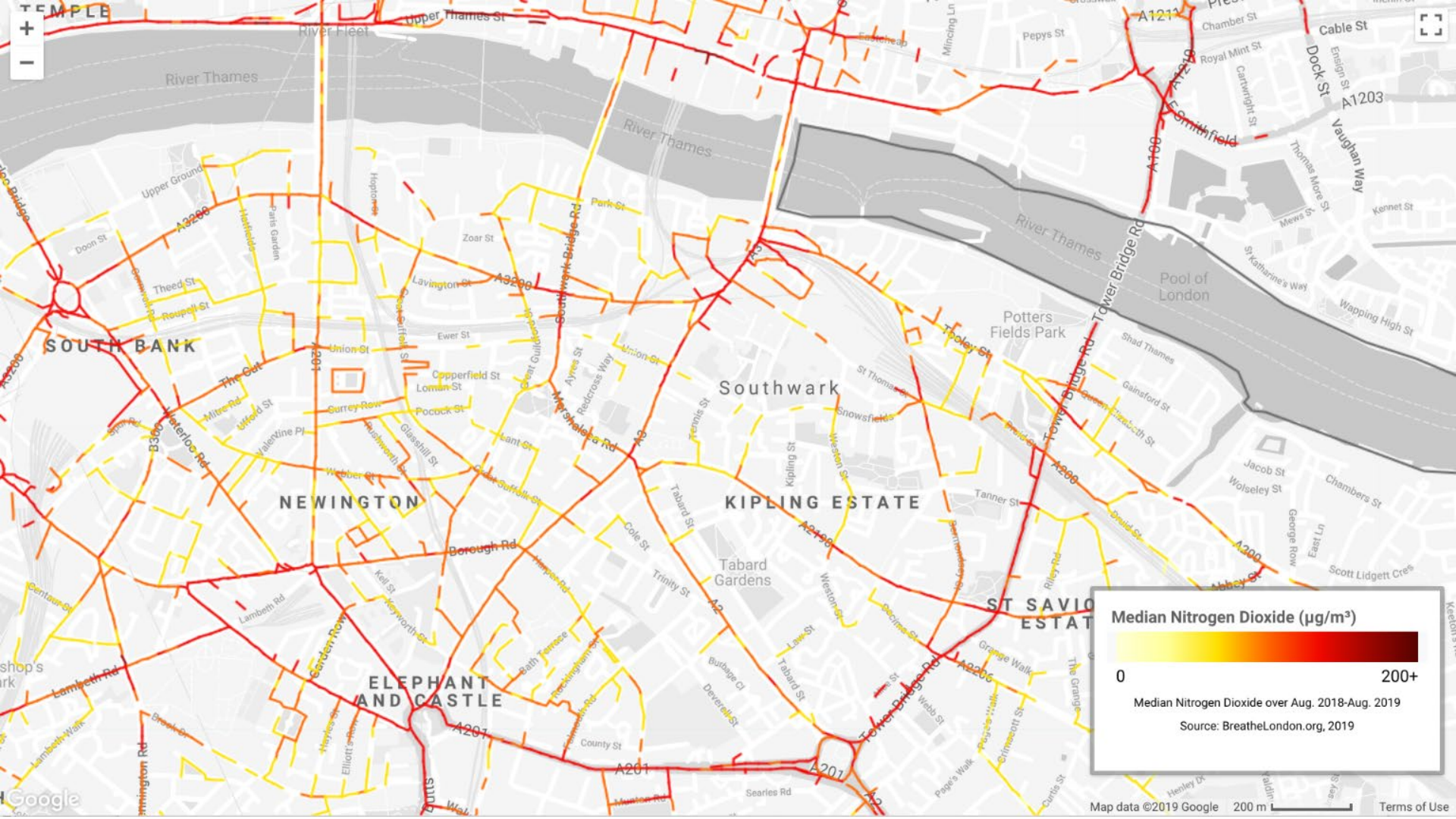
> 200

100 - 200

60 - 100







Google

Environmental Insights Explorer



Measure, plan, and act to reduce emissions.
Explore data to take informed action.

Find your city

Expanding data access to more cities this year.

Request a city

In partnership with the Global Covenant of Mayors for Climate & Energy

Mapping emissions

insights.sustainability.google



Labs: Air Quality

Explore new climate-focused datasets in EIE Labs

Discover hyperlocal, street-by-street, air quality data

Google and our partners have started mapping street-level air pollution with mobile air sensors in Copenhagen and London. Air quality can vary drastically between and within city blocks, and developing a deeper understanding of air quality can inform actions to make things better.

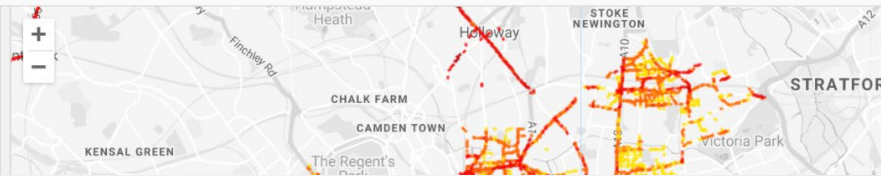
[Want to get involved?](#)

Earth Engine Apps Experimental

Search places

Air Quality Explorer

Choose City London



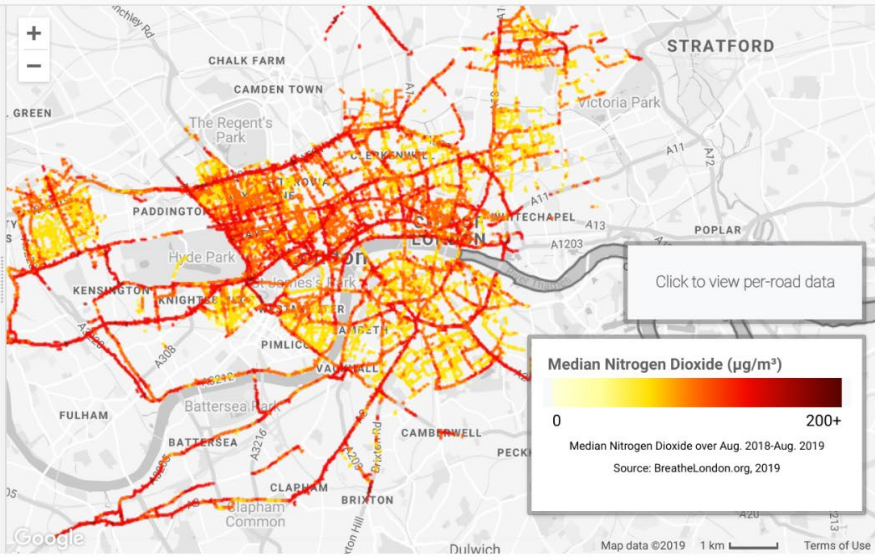
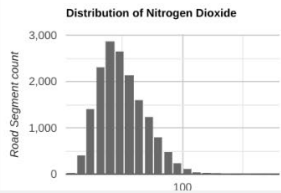
Air Quality Explorer

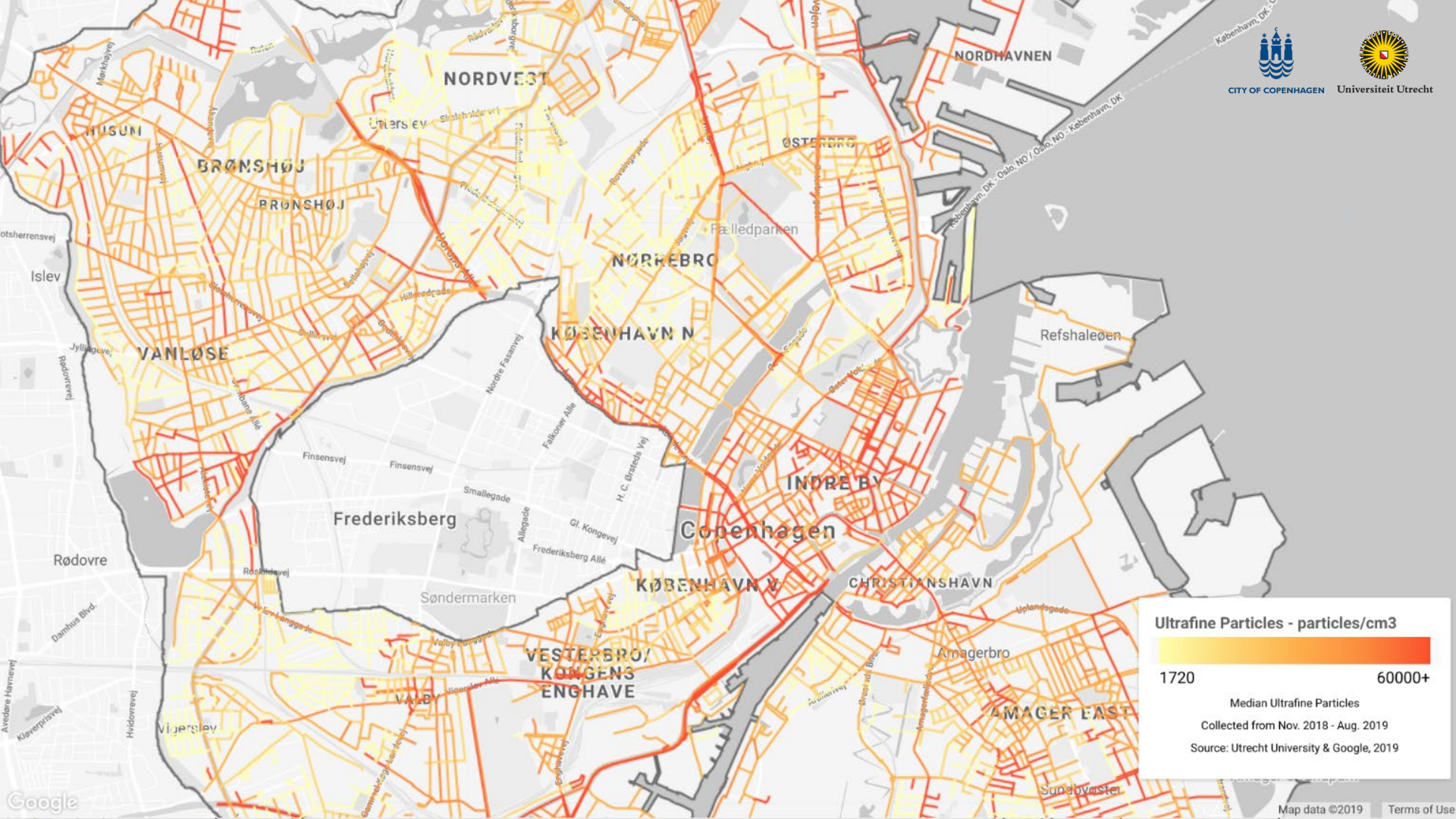
Choose City London

Choose Pollutant Nitrogen Dioxide


London Nitrogen Dioxide

City-wide Median 50 ($\mu\text{g}/\text{m}^3$)





Ultrafine Particles - particles/cm³

1720  60000+

Median Ultrafine Particles
 Collected from Nov. 2018 - Aug. 2019
 Source: Utrecht University & Google, 2019

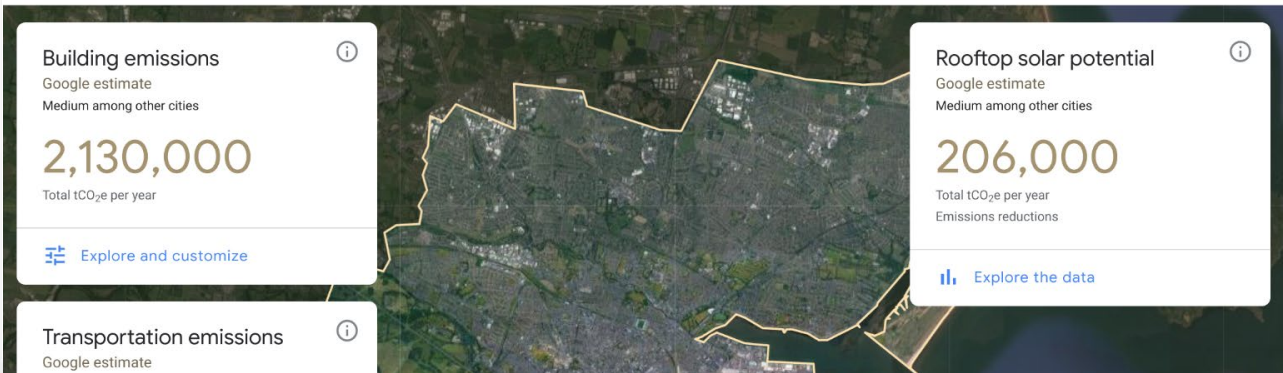
Dublin City

Ireland

Size: 117 km²
Population: 575,899

Emissions for Dublin City are estimated for the boundary indicated on the map using Google activity data combined with the Climate Action for Urban Sustainability (CURB) tool's city energy profiles. Building emissions and solar potential values are generated from 70,700 buildings. Transportation emissions are estimated from 854,000,000 trips that started or ended in Dublin City in 2018.

[Learn about the data](#)
[Learn why emissions values can differ](#)



Transportation emissions

Google estimate

1,310,000

Total tCO₂e per year

Medium among other cities

Source:

Google Maps uses aggregated location information from user trips to infer traffic, mode of travel, busyness, and total distances driven in a city. These are combined with an estimate of the types of vehicles and average fuel consumption of each mode.

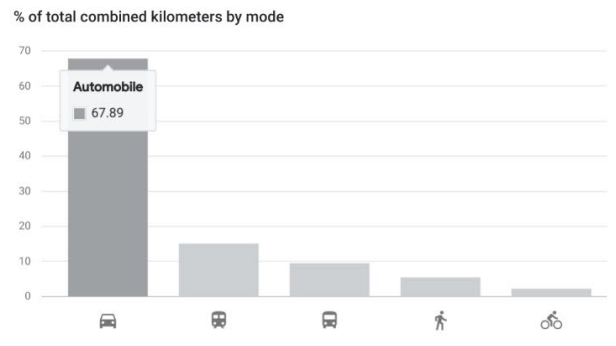
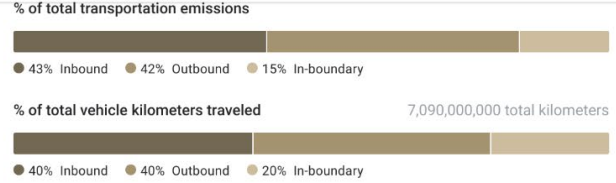
Time period:

Total trips for year 2018.

Key assumptions:

Regionally estimated average fuel consumption and emissions from the Climate Action for Urban Sustainability (CURB) tool applied to all trips for each mode.





Expanding to more cities

g.co/earth/airquality

Particulate matter

Carbon Dioxide (CO₂)

Carbon Monoxide (CO)

Nitric Oxide (NO)

Nitrogen Dioxide (NO₂)

Ozone (O₃)





Thank you
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