



HOTBAR

High-resolution PM_{2.5} measurements from satellites

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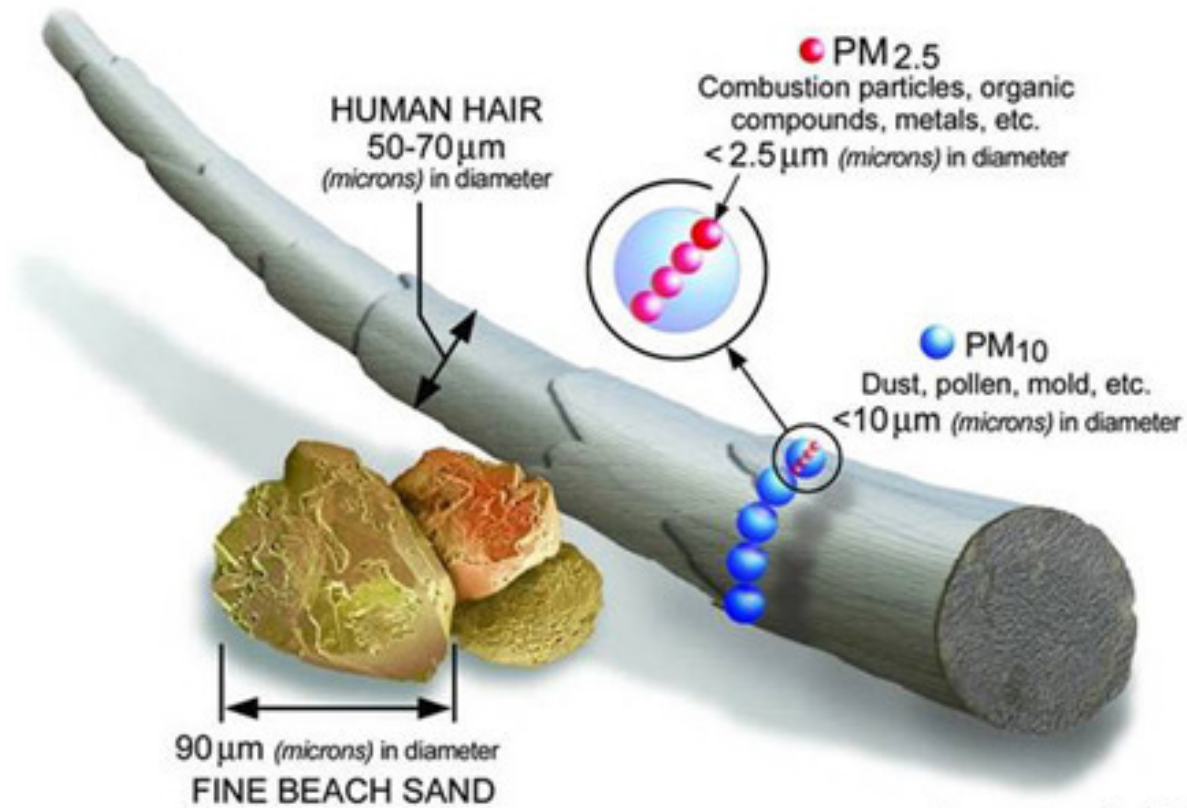


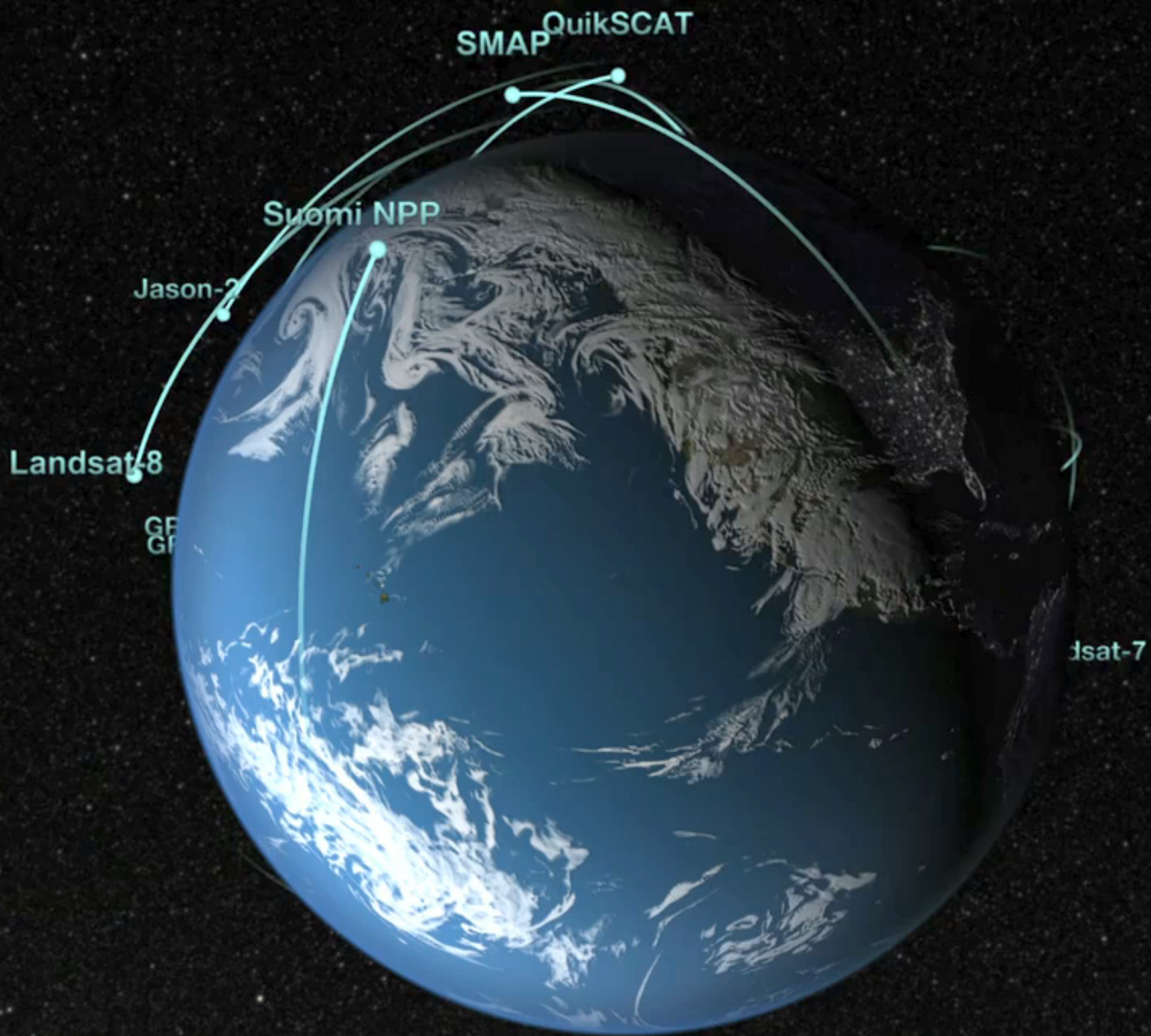
Image courtesy of the U.S. EPA

**Over 3 million people die
prematurely each year from
particulate matter air pollution**



33 sites in Central London (not all measuring PM!)

3 sites in Soton (1 measuring PM)



Landsat – 30m



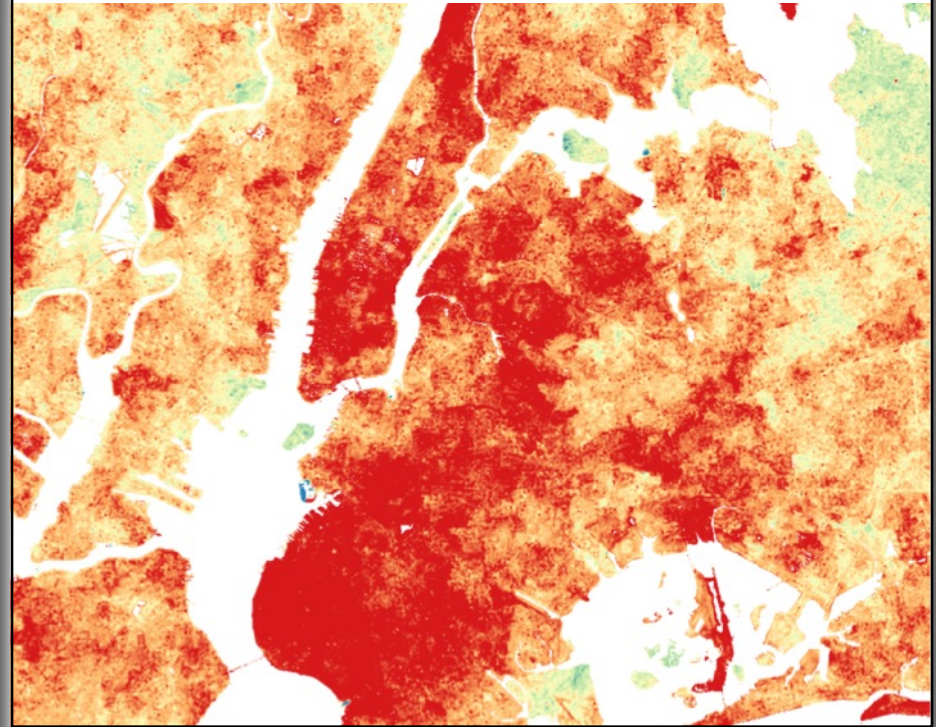
Landsat – 30m



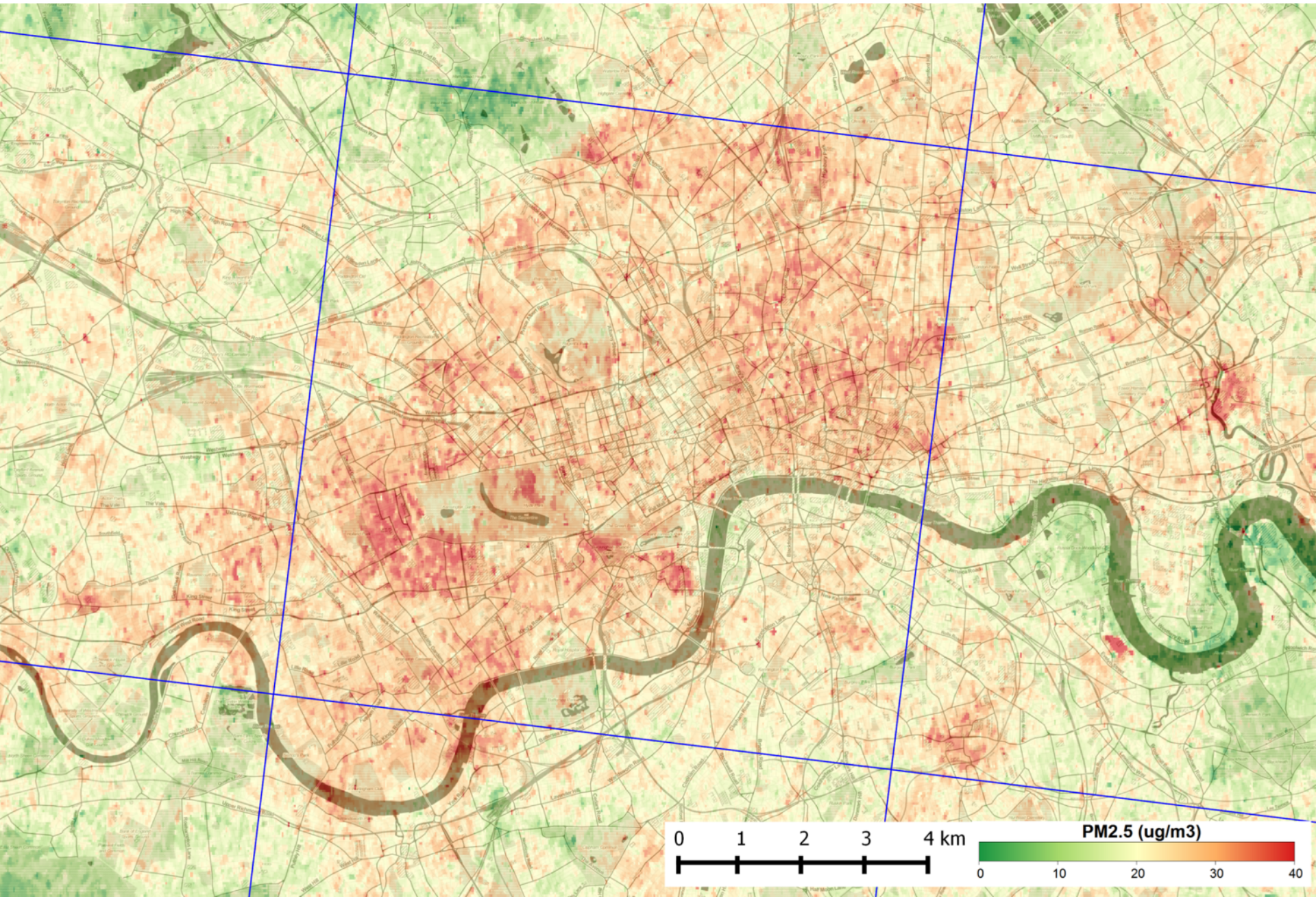
MODIS

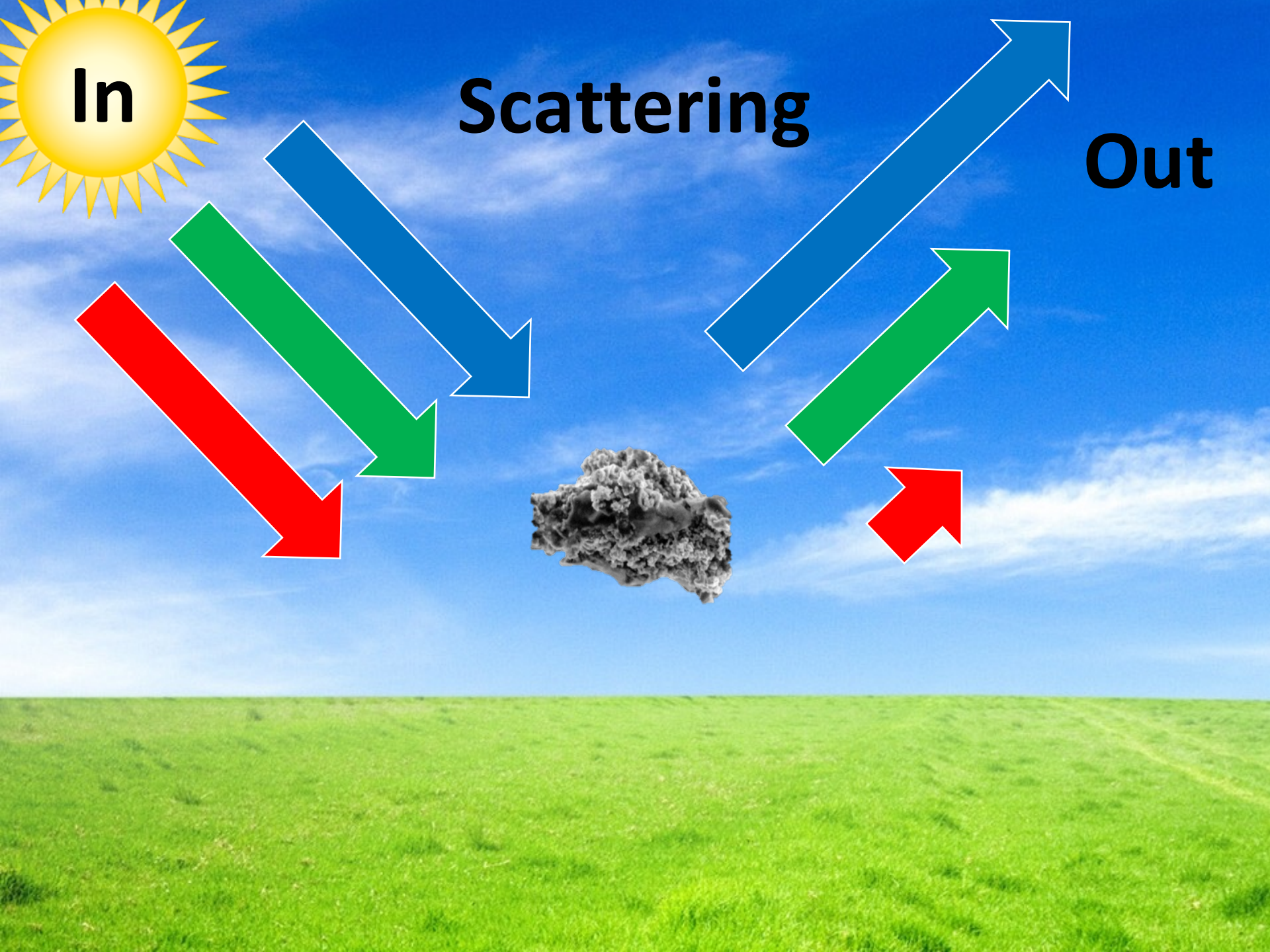


HOTBAR



Over 100,000 times the detail

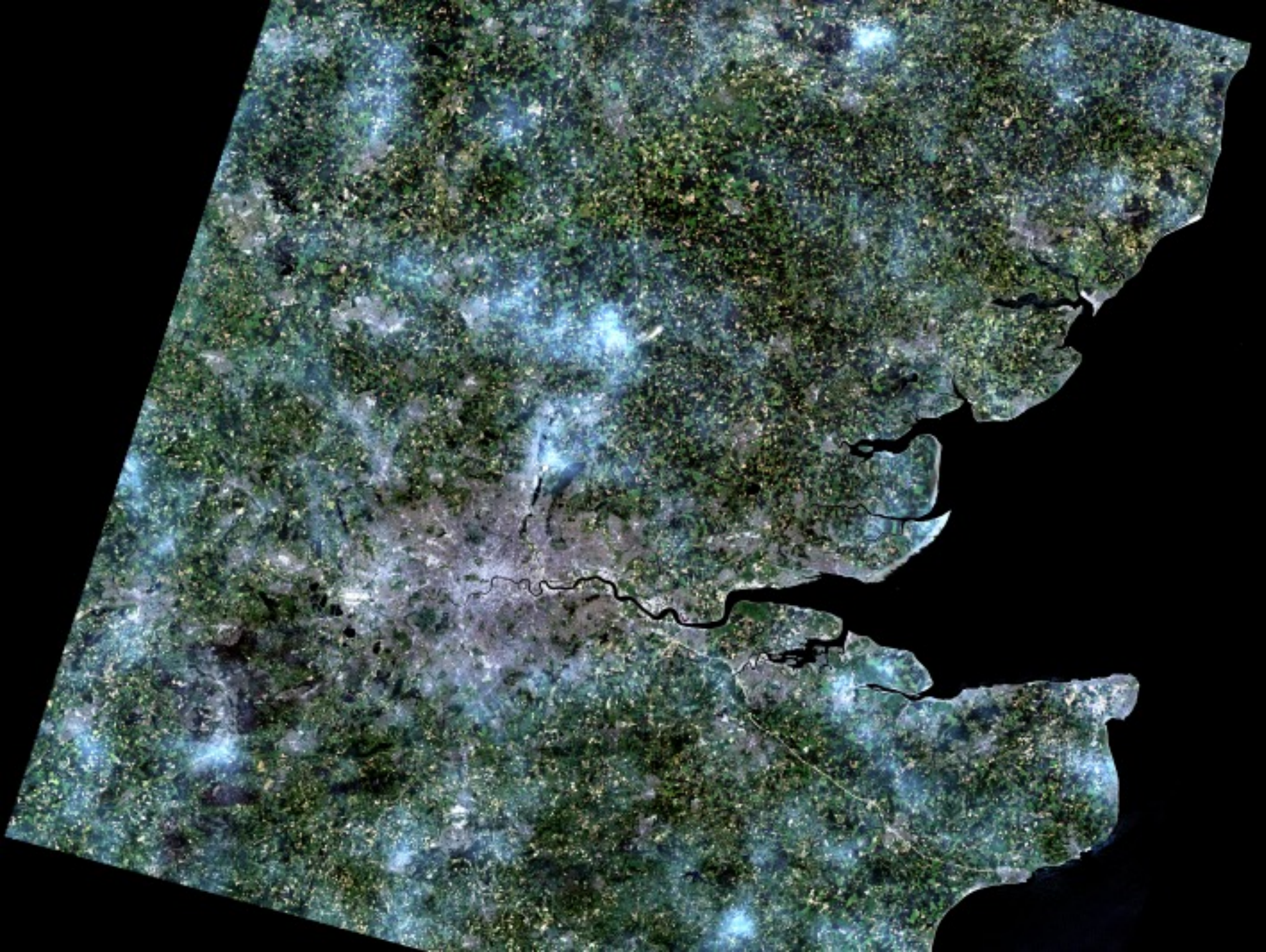


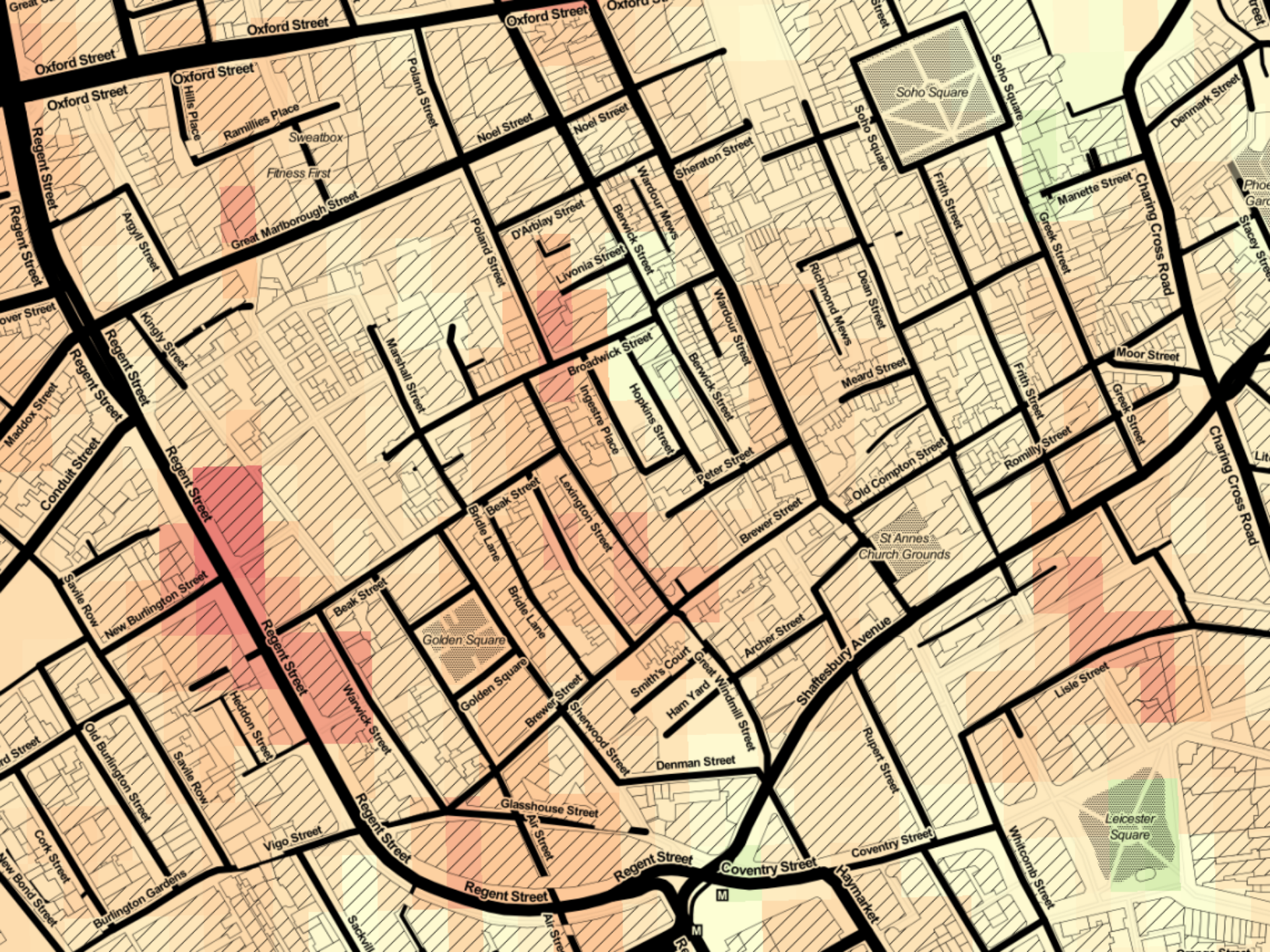


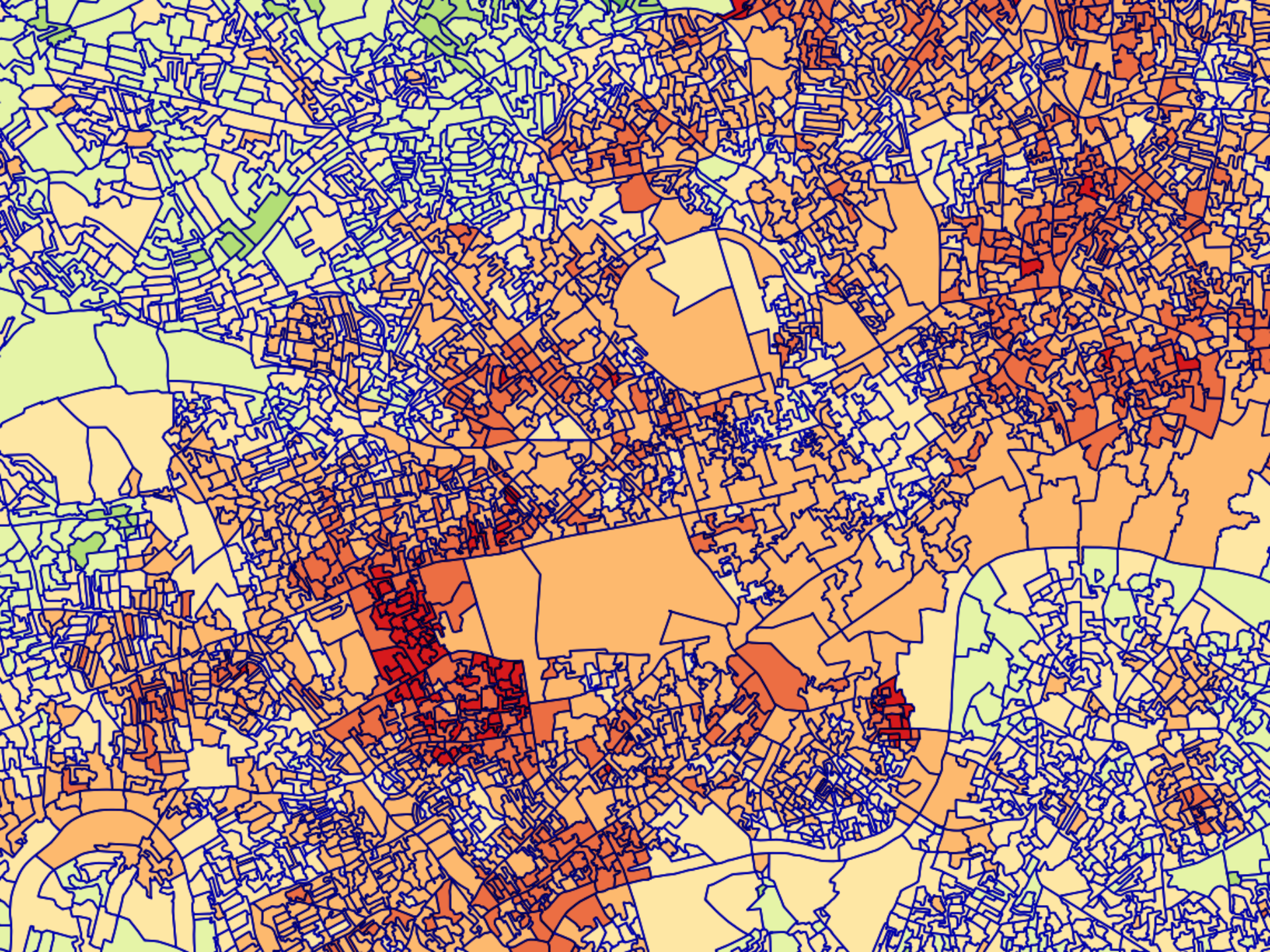
In

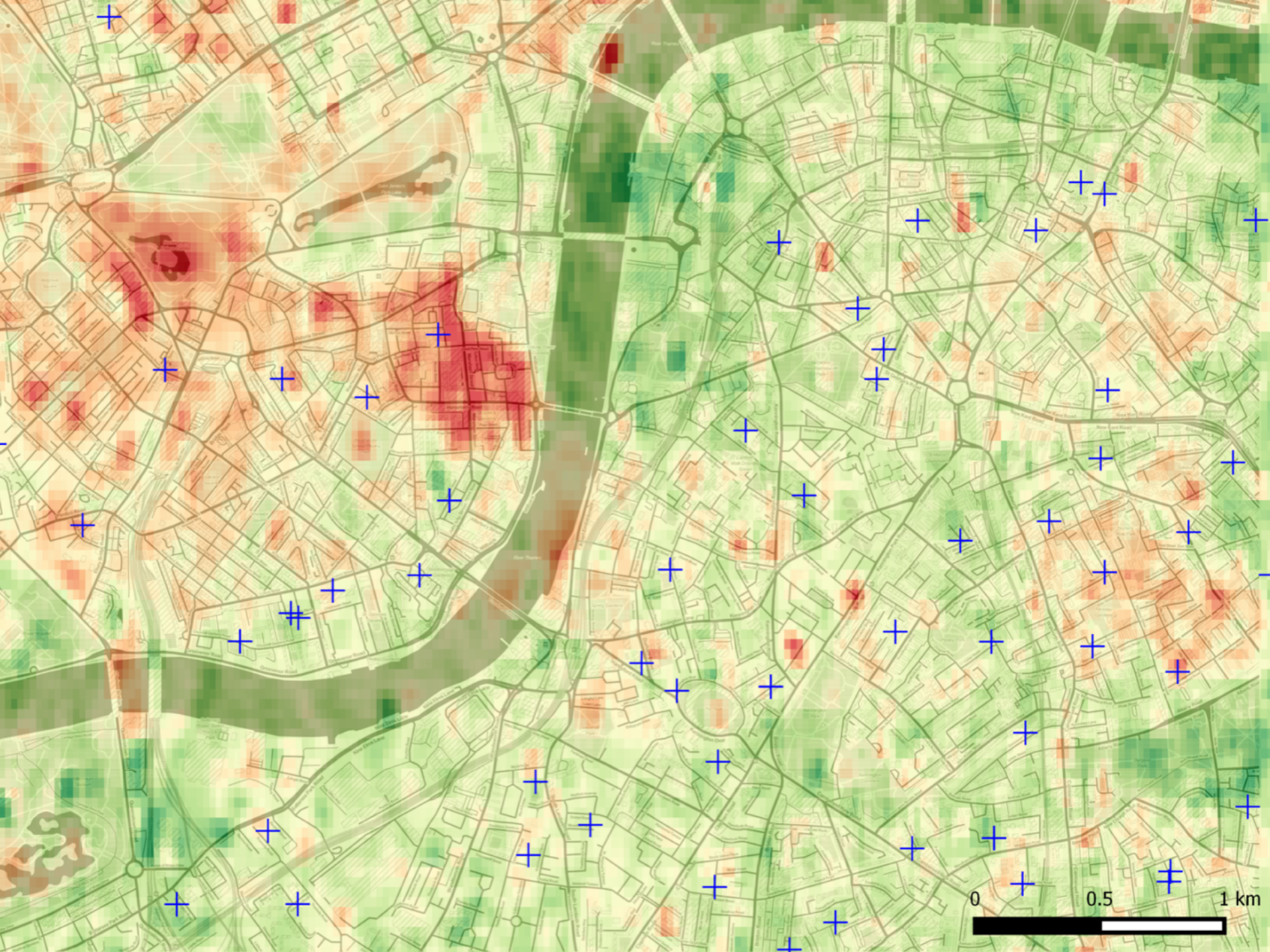
Scattering

Out

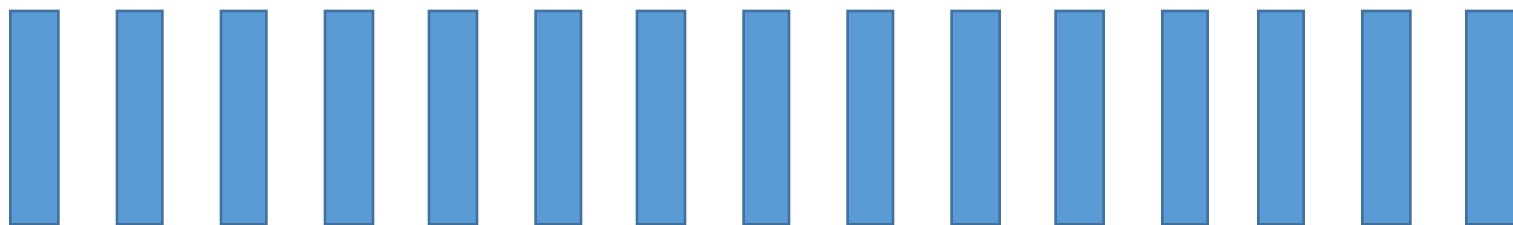




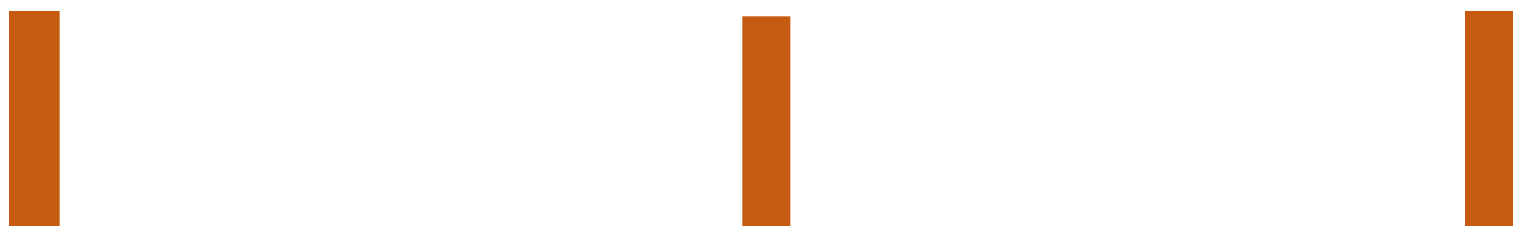




MODIS
(10km)



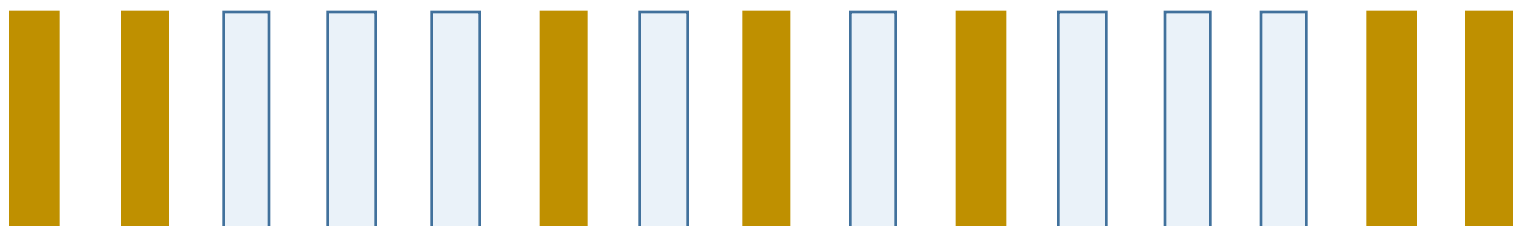
Landsat
(30m)



Sentinel-2
(20m)



Combined



Validation (it's hard to do well!)

- **PM_{2.5} (median error)**

- Comparison with AURN sites $6.0\mu\text{g m}^{-3}$
- *Ground instrument (for comparison)* $2.5\mu\text{g m}^{-3}$
- *Global 10km analysis (van D, 2010)* $6.7\mu\text{g m}^{-3}$

All likely to decrease!

What next?

- Currently working to improve/extend the method

What do YOU want?