



# USING SPACE-BASED DATA AND GEOSPATIAL DATA TO TACKLE CLIMATE CHALLENGES

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The global challenge



Why EO needs GEO



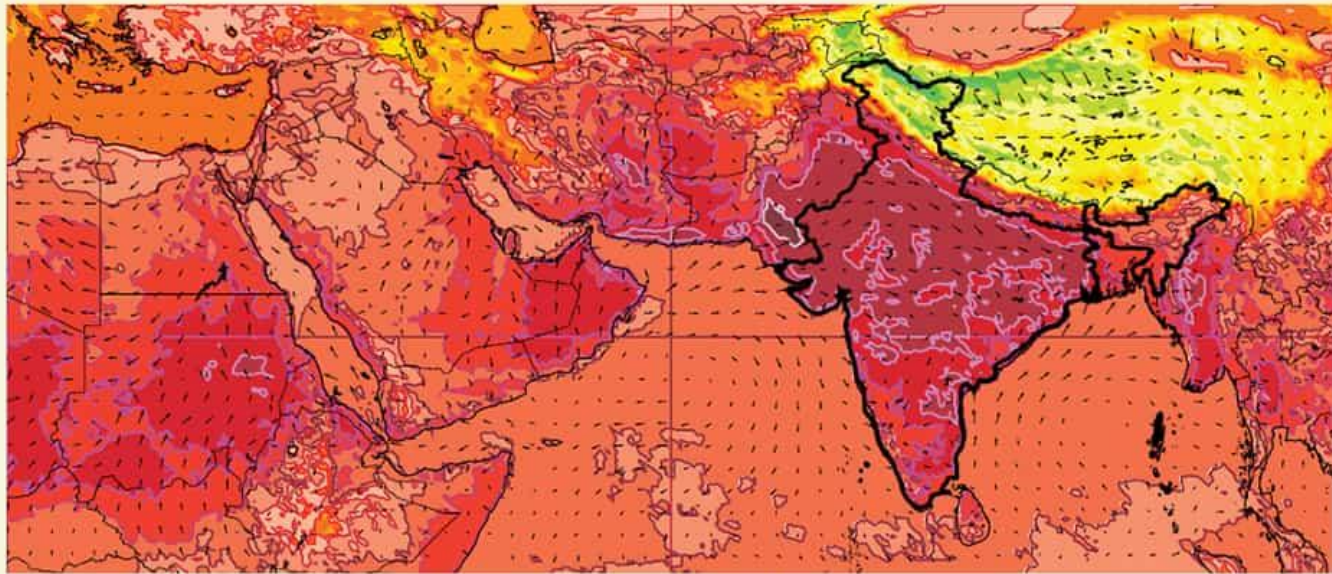
Use cases

# The climate change challenge

## South Asia engulfed in heat



Vast sections of the Indian subcontinent, starting from Balochistan and Sindh in Pakistan all the way to Odisha and Bihar in east India are currently experiencing extreme heat



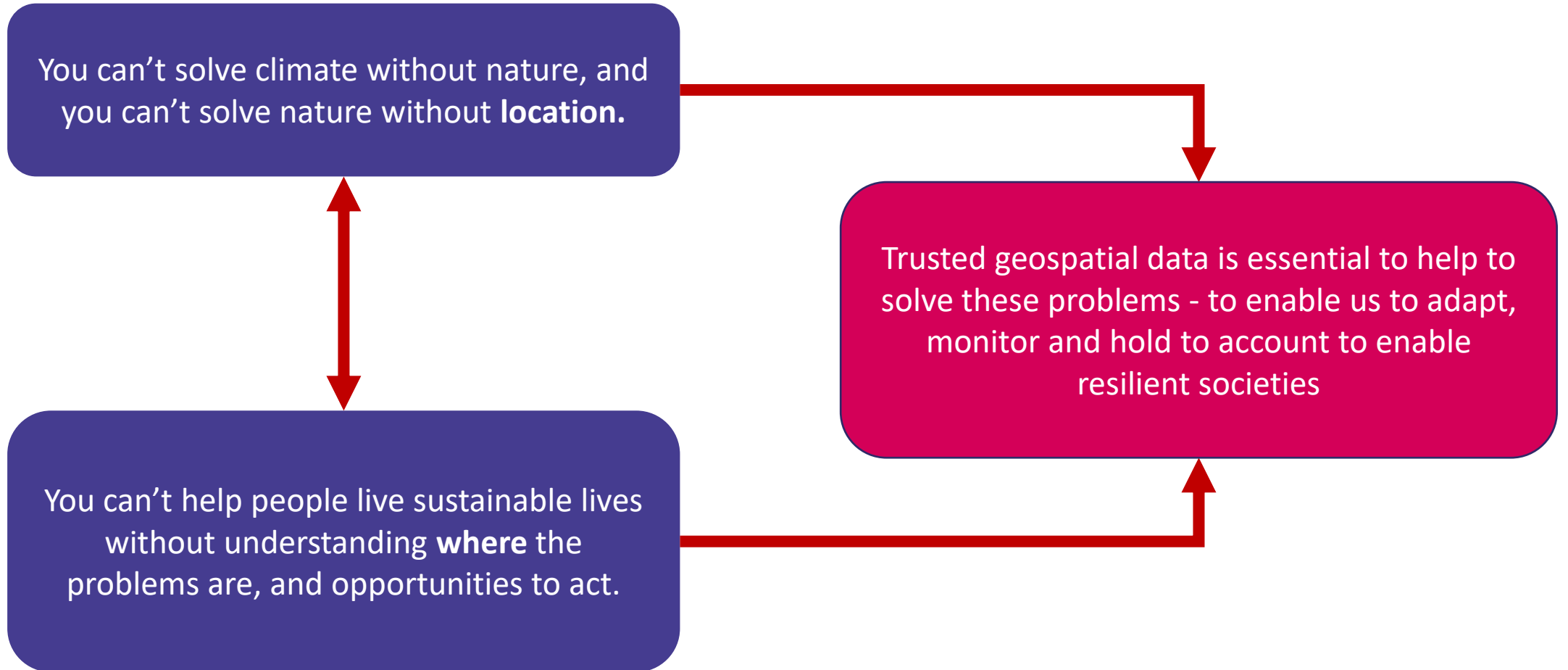
Surface temperature (°Celsius)

-80 -70 -60 -52 -48 -44 -40 -36 -32 -28 -24 -20 -16 -12 -8 -4 0 4 8 12 16 20 24 28 32 36 40 44 48 52

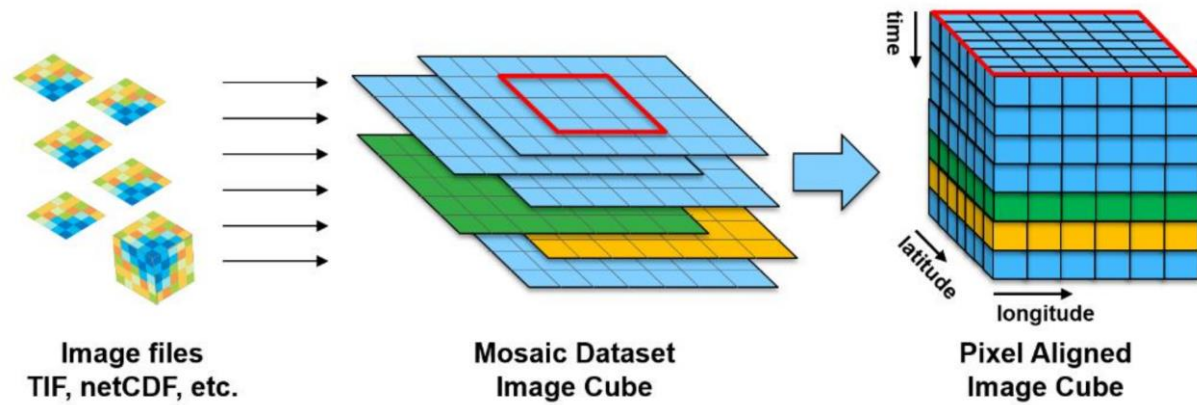
Source: European Centre for Medium-Range Weather Forecasts, data as at 2.30pm on April 26



# Why is geospatial relevant?



# Technology as an enabler



# USE CASES

Landscape monitoring

Heat data

Change detection

Supply chain transparency and systems thinking



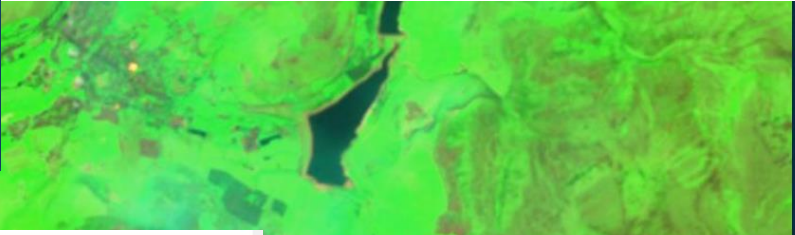
# Peatland Monitoring from Space

Rapid Prototyping Team @ Ordnance Survey  
8 October 2021



UN CLIMATE CHANGE CONFERENCE UK 2021

IN PARTNERSHIP WITH ITALY



## Monitoring the Fire

Multiple satellite sensors were able to monitor the blaze throughout. Heat sensors on the satellite were able to clearly reveal where the fire was still burning.

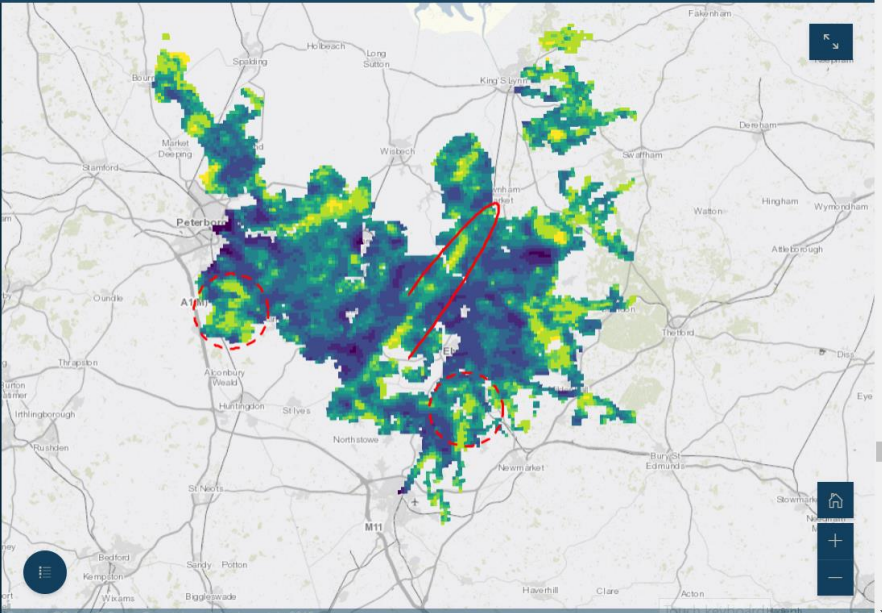
*image: False colour image of Saddleworth Moor during the fire.*

What are Peatlands? Earth Observation Pennines Saddleworth Moor Cambridgeshire Fens The Project

This map shows peat health in the Cambridgeshire Fen region (lighter colours represent healthier peat).

The areas circled in red are either nature reserves or sites of Special Scientific Interest. We can see that the peat in these regions is healthier than in the surrounding farmland.

This highlights the current trade-off between using land for agriculture and as a carbon store. However, this is quickly changing - many farmers now adopt modern farming methods that are more sustainable and better for the environment.

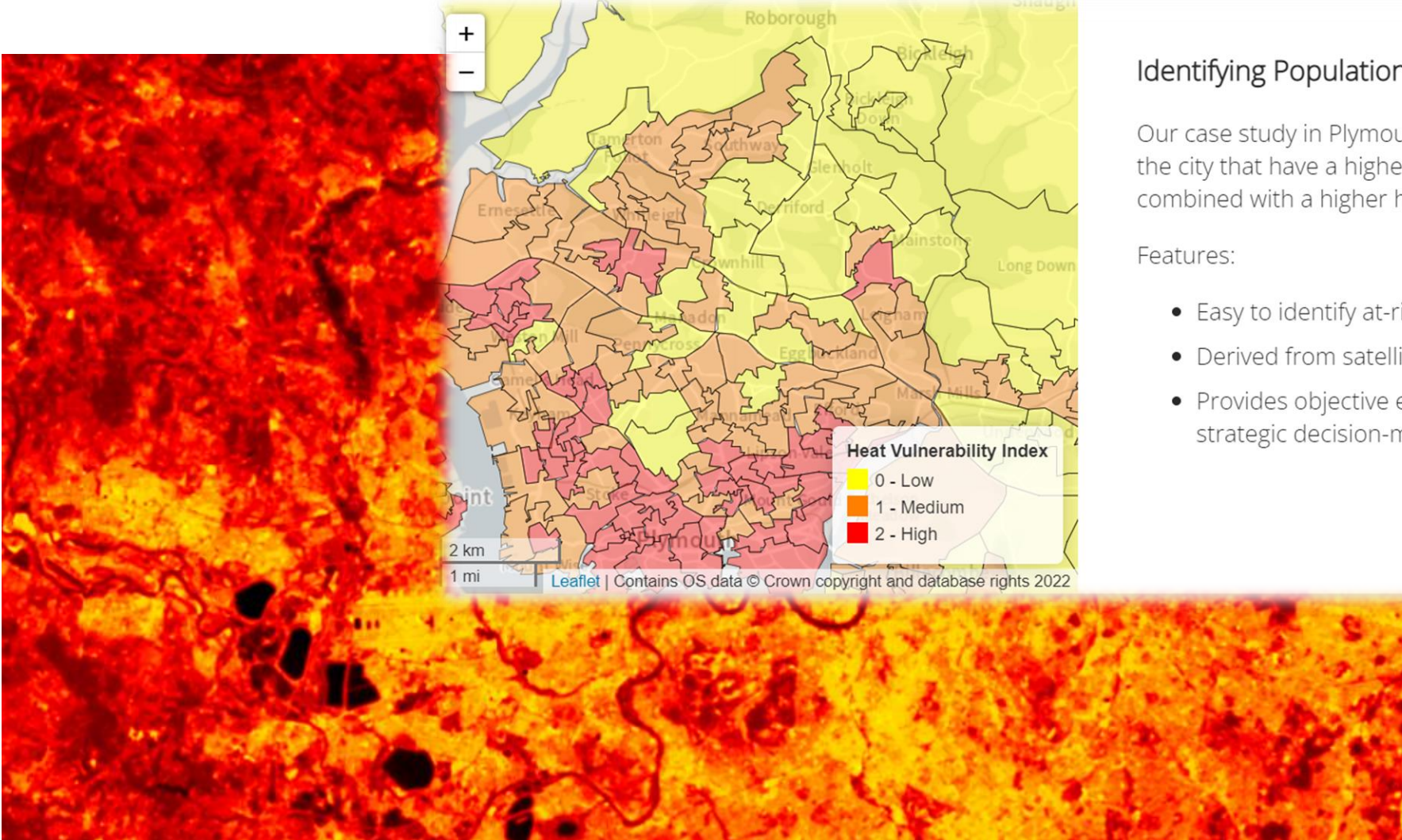


# Nature-based solutions





# Climate data - Heat

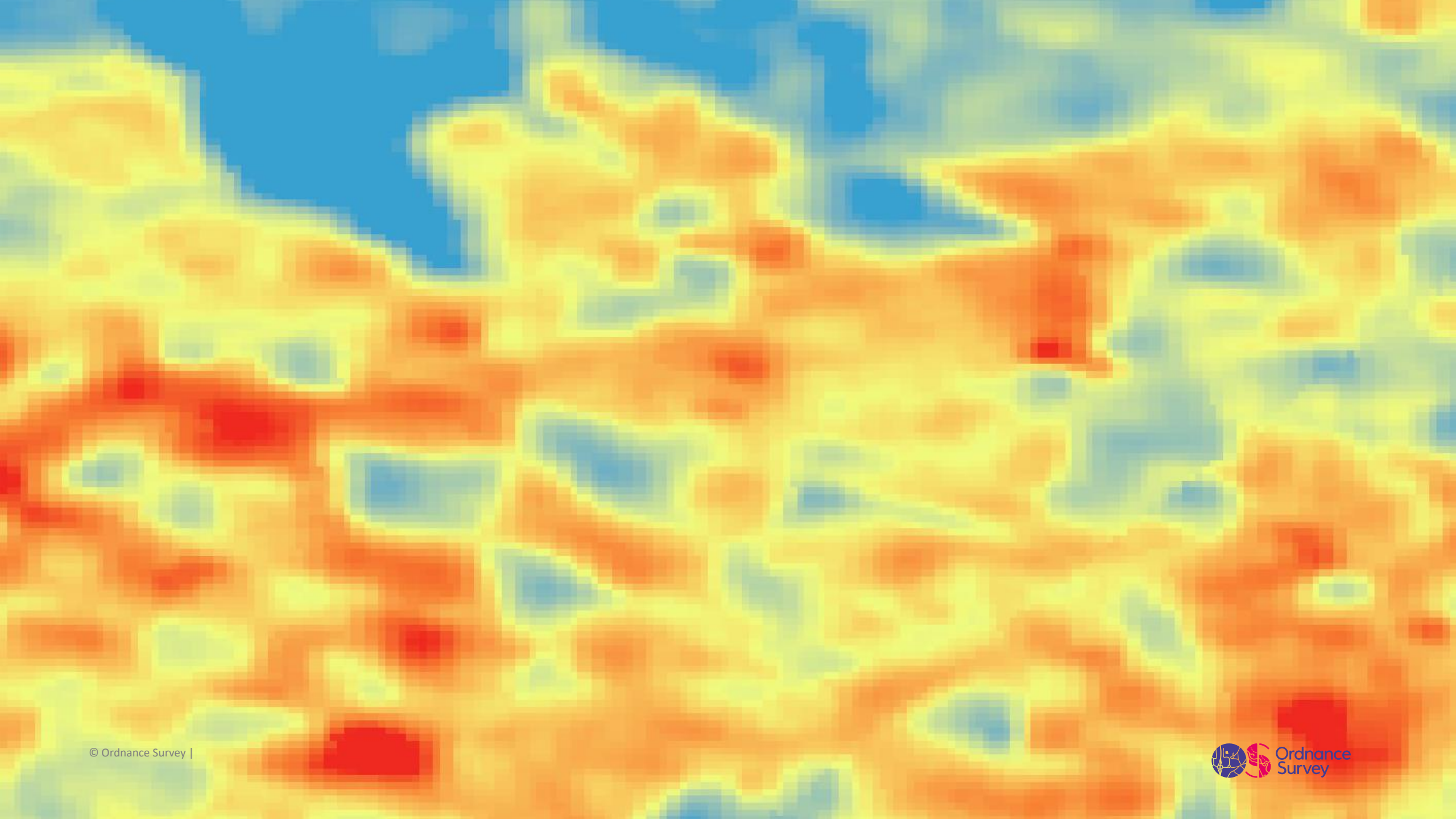


## Identifying Populations at Risk

Our case study in Plymouth, UK, highlights regions of the city that have a higher deprivation score, combined with a higher heat discomfort index.

Features:

- Easy to identify at-risk regions
- Derived from satellite data and up-to-date
- Provides objective evidence for data-driven strategic decision-making





Stoke Hill

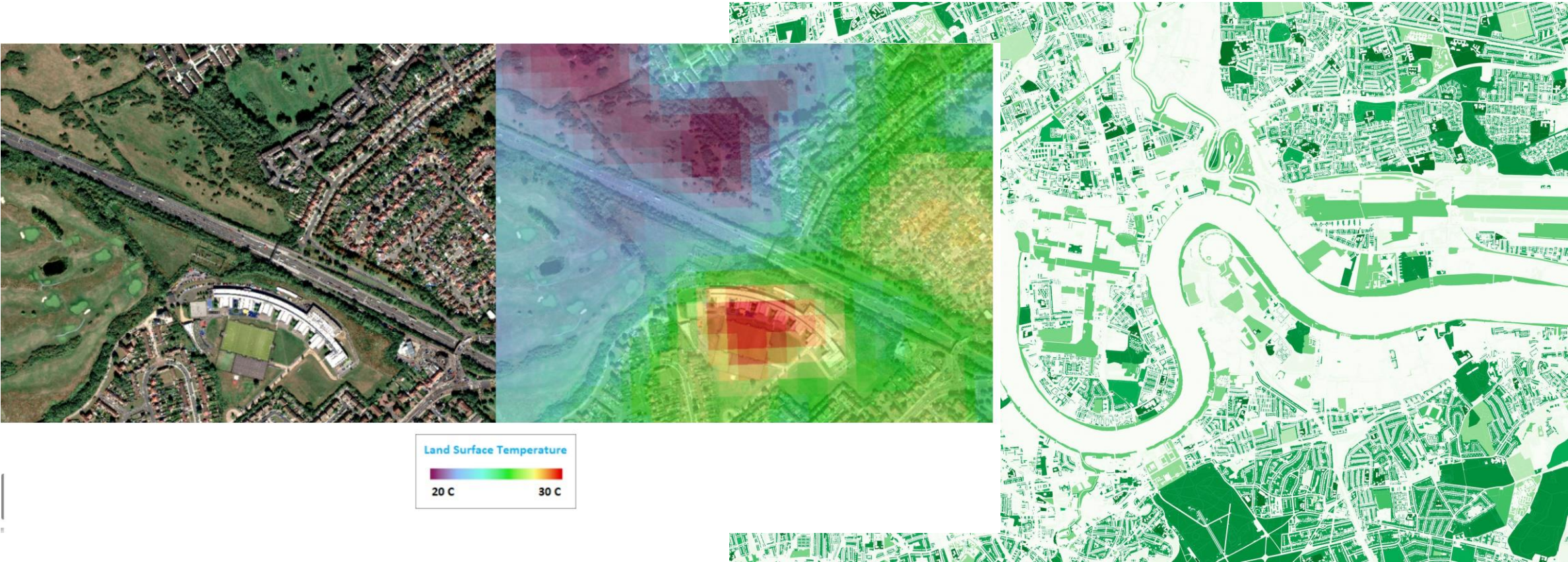
Whipton

EXETER

Heavitree

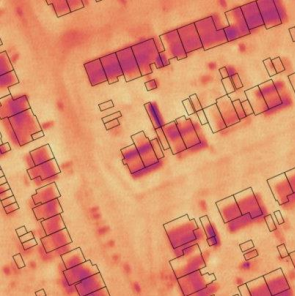
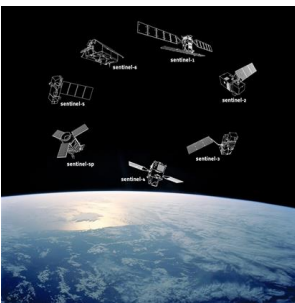
EXETER DISTRICT

# Greening our cities for cooling



# Monitoring change

01



# Global applications, local impact



13 CLIMATE ACTION



3 GOOD HEALTH AND WELL-BEING



11 SUSTAINABLE CITIES AND COMMUNITIES



## Lusaka, Zambia

Basemap provides the foundation for insight into informal settlements, the risk of flooding and climate impacts, and lack of infrastructure. OS provides the ability for authorities to mitigate against climate risk, create resilient cities and ensure population have access to key resources such as health care.

13 CLIMATE ACTION



3 GOOD HEALTH AND WELL-BEING

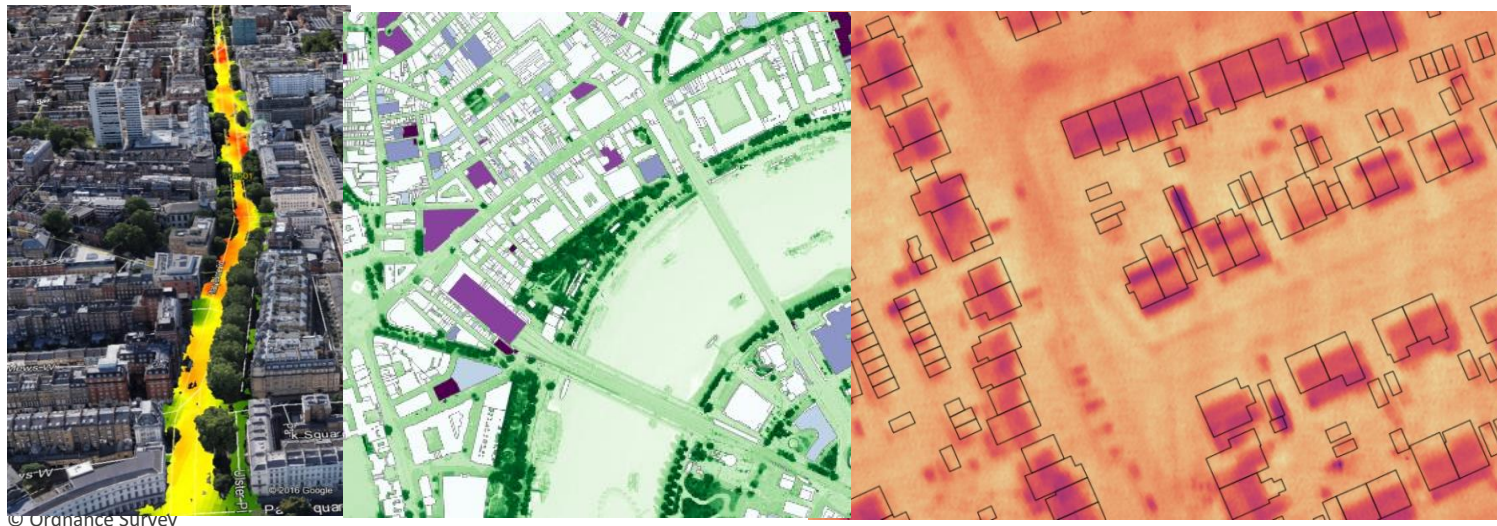


11 SUSTAINABLE CITIES AND COMMUNITIES

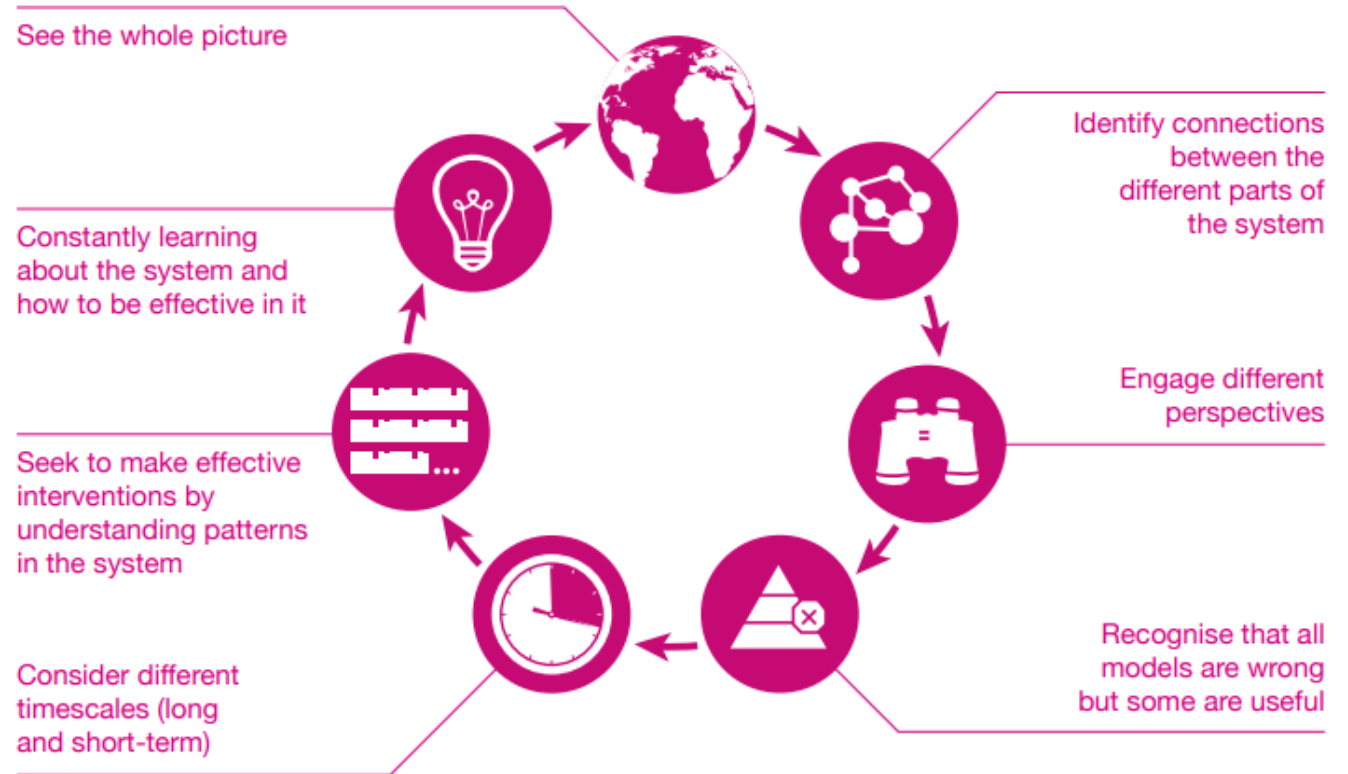


## Greater London, UK

MasterMap provides the foundation to gain insights into air pollution, heat stress and green refuges. Linking key datasets and providing insights enables a city to create blue and green infrastructure and also to check planning conditions and policy impact.



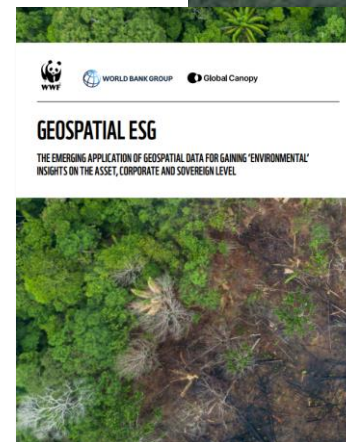
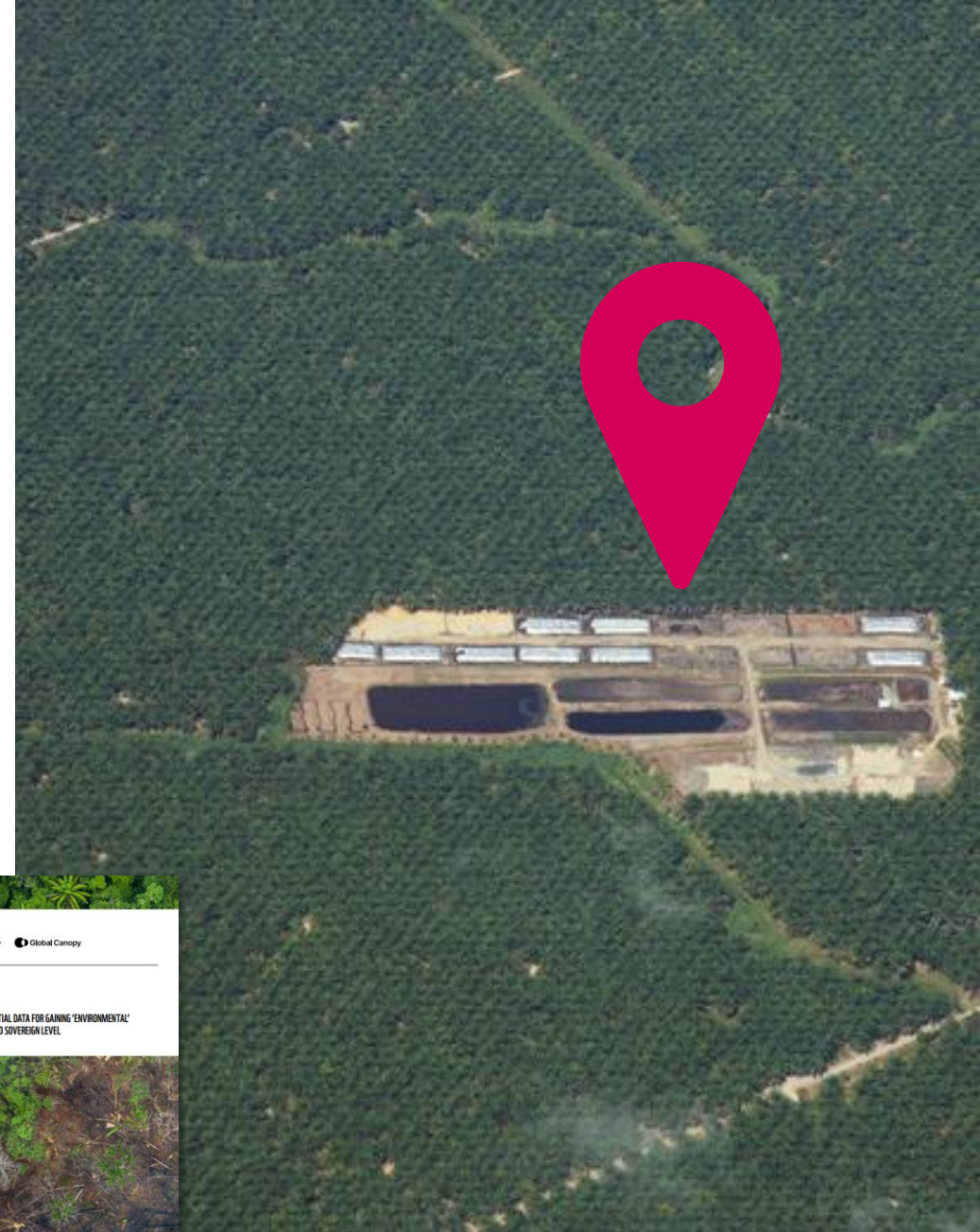
# Applying systems thinking



# The Supply Chain Data Partnership

The supply chain community still **lack the key foundational data layer on commodity facing assets** (e.g. bulking sites, mills, refineries, transport terminals, storage, processing) to conduct effective due diligence and achieve large scale **traceability to commodity origins**.

Using our geospatial knowledge, we are working with multinationals and commodity actors to help create a new **verification system for asset location** that enables a wide variety of transparent monitoring, due diligence, and finance to flow where it is most needed.





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