SEF

stakeholder
engagement
facility

SEF stakeholder engagement facility

About us

esa

We are the **Stakeholder Engagement Facility** of the **European Space Agency**.

Our role is to **make potential users aware** of space-based solutions that might benefit them, and to **provide them with practical support to get started**.

This support could include **making connections**, organising **training courses** or providing **direct support**, whatever the target community says is most relevant for them.

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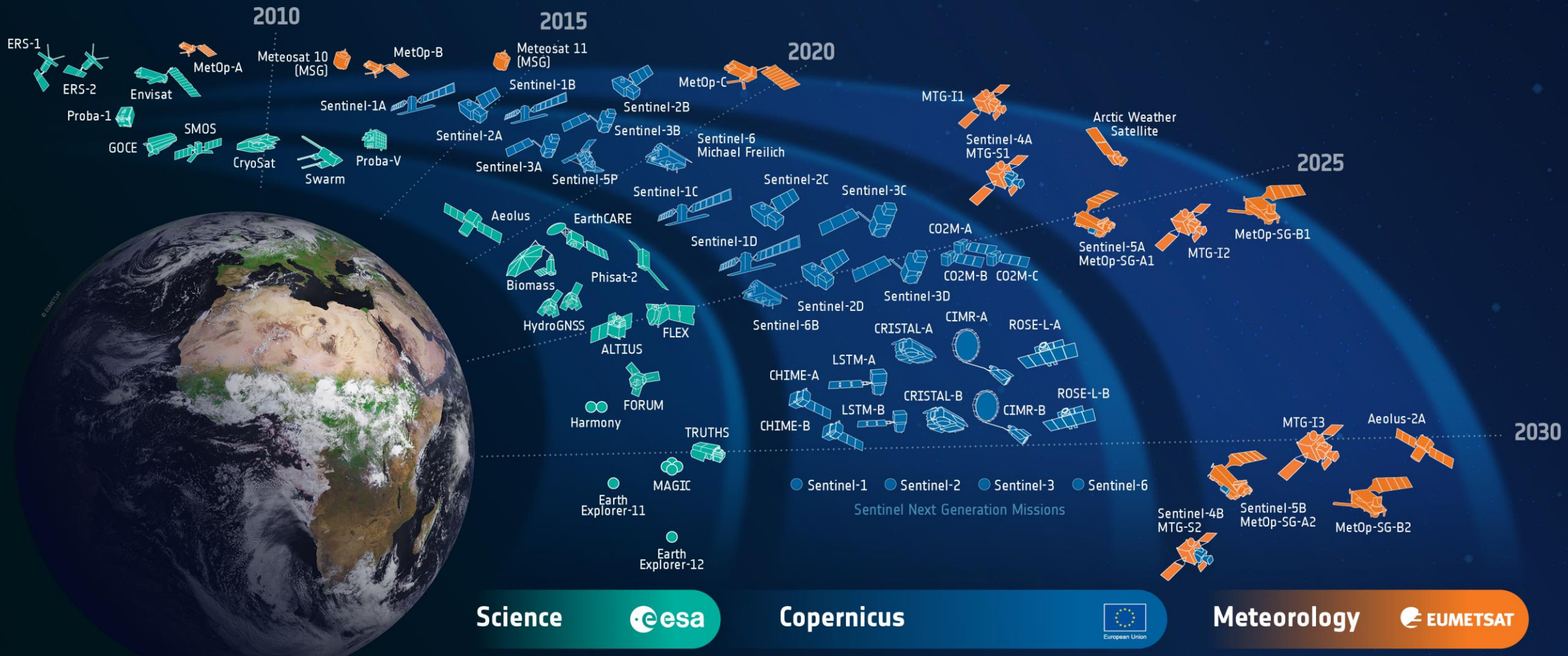
evenflow

serco

EARSC
European Association of Remote Sensing Companies

ESA-DEVELOPED EARTH OBSERVATION MISSIONS



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About Earth Observation

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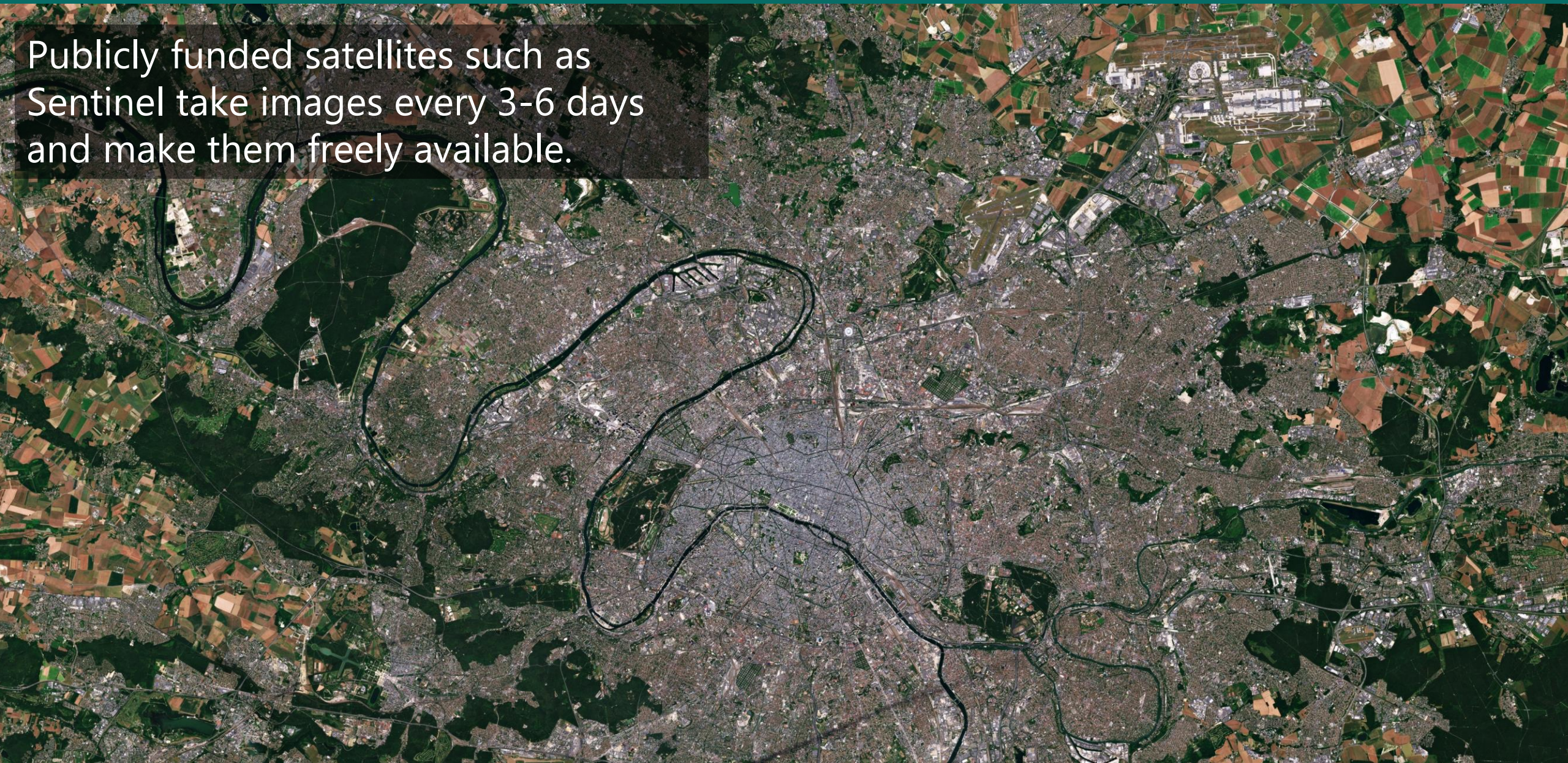

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About Earth Observation

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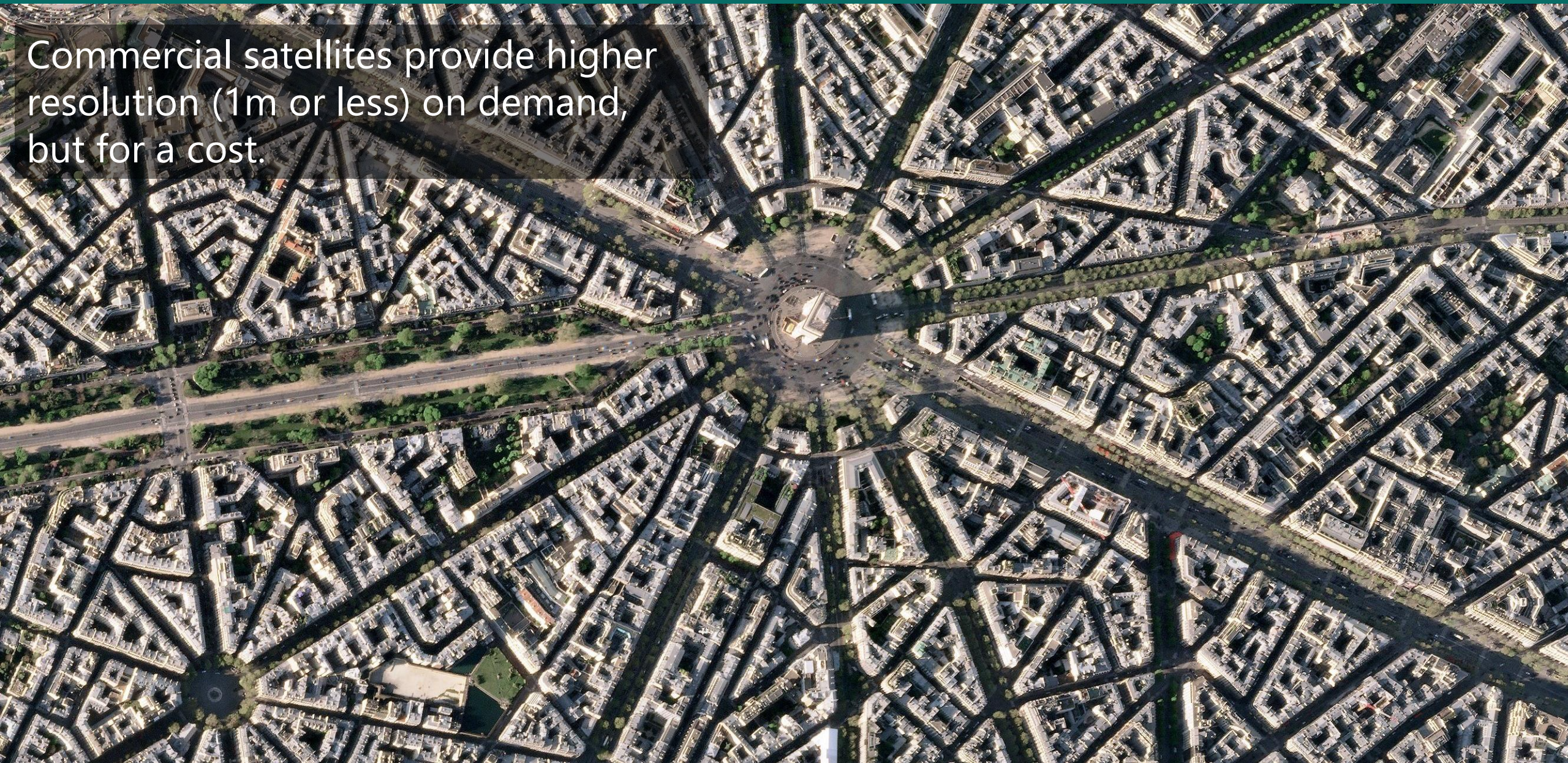
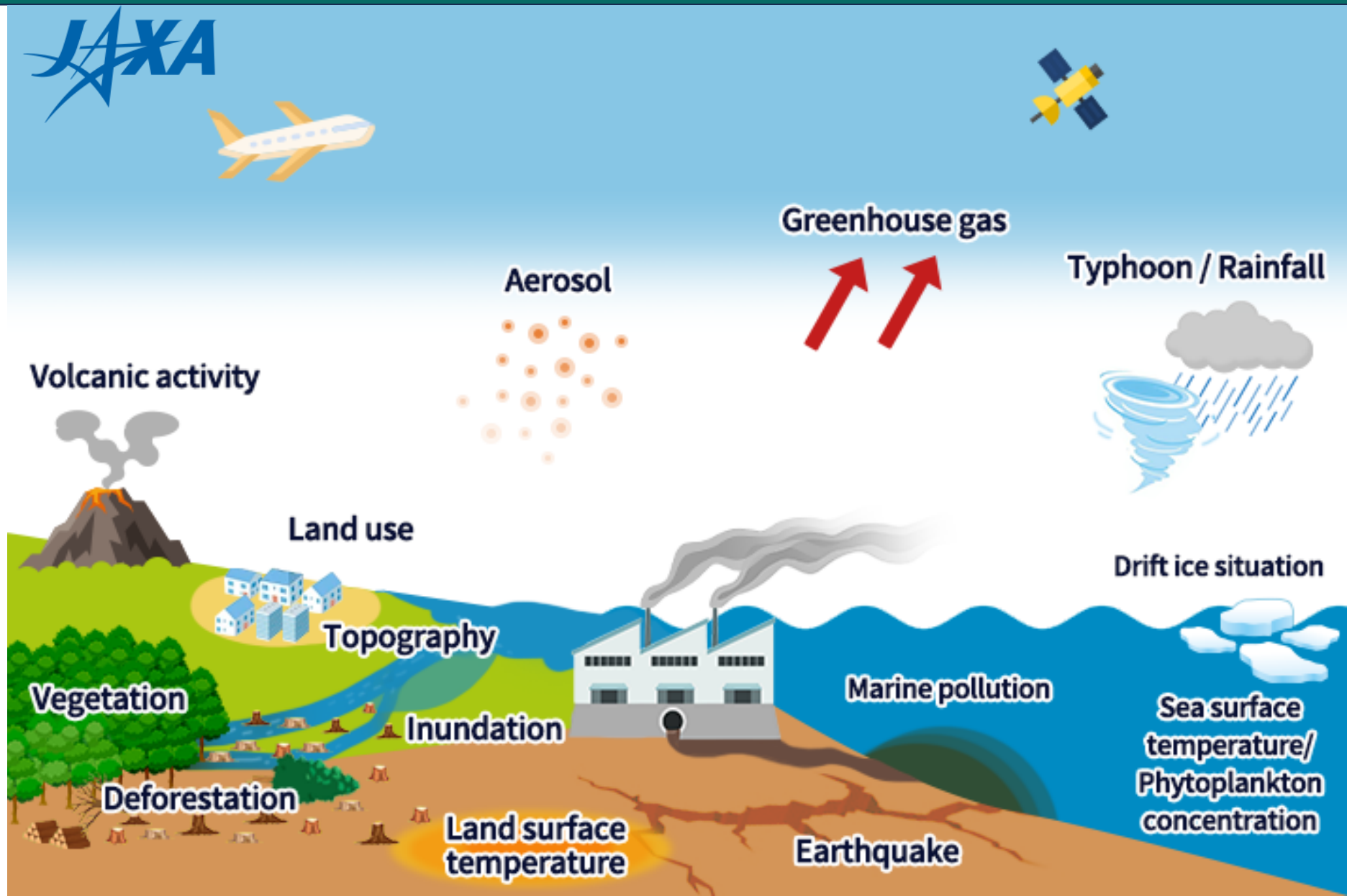


Commercial satellites provide higher resolution (1m or less) on demand, but for a cost.

What can be done with EO?

This figure shows just some of the things that can be measured from space.

The following slides show some of the applications relevant to urban areas.



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Mapping

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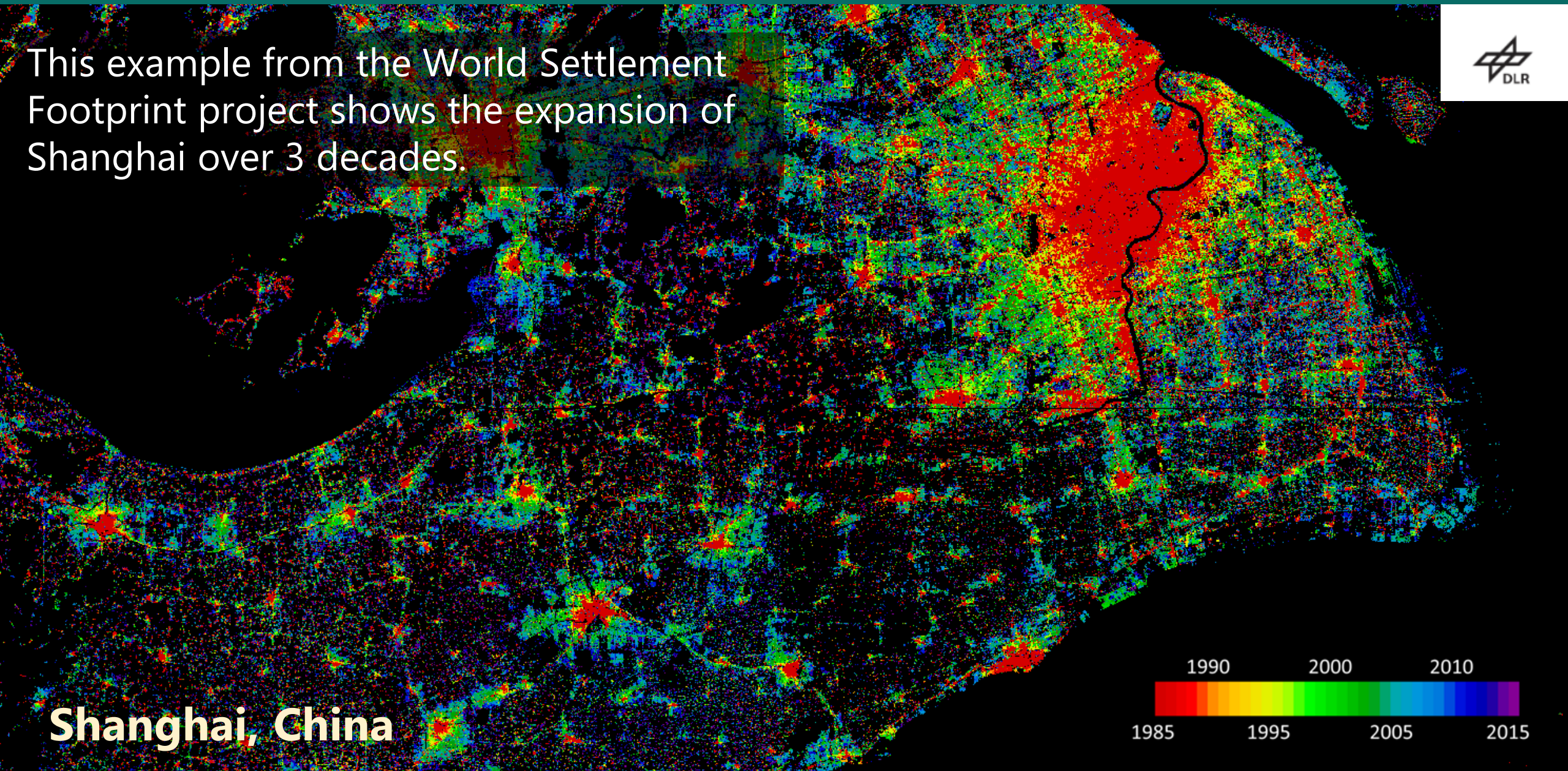
DLR

This example from the World Settlement Footprint project shows the expansion of Shanghai over 3 decades.



Shanghai, China

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Mapping

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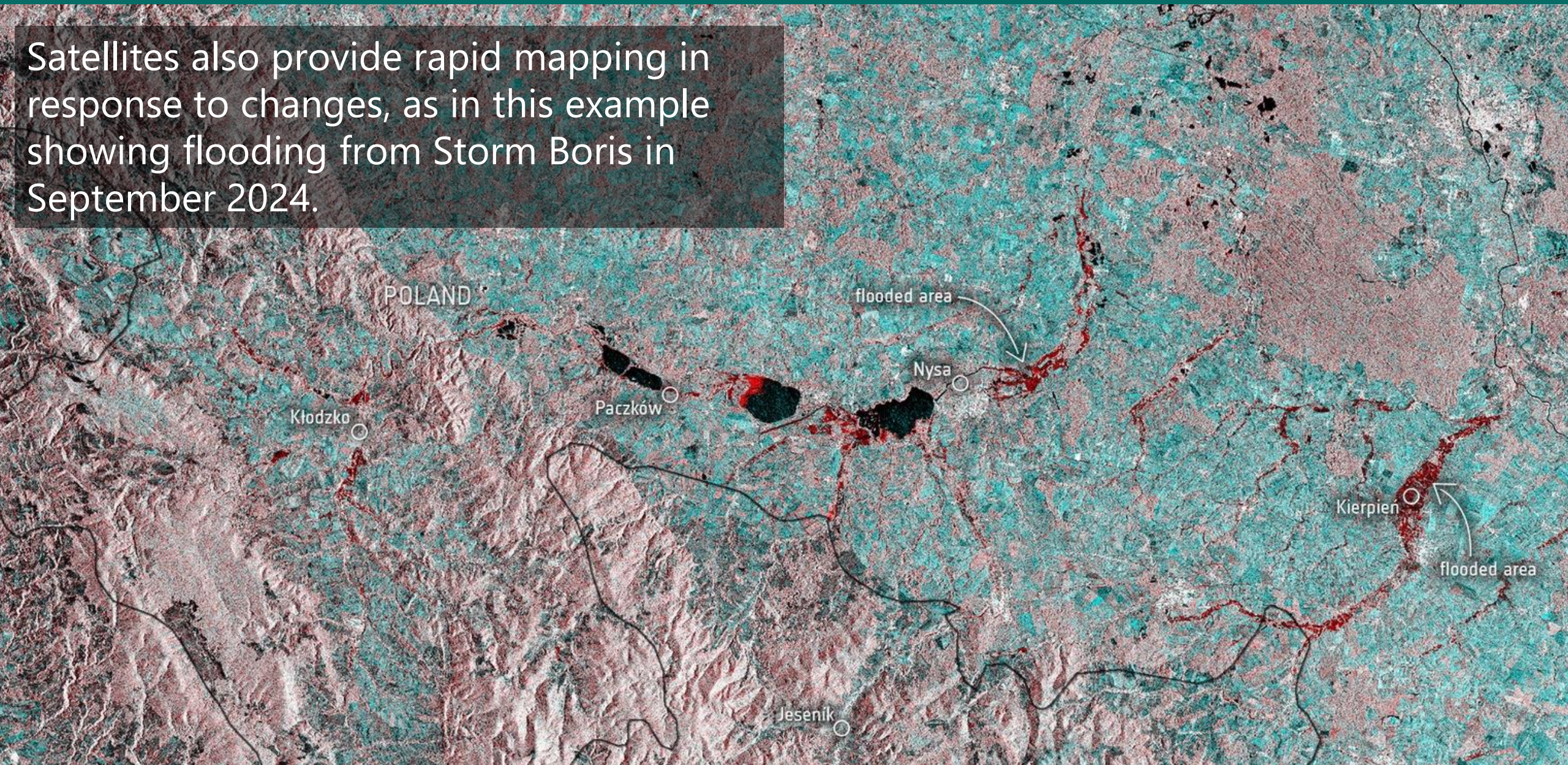
Satellites also provide rapid mapping in response to changes, as in this example showing flooding from Storm Boris in September 2024.



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Urban Heat Islands

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Satellites data provide frequent measurements of land surface temperature over wide areas.

ECOSTRESS

Rome

Appian Way Park

Ciampino Int. Airport

GRA ring road

Land surface temperature
(17 July 2023, 22:23 local time)

25 30 35°C

1 km

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Urban Heat Islands

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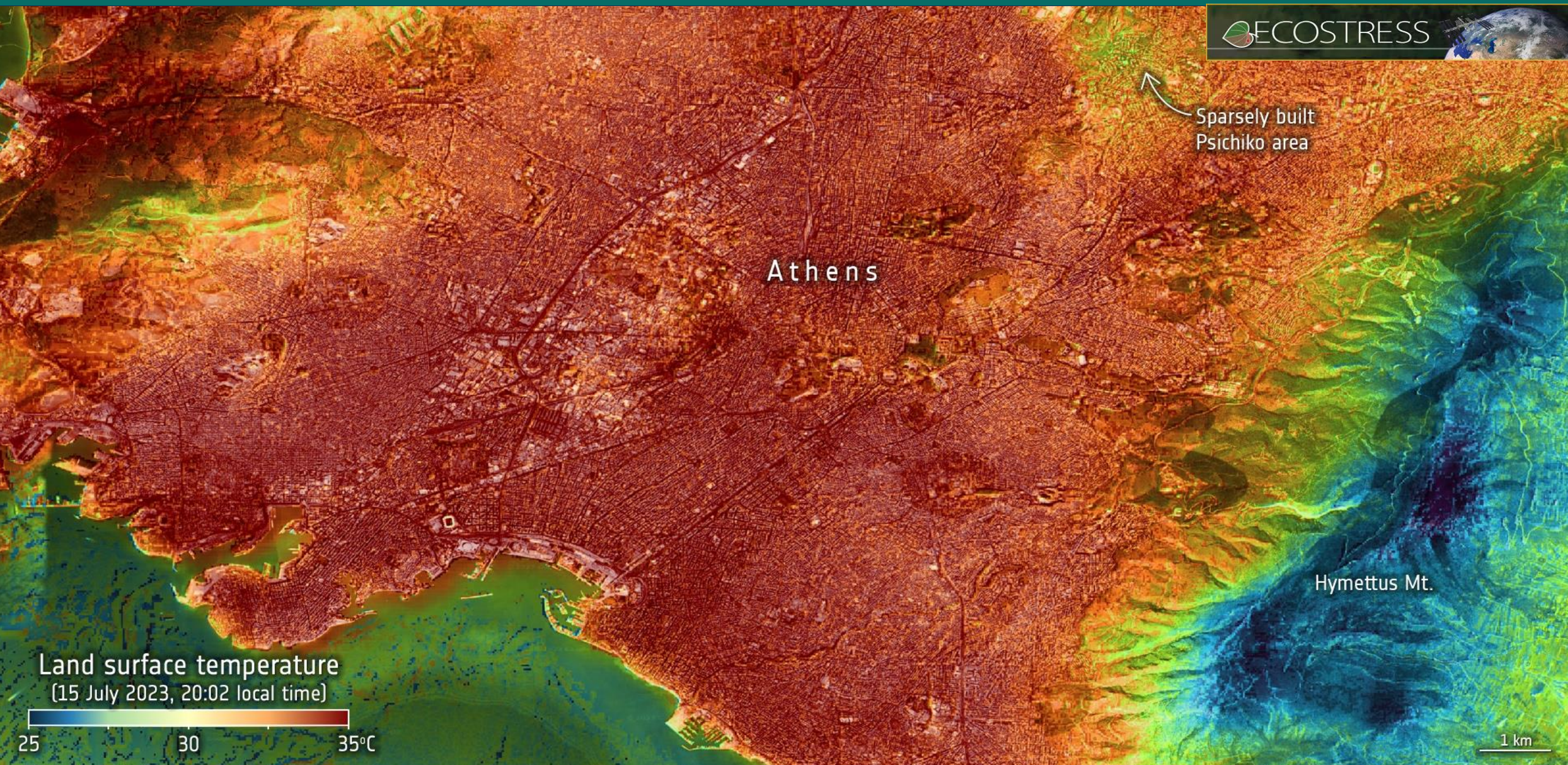

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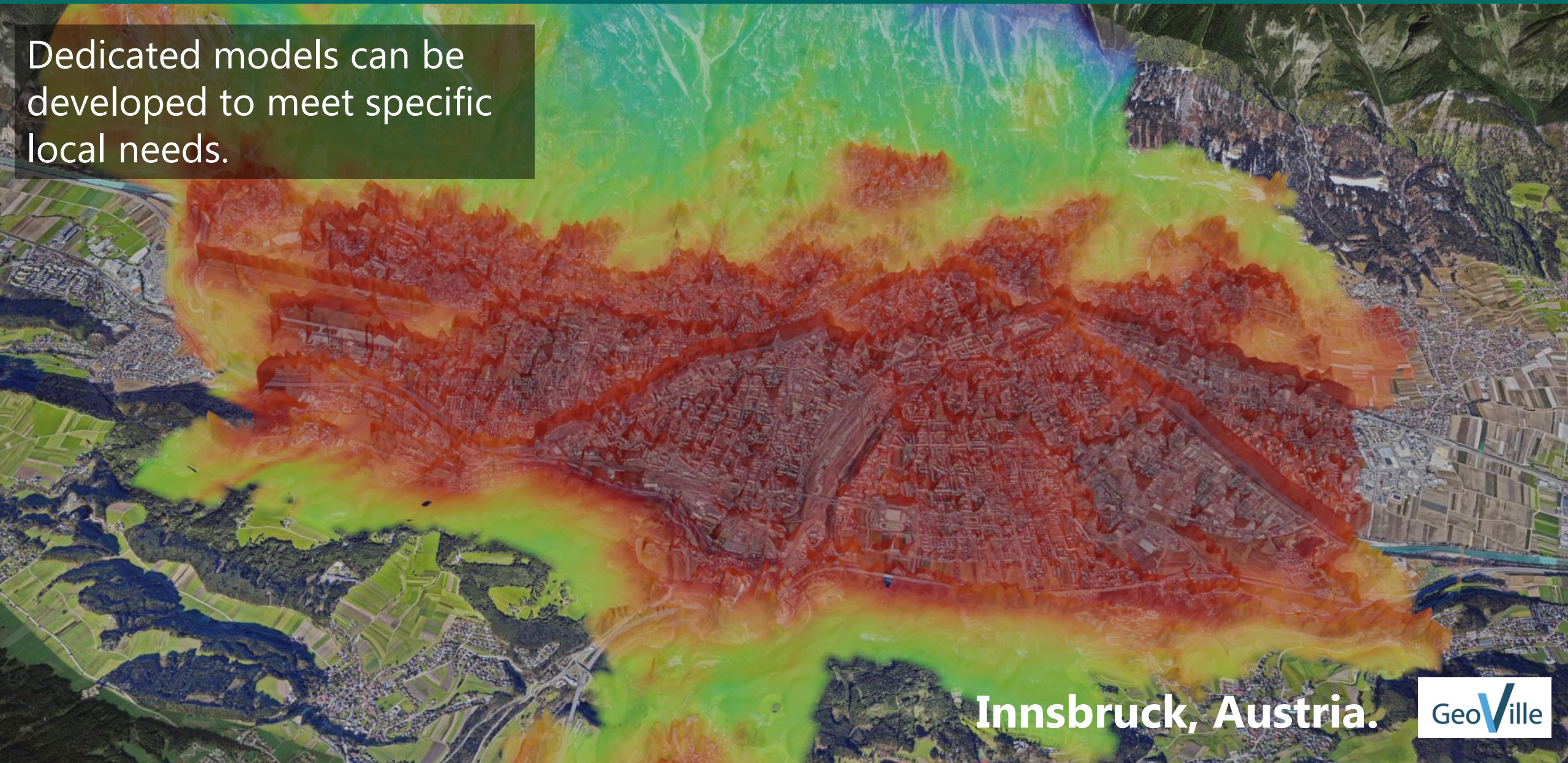
Urban Heat Islands

esa



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Air Quality

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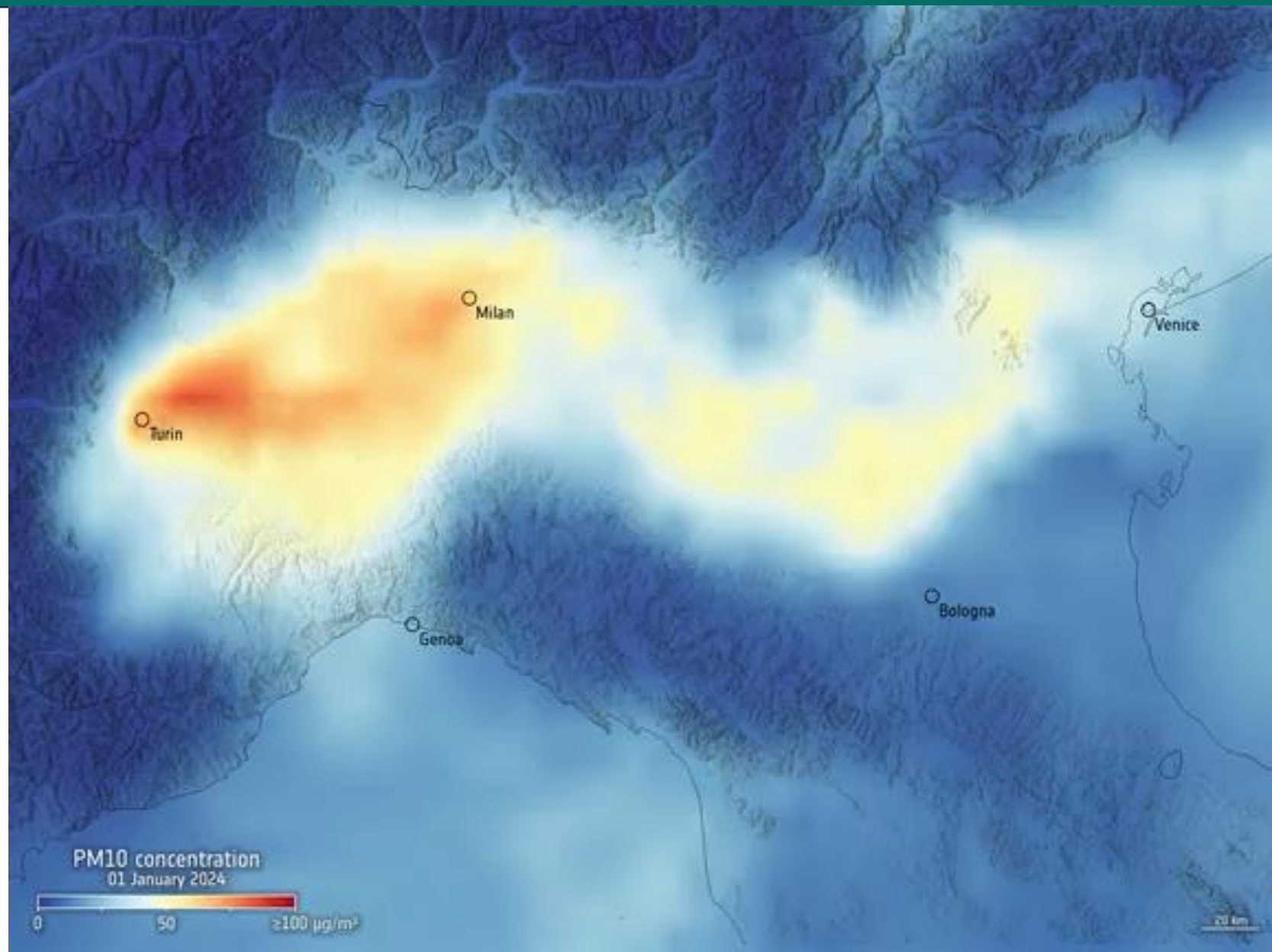
Satellite data measure atmospheric pollutants over a wide area.

These are combined with models to give detailed forecasts of air quality.

This example shows air quality in the Po valley in January 2024. the cities in this region have some of the worst air quality in Europe.



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Air Quality

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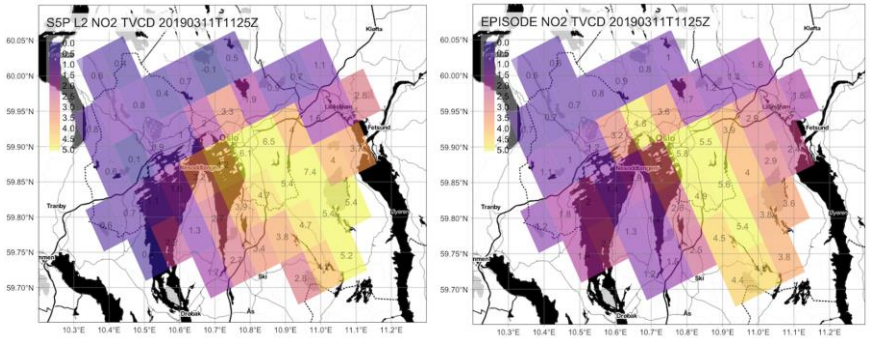
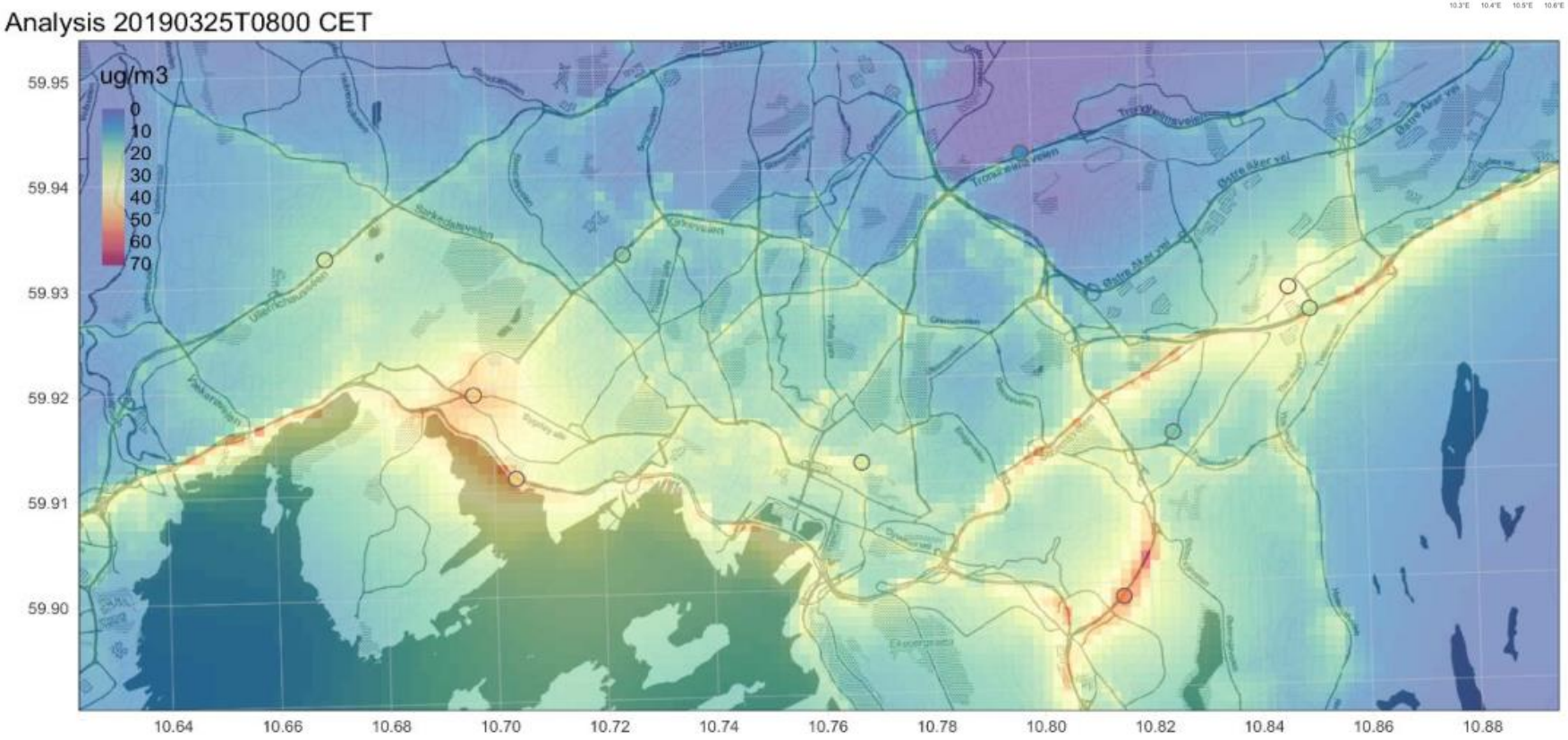
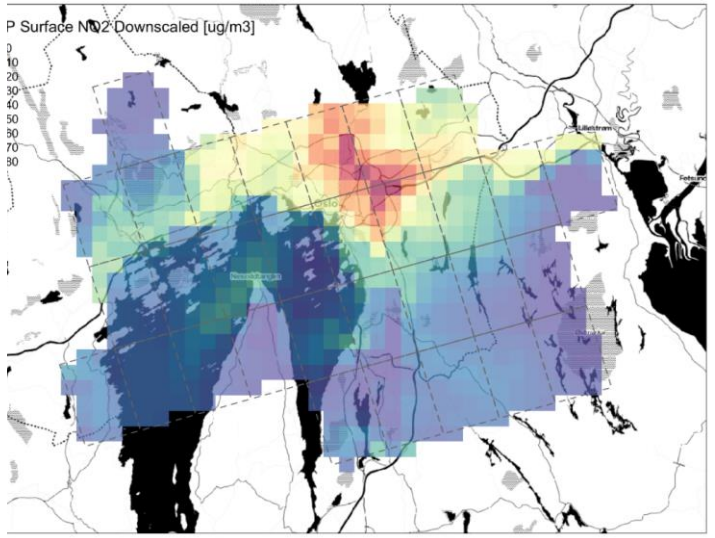
Satellite data are combined with models and in-situ sensors to give street-level measurements and forecasts.







CitySatAir

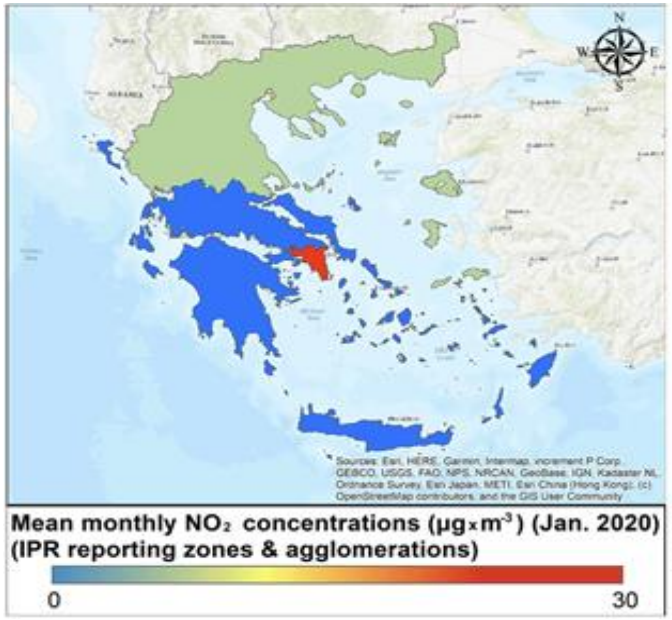
Koninklijk Nederlands Meteorologisch Instituut
Ministerie van Infrastructuur en Waterstaat

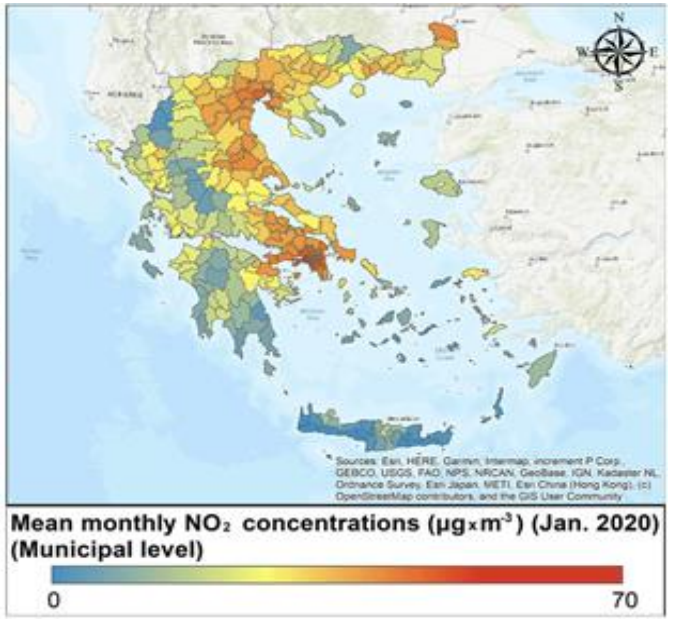
Lobelia.

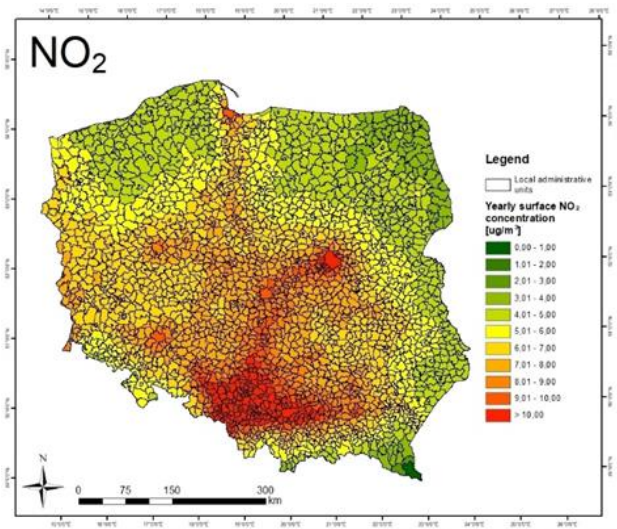
NILU

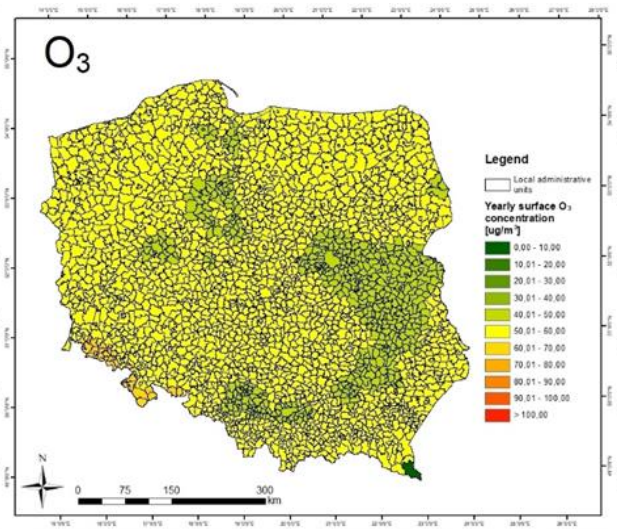
Air Quality

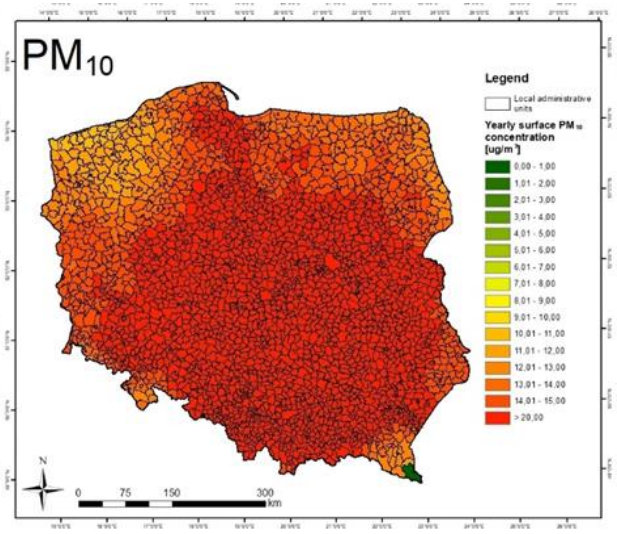
Data can be aggregated into key statistics per municipality to inform longer term decision making.

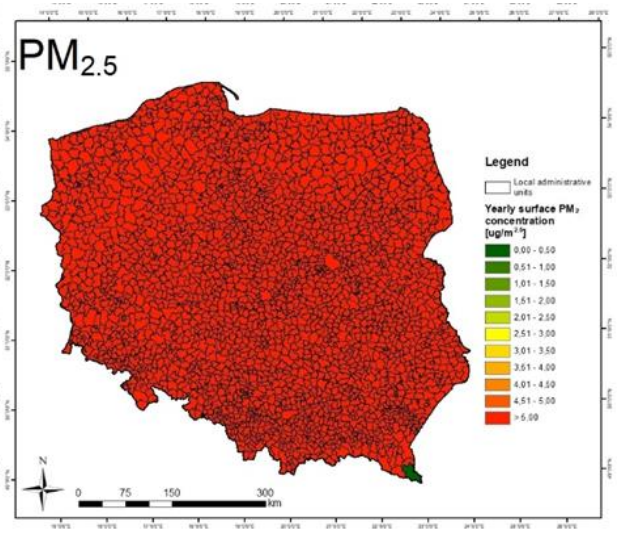






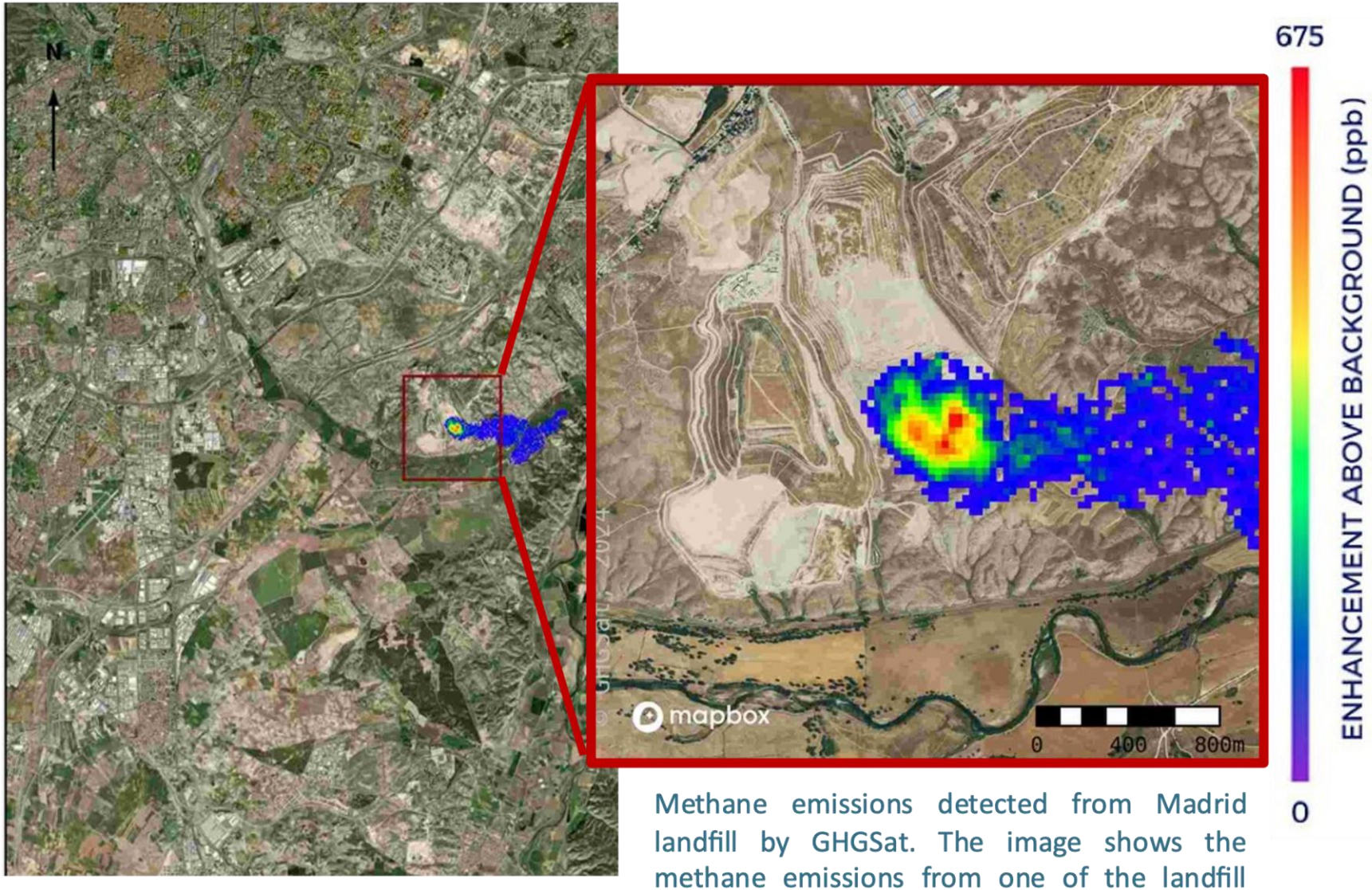






Air Quality

Satellite data can also be used to detect emissions from point sources such as landfill or power stations.



Methane emissions detected from Madrid landfill by GHGSat. The image shows the methane emissions from one of the landfill sites in Madrid on 12th July 2024 (image credit: GHGSat)

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Urban Vegetation

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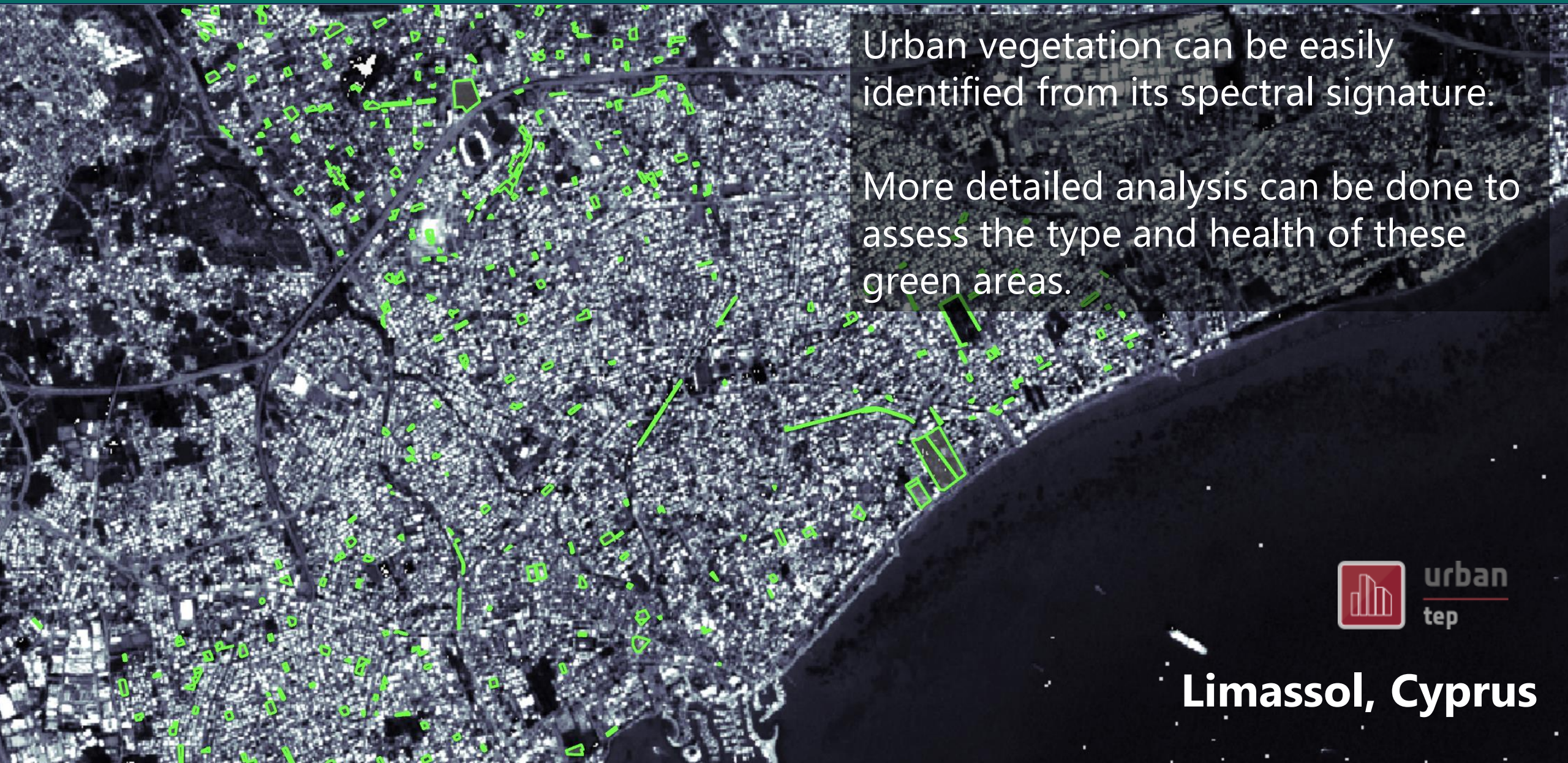

Urban vegetation can be easily identified from its spectral signature.

More detailed analysis can be done to assess the type and health of these green areas.

urban tep

Limassol, Cyprus

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Urban Vegetation

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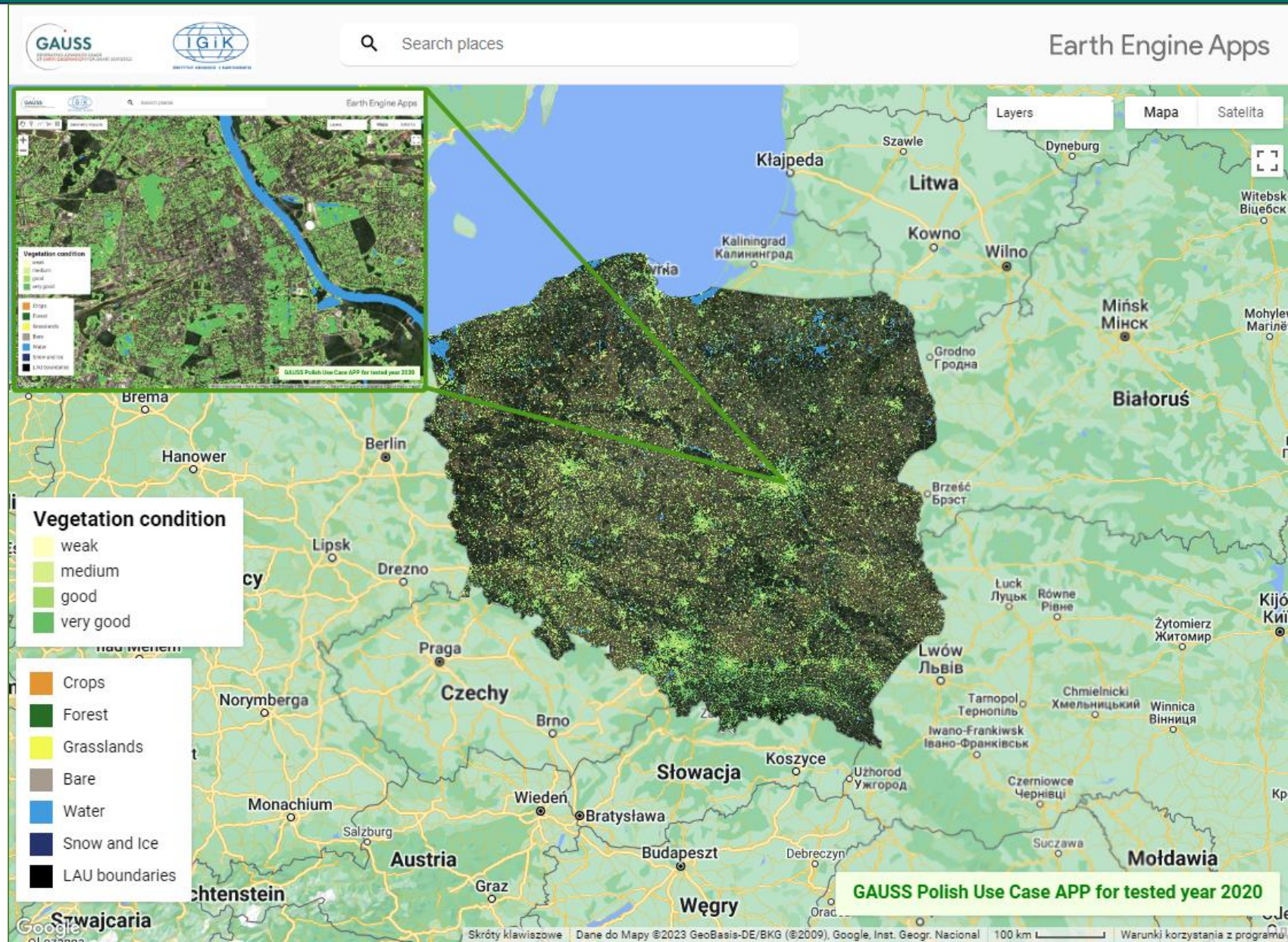
EO data are used to gather data on the health of urban vegetation, a key indicator of quality of life, across Poland.

Statistics Poland



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Urban Energy

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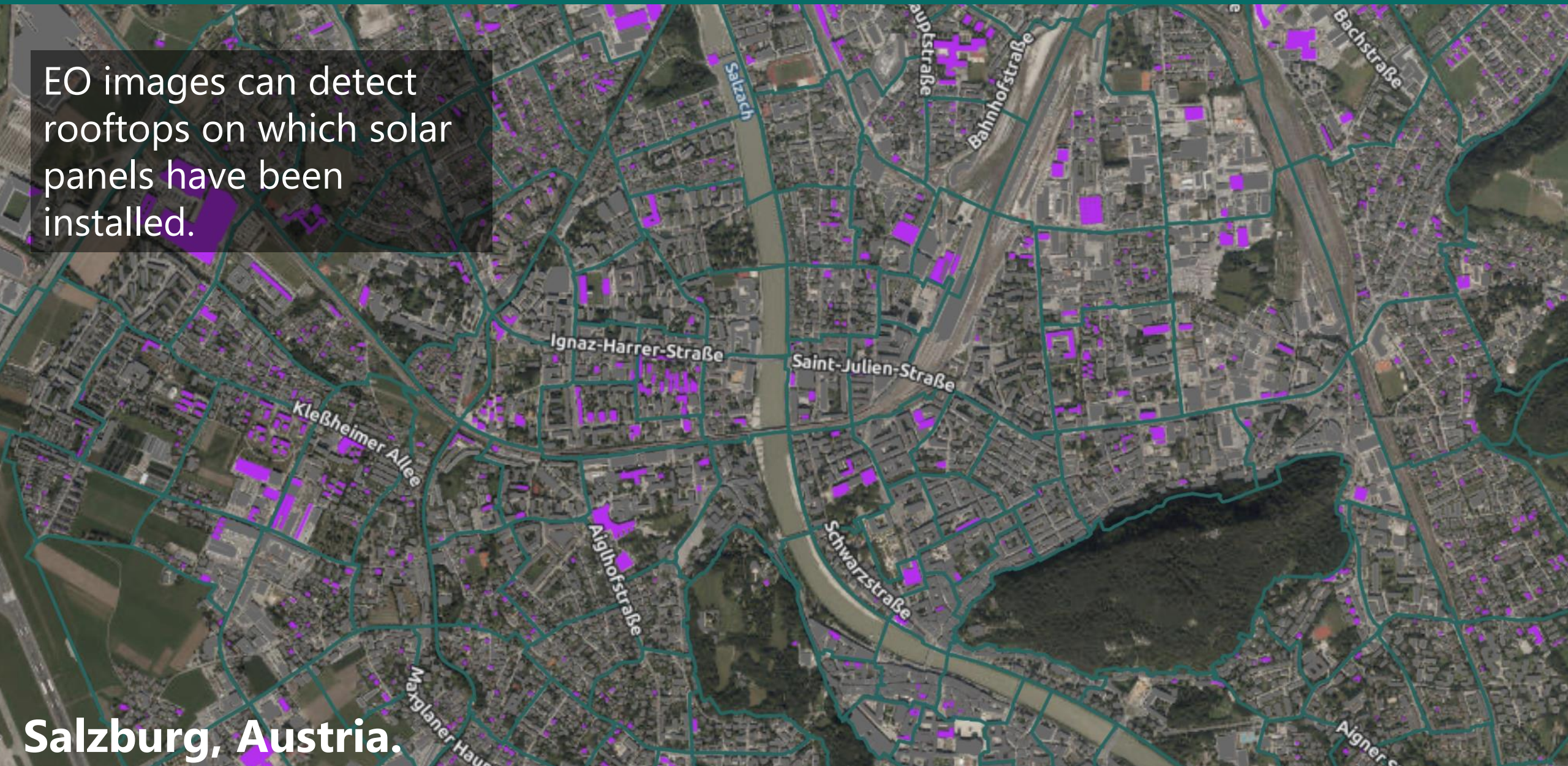

EO images can detect rooftops on which solar panels have been installed.

Salzburg, Austria.

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Urban Energy

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Subsidence Monitoring

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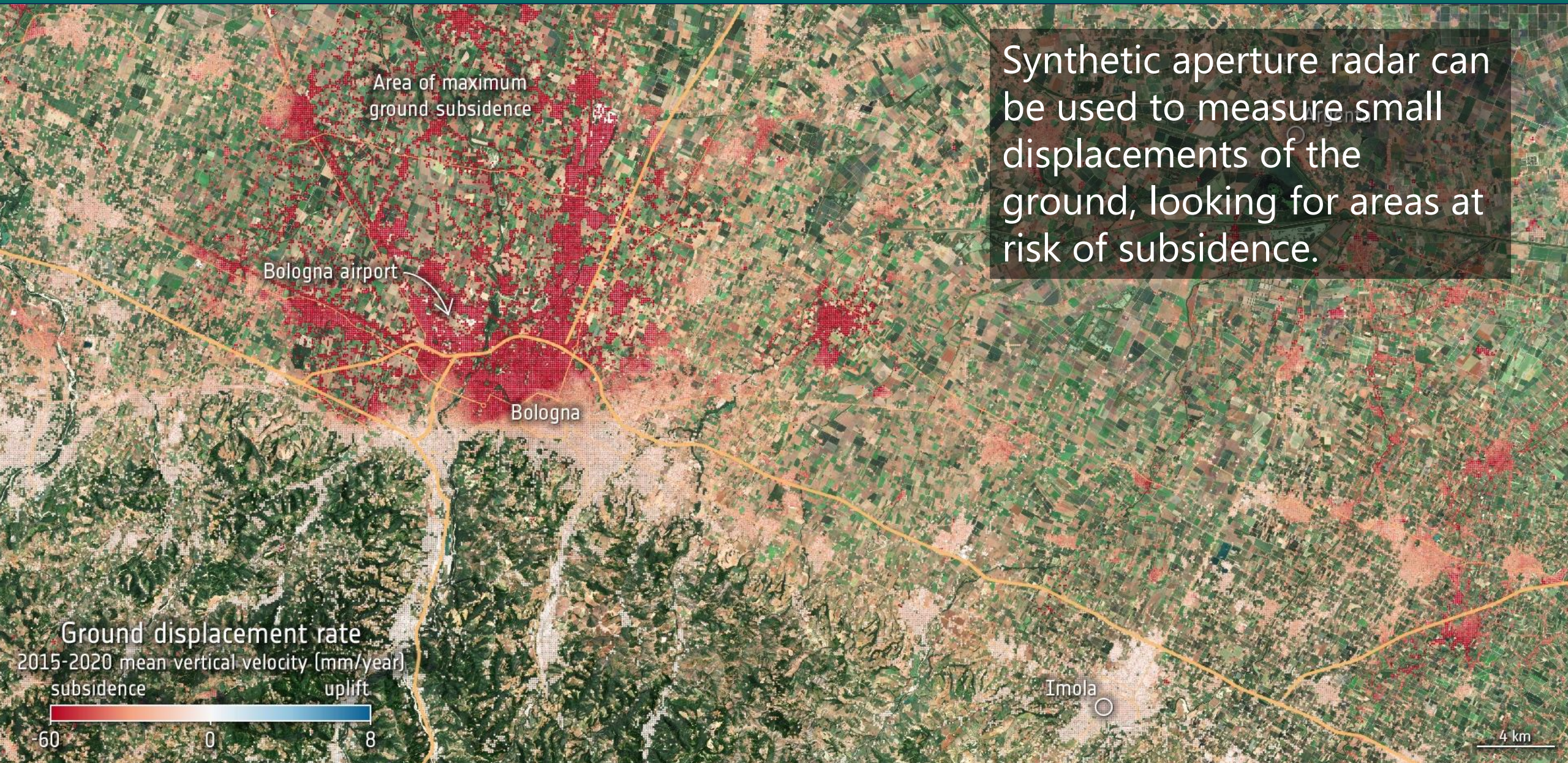

Synthetic aperture radar can be used to measure small displacements of the ground, looking for areas at risk of subsidence.

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Subsidence Monitoring

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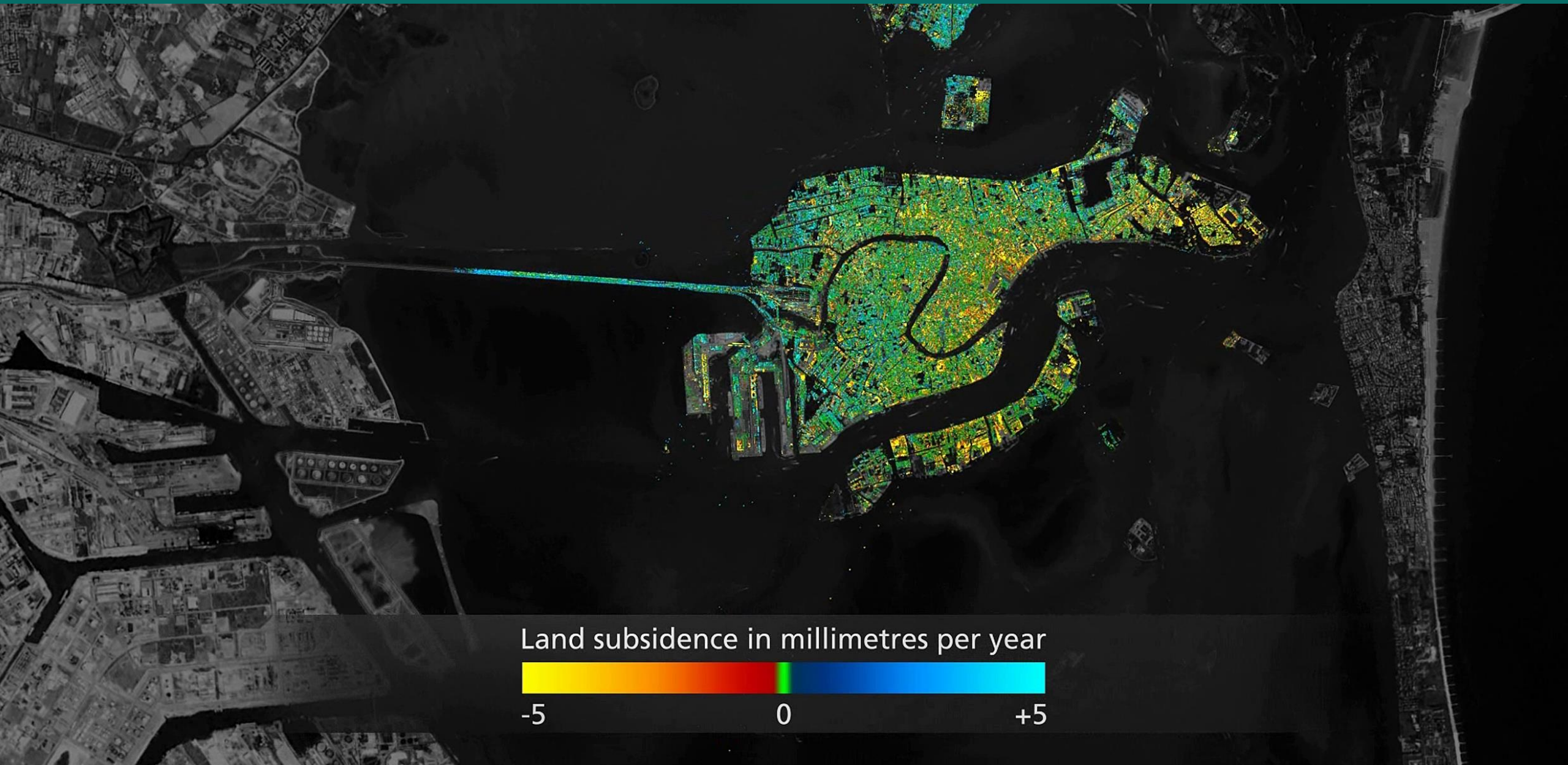

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Practical challenges

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Awareness

- I don’t know what solutions exist that could help me.
- I know such solutions exist but I don’t know which ones meet my needs.

Acceptance

- I know these solutions exist but I don’t know how to find them.
- I have found an interesting service but I don’t know how to get started with it.
- I am interested but I need to convince my management to spend time on this.

Adoption

- I need technical support to integrate the service into my workflow.
- I need to demonstrate value for money.
- I am legally obliged to gather data in a particular way.

Practical solutions

Awareness	• Showcase EO solutions at events like this! • Listen to needs and provide guidance as to what solutions best meet these.
Acceptance	• Provide guidance and support to get started. • Help make connections between potential users and solution providers • Provide case studies showcasing the real benefits of adopting such solutions.
Adoption	• Provide technical support to integrate the service into workflows. • Provide material supporting a change in working practices.

Practical solutions

Practical support the SEF is offering:

- We want to better understand the needs and blocking points of urban practitioners – please come and talk to us!
- There will then be a webinar (or series of webinars) to address the points identified.
- If useful we can organise future training events, either online or on the sidelines of another event.
- We can provide direct support to some “champion users”.

How to find out more

Come and find us in the **Learn and Share** area tomorrow.

Contact me at **phil@evenflow.eu**, or the full team at **esa-sef@evenflow.eu**.

Visit our Website and LinkedIn page.

Join one of our upcoming webinars.

www.esa-sef.eu

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