

## Mapping Air Pollution Inequality Using Sentinel-5P

### Integrating Earth Observation and Socio-Economic Data to Support Policy Action

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#### Summary

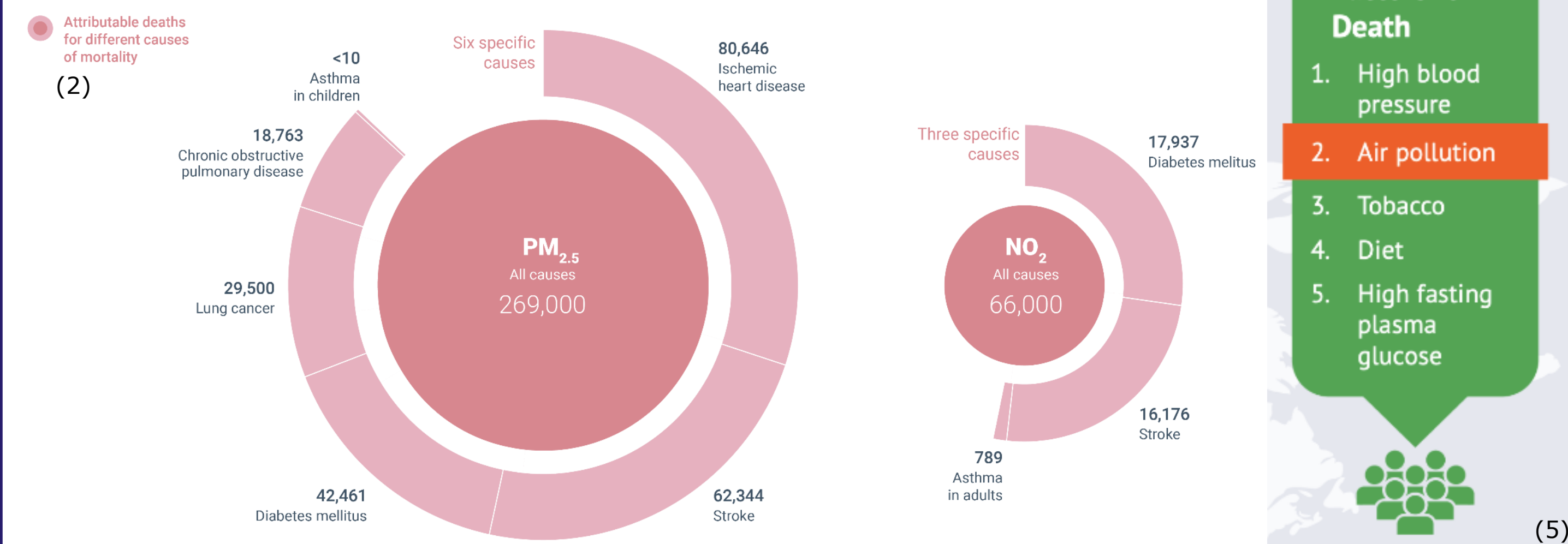
Air pollution is a major public health challenge and one of the leading global risk factors for death, disproportionately affecting disadvantaged populations.

Despite ongoing policy efforts, there is still a lack of detailed, timely and spatially explicit data to assess who is most exposed and where interventions are most needed.

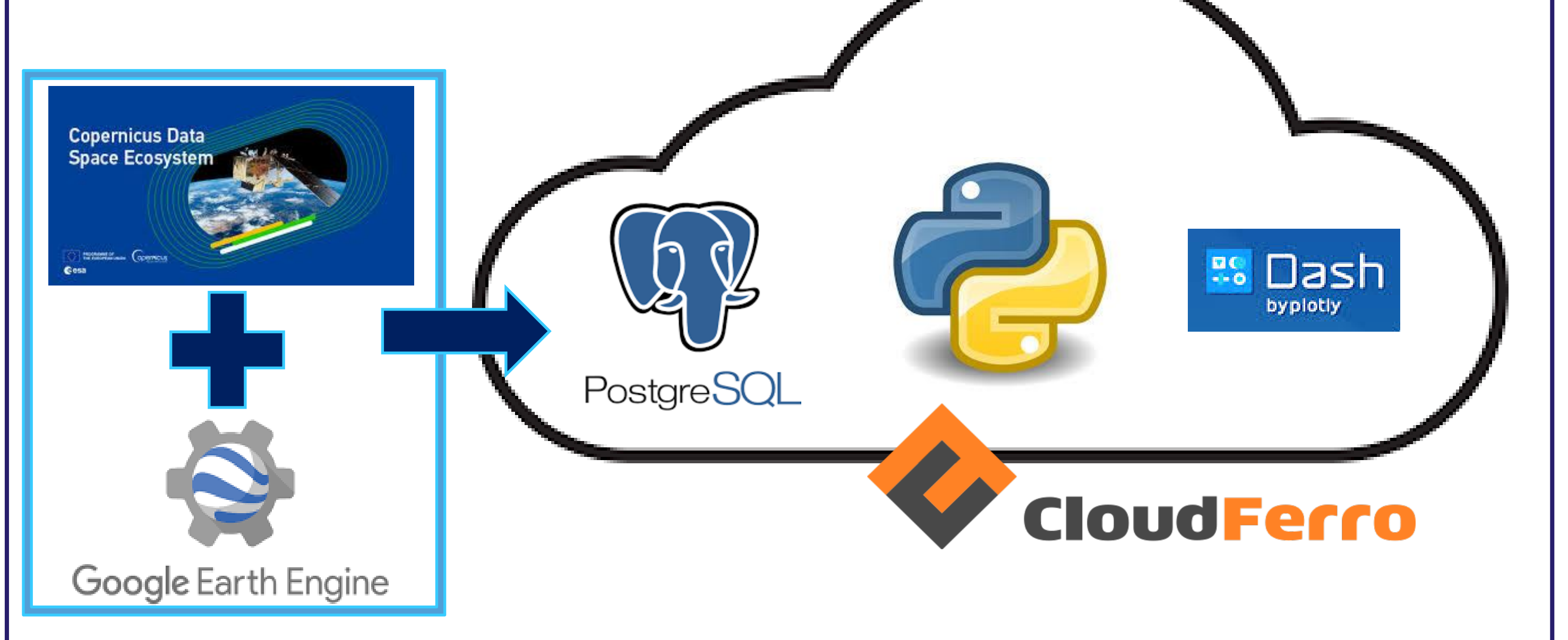
**We aim to support policymakers by developing an Air Inequity Dashboard, combining satellite data and socioeconomic indicators to map air pollution inequality across Europe.**

#### Air pollution is unequal

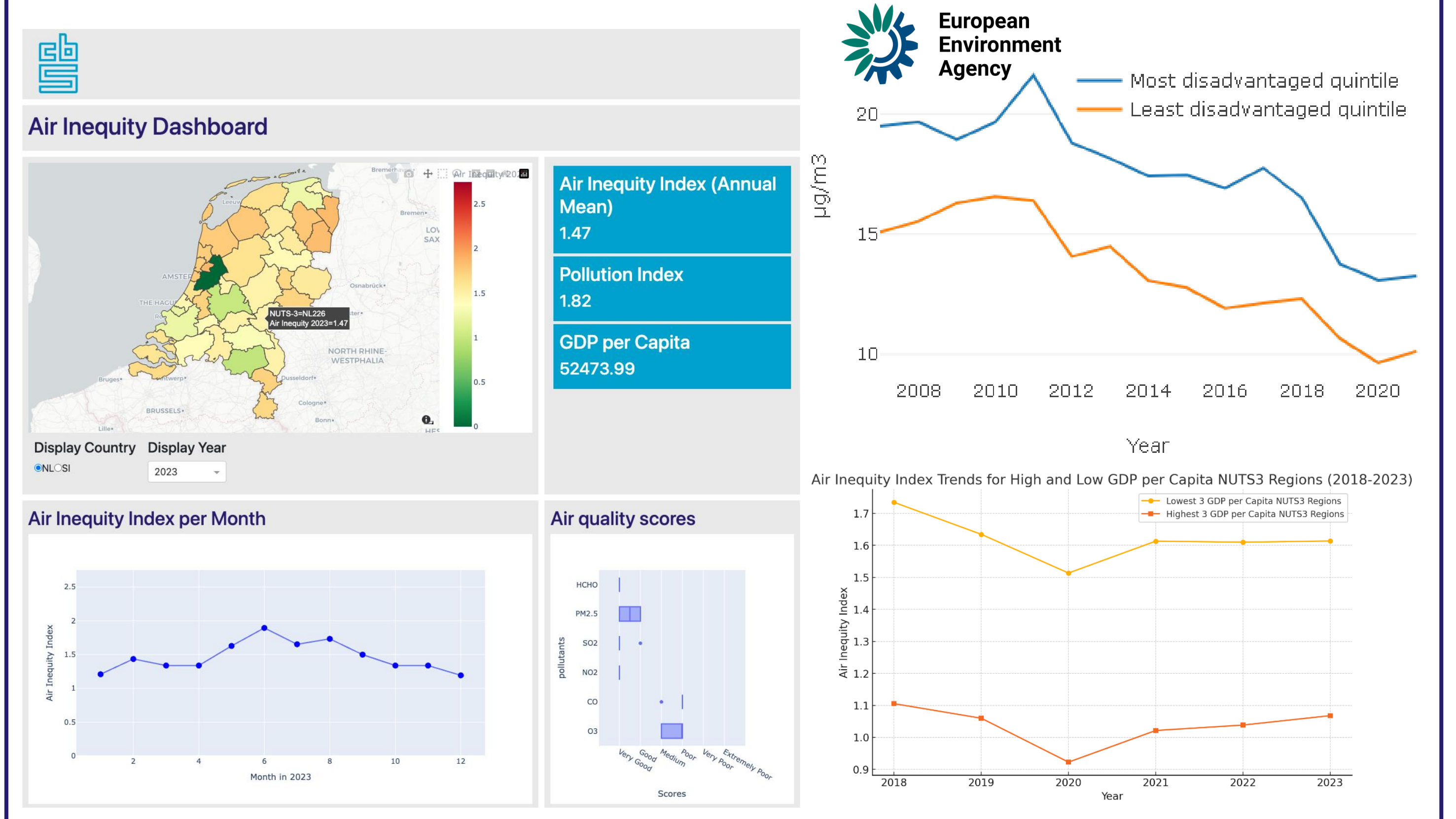
- Air pollution is an invisible threat that affects us all
- 99% of people breathe air exceeding WHO limits<sup>(7)</sup>
- Causes lung & heart disease<sup>(1)</sup>
- Low-income populations are disproportionately exposed to harmful air pollutants<sup>(4)</sup>
  - Near roads & industry → higher pollution
  - Near green areas → lower exposure



#### Production pipeline



#### First results



#### Policy context

- Zero Pollution Action Plan 2030:
  - 55% fewer pollution-related premature deaths
  - Already 41% decline (2005-2021)
- Ambient Air Quality Directive
- Just Transition Mechanism



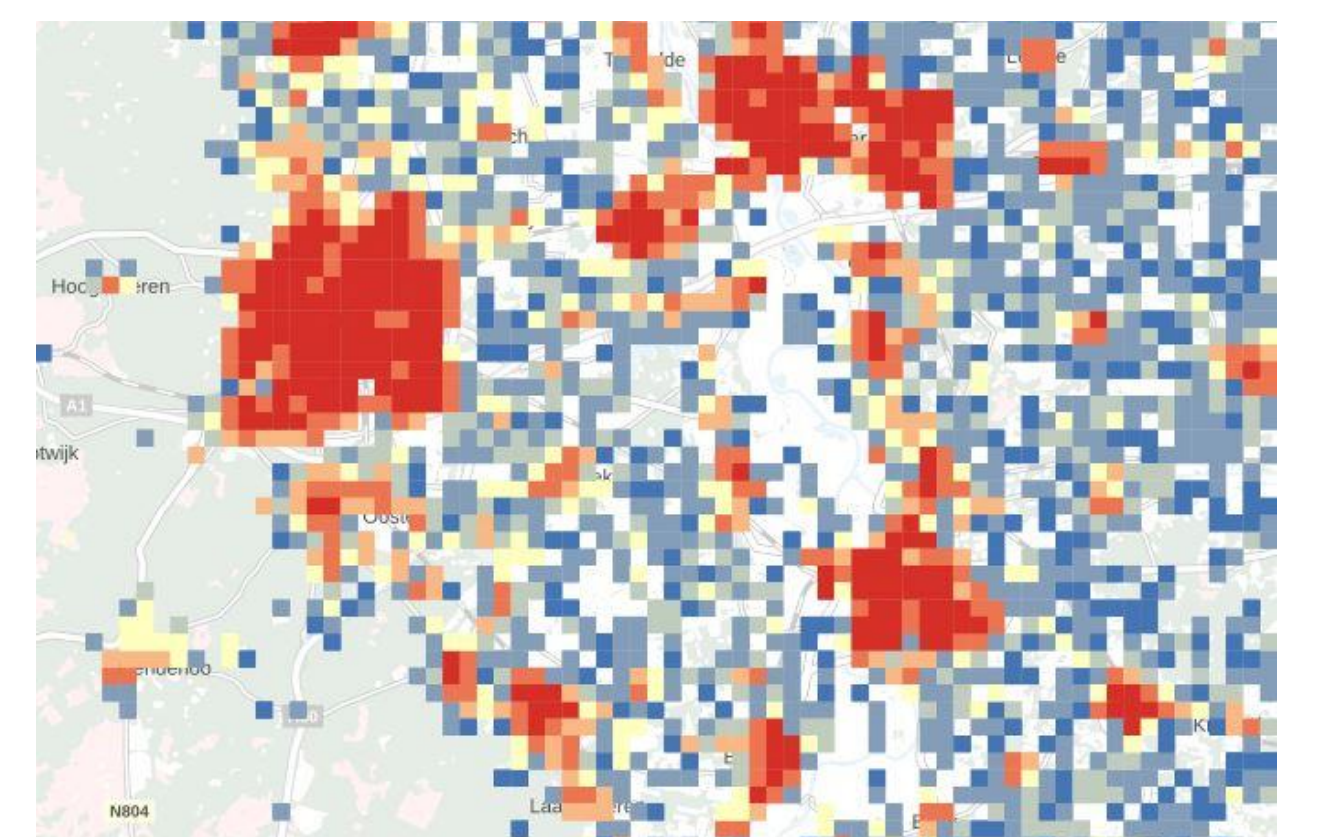
#### Ongoing research

- Eurostat grant in collaboration with DESTATIS
- Translation of atmospheric-level satellite data to surface-level
- Collaboration with TNO (Netherlands Organisation for Applied Scientific Research)
- Incorporation of gridded statistics including information on demographics, housing, energy use, social security, population density, and access to services
- Different regions

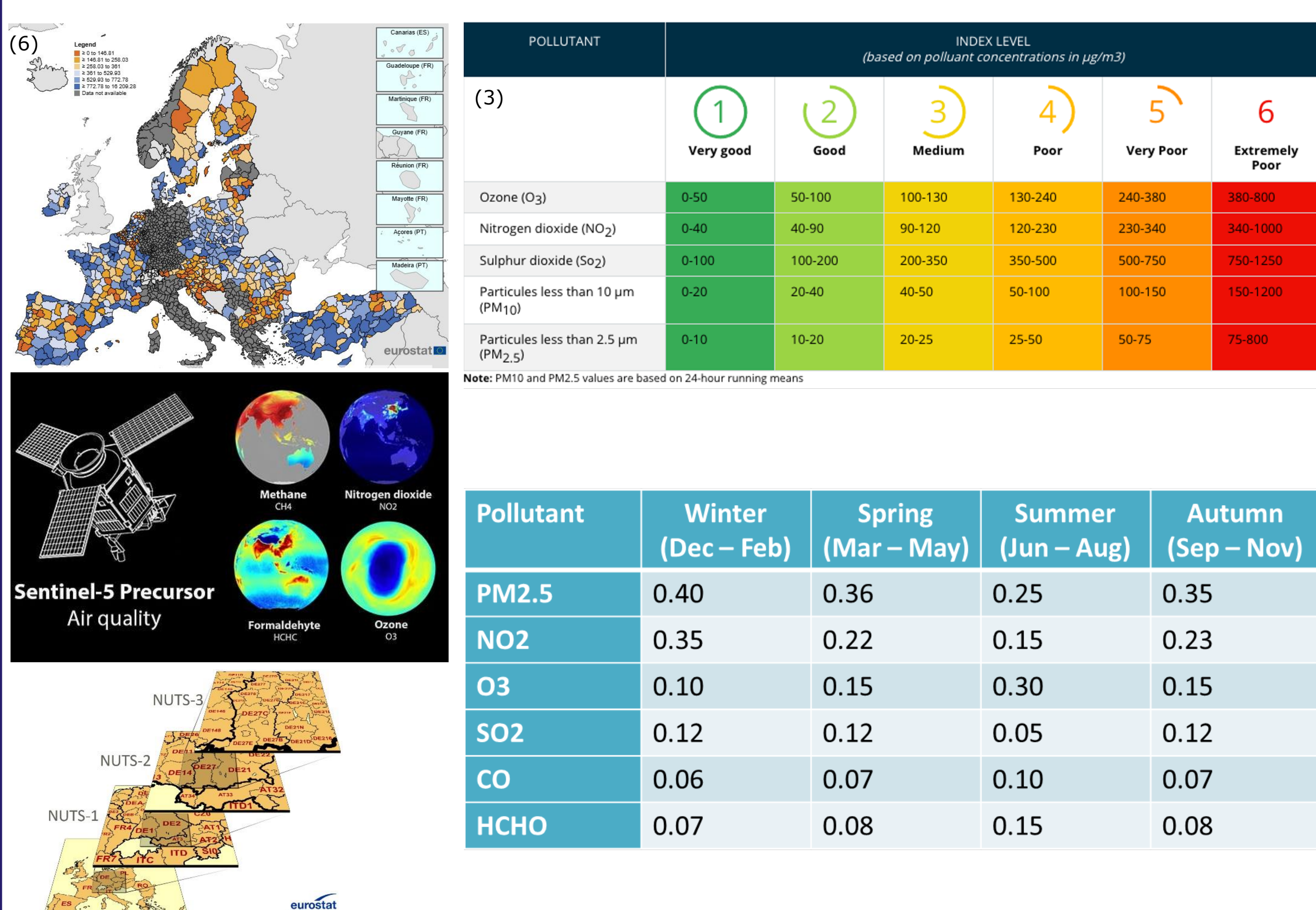
DESTATIS  
Statistisches Bundesamt

eurostat

TNO innovation for life



#### Datasets



#### References

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