



This project has received funding from the European Union's Horizon2020-SPACE-2019 innovation action programme under grant agreement No 870373 - SnapEarth



SnapEarth Pilot - EarthClimate

www.snapearth.eu

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The Problem

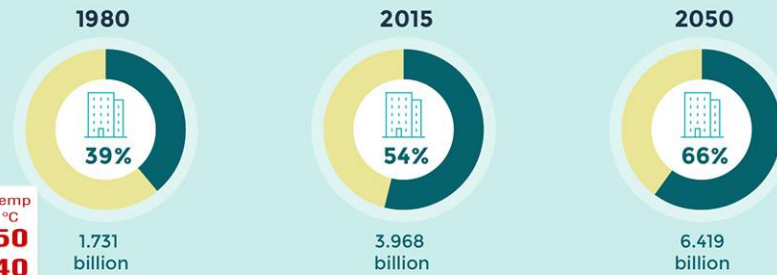
World Population



1980		4.439 billion
2014		7.349 billion
2050		9.725 billion

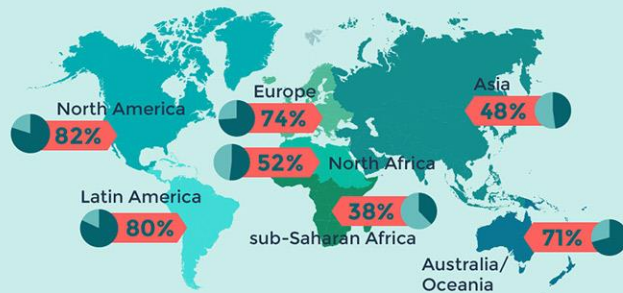
Source: United Nations, Department of Economic and Social Affairs, Population Division (2014).
World Urbanization Prospects: The 2014 Revision, custom data acquired via website

Share of the Urban Population Worldwide



Source: United Nations, Department of Economic and Social Affairs, Population Division (2014).
World Urbanization Prospects: The 2014 Revision, custom data acquired via website

Share of Urban Population on all Continents



Source: United Nations Department of Economic and Social Affairs (UNDESA) 2016, online database

Where Urbanisation Happens



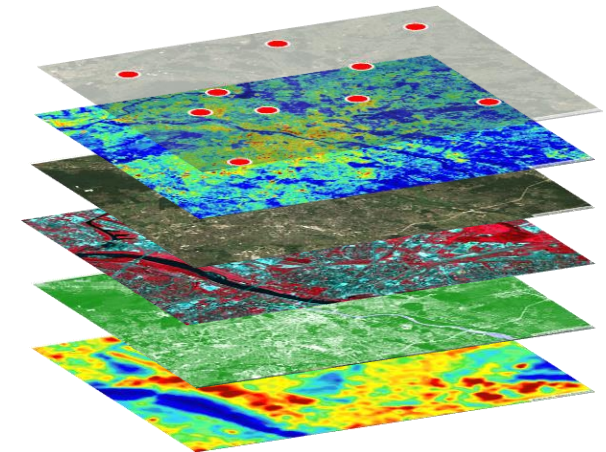
Source: United Nations, Department of Economic and Social Affairs, Population Division (2014).
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Main objectives of EarthClimate are to provide and enable the analysis of data related to:

- Archive and up to date database of Sentinel 5p products for 25 selected Regions of Interest (ROIs) in Europe → application: air quality monitoring;
- Archive and up to date database of Sentinel 3 products for 25 selected Regions of Interest (ROIs) in Europe → application: Urban Heat monitoring;
- CAMS data → aim: facilitating access to and re-use of: weather, pollutants and allergens from Copernicus Atmosphere Monitoring Service; application: air quality monitoring;



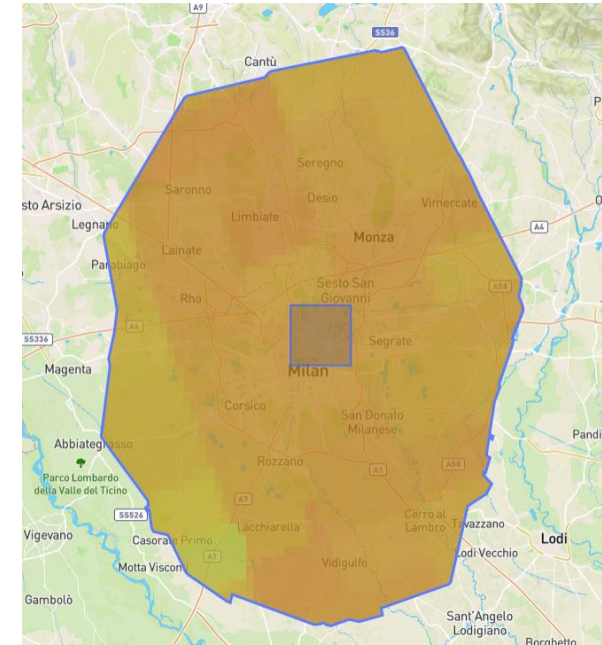
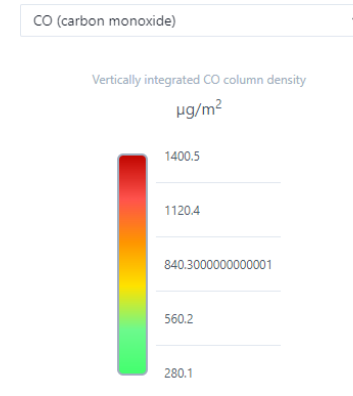
EarthClimate



Data available:

1. Air quality monitoring - data updated on an ongoing basis and historical data on:

- Aerosols (AER AI)
- Methane (CH₄)
- Carbon monoxide (CO)
- Nitrogen Dioxide (NO₂)
- Formaldehydes (HCHO)
- Ozone (O₃)
- Sulfur Dioxide (SO₂)

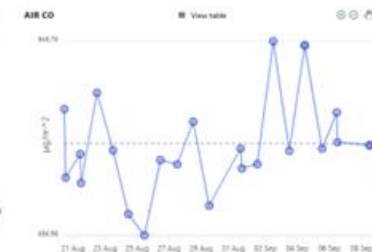
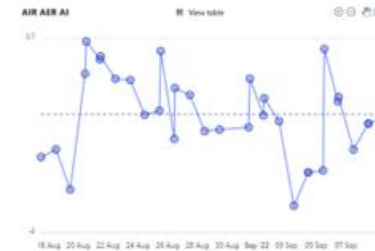


- ### 2. Urban heatmap - data on the surface temperature of the ground updated on a regular basis and historical data
- ### 3. Weather and allergens - The data are based on Copernicus CAMS models

Service functionality



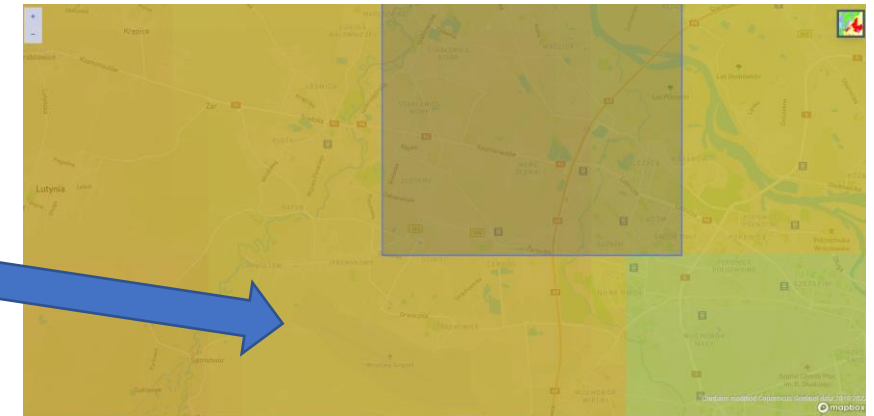
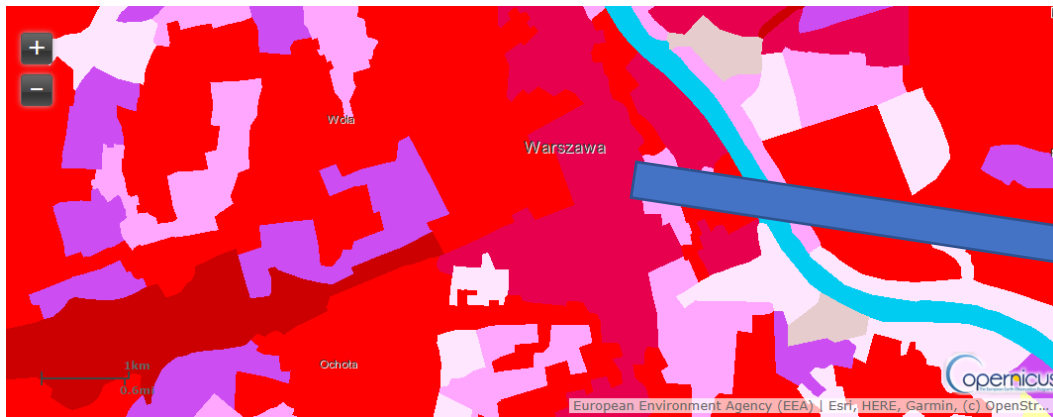
- Possibility to choose any date range (historical data)
- Possibility to create reports (pdf format)
- The ability to retrieve information from a pixel from 13 variables:
 - 7 for air quality
 - Urban heat map
 - 5 for weather and allergens
- Possibility to retrieve information from a pixel in the following formats:
 - SVG
 - PNG
 - CSV



EarthClimate - Pilot development



- Our pilot will mainly use the land use / land cover from EarthSignature database
- In the future, an interactive connection between EarthClimate services and EarthSignature is foreseen (selecting specific data from different types of land cover/ land use)



Pilot data and other sources



Copernicus Open Access Hub

***Sentinel 3 - UHI, Sentinel 5 –
air quality data***



CORINE LC



Atmosphere
Monitoring Service
atmosphere.copernicus.eu

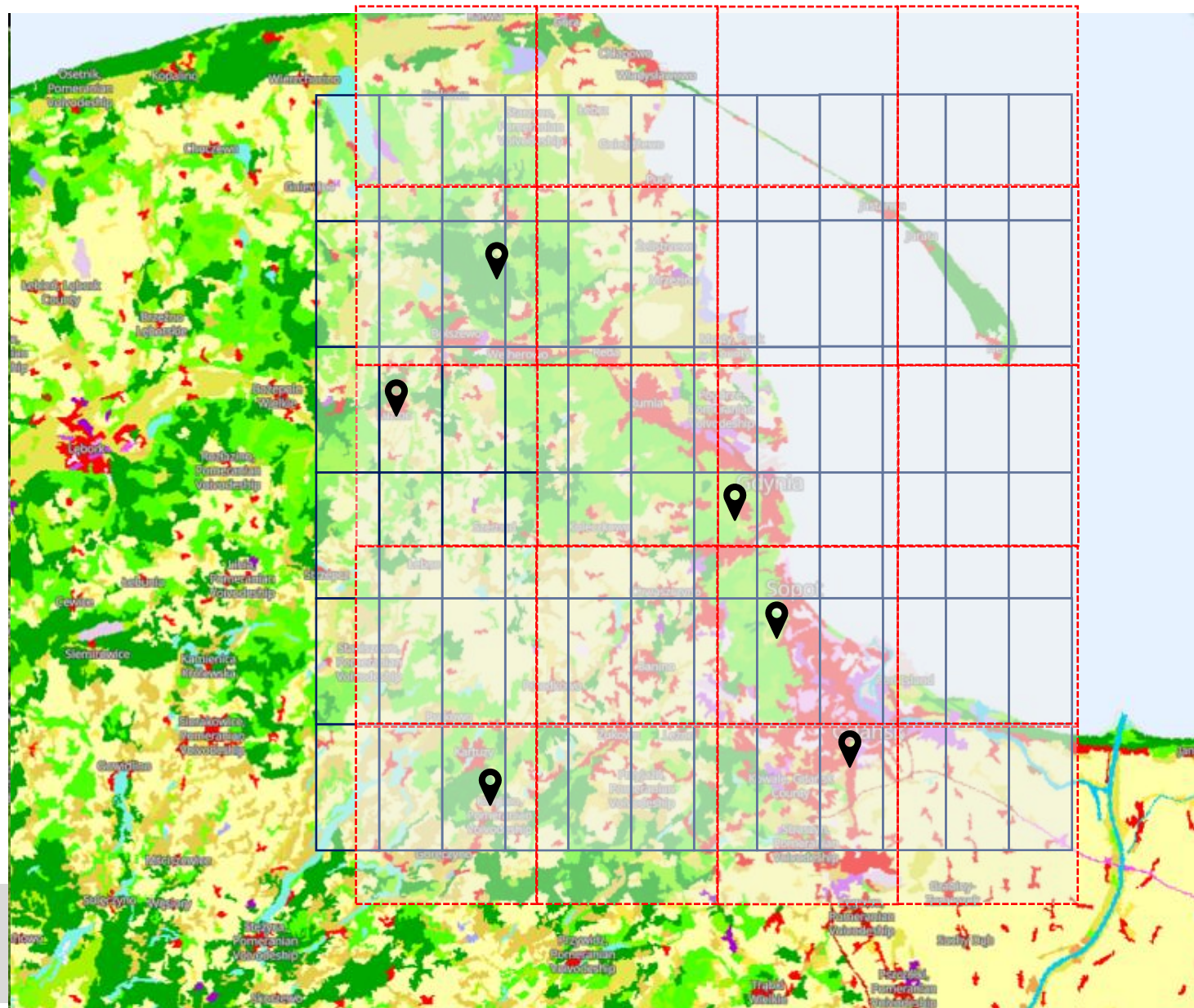
***ENSEMBLE numerical
prognosis model data***



**Główny Inspektorat
Ochrony Środowiska**

***Data on air quality collected
by in-situ weather stations***

Innovation and technological development



Legend:



CAMS pixel



Sentinel 5p pixel



Location of in-situ stations

EarthClimate – international development plan



- Extension of city monitoring areas to areas outside the EU
- 6 test areas:
 - 2 in South America
 - 2 in Asia
 - 2 in Africa
- A strategy for an international development plan
 - analysing development opportunities,
 - selecting the most relevant ones
 - creating a strong consistent dynamic around these choices
 - collecting as many requirements as possible and analysing the strategy of further action with workshop participants





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Thank you

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