



GHGSAT

EARTH OBSERVATIONS AND MACHINE LEARNING FOR GREENHOUSE GAS EMISSIONS ATTRIBUTION

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Background



GHGSat is only entity in the world (private or public) with satellites designed to monitor emissions from individual industrial facilities

- Demo satellite (launched in 2016) proved we could do it
- Commercial satellites (launched in 2020 and 2021) are providing actionable measurements for paying customers

Our technology is miniaturized to operate on nanosatellites, enabling rapid, low-cost deployment and technology iteration

Our technology is patented in multiple jurisdictions worldwide



Oil and Gas



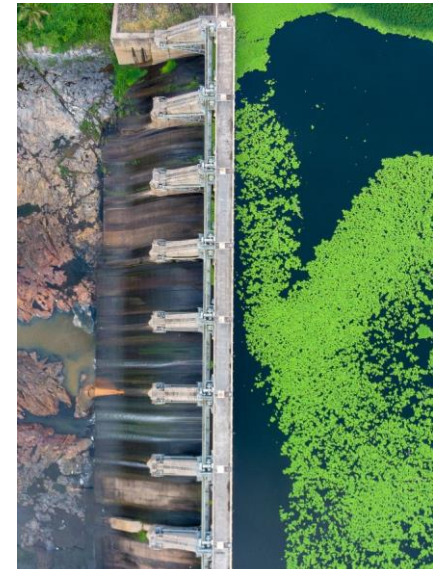
Waste Management



Agriculture

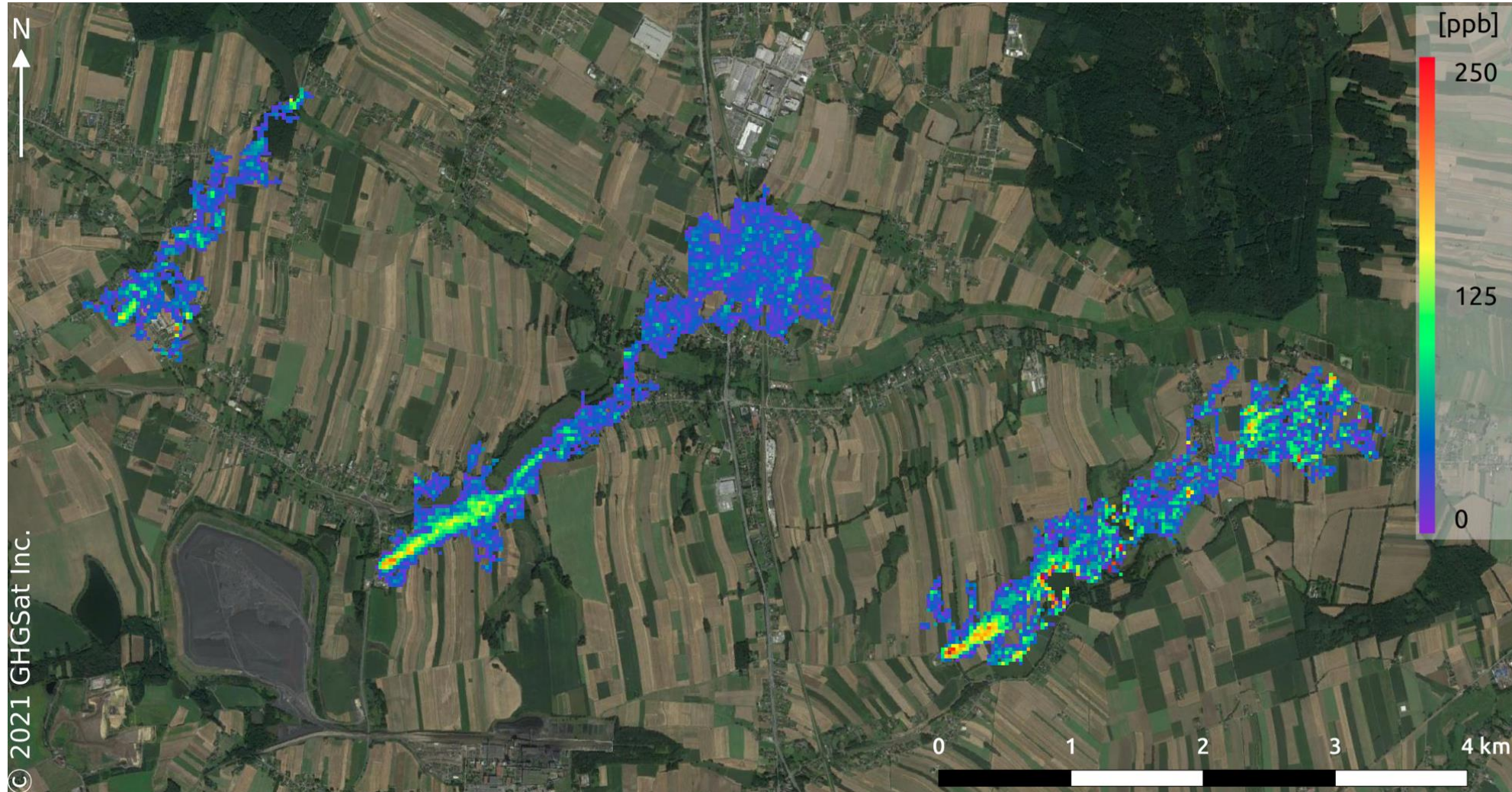


Mining



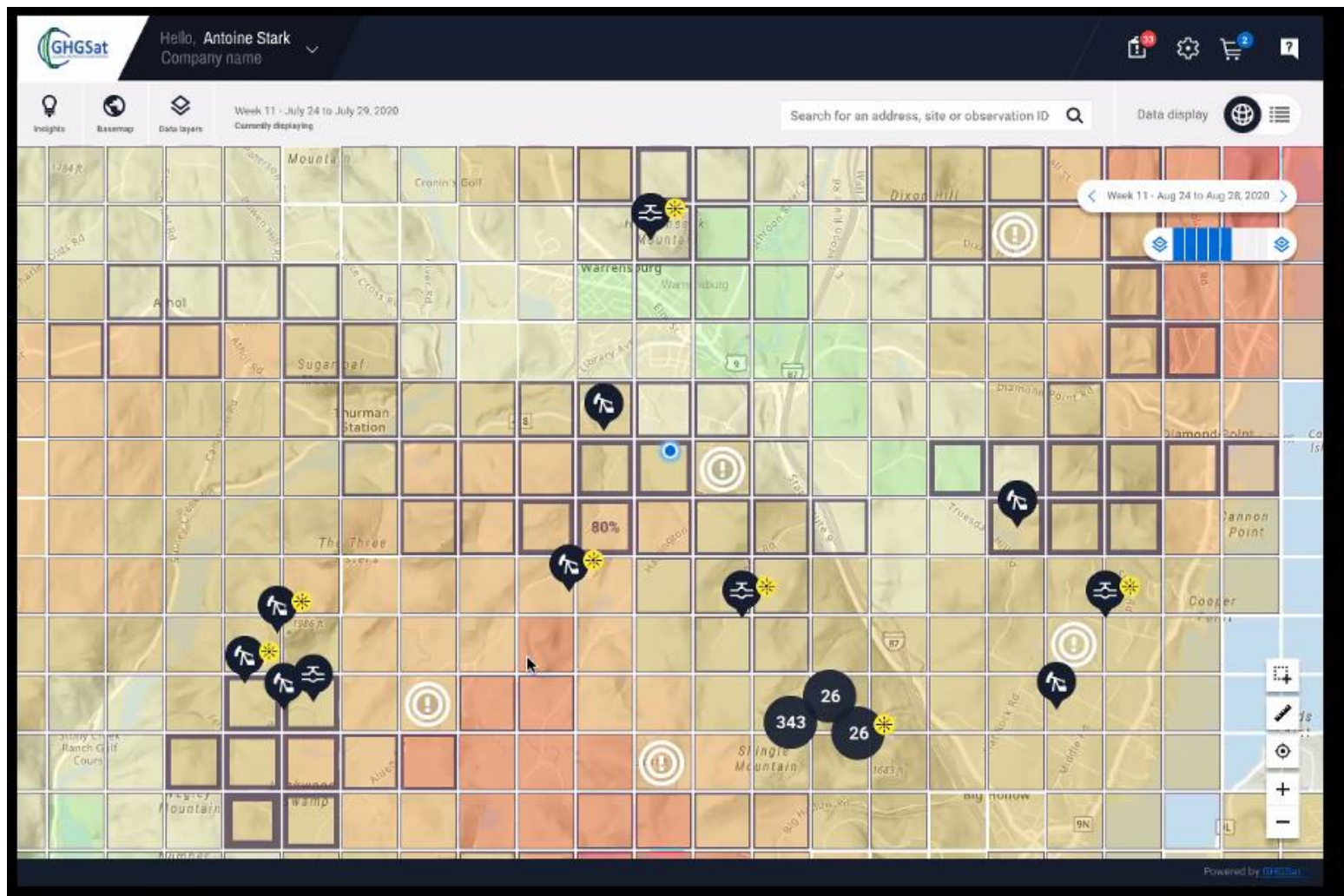
Power Generation

EMISSIONS EXAMPLE UNDERGROUND COAL MINES





DELIVERING RESULTS - ANALYTICS



GHGSat analytics layers for regions or countries of interest:

- Methane concentration map at 2km x 2km
- Hotspot detection
- Flaring detection
- Prediction of where leaks are most likely to occur
- Recommendation on action

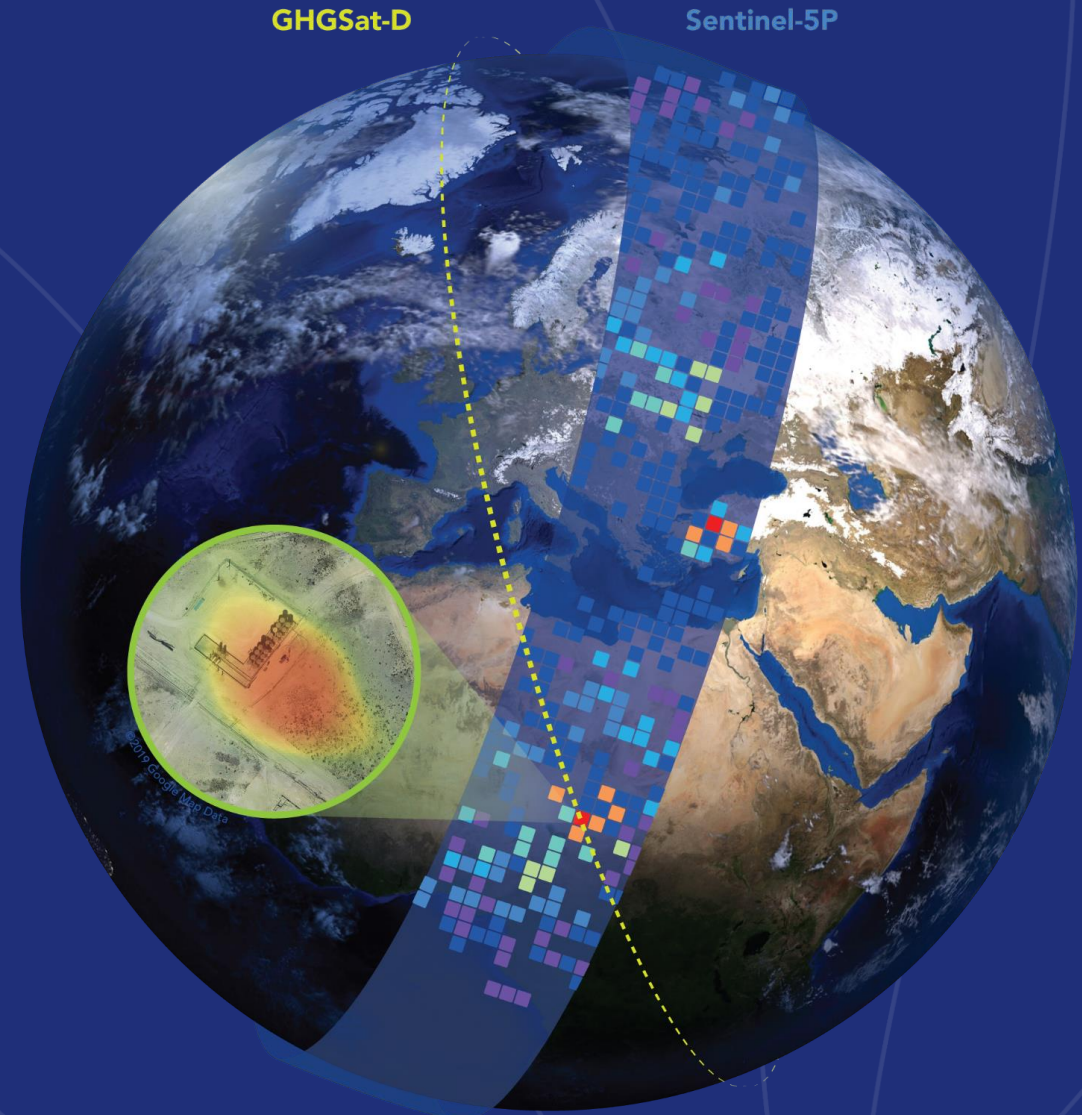
WHY MACHINE LEARNING

Drive additional value for customers

Analyse data at scale when human intervention is impractical

Models continuously update as new data is added to the system

Running new algorithms on archive data



ML FOR FACILITY DETECTION

Aim: attribute industrial emissions detected to the source

Problem: identifying industrial facilities when databases are non-existent, incomplete or incorrect

Solution

- Implement multiple ML approaches - e.g. detecting flares or identify facilities in high resolution optical satellite imagery

Challenges for applying ML

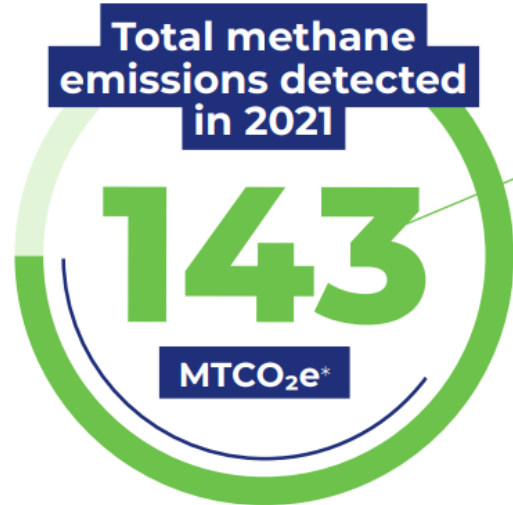
- facilities differ significantly by industry
 - e.g. an Oil and Gas facility looks nothing like a landfill
- facilities differ by region within industries

Training Data: public facility data





2021



31.2 M



Emissions measured equate to 31.2 million cars driving on the road for a year.

2.3 MTCO₂e*

Total methane emissions mitigated in 2021.



100,000+ sites

Our constellation of high-resolution satellites observed over 100k industrial sites worldwide in 2021.

1,000,000 km²

Over 1 million km² surveyed in the course of customer campaigns.



47 countries

GHGSat satellites measured emissions in 5 continents.

