

StatE0

5-7 May 2026 | ESA-ESRIN | Frascati (Rome), Italy

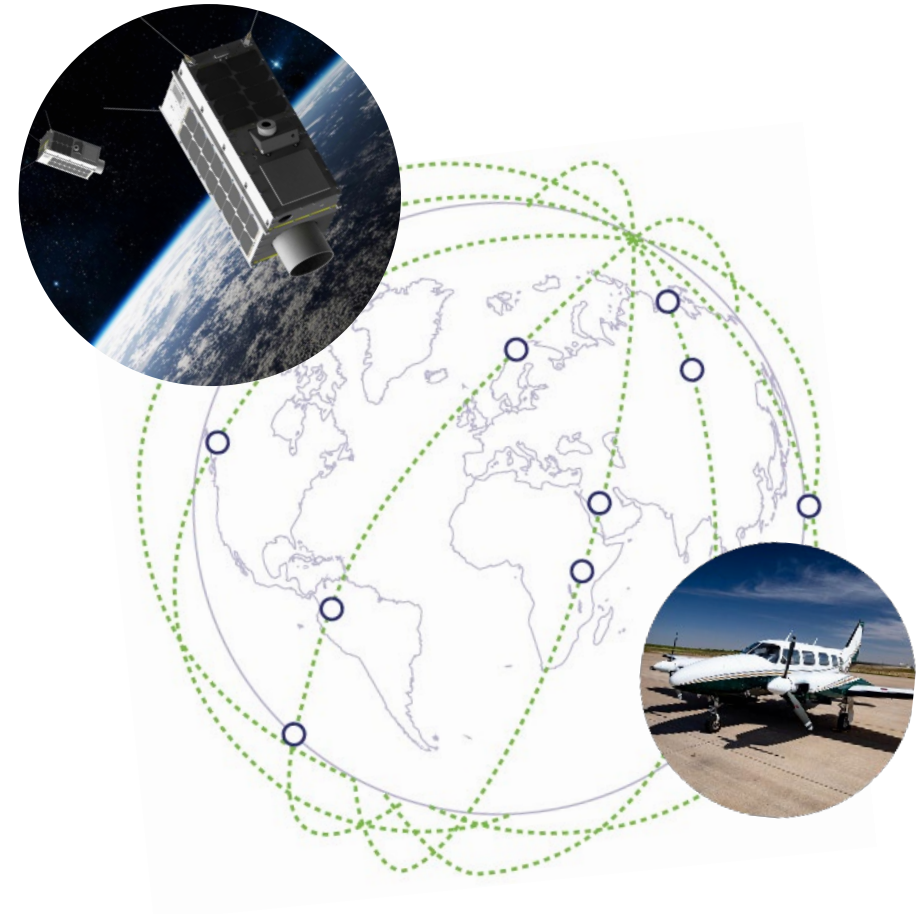


Integrating Satellite-Based Facility-Level Methane Emissions Data into National GHG Inventories: The UK InCubed Greenhouse Gas Emissions Watch Service
Natalia Kuniewicz, Business Development Manager, GHGSAT

Who we are

GHGSat provides **high-resolution, facility-level greenhouse gas emissions intelligence** from satellites and aircraft, enabling reliable, independent measurement.

Our data **supports emissions oversight, infrastructure integrity, regulatory compliance and informed policy decisions.**



TRUSTED BY:





The solution - An evidence layer for methane governance

GHGSat pioneered the technology that delivers high-resolution data on greenhouse gas emissions from space.

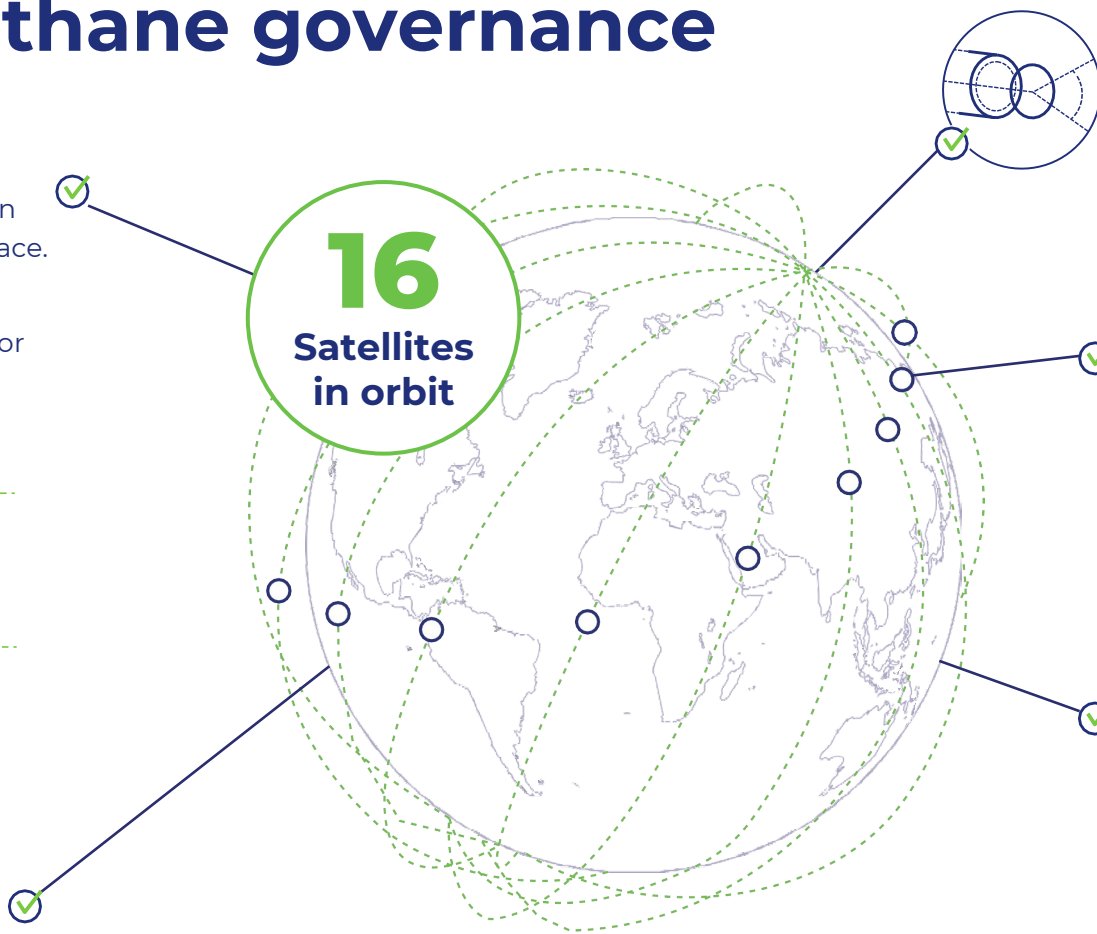
2016
CLAIRE Technology demonstrator proving GHG can be detected and measured accurately from space.

2020
IRIS First commercial satellite delivering 10x better performance.

2021 HUGO **2022** LUCA, PENNY & DIAKO

2023
MEY-LIN, GASPARD, OCÉANE, ELLIOT, JUBA & VANGUARD (CO₂)

2025
PIERRE, VALMAY, TEODOR & LAILA



16
Satellites
in orbit

Instruments

GHGSat commercial satellites are designed and dedicated for methane and carbon dioxide observations. Each satellite is equipped with a wide-angle imaging spectrometer for measuring the vertical column density of greenhouse gases.

Capability

With proprietary patented sensor technology, GHGSat satellites can measure methane emissions from onshore and offshore facilities, attributing those large or small emissions down to 100 kg/hr.

Emission Intelligence for Markets

- Oil & Gas
- Coal Mining
- Waste Management
- Agriculture
- Security
- Financial Services
- Environmental Services
- Government and regulators

Coverage

Spatial resolution: ~ 25 m class (~82 ft)
Field of view: 12 km x 12 km (7.5 miles x 7.5 miles)

Size: Comparable to a microwave oven
Weight: 15 kg (33 lbs)
Orbit: Sun-Synchronous Polar



Global momentum on methane

- **Global Momentum:** 159+ countries and the EU have joined the Global Methane Pledge, targeting $\geq 30\%$ methane cuts by 2030.
- **EU Leadership:** First binding methane regulation (2024/1787) mandates MRV, bans routine flaring/venting, and enforces transparency even on imports.
- **National actions:** US waste emissions charge; Canadian cap-and-trade; China action plan; Gulf end to routine flaring and venting.
- **Industry Engagement:** OGMP 2.0 now includes 153 companies across 90 countries, covering $\sim 42\%$ of global fossil fuel output.
- **Uptake of voluntary mechanisms:** O&G decarbonisation charter, certified gas protocols.
- **Support Tools:** Methane guiding principles and Global Methane Initiative provide toolkits for policy design; CCAC supports national plans.
- **Philanthropic Boost:** Bloomberg Philanthropies pledges \$100M, Global Methane Hub \$500M+.

BROOKINGS

State of the Union | Immigration | G

COMMENTARY

Trump is dismantling climate rules. Industry is worried.

Samantha Gross and Ryan Beane
February 26, 2026

ENERGY WIRE

Regulators rely on fossil fuel industry data. How often is it wrong?

By SHELBY WEBB | 02/24/2026 06:43 AM EST

From Colorado to Texas, government officials are grappling with concerns about unreliable reports from oil and gas companies.

US demands EU exempt its gas from methane emissions law, document shows

By Kate Abnett

December 15, 2025 10:41 PM GMT · Updated December 15, 2025

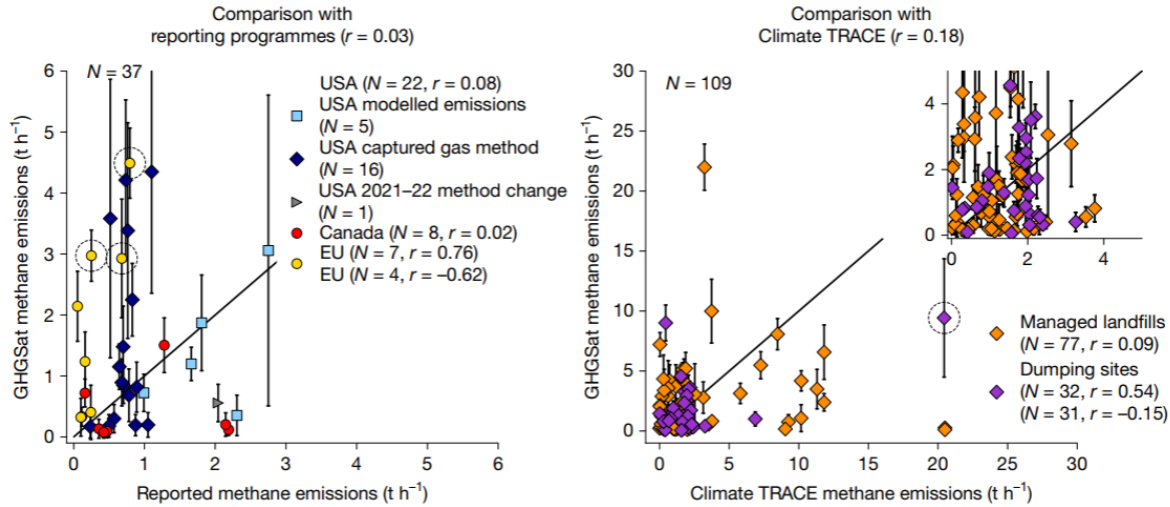
Bloomberg

Politics

EU and China Pledge Climate Leadership Role as US Retreats

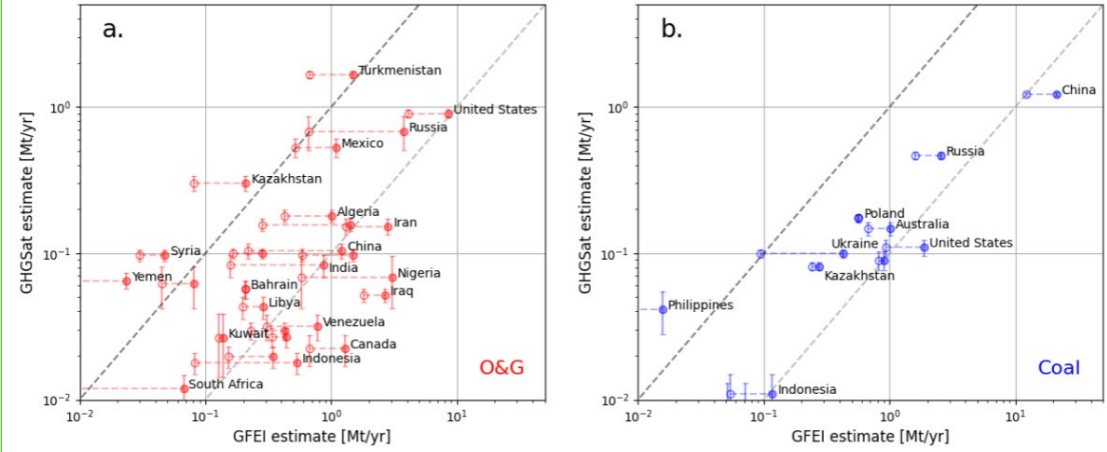


The problem



Global satellite survey reveals uncertainty in landfill methane emissions, Dogniaux et al., Nature, 2025.

Discrepancy between satellite-based and bottom-up emission estimates (**waste sector, 151 sites, 47 countries**). Comparison of site-wise methane emission rates observed by GHGSat against data included in reporting programmes (left) and emissions calculated by the Climate TRACE non-profit (right), both averaged over the corresponding GHGSat observation years.



Global Energy Sector Methane Emissions Estimated by Using Facility-Level Satellite Observations, Jervis et al., 2025

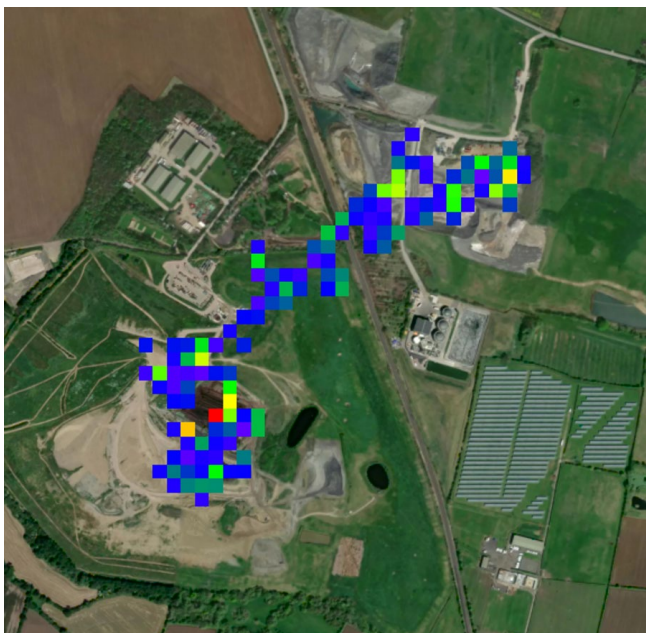
Energy sector: satellite detections account for 8.3 Mt/yr from 3,114 sites but only 12% of inventory totals globally, rising to 24% where satellites actually observed. O&G facilities emit above detection threshold only 15% of the time.



Use case: Inventory improvement

Landfill, UK

Measurement ensures **accurate reporting** of total emissions and verification of bottom-up estimation that rely on **generalised emission factors** and activity data.



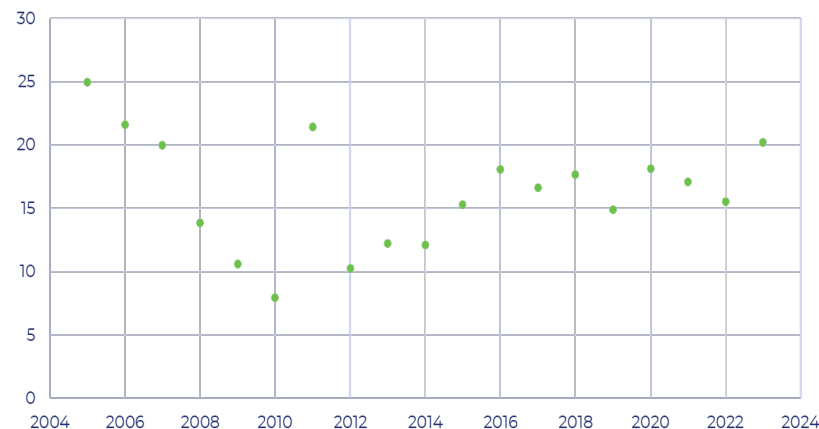
277 KG/H



260 KG/H

2024 GHGSat observations highlight **anomalous emissions events** representing several orders of magnitude showing potential underestimation compared to reported values.

NAEI Point Source Emissions



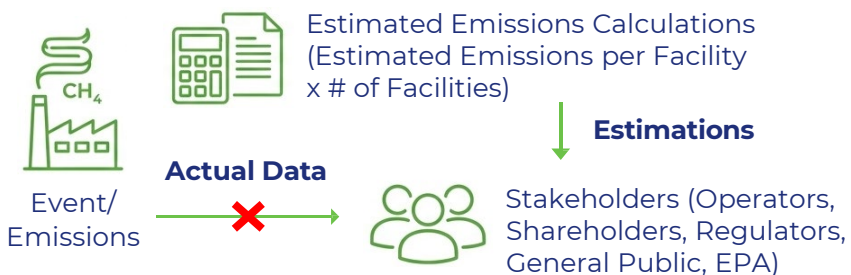


Emissions Watch: The Service Concept

Legacy Emissions Estimation



Yearly



KEY CHALLENGES

- No site-specific attribution; inability to react in real-time to address leakages
- Complex methods with interpretations and loopholes, varying by jurisdiction
- Tedious calculations and paperwork
- Low accuracy, and no feedback loops
- Overhead to administer framework
- Challenging to enforce programs (carbon taxes)

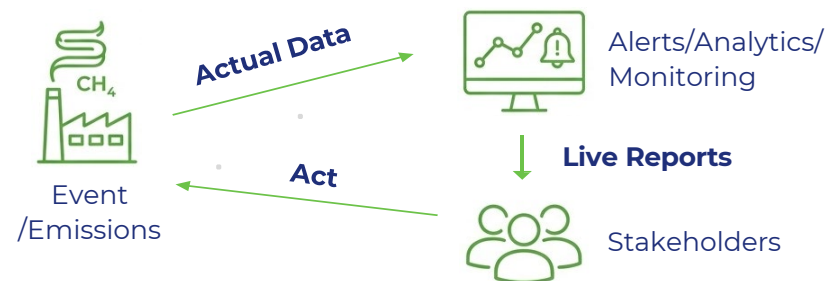
Emissions estimation is an archaic exercise and not fit to support targets and objectives of today's economy.



Satellite Monitoring & Attribution



Daily



CLEAR BENEFITS

- Using actual data increases accuracy of emissions tracking
- Frequency, coverage and attribution of measurement enables timely action by operators
- Quality and volume of data enables analytics-driven insights, providing significant additional value to operators
- Lower all-in cost of measurement (scale efficiencies of single-to-many model)
- Enables enforcement of targets and policy
- Gives stakeholders access into the data

Active monitoring is the way to bring emissions management through to the 21st century.



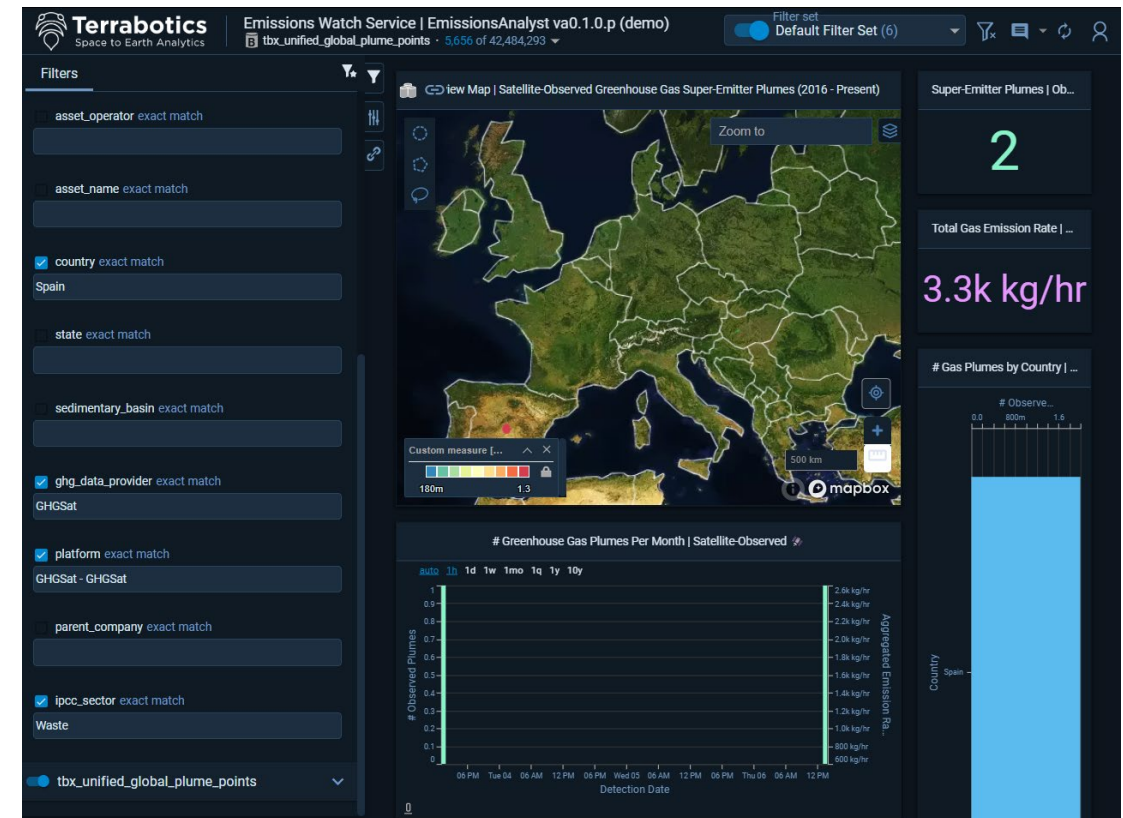
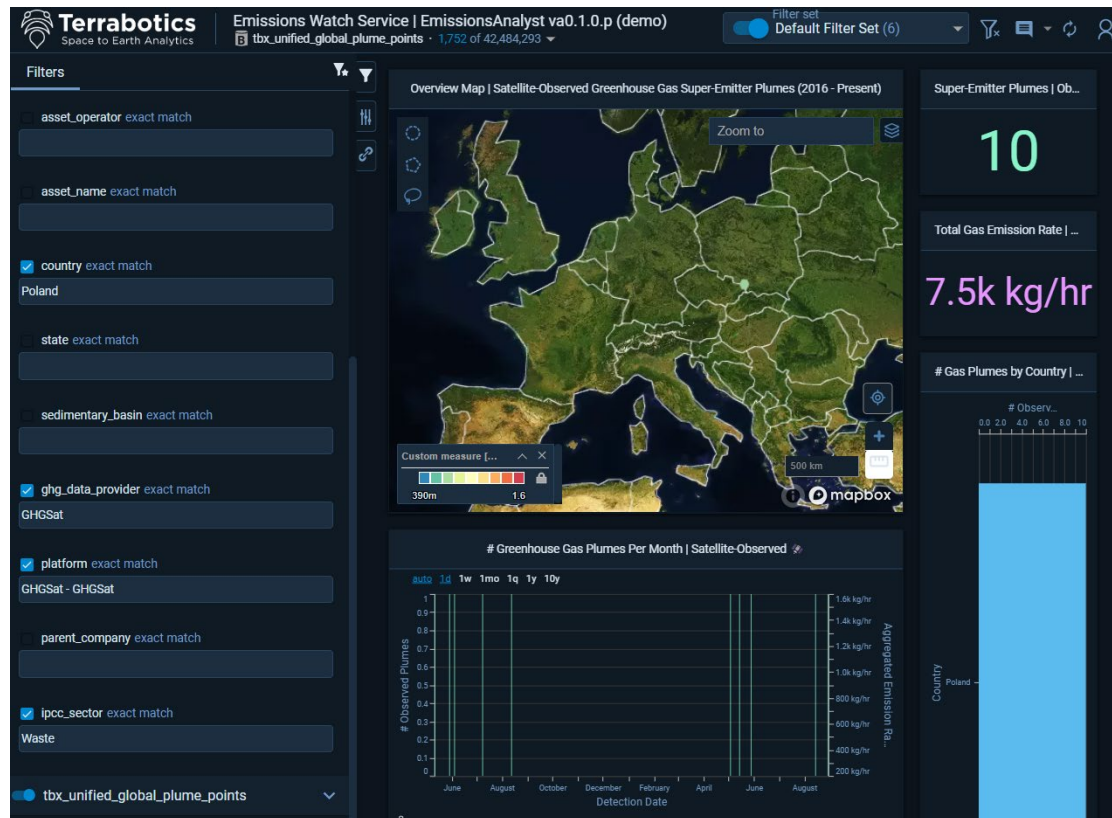
Emissions Watch: The Service Concept



Main dashboard view zoomed over a user-selected area. **Plume count** and **total emissions** (right top corner) are reflecting the results of GHGSat's observations in the given **time range** (top left).



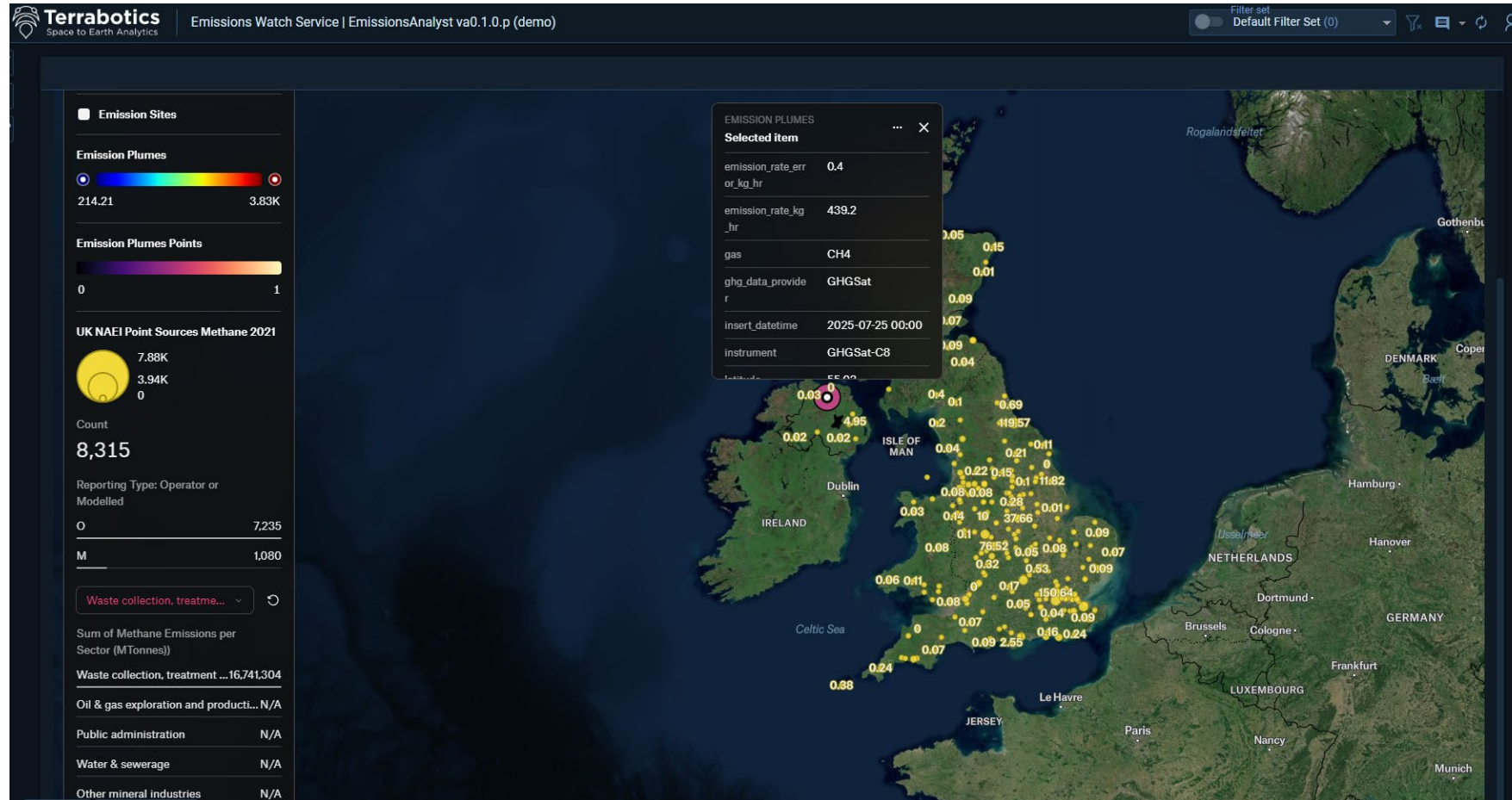
Emissions Watch: The Service Concept



Comparison between static data describing detected emissions over landfills in Poland (left) and Spain (right). **This functionality allows cross-country comparison.**



Emissions Watch: The Service Concept



Asset dashboard revealing the National Atmospheric Emissions Inventory data. Each dot on the map corresponds to a site with attributed **modelled (M)** or **reported (O)** emissions. Information in the ribbon indicates corresponding data collection from GHGSat, inconsistent with the public dataset.

THANK YOU!

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