Empowering UK Organisations with **High-Resolution Satellite Methane Data**

Case Study

GHGSAT | UK SPACE AGENCY | CATAPULT Satellite Applications

OVERVIEW

For government agencies around the world, the ability to **accurately measure methane emissions** is critical to assess progress towards environmental goals, build effective emissions mitigation strategy, and inform data-backed policy.

In recent years, the United Kingdom has made significant progress towards methane action, developing targeted strategies including the Global Methane Pledge, Environment Agency Methane Action Plan, the UK Methane Memorandum, and more in order to meet the UK's climate objective of achieving **net zero emissions by 2050**. However, insufficient data on methane emissions has limited the UK's ability to effectively implement these ambitious targets.

In addition, many government agencies have limited experience with satellite emissions data, and how it can be leveraged to achieve their objectives.

To address this challenge, the **Methane Monitoring Data Supply for the UK programme**, funded by the UK Space Agency and delivered by the Satellite Applications Catapult in partnership with GHGSat, provided organisations across the United Kingdom with access to GHGSat's high-resolution satellite methane data alongside targeted trainings in satellite data applications.

By strengthening awareness about the applications of methane data for government agencies, as well as strategies to embed data into operations, the cross-government programme supported users in the UK to effectively **harness the power of satellite environmental monitoring** and progress towards sustainability goals.

Methane traps 84X more heat than CO_2 over 20 years

60% of methane emissions from human activities

THE CHALLENGE

Reliance on Models & Estimates

Government agencies in the United Kingdom typically drew on estimates and models both to assess methane emissions and develop national emissions inventories —without access to direct measurements that would provide a more accurate understanding.

Incomplete Data

Typically, data that government users had access to was limited in scope. Data sources included a mixture of reported data from industry operators, or asset-specific insights measured via ground-based technology —not the broad-based or comprehensive view provided by satellites.

Unfamiliar with Satellite Data

Many users had limited experience with satellite data and its applications, inhibiting its use and uptake across government agencies.

Turning Challenges Into Actionable Solutions →

GHGSAT SOLUTION

Accurate Emissions Detection & Measurement

High-resolution satellite data, capable of tracing methane emissions as small as **100 kg/hr** to individual industrial facilities.

Comprehensive Coverage

Robust global coverage through the largest fleet of satellites dedicated to methane in the world.

Frequent, Regular Monitoring

Unmatched daily monitoring capabilities, paired with the fastest data delivery speeds in the field, alerting about emissions **within hours**.

Expertise in Strategic Data Applications

GHGSat has a decade of experience working with **government agencies and industry operators** around the globe to embed emissions data into their strategic planning.

GHGSat satellite data has driven:

>20 MTCO$_2$e of Methane Mitigation

Equivalent to the annual emissions from more than 4.6 million gas-powered cars

The UK has a proud track record of leadership in Earth Observation data analytics, transforming satellite insights into actionable solutions for global challenges. Partnerships such as this, led by GHGsat and Catapult showcased how UK expertise drives innovation and delivers tangible benefits, while fostering growth across the UK's EO sector. By advancing methane monitoring capabilities across Government, these collaborations empower informed decisions that support both public and private sector needs.

— Beth Greenaway, Head of Earth Observation & Climate, UK Space Agency

THE PROGRAMME

Under the Methane Monitoring Data Supply program, UK users from a wide range of sectors, including government agencies, industrial operators, and financial institutions, could access GHGSat high-resolution satellite methane data, combined with **direct technical support and training**, through the Satellite Applications Catapult.

This dual approach, carried out over a **two-year period**, aimed to help organisations maximize the value of the data and tailor its applications to support their organizational goals.

Organisations were able to both **task satellites** to observe specific industrial sites of interest, as well as **access the archive of GHGSat's historical data**, collected since 2016.

Ultimately, the programme empowered public, private, and research organisations to use methane data to drive **governmental innovation and climate action**.

IMPACT

- **Strong Demand for Methane Data**
  The programme's focus on identifying new users and applications of satellite data led to significant interest and uptake across user groups.
- **Methane Mitigation for Carbon-Intensive Industries**
  Drawing on the data to identify methane leaks across the United Kingdom, operators were able to take action.
- **Data-Driven Policy Outcomes**
  The data was leveraged to inform government programmes and influence policy. Outputs were cited in the House of Lords and Climate Change Committee reports, and featured in media conferences.
- **Effective Operational Integration for Government Agencies**
  Organisations embedded satellite alerts into workflows, supporting effective regulatory planning and mitigations. For example, results from the program were highlighted in the **2023-2024 Environment Agency's Chief Regulator's Report**.

  The Agency has used satellite-based methane monitoring to successfully identify over 100 sites across several sectors throughout England, including agriculture, waste management, and oil & gas.

KEY TAKEAWAYS

120 organisations accessed methane data

23,395 t CO_2e mitigated

100+ sites monitored

Pairing data access with capacity-building technical expertise was an effective way to build a community of engaged users. Exploring use cases with tangible examples sparked interest and uptake.

UK government agencies were empowered to integrate data holistically into their operations—from the Environment Agency's scale-up of satellite methane monitoring across industrial sites to embedding the use of satellite data into policies such as National Incident Management.

The approach of combining the ability to directly task satellites to monitor areas of interest, coupled with access to historical data, gave users the flexibility to tailor data to their specific organisational objectives, ensuring the data supported their organisational goals.

Satellite data is a valuable piece of emissions intelligence for government users, providing an independent method of directly measuring emissions at speed and scale.

CONCLUSION

This programme laid the foundation for a UK methane monitoring ecosystem and allowed UK organisations to test the data within their operational workflows.

By de-risking and exploring the different applications of satellite data for various end users across the UK government, the programme built the capacity of government users to leverage satellite data to make progress towards sustainability and methane objectives. The expanded access to satellite data of the program played a role in laying the groundwork for innovative public-private partnership programmes such as the European Space Agency's InCubed programme, which develops innovative and commercially viable products and services to leverage the value of Earth Observation imagery and data, and has unlocked strengthened collaboration between innovative private-sector companies and the public sector.

With continued investment and policy alignment, satellite data can drive innovation, strengthen regulation, and enhance the government climate leadership for emissions detection.