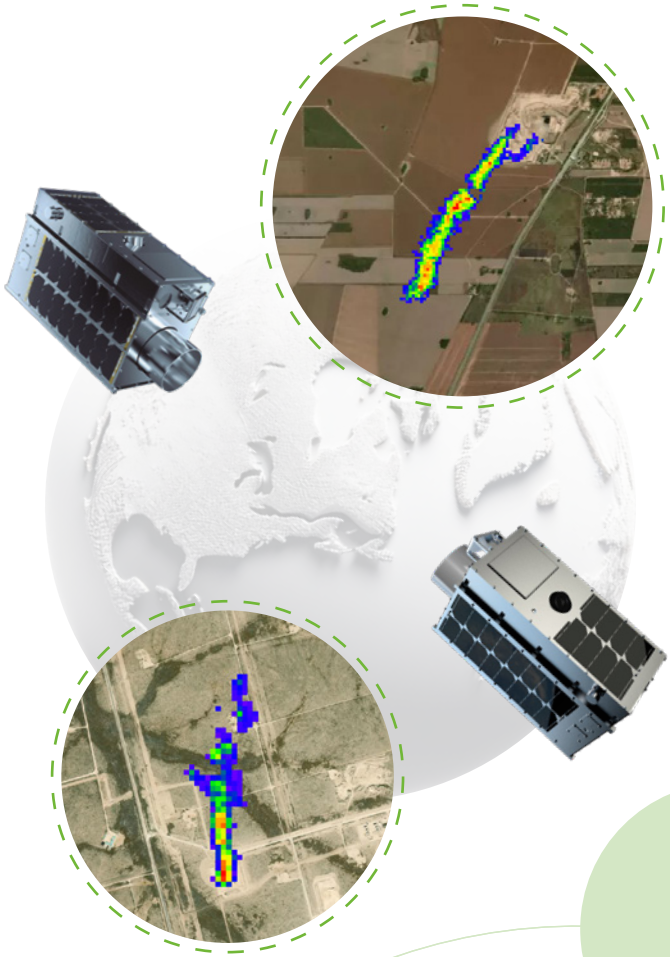
A COP for Ambition, Action, and New Answers



Since COP28, the world has seen continued geopolitical conflicts, with volatile wars on two fronts in Ukraine and Gaza threatening to escalate regionally at any time. With several elections having occurred earlier in the year across a range of geographies, the results overall have been uneven. Of these elections, none can be expected to have as much impact as the recent U.S. election. While the specific ramifications remain to be determined, history shows that climate policy is unlikely to stay near the top of the agenda. Nevertheless, while these political shifts will influence how prominently climate issues feature on government agendas in the near term, the recent wildfires, floods, hurricanes, and heat waves that have wreaked havoc on several regions serve as a reminder that the time for climate action cannot be delayed.

Against this backdrop, COP29 will seek to navigate the delicate balance to fill the imminent climate leadership void while also building on recent pledges from countries and industry to lay a clear technical framework capable of finally delivering tangible results. With the underpinning themes of enhancing ambition and enabling action, a clear focus will be on the role of climate finance in meeting these goals. As the first Global Stocktake revealed at COP28, there is much work to be done for countries to make good on their commitments, and this will require significant capital.

Methane goes mainstream

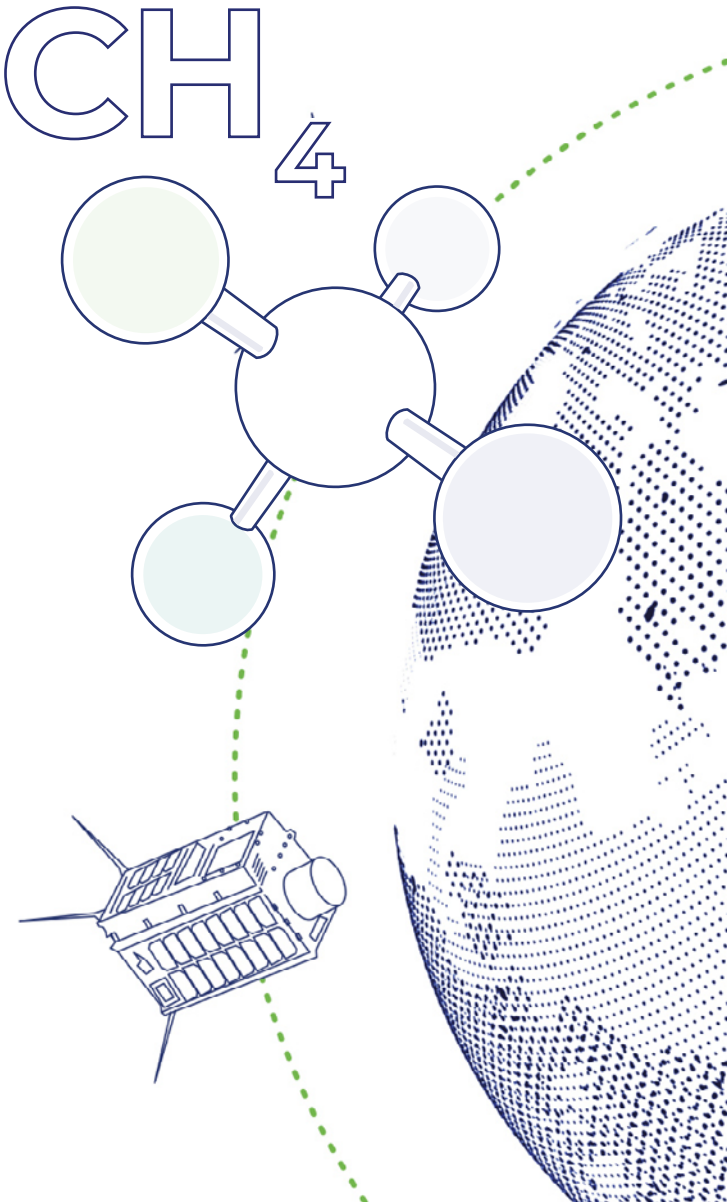
While event participation is set to be more subdued at this year's COP, discussions at robustly attended lead-up events have emphasized the importance of reducing greenhouse gas emissions. As of late October, more than 32,000 participants had registered to take part in this year's event, on par with the Glasgow attendance level at COP27, but significantly less than the 85,000 delegates in attendance at COP28 as well as the more recently hosted NYC Climate Week, which saw 100,000 attendees participating in events across the city. NYC Climate Week was seen by many to be a sort of surrogate event for those unable or unwilling to attend COP29.

NYC Climate Week proved a valuable forum in the lead-up to COP29, and the cross-cutting role that greenhouse gas emissions played across all 10 themes at the event, from energy through food, finance, policy, heavy industry, and sustainable living, to name a few, was striking. Baku Climate Action Week, which took place shortly afterwards, extended the discussion around many of these themes, and notably listed methane as a standalone topic.

As underscored by these recent events, methane's significance in the climate dialogue has grown over the years, moving from niche to mainstream. Since gaining widespread attention in 2021 when it was first announced at COP26, the Global Methane Pledge has now been signed by 158 countries. Through this pledge, all signatories have committed to lower global methane emissions from their 2020 level by at least 30% by 2030. That's 5 years away, and it is not hyperbole to say that there is truly no more time to lose.

Monitoring for Impact

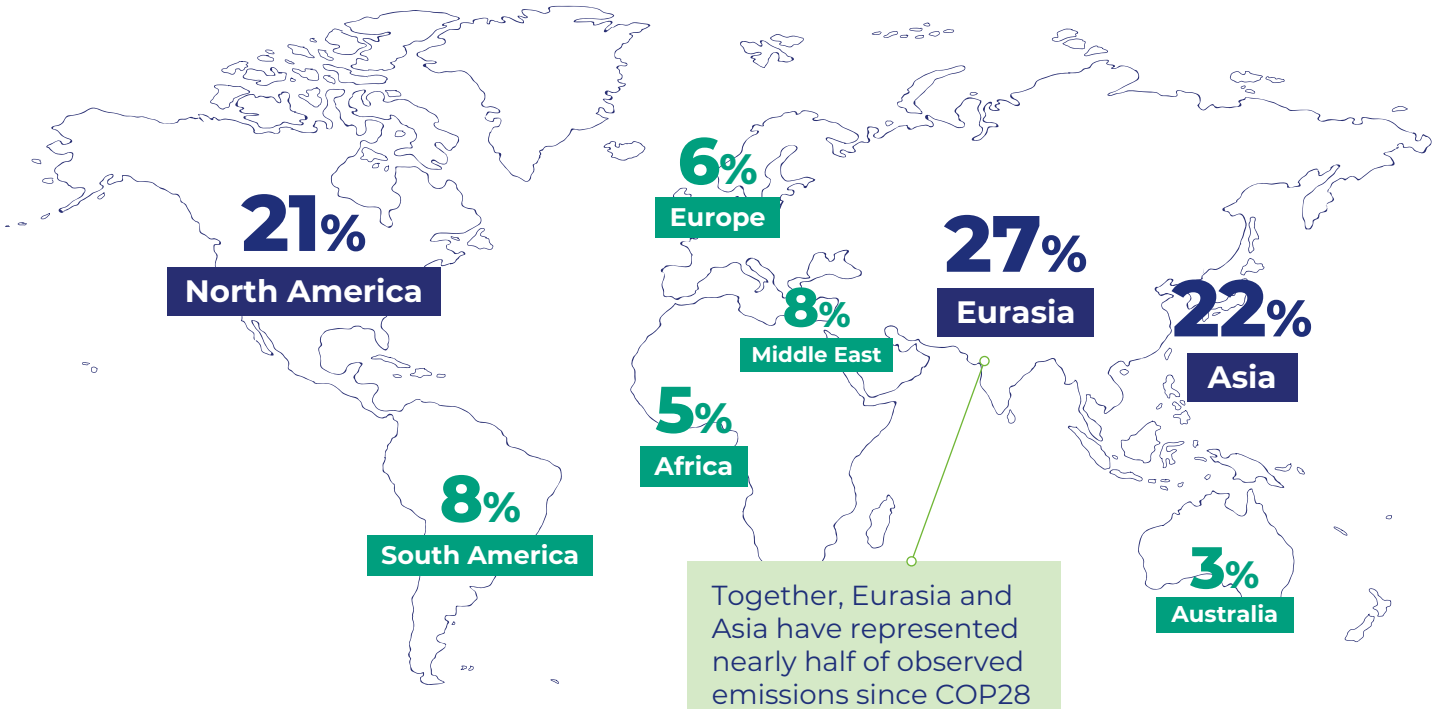
While this enthusiasm and support for lowering methane emissions is encouraging, there is still much work to be done, as evidenced by our recent data. By COP29's opening, we are on track to have identified 20,000 emissions over the 100 kg/hr super emitter threshold since COP28 and expect the overall level to come to 475 $MTCO_2e$. This amount is equivalent to the **annual emissions from over 113M gasoline-powered cars on U.S. roads**. From a regional perspective, North America, Eurasia, and Asia accounted for the majority of our detected emissions since COP28, with a combined share of 70%, though significant emissions continue across all regions.



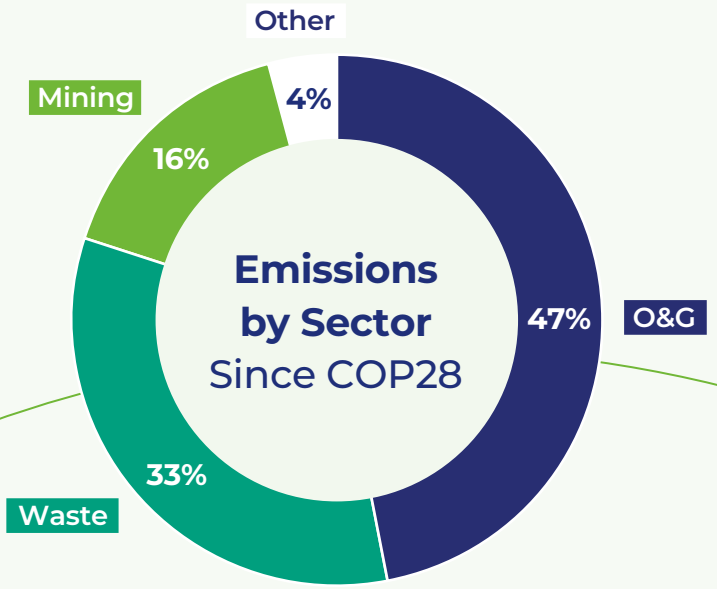
Global Emissions Detected

GEOGRAPHICAL distribution

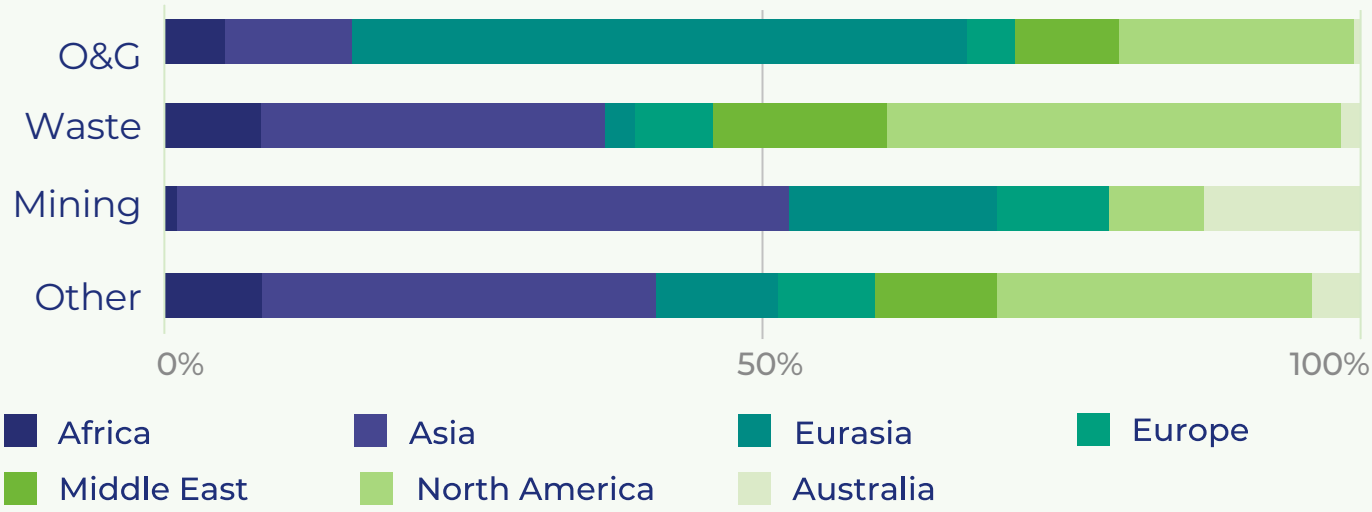
The Oil & Gas industry continues to account for the majority of our detected emissions globally



Looking at GHGSat data from a sectoral perspective, 63% of detected emissions since COP28 have been from fossil fuels, namely oil, gas, and coal, with the waste sector making up the lion's share of the remainder, at 33%. On a regional basis, however, there is substantial variation in detected emissions between sectors.



Detected Emissions Regional Profile By Sector



These figures not only provide insight into the scope and scale of the methane problem, but also enable decision-makers to take action. Working alongside industry as a trusted partner, GHGSat has enabled mitigation of over 14.5 $MTCO_2e$ since beginning our journey. This amount is equivalent to the annual emissions of nearly **3.5M gasoline-powered cars on U.S. roads**. However, it's only the beginning. With funds already available through the World Bank, and COP29's focus on unleashing finance to meet ambitious climate goals, there is significant opportunity to drive impact and move the needle.

REGULATORY SHIFTS AHEAD FOR O&G

In addition to better access to finance, regulations will play a critical role in reducing methane emissions, with certain sectors already receiving attention. Given the O&G industry's contribution to global methane emissions, combined with its relative ease in seizing mitigation opportunities, several markets have been tightening regulations. On one side of the Atlantic, the U.S. EPA's Final Rule for Oil & Gas Operations, issued in December 2023, is focused on domestic production. In contrast, the EU methane regulation, adopted in May 2024, is poised to be more wide-sweeping, as it will require emissions of all fossil fuel imports to be quantified along the entire value chain.

Given the EU's dependence on imported fossil fuels, this regulation will have a cascading effect, creating a requirement for emissions transparency in markets beyond this region for those looking to continue doing business in the bloc. Industry participants are still figuring out the finer points for meeting and demonstrating compliance, but a methane-related emissions data and information reporting requirement will go into effect from next year, with a methane emissions equivalence and reporting requirement expected from 2027. Satellites with facility-level resolution, such as those operated by GHGSat, along with other methane detection technologies have an important role to play in helping operators effectively comply with these new requirements.

Waste emissions to figure prominently on COP29 agenda

Along with these new O&G regulations, the Waste sector has been garnering increased attention, thanks to its significant contribution to global greenhouse gas emissions. Since COP28, we have detected emissions totaling **151 MTCO$_2$e** from waste facilities, an amount equivalent to the annual emissions of nearly 36M gasoline-powered cars. From a regional perspective, the Americas and Asia represent a sizeable portion of these detected emissions, at 73%.

COP29 is shining a spotlight on this sector through its commitment to a **zero-landfill policy**, focused on increasing recycling, composting, reducing waste, and improving waste-to-energy solutions. The discussions will revolve around reducing landfill emissions and improving waste management globally. There is a strong push for better regulations and technologies that can help bring down methane levels from waste and food systems, aligning with the Global Methane Pledge, and several countries have been successful in drafting or enacting new legislation recently.

In terms of regulations that are currently in force, the **EU** continues to lead the way in waste management regulations. Their **Waste Framework Directive** emphasizes a hierarchy—prevention, reuse, recycling, recovery, and finally, disposal. By 2025, 55% of municipal waste must be recycled, with targets increasing to 60% by 2030 and 65% by 2035. Additionally, the Landfill Directive aims to limit landfill use to 10% of total municipal waste by 2035, pushing for better waste-to-energy integration and even more effective recycling and organic waste diversion.

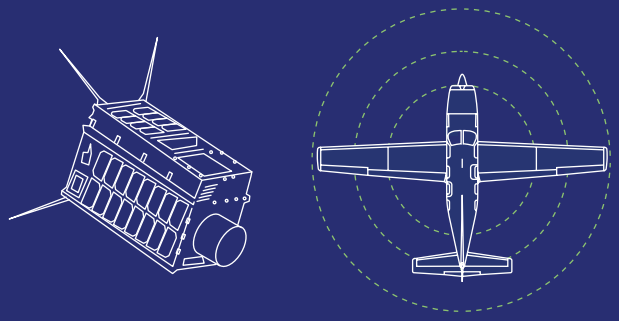
The **U.S.**, on the other hand, has allowed for a patchwork of regulations, with states allowed to enforce regulations that are stricter than the current federal regulation. However, the EPA is currently working to revise its rules, with new regulations expected next year that will introduce stricter methane capture requirements for landfills.

In Asia, **India** and **Singapore** are also making progress on the regulatory front. India's Swachh Bharat Mission pushes for more waste segregation and energy recovery, while Singapore's Zero Waste Masterplan is targeting a 30% reduction in landfill waste and a 70% recycling rate by 2030.

MOVING FROM DATA TO INSIGHTS... AND ACTION

Our capabilities give operators actionable insights to underpin their emissions reduction strategies, allowing them to devise solutions that benefit from having a broader vantage point across the industry. For example, analysis of GHGSat's proprietary data, combined with data from the U.S. EPA, reveals that landfills equipped with composting facilities were observed to have more stable emission levels. In contrast, those without composting facilities see higher variability in emissions, making them harder to manage. Incorporating composting alongside landfill operations could smooth out these fluctuations, allowing for more efficient methane capture from enclosed biodigester facilities rather than having to extract the gas from the landfill. Armed with this data, operators can better predict emission levels and allocate capital to right-size gas capture systems, so that the emissions can be used in a more circular way.

This same dataset uncovered some insights around the emissions lifecycle of waste management sites, with higher emissions observed at facilities operating for a longer time. However, this relationship could be due to a variety of factors, including the type, age, and/or efficiency of the equipment installed to manage emissions as well as influenced by changing regulations.



Converting Pledges to Impact

Since COP28, the subject of methane emissions increasingly has found its place atop many government and corporate agendas, with both seeking to seize on existing technologies to detect, measure, and monitor methane emissions. The ability of satellites to bring much-needed transparency and credibility to global methane emissions monitoring, further strengthened by our facility-level granularity, presents **a formula for tangible impact**, so operators can detect first and act faster.

Though COP29 promises to be a relatively smaller event than COP28, this more focused participation may open opportunities to make faster, and more concrete progress. Dubbed by some as a more "technical" COP relative to last year's blockbuster event, committed stakeholders can roll up their sleeves and deliver on the many pledges and promises made in the last several COPs.

We are excited to be taking part in COP29 in Baku from 11-22 November to scale up efforts with stakeholders around leveraging methane data to collectively translate pledges into tangible impact.

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