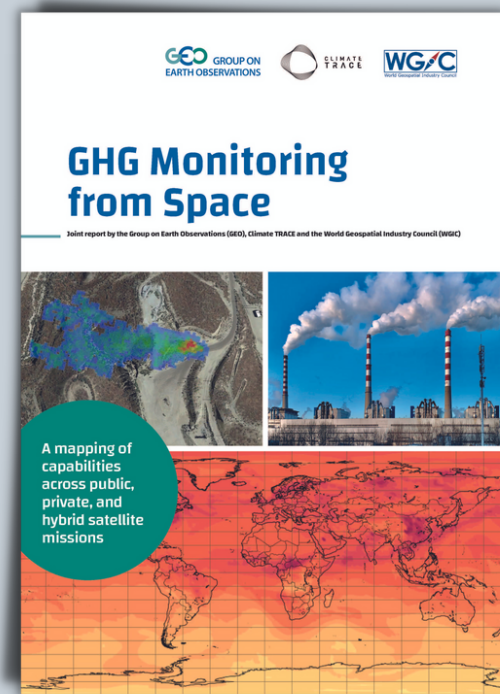


# GHG Monitoring from Space: A mapping of capabilities across public, private, and hybrid satellite missions

Joint Report launch by GEO, Climate TRACE, WGIC

This report maps the current and emerging capabilities of space-based monitoring of greenhouse gases (GHGs) around the world. It also lays the groundwork for enhanced contributions to the Global Stocktake (GST) under the Paris Agreement.



Access the report at [earthobservations.org](http://earthobservations.org)

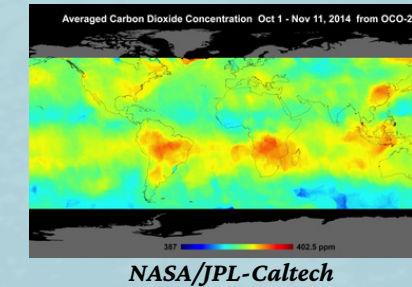
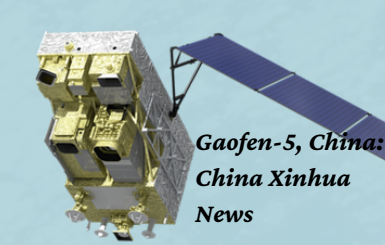
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## GHG Satellite Missions & Potential for Climate Mitigation

The report includes a database of in-orbit and planned satellite missions funded by public, private, and not-for-profit entities. These missions have the potential to contribute to climate mitigation policies and reporting, including National GHG Inventories and the GST, focusing on the three major gases listed under the Paris Agreement: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O).

### 33 GHG satellite missions identified:

- 21 public missions (13 currently operational)
- 7 commercial missions (1 operational, 1 in final trial)
- 5 hybrid missions (all in development)



## Key Policy Messages from the Report

- 1 **Satellite observations reduce uncertainty in GHG emission monitoring** by providing data across a range of spatial, temporal, and spectral resolutions or scales;
- 2 **Government space agencies have the capability to collect national and global baseline data** for all relevant GHGs in a sustained manner with measurement availability ranging into the 2040s;
- 3 **Private sector companies are speedily entering the market** and bringing additional point-source emissions monitoring capabilities for specific GHGs;
- 4 **Hybrid models are increasingly emerging** and leveraging respective strengths;
- 5 **Collaboration, innovation, and financing are key levers** for GHG monitoring from space;
- 6 **Open data, open science and open knowledge are essential** to drive on-the-ground solutions
- 7 **New opportunities are arising for analysing secondary remote sensing measurements** with frontier IT technologies which call for transparency and capacity development.

