

**Public Private
Partnerships &
Advancing
Climate Action**

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United Nations/Austria World Space Forum

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Overview

WGIC Brief

Enabling Conditions

Public Private Partnership



A global not-for-profit
Trade Association of Private
Sector Companies working
in the Geospatial Sector.

We are open to collaboration.
Write to us at info@wgicouncil.org



Patron Members



Corporate Members



Associate Members



WGIC Partner Organizations



**buildingSMART
International**



European GNSS Agency



ISO/TC 211



**International
Telecommunication
Union**



**Open Geospatial
Consortium**



**United Nations
Statistics Division**

**United Nations Statistics
Division**

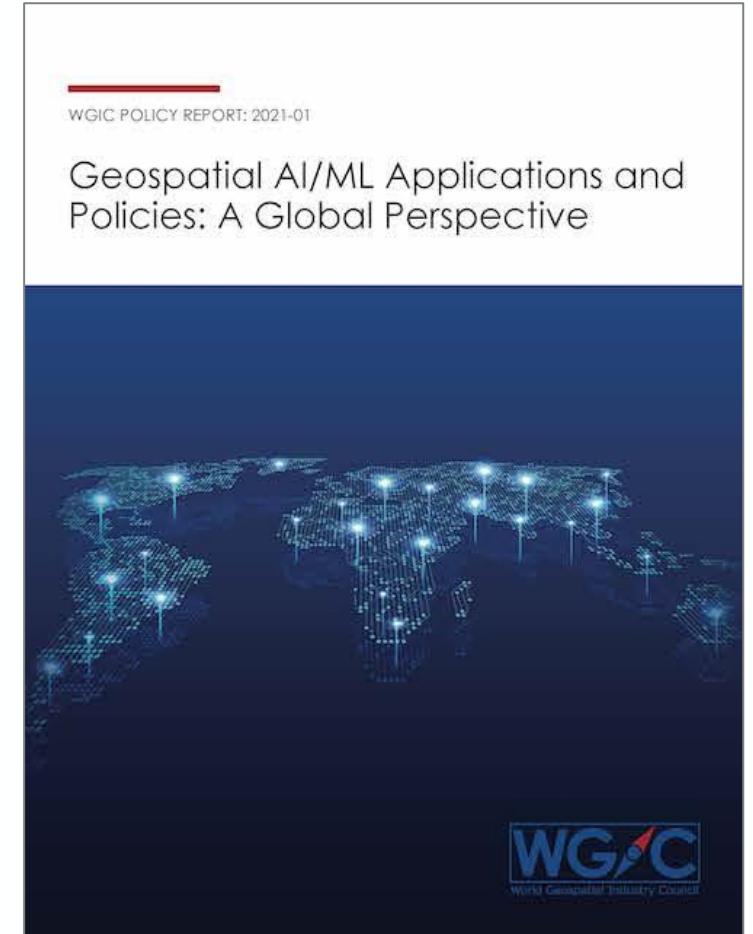
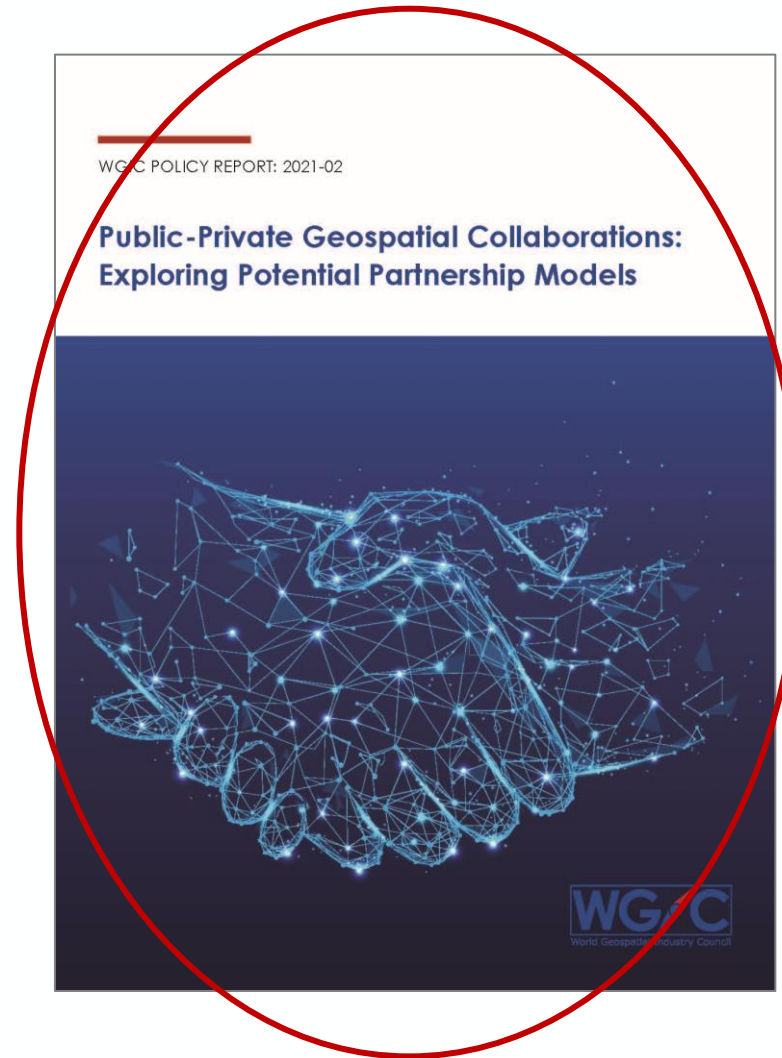
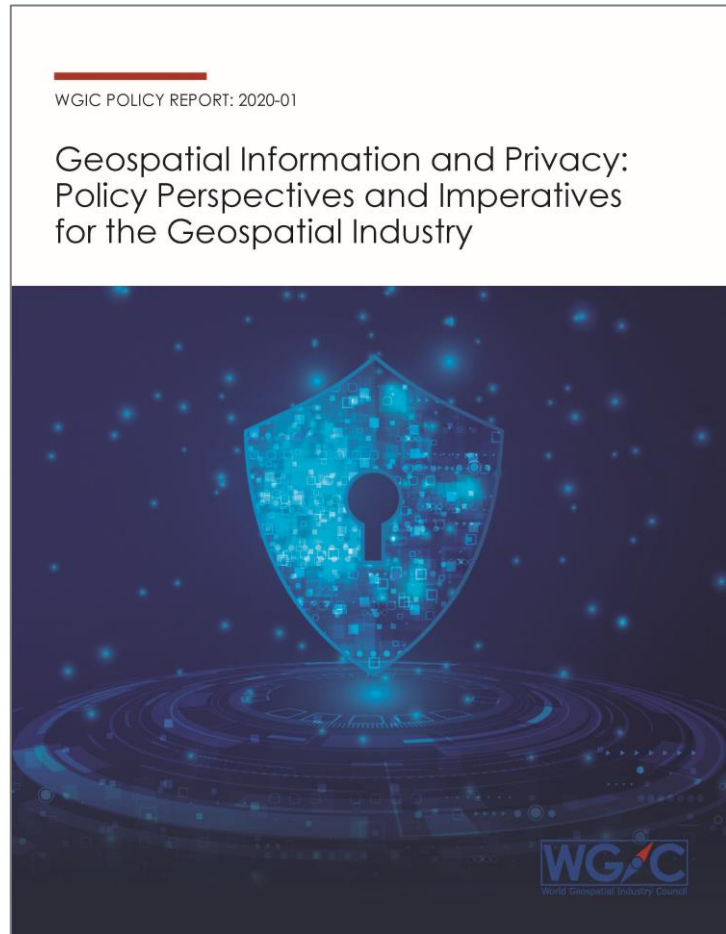


WFEO / FMOI

**World Federation of
Engineering
Organizations**

WGIC Reports

Building Knowledge for the Global Geospatial Industry



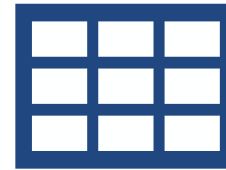
Enabling Conditions for Action:



Open Data



**Building on What's
Been Done**



**Better Integration
& Coordination**



Hyper Partnering

**Linkages to Policy
Mandates**



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

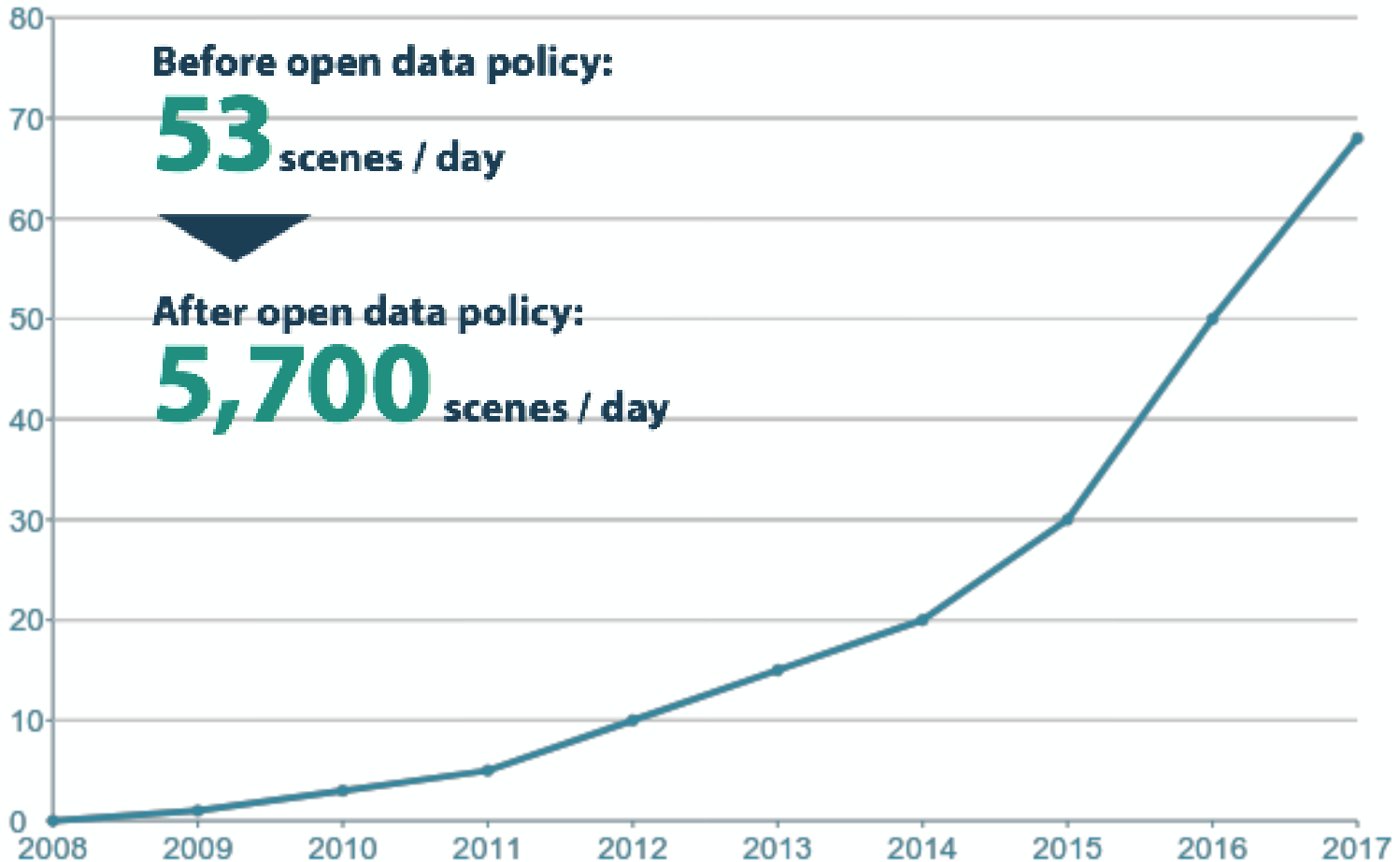


UN World Conference on
Disaster Risk Reduction
2015 Sendai Japan



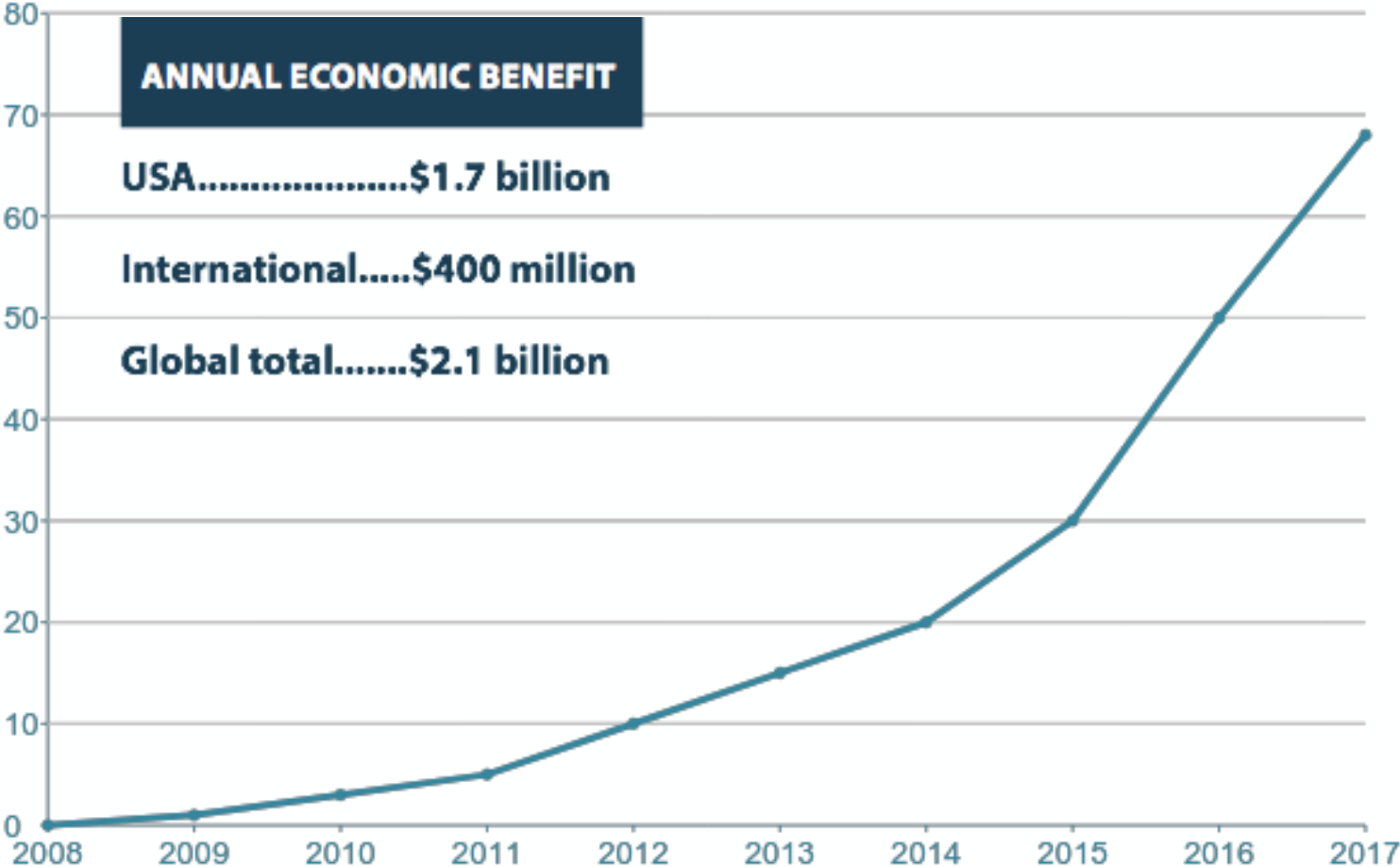
The Value of Open Data -- Scenes

Millions of Landsat Scene Downloads



The Value of Open Data – Economic Benefit

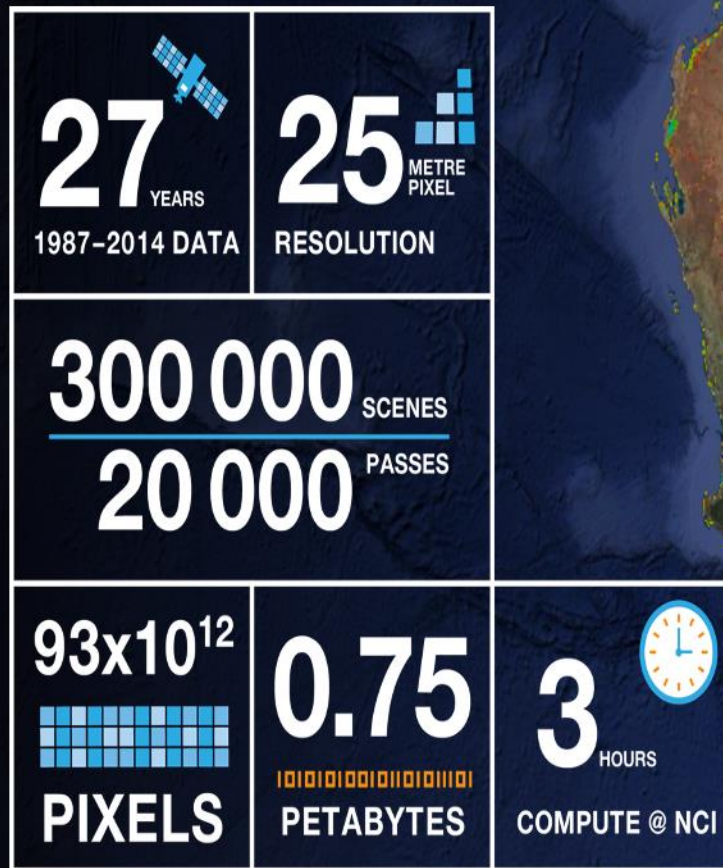
Billions in Economic Benefits (USD)



Building on
what's
been
done

Continental Scale

Water Observations from Space



Better Integration & Coordination

Internally -- within
our respective
organizations

Nationally --
between and
among our
respective national
entities

Regionally – e.g.,
continent-wide
efforts, associations

Globally –
International
organizations

Hyper Partnering

Academia

Commercial Sector

Not-for-Profits

Public Sector

Joint Report by GEO, Climate TRACE, and WGIC



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

Download it at: earthobservations.org
www.wgicouncil.org

Development of the first systematic database - public, private & hybrid missions for GHG monitoring from Space

Database of the GHG Monitoring capabilities from space across Public, Private and Hybrid missions

COUNTRY/REGION, ORGANIZATION, MISSION AND INSTRUMENT					GHG MONITORED DIRECTLY			POTENTIAL POLICY-RELEVANT APPLICATION			DATA ACCESS
Country/Region	Organization	Mission (Instrument)	Status	Mission Goal and Application	CO ₂	CH ₄	N ₂ O	Point-Source level	National level	Global level	Open access / Limited access / Paid subscription
PUBLIC MISSIONS: 21											
Canada	CSA ESA NASA	SciSat-1 (ACE)	In orbit	Mission Goal: To monitor and analyze the chemical processes that control the distribution of ozone in the upper troposphere and stratosphere. Application: SciSat-1 can measure the vertical resolutions of all major GHGs identified for monitoring under the Paris Agreement.	CO ₂	CH ₄	N ₂ O				Open access
China	NRSCC NSMC- CMA	FengYun-3D (GAS)	In orbit	Mission Goal: Operational meteorology with substantial contribution to ocean and ice monitoring, climate monitoring, atmospheric chemistry and space weather. Application: Retrieve GHGs in the atmosphere.	CO ₂	CH ₄	N ₂ O				Limited access
China	CNSA	Gaofen-5 (GM)	In Orbit	Mission Goal: Hyperspectral observations of Earth's environments to track environmental impacts, water quality, and atmospheric change. Application: To measure carbon dioxide and methane in the troposphere and understand the source and sink processes that affect these GHGs.	CO ₂	CH ₄					Limited access
China	NRSCC NSMC- CMA	TanSat (ACGS)	In orbit	Mission Goal: To retrieve the atmosphere column-averaged CO ₂ dry air mole fraction (XCO ₂) with precisions of 1% on national and global scales. Application: To improve the understanding of the global CO ₂ distribution and its contribution to the climate change. Additionally, to monitor the CO ₂ variation on seasonal time scales.	CO ₂	CH ₄					Limited access
Europe	EC ECMWF ESA EUMETSAT	Copernicus Carbon Dioxide Monitoring/ CO ₂ M	In development	Mission Goal: The CO ₂ M will focus on measuring carbon dioxide and methane emissions, which are released into the atmosphere specifically through human activity. Application: Reduce current uncertainties in estimates of emissions of CO ₂ from the combustion of fossil fuel at national and regional scales. Produce an independent source of information to assess the effectiveness of policy measures, track their impact towards decarbonising Europe and meeting national emission reduction targets. Note- this mission will deploy a constellation of satellites.	CO ₂	CH ₄					Open access

Three GHGs are generally recognized as the critical drivers of climate change: **carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O).**

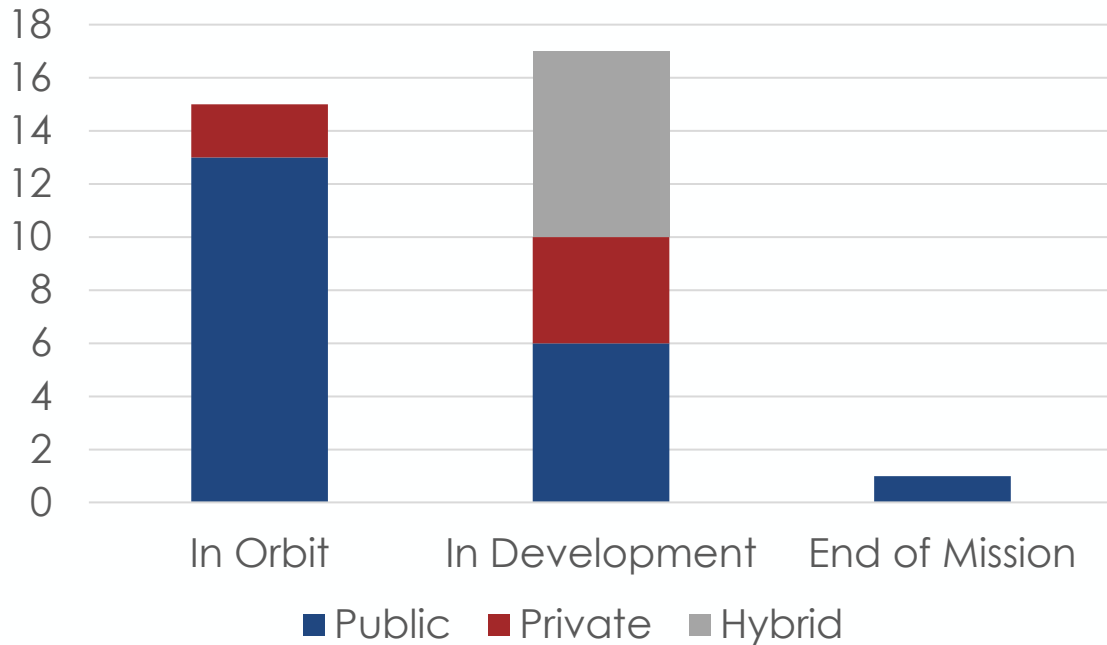
Relevant missions:

33 identified missions, most are driven by public entities

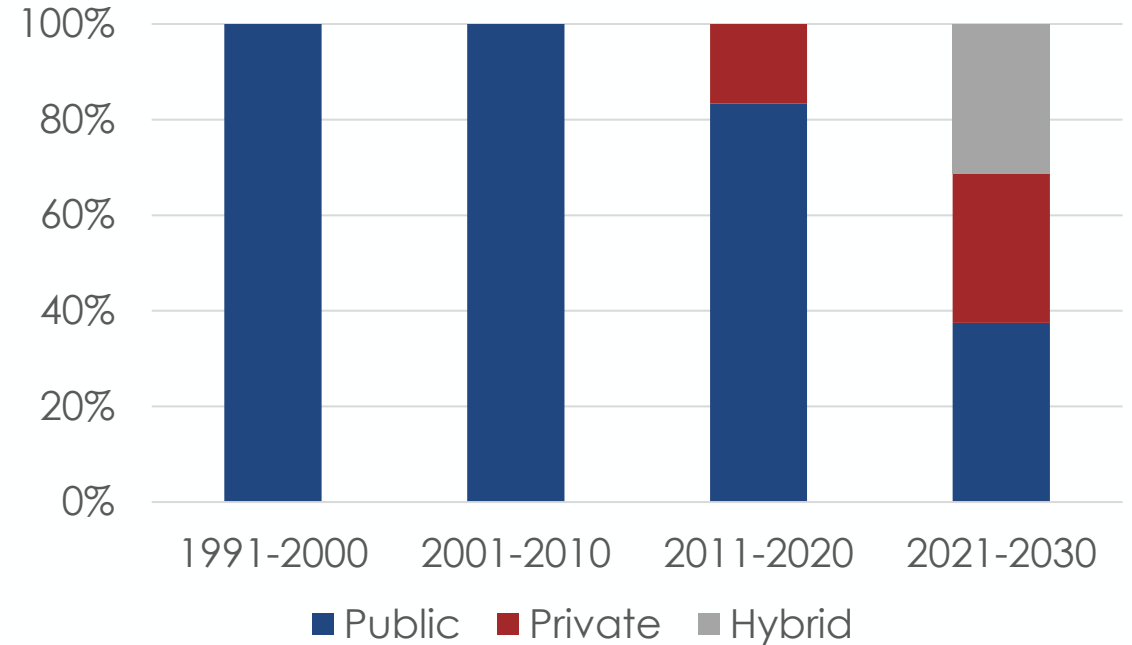
- **Public missions:** 21 in total, 13 in orbit and 7 in development, 1 completed;
- **Private missions:** 7 commercial missions, 1 in orbit and operational, and 1 in its final trial period before being fully operational in orbit;
- **Hybrid:** 5 missions (all in development) with proposed launch dates through 2040.

Insights from the Report on GHG Monitoring from Space

GHG Mission Status

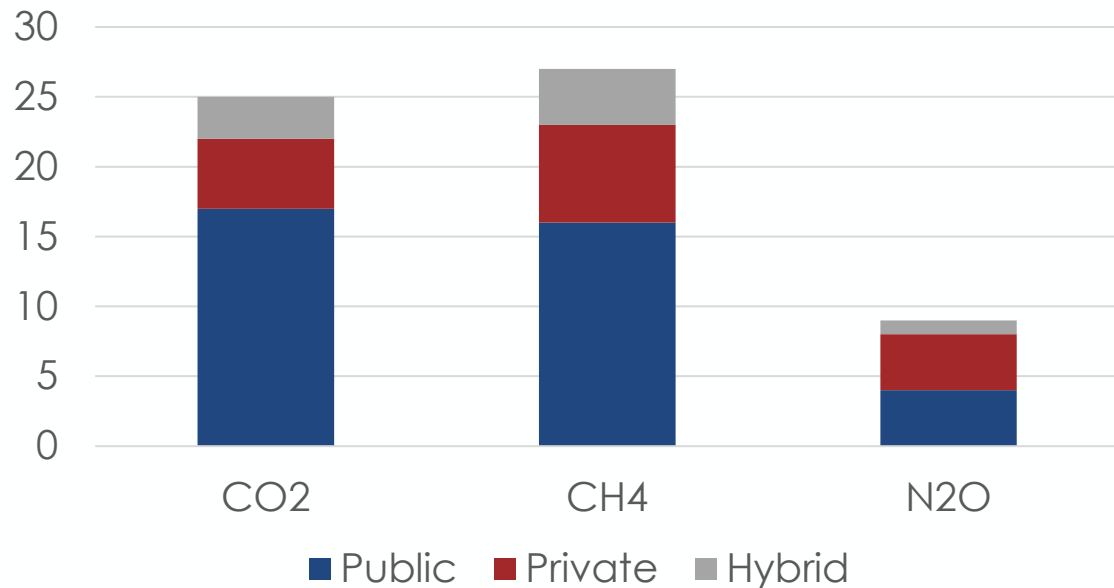


GHG Mission Type by Decade

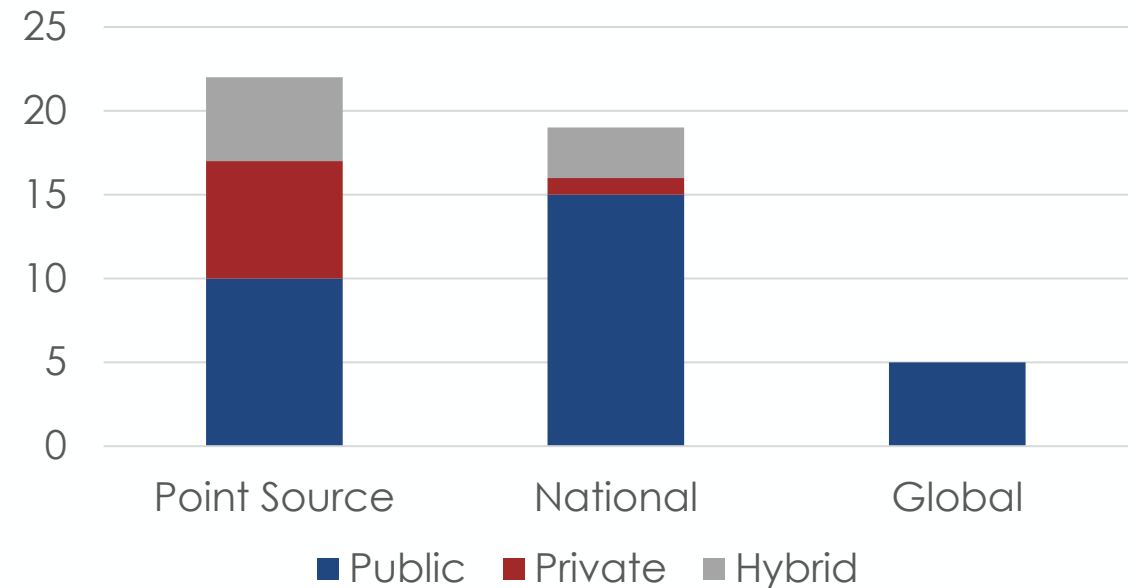


Insights from the GHG Monitoring Report from Space, cont.

GHG Missions by Gas Type (In-Orbit & Planned)



Applicable Scale of Data by Mission Type (In-Orbit & Planned)



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.



CLIMATE
TRACE



Based on these findings, we call for continued cooperation between public and private sector entities to fully maximize complementary capacities and synergies to support policy makers in the race to net zero emissions going forward.

“ . . . While *in situ* measurements will remain essential and largely measure what cannot be measured from satellites, **Earth-observation satellites are the only realistic means** to obtain the necessary global coverage, and with well-calibrated measurements **will become the single most important contribution to global observations for climate.**”

Report prepared in
advance of COP-12,
Nairobi, Kenya, 2006



the
way
forward

Satellite Observation
of the Climate System

The Committee on Earth Observation Satellites
Response to the
Global Climate Observing System

Thank You

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