CEOS-CGMS WGClimate: GHG Task Team status and future plans

Mark Dowell
European Commission - JRC

Input to COP-26

Carbon Dioxide

Pilot, Top-down CO_2 emissions and removals associated with Terrestrial Carbon Stock Changes by nation

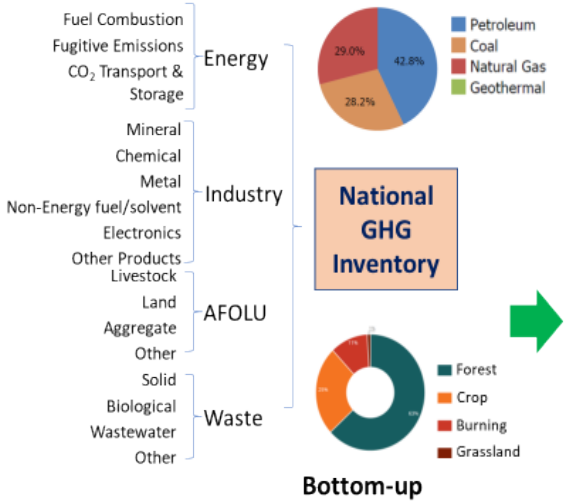
More info...

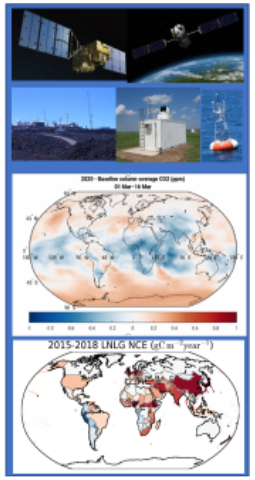
Methane

Pilot Top-down methane emissions estimates by sector and country

More info...

https://ceos.org/gst/ghg.html





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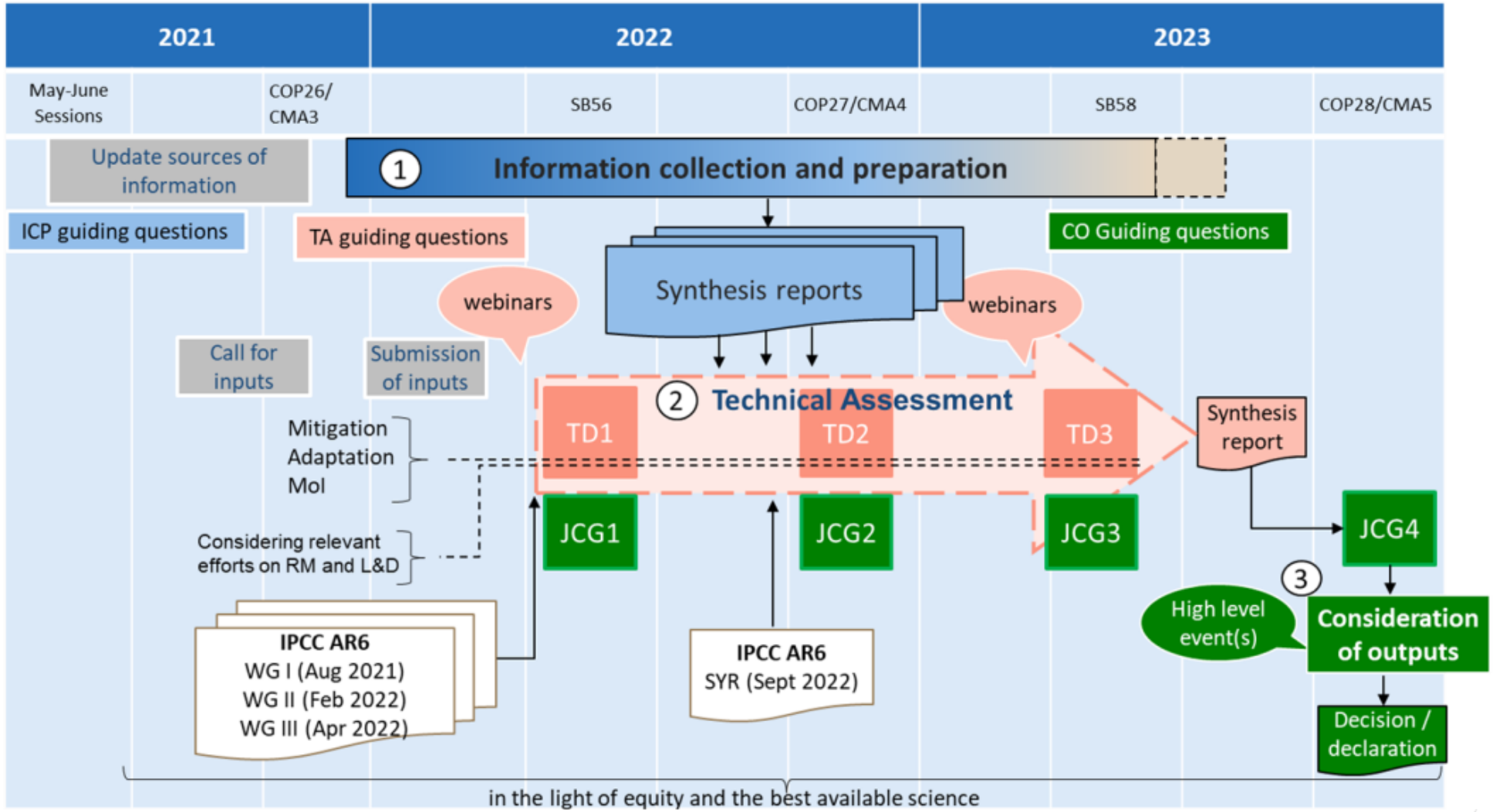
Global Stocktake



European Commission

Systematic Observations

United Nations Climate Change

Paris Agreement

PARIS2015 UN CLIMATE CHANGE CONFERENCE COP21·CMP11

Transparency Framework

Global Stocktake

- Mitigation
- Adaptation
- Means of Implementation: Finance, Technology, Capacity Building
- Cross-cutting: Response measures, Loss & Damage, Equity

Systematic Observations Community

WORLD METEOROLOGICAL ORGANIZATION

EUROPEAN COMMISSION

CEOS The Committee on Earth Observation Satellites

CGMS

GCOS GLOBAL CLIMATE OBSERVING SYSTEM

ECMWF

DLR

bc3

EUMETSAT

JAXA

NASA

GEO GROUP ON EARTH OBSERVATIONS

esa

European Commission

Structure & Contributors

- **Executive Summary**
- **Introduction**
- **The Global Climate Observing System (GCOS)**
- **Mitigation** – Systematic Observations Supporting Atmospheric greenhouse gas emission monitoring and improved Inventories for AFOLU
- **Adaptation** – Systematic Observations to Improve Resilience to the Adverse Impacts of climate change
- **Means of Implementation -** Systematic Observations supporting Finance, Technology Transfer & Capacity Building
- **Cross-cutting Issues** - Systematic Observations to Support Reporting and Best Practices Across Thematic Areas, including Loss and Damage

Main Contributors

- David Crisp (NASA/JPL-retired)
- Maxx Dilley (WMO)
- Sara Venturini (GEO)
- Anthony Rea (WMO/GCOS)
- Frank Martin Seifert (ESA)
- Carlo Buontempo (ECMWF)
- Mark Dowell (EC/JRC)
- Osamu Ochiai (JAXA)
- María José Sanz Sánchez (BC3)
- Jürg Luterbacher (WMO)
- Ian Jarvis (GEOGLAM)

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Main Messages of the Report

- Systematic Observations underpin **climate science and services**
  - A basic set of **Essential Climate Variables** has been defined by GCOS
  - Use of top-down atmospheric GHG and bottom-up space-based AFOLU data reduces gaps and enable a more **complete and transparent GST**
- Systematic Observations are vital for **adaptation**
  - underpinning the **identification, planning, implementation and monitoring** of adaptation measures, and are
  - a first step in the **value chain** towards **successful decision making.**
- Systematic Observations **strengthen the evidence base** for the climate rationale, which **enables funding** from the public and private sector.

GHG-AFOLU Workshop

Workshop on Systematic Observation contributions and synergies for GHG & AFOLU in support of UNFCCC

Start dialogue between the different Earth Observation communities addressing the needs of UNFCCC

In particular, atmospheric GHG monitoring and those addressing aspects of the AFOLU sector

15th, 18th,19th November CET pms

Involving many relevant International coordination mechanisms

Address the "soft" coordination and stakeholder engagement aspects i.e. interface with the Convention, the UNFCCC Secretariat and Party user groups, but also more technical aspects of reporting, outputs datasets, formats, avoiding "double - accounting" and the longer-term ambition of using diverse earth observation datasets in the modelling and MVSs being developed

Topic => Questions => Discussion => <u>Recommendations</u> (report)

Copernicus Europe's eyes on Earth

CEOS The Committee on Earth Observation Satellites

GEO GROUP ON EARTH OBSERVATIONS

CGMS

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Evolving policy needs

1. A global (data assimilation) system supporting monitoring and verification Paris Agreement should be able to rely on earth observation data for a **comprehensive picture for the decades to come.**
2. Assuming that the proposed legislative efforts are implemented as planned such an integrated observation and modelling capacity should **be able to discern fossil GHG emission plumes reduce (and disappear) over the next 15-30 years**
3. But also **monitor the remaining emissions**, in a regime where unavoidable sources (e.g. from agriculture) are compensated by critical carbon sinks of the global biosphere.
4. Thus, it is fundamentally important to address both GHG and AFOLU and their synergistic and integrated use in this MVS capacity (also implications for satellite constellation planning and development)

Agenda (sessions CEST pm 14:00-16:30)

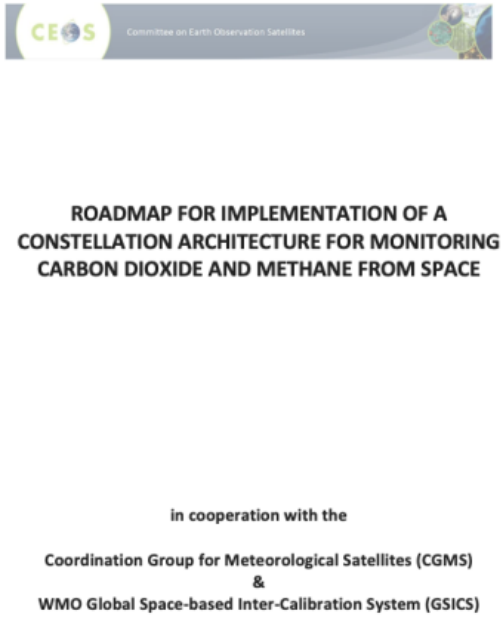
15 November	18 November	19 November
Intro Session	Intro & Overview 2 (45min)	Overview 4 (15min)
Intro Session	Question 2 (60min)	Question 4 (60min)
Overview 1 (15min)	Overview 3 (15min)	Overview 5 (15min)
Question 1 (60min)	Question 3 (60min)	Question 5 (60min)

- Overview/Question 2: Data sets & Standards (Dave, Frank-Martin)
- Overview/Question 1: User need/requirements (Han, Maria, Lucia)
- Overview/Question 3: Gaps in coordination & links to CC Community (Philippe(s))
- Overview/Question 4: Research Needs (Ben, Martin)
- Overview/Question 5: Common MVS System and how to evolve (Richard, Mark)

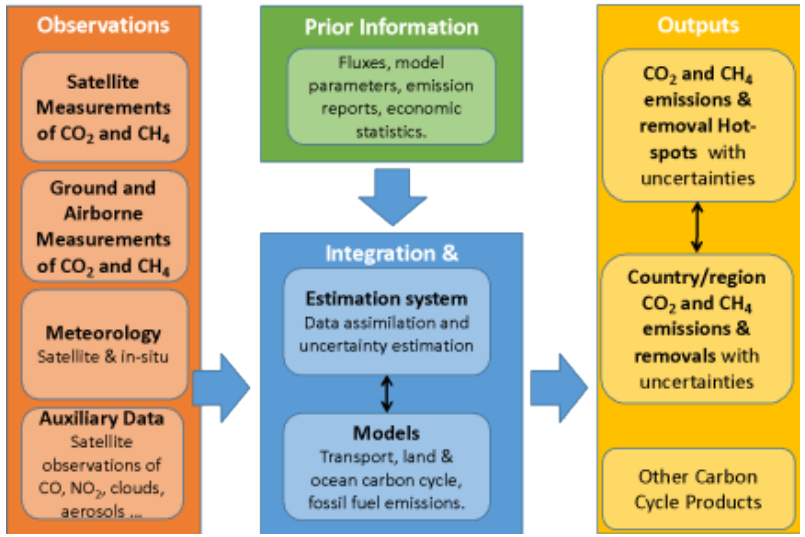
Report Outline

- Around 50 pages
- JRC producing first draft
- Should be sent to attendees in May
- Comments before Summer
- Ready for SIT TW

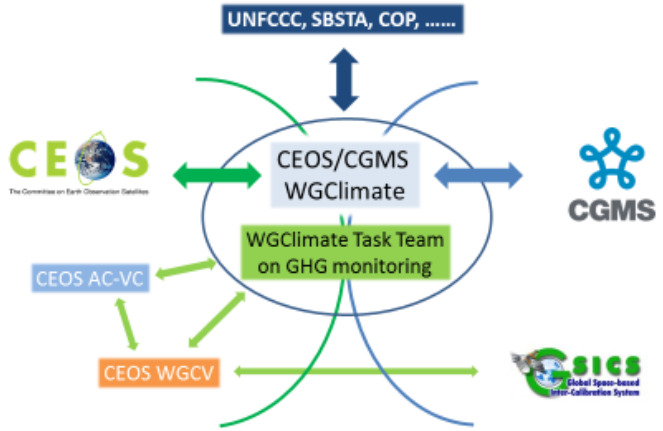
Looking Forward 2nd GST & beyond



Roadmap



System



Stakeholders
NB: Leadersship transition in prorgress

WORLD METEOROLOGICAL ORGANIZATION

space agency engagement in proposed WMO framework

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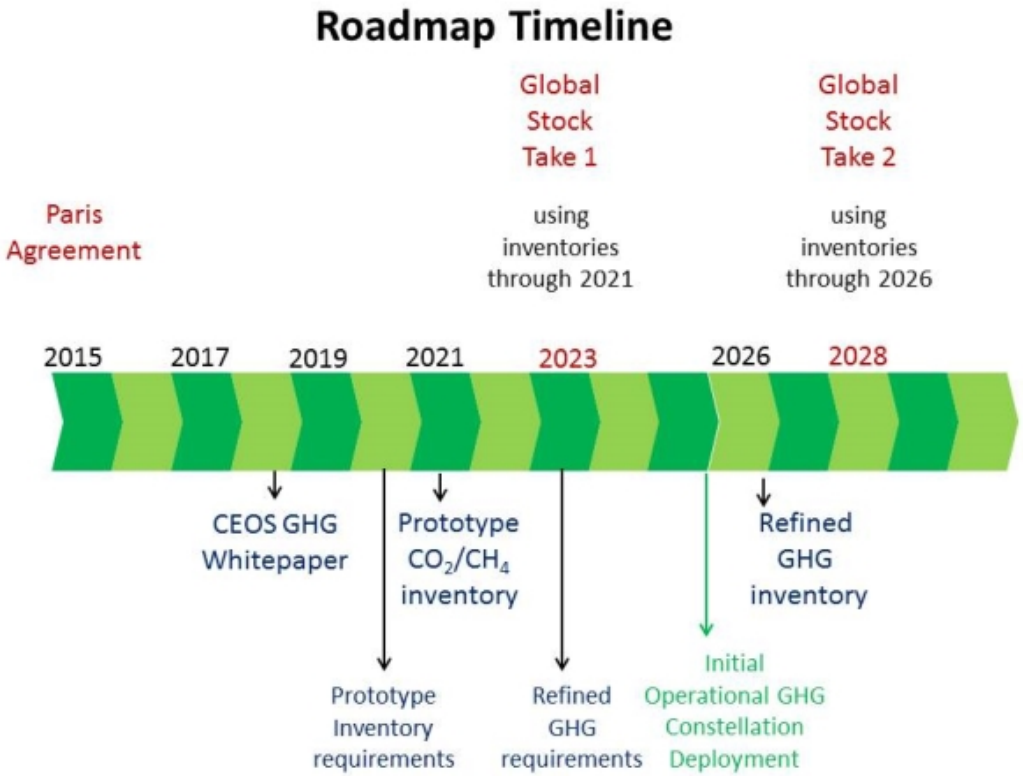
Looking Forward 2nd GST & beyond

- CGMS Critical role in transition to operations:
  - space segment towards WIGOS vision,
  - standards for operational products,
  - opertional QC and Cal/Val framework.
  - identify continuity issues and make proposals for contingency planning
  - training and end user support,
- Dedicted Geo ring study



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