

Updates from WMO GAW

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Department

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



WMO OMM

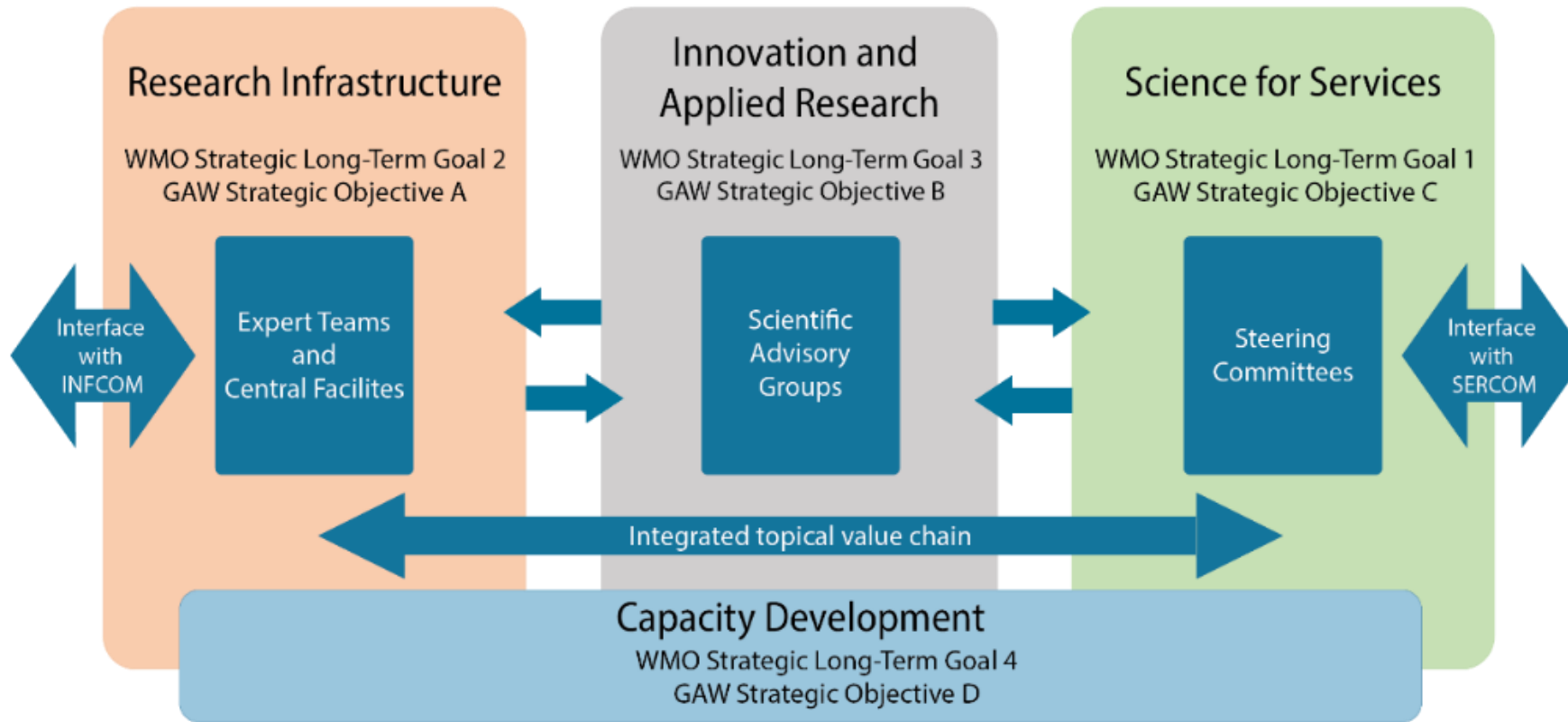
World Meteorological Organization
Organisation météorologique mondiale

25th Annual Meeting of the Task Force on
Measurements and Models
Warsaw, 6-7 May 2024



Internal organization of GAW/ alignment with WMO

Strategic Objectives



- 2024-2027 Science and Implementation Plan (SIP) approved by WMO Congress in May 2023, into effect in January 2024
- GAW Bodies (i.e. (SAGs, ETs, science-for-services Initiatives) currently aligning activities with new SIP and producing workplans for 2024-2027

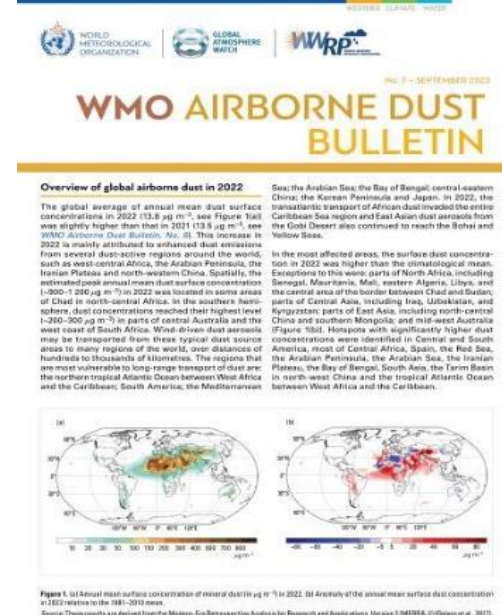
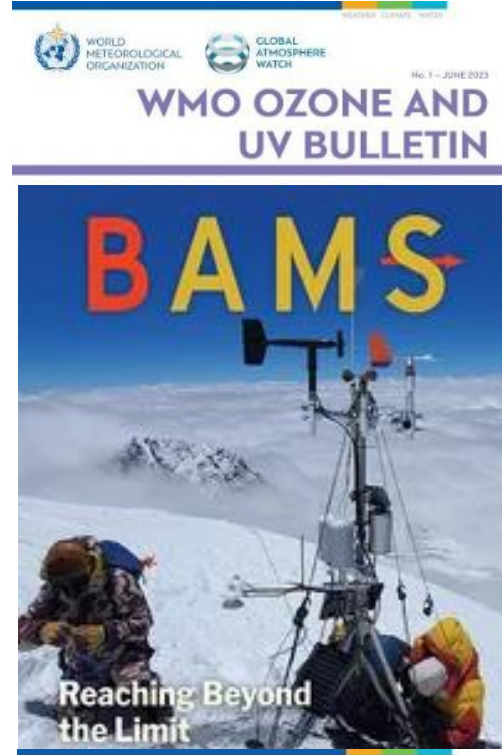
Update: Support of environmental and climate policy

- 19th GHG Bulletin – November 2023
- 2023 Air Quality and Climate Bulletin – September 2023
- GESAMP Working Group 38's new activity on better representation of deposition fluxes to the oceans – GESAMP, SOLAS, GAW, 2023-2024
- WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases and Related Measurement Techniques (GGMT-2024) - August 2024
- IG³IS: urban GHG measurements good practices document is under review and good practices for the National scale applications, under development
- IG³IS Stakeholder consultations and User Summit (Feb. 2023) - published



Update: Support of environmental and climate policy (continued)

- 1st WMO Ozone Bulletin – June 2023
- 7th WMO Airborne Dust Bulletin – September 2023
- “Observing Mineral Dust in Northern Africa, the Middle East, and Europe: Current Capabilities and Challenges ahead for the Development of Dust Services”, Mona et. Al. *BAMS Vol. 104, issue 12, 2023.*
- GAW provided extensive support to the Global Greenhouse Gas Watch (G³W) Implementation Plan’s development . WMO’s Infrastructure Commission recommended the IP for approval by the WMO’s June 2024 Executive Council.

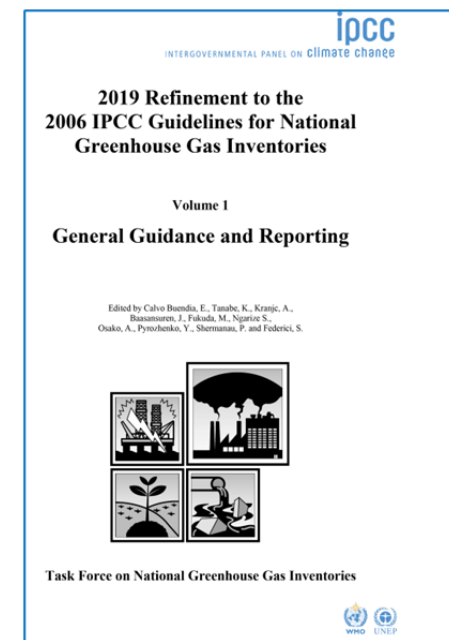


Developing guidance for innovative mitigation services

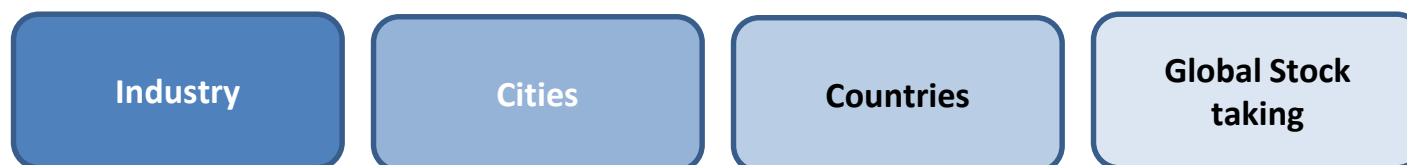


The Integrated Global Greenhouse Gas Information System (IG³IS) - a common framework for provision of **systematic services to the user community**, supporting their greenhouse gas emissions reduction ambitions:

- Main aims: to support the use of atmospheric data to improve emission and/or uptake estimates on a decision-relevant scale
- Provide consensus on a coherent set of good-practice methods and guidelines
- Develop best-practice quality control procedures (benchmarking)



Range of scales



Developing guidance for innovative mitigation services



- Report of the IG³IS stakeholder consultations and user Summit (February 2023) is published
- National scale good practices are to be finalized by late 2024 with a dedicated workshop
- Urban good practices are being reviewed and a technical workshop is planned in summer
- Good progress made in raising awareness via Climate and Clean Air Coalition and pilot/demonstration projects and feasibility studies

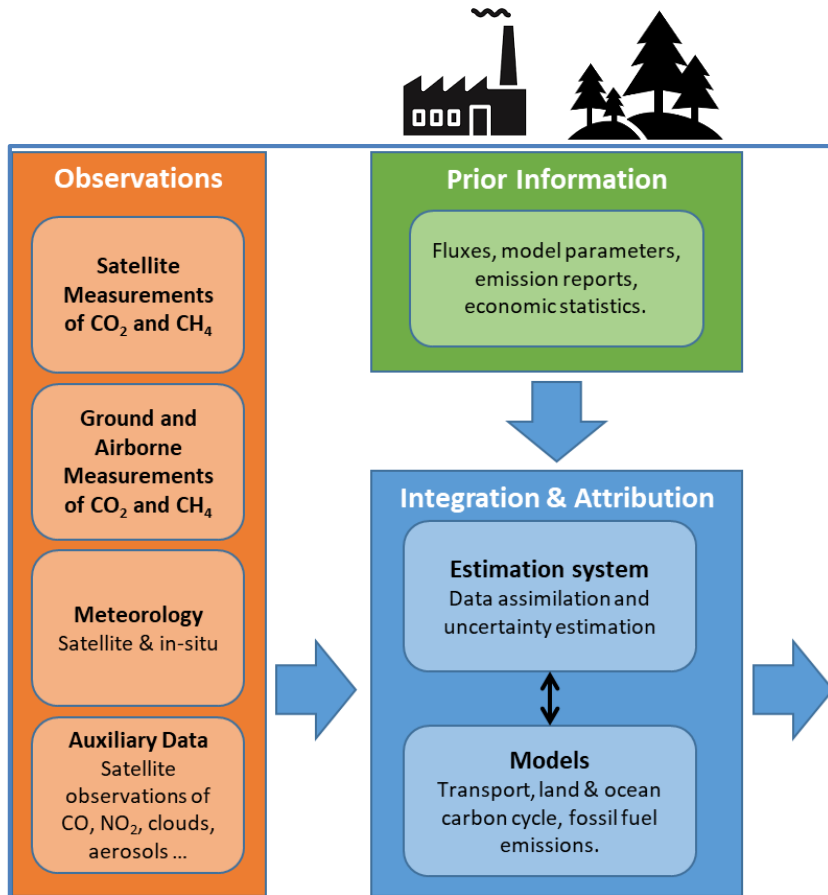
Learn more through IG³IS webinar series:

<https://community.wmo.int/en/meetings/spring-webinar-series-ig3is>

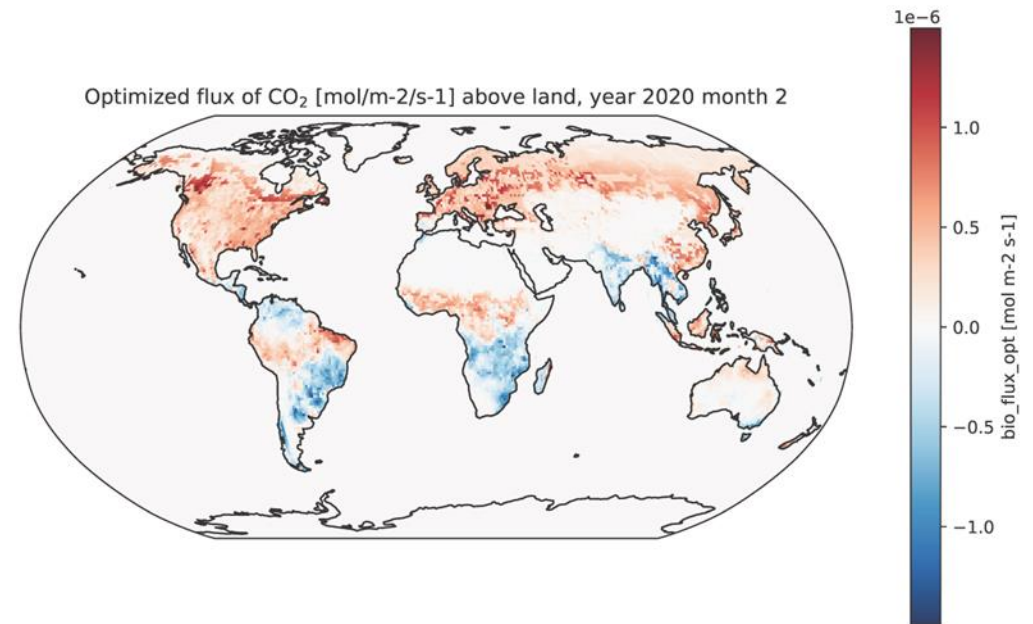
For the next 2 years IG³IS activities are supported by a grant from NASA



Moving from research to operations: The Global Greenhouse Gas Watch (G³W)



Outputs: Globally-gridded, monthly net fluxes of CO₂ and CH₄ (and N₂O)



G³W will be supported by several global modelling centers (similar to operational World NWP Centres)



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Update: Urban sector

- **WMO Urban Integrated services reports**
 - Guidance on Measuring, Modelling, and Monitoring the Canopy Layer Urban Heat Island (led by GAW's SAG on GURME, available on WMO's e-library.
 - Good Practices on High-Resolution Modelling for Integrated Urban Services (by Study Group on Integrated Urban Services), available on WMO's e-library.
- **WMO/WHO/UNEP/IGAC Low-cost sensor on air quality management applications**
 - Planned launch in June 2024
- **Paris Olympics Research Development Project (WMO WWRP/GAW)**
 - Research project ends in summer 2024 coinciding with the Paris Olympics
 - Includes meteorological and air pollution street-level simulations. More information at: https://www.umr-cnrm.fr/RDP_Paris2024/
- **Urban climate (WMO WCRP)**
 - High resolution climate simulations over Europe to assess extreme weather events – Europe: URBan environments and Regional Climate Change (URB-RCC). More information: <https://cordex.org/experiment-guidelines/flagship-pilot-studies/endorsed-cordex-flagship-pilote-studies/europe-urban-environments-and-regional-climate-change-urb-rcc/>

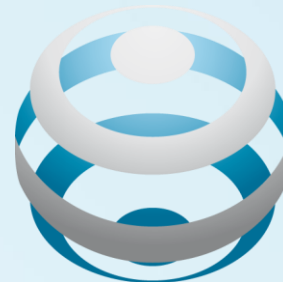


Thank you for your attention.
Any questions?

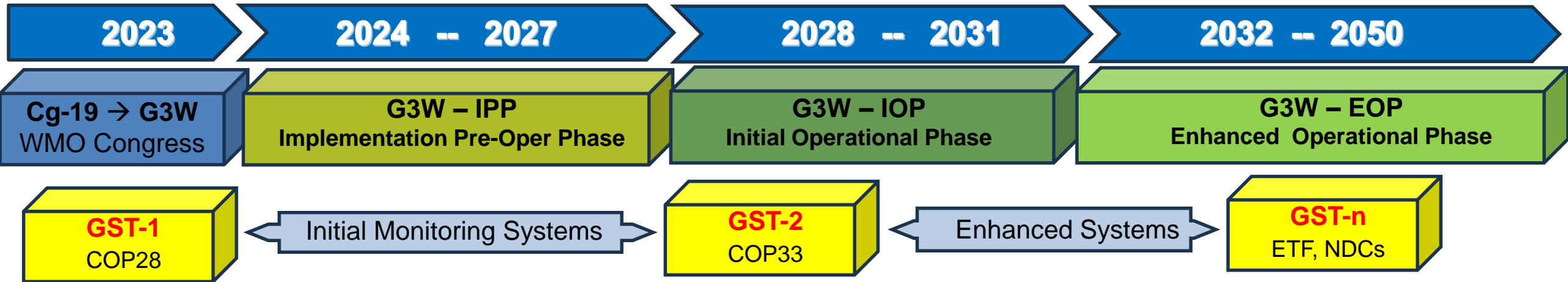


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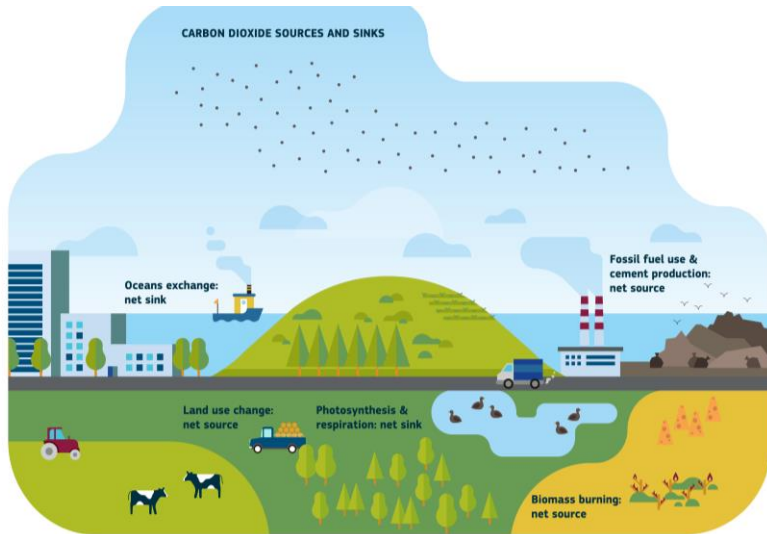
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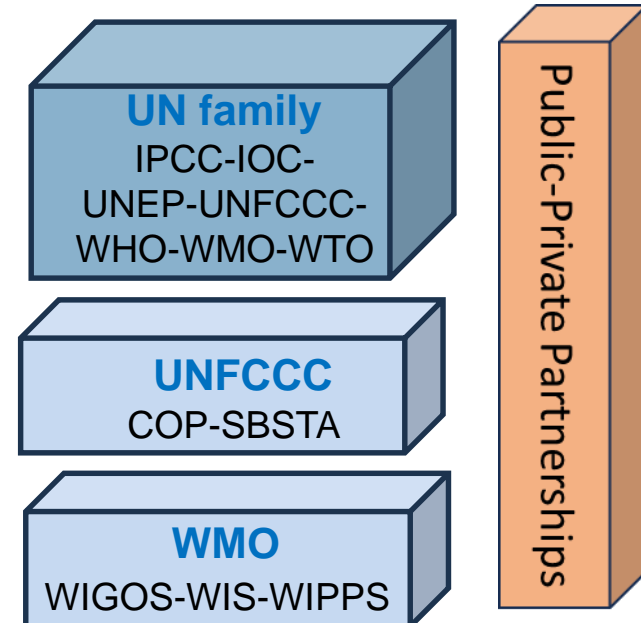
**GLOBAL
ATMOSPHERE
WATCH**



“for Measuring, Understanding, and Managing the Earth’s Climate”



 CO₂, Carbon dioxide



GHGs Earth's Observing Systems is building on Weather experience

G3W implementation plan approved by the session of INFCOM on 19/04/2024



G³W Implementation Plan: priority deliverables

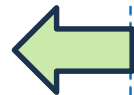
- Create inventory of observations
- Carry out observational network design



Section 3 Observing System – O (12)

- O1 – Observation inventory
- O2 – Obs. standards & requirement
- O3 – Longer term Obs.
- O4 – Surface-based Obs. Design
- O5 – Reference Network Development
- O6 – Basic (“fit-for-purpose”) network
- O7 – RS & vertically-resolved Obs.
- O8 – Ocean network design
- O9 – Gridded Air-Sea CO₂ flux
- O10 – Space-based Obs. with CEOS-CGMS, direct
- O11 – Space-based Obs. with CEOS-CGMS, indirect
- O12 – Space-based Obs. with CEOS-CGMS, future

- Create inventory of prior data products



Section 5 Prior Information – P (4)

- P1 – Identify needs – CO₂
- P2 – Identify needs – CH₄
- P3 – Identify needs – N₂O
- P4 – Fluxes characterization

- Develop the supporting R&D strategy
- Identify the highest priority research needs for the operational systems



Section 7 R&D Needs – R (3)

- R1 – G3W R2O Task Team establishment
- R2 – Advance Obs. & data exchange capabilities
- R3 – Advance modelling and flux inversion capabilities

Section 4 Modelling System– M (7)

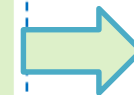
- M1 – Modelling center & data
- M2 – Modelling center-documentation
- M3 – Continuous Operations (RRR)
- M4 – Obs. acquisition and pre-processing
- M5 – Prior Implementation
- M6 – Production centers common approaches
- M7 – Modelling products evaluation



- Definition of the output products and system requirements

Section 6 Data Management – D (7)

- D1 – Data from Raw to Exchange
- D2 – Data from providers to assimilation
- D3 – Data for model intercomparisons
- D4 – Data discovery and distribution
- D5 – Data repository for prior and fluxes
- D6 – Definition of prior data providers
- D7 – Data policy for the repository of prior fluxes



- Evaluate applicability of WIS2.0 for G3W required data exchange
- Connect existing observations to WIS

Section 8 User Engagement & Uptake – U (4)

- U1 – Support the GST
- U2 – Guidance on regional products
- U3 – Establish relationship & pathway
- U4 – Develop user interface guidelines



- Identify requirement for the products
- Provide recommendations on the use of G3W outputs



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WMO – GAW, alignment of strategic objectives

WMO Strategic goals:

1. *Better serve societal needs: Delivering, authoritative, accessible, user-oriented and fit-for-purpose information and services - SERVICES*
2. *Enhance Earth system observations and predictions: Strengthening the technical foundation for the future - INFRASTRUCTURE*
3. *Advance targeted research: Leveraging leadership in science to improve understanding of the Earth system for enhanced services - RESEARCH*
4. *Close the capacity gap on weather, climate, hydrological and related environmental services: Enhancing service delivery capacity of developing countries to ensure availability of essential information and services needed by governments, economic sectors and citizens - CAPACITY DEVELOPMENT*
5. *Strategic realignment of WMO structure and programmes for effective policy- and decision-making and implementation – POLICY*

GAW Strategic Goals:

- A. *Strengthen the atmospheric composition and flux measurement and data infrastructure and contribute to understanding trends, variability and extremes - INFRASTRUCTURE*
- B. *Improve monitoring and predictive capabilities through applied research aimed at advancing understanding of the roles and fate of aerosols, reactive gases, stratospheric ozone, and greenhouse gases and their interactions in the Earth System - RESEARCH*
- C. *Advance the application of atmospheric composition information in support of policies and conventions, and expand societal services related to air quality, human and ecosystem health, climate change and food production – SERVICES*
- D. *Enhance capacity throughout the GAW Programme and promote the use of atmospheric composition information – Capacity Development*

