

Updates from the World Meteorological Organization

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WMO OMM

World Meteorological Organization
Organisation météorologique mondiale



Reform of WMO

The eighteenth World Meteorological Congress (Cg-18, Geneva, 3–14 June 2019) adopted a historical reform of the WMO constituent bodies to embrace a more **comprehensive Earth system approach**, with a stronger focus on water resources and the ocean, more coordinated climate activities and a more concerted effort **to translate science into services for society**.

The Congress approved a new WMO strategic plan 2020-2023. **Long-term Goals and Strategic Objectives:**

Goal 1: Better serve societal needs: delivering, authoritative, accessible, user-oriented and fit-for-purpose information and services

Goal 2: Enhance Earth system observations and predictions: Strengthening the technical foundation for the future

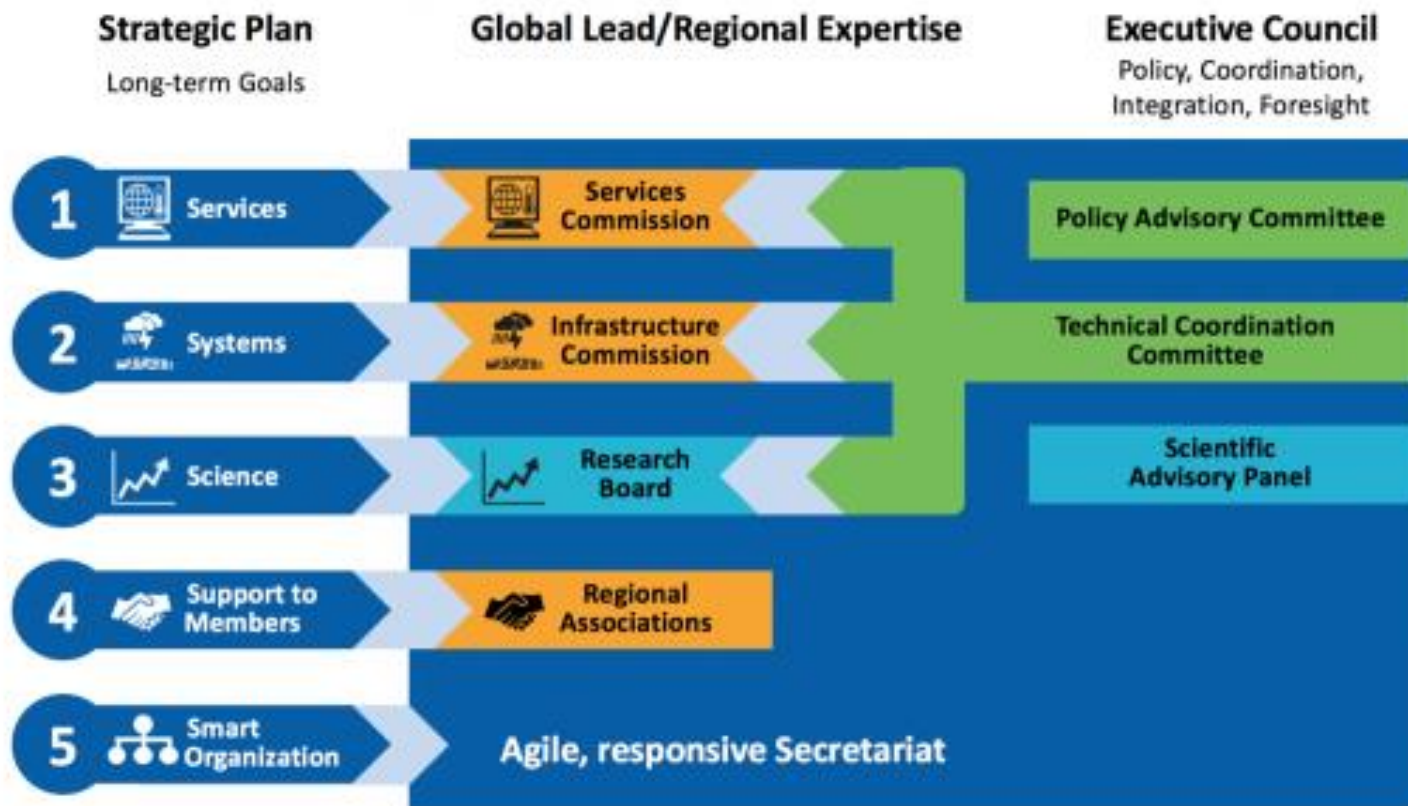
Goal 3: Advance targeted research: Leveraging leadership in science to improve understanding of the Earth system for enhanced services

Goal 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

Goal 5: Strategic realignment of WMO structure and programmes for effective policy- and decision-making and implementation.



Structure of WMO constituent bodies

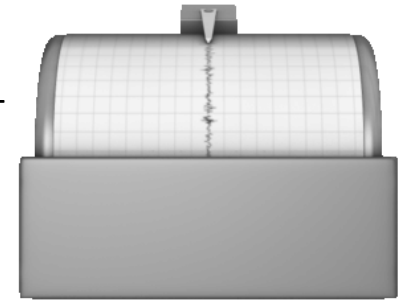


Substructures are being established at this moment (Member countries are commenting on the second round of Commission substructures' ToRs)

WMO Technical commissions: Infrastructure (intergovernmental)

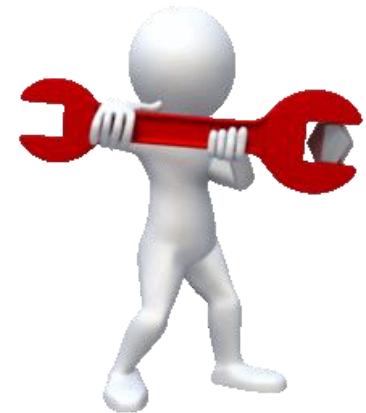
Regulatory function

- Standing Committee on Earth Observing Systems and Monitoring Networks (SC-ON) ,
- Standing Committee on Measurements, Instrumentation and Traceability (SC-MINT),
- Standing Committee on Information Management and Technology (SC-IMT),
- Standing Committee on Data Processing for Applied Earth System Modelling and prediction (SC-ESMP),



Feasibility groups

- Study Group on Data Issues and Policies (SG-DIP),
- Study Group on Ocean Observations and Infrastructure Systems (SG-OOIS) ,
- Study Group on Cryosphere Crosscutting Functions (SG-CRYO),
- Study Group on Implementation of the Global Basic Observing Network (SG-GBON),
- Study Group on the Global Climate Observing System (SG-GCOS);



WMO Technical commissions: Services (intergovernmental)

Regulatory function

- Standing Committee on Services for Aviation (SC-AVI)
- Standing Committee on Services for Agriculture (SC-AGR)
- Standing Committee on Climate Services (SC-CLI)
- Standing Committee on Hydrological Services (SC-HYD)
- Standing Committee on Marine Meteorological and Oceanographic Services (SC-MMO)
- Standing Committee on Services for Disaster Risk Reduction and Public Services (SC-DRR)



Feasibility groups

- **Study Group on Integrated Health Services (SG-HEA)**
- Study Group on Services for Energy (SG-ENE)
- **Study Group on Integrated Urban Services (SG-URB)**



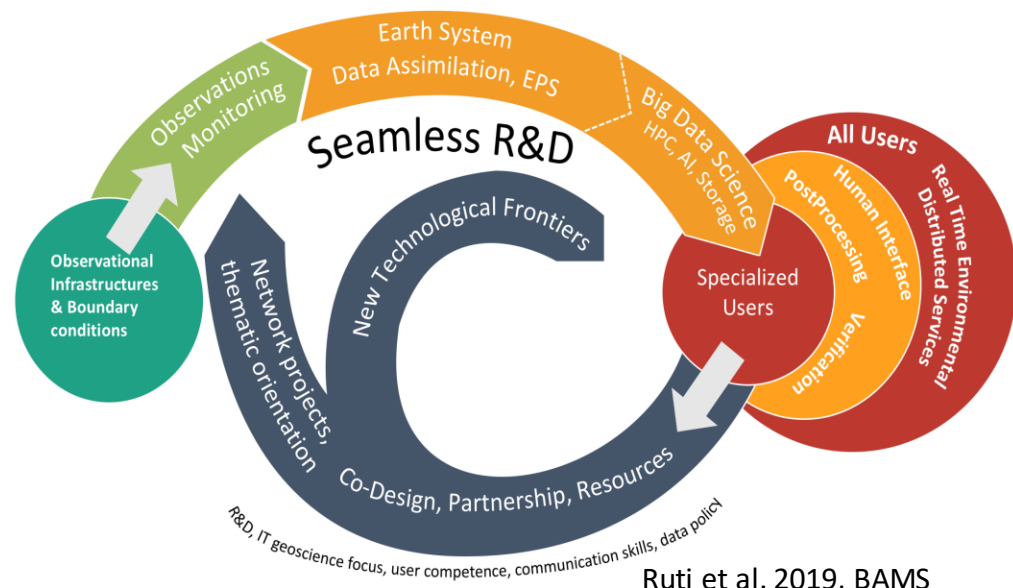
WMO Research Board

(non-intergovernmental)

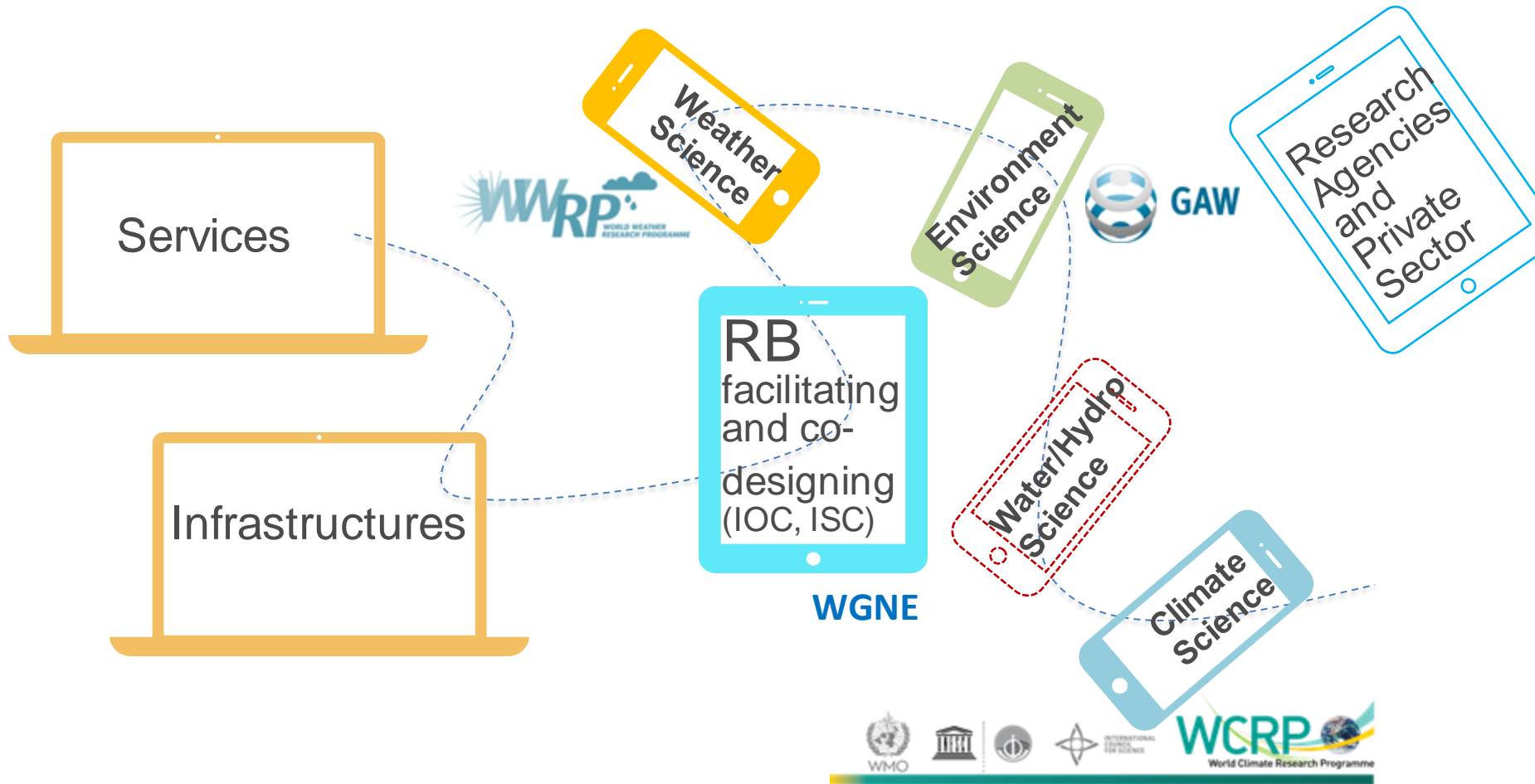
RB delivers the Long Term Goal of the WMO Strategy
"Advance Targeted Research"

- Advance Scientific Knowledge of the **Earth System**
- Enhance the **science-for-service** value chain ensuring scientific and technological advances to improve predictive capabilities
- Advance **policy-relevant science**

→ Seamless Earth system prediction across weather, water, atmosphere/environment, ocean, climate; interoperable observation systems of Earth System components

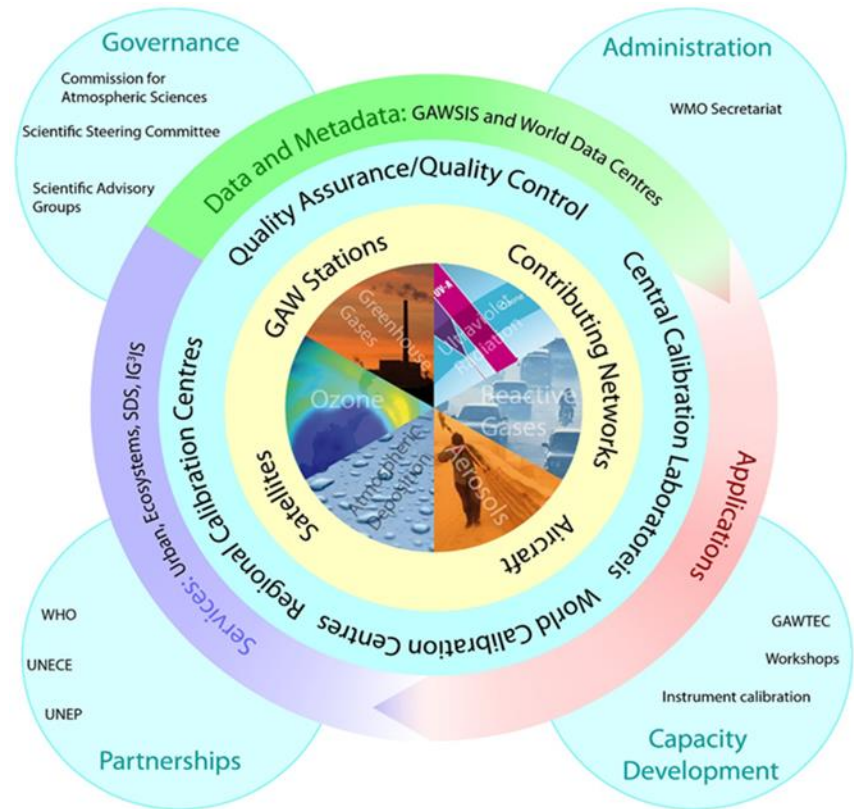


Research Board components and connectivities



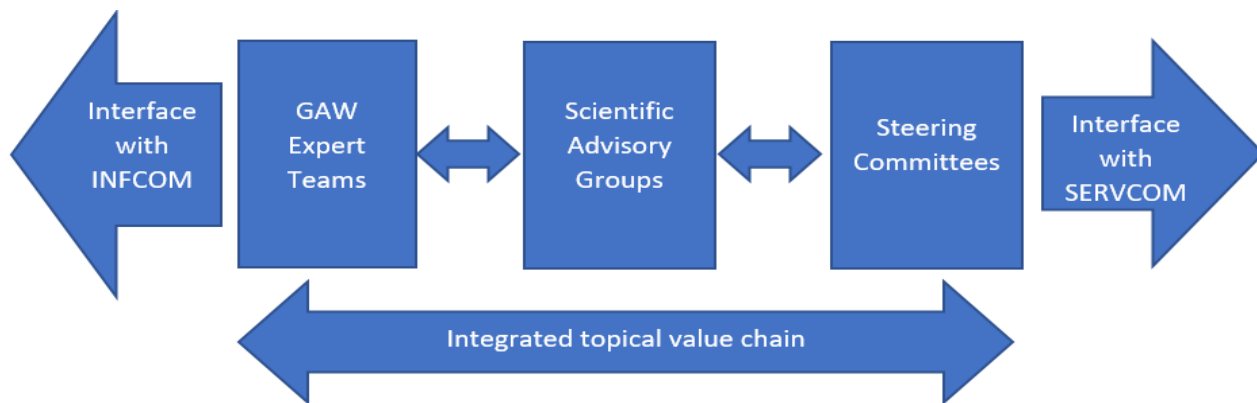
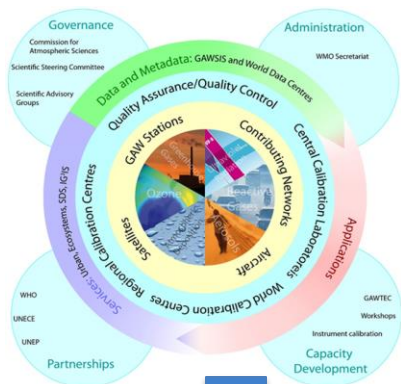
Elements integrated in GAW

- Observations
- Quality assurance
- Data management
- Modeling and analysis
- Joint research
- Capacity building
- Outreach and communications



Promote a “value chain” from observations to services

Aligning the work of GAW with new WMO organization



GAW Expert Teams are responsible for the advances in the research infrastructure in collaboration with the thematic SAGs and its connections with Infrastructure Commission.

GAW Scientific Advisory groups facilitate research related to atmospheric composition along the value chain of science for service and connect infrastructure and service-related groups. SAGs work in close collaboration with the other research programmes within and external to WMO scientific bodies and projects.

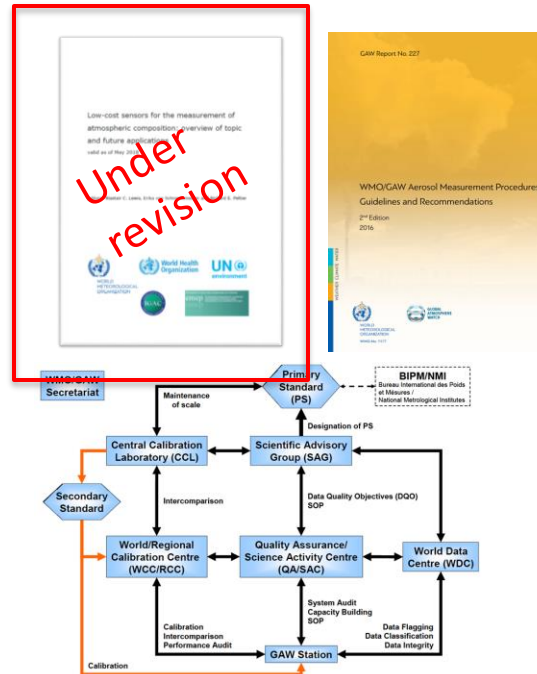
GAW Steering Committees work on translation of science to services and work closely with the thematic SAGs and contribute to Service Commission.



Research Infrastructure in GAW

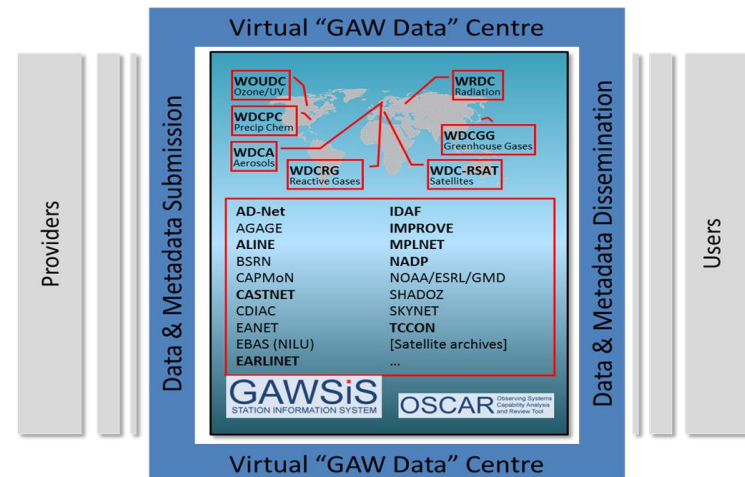


Expert Team on the Network Evolution:
collects requirements related to atmospheric composition observations and advise on the network evolution



Expert Team on Measurement Quality: develops common approaches and tools for QA/QC across thematic groups in GAW

Expert Team on Data Management: works on enhancing data management architectures to facilitate improved metadata exchange and interoperability, data discovery and analysis



GAW Scientific Advisory Groups

- On Ozone and UV Radiation
- On Greenhouse Gases
- On Reactive Gases
- On total atmospheric deposition
- On Aerosols
- *GAW Urban Meteorology and Environment (GURME) project*
- *GAW Modelling Applications SAG*

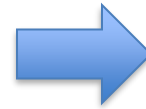
- Better integration with the research programmes in WMO (WWRP and WCRP) on common topics
- Better collaboration with other scientific programmes and initiatives, e.g. IGAC, iCACGP etc
- Better cooperation between SAGs on the issues of common interest (pollution, nitrogen or carbon cycle, radiative forcing, composition and weather etc)



Science for Services

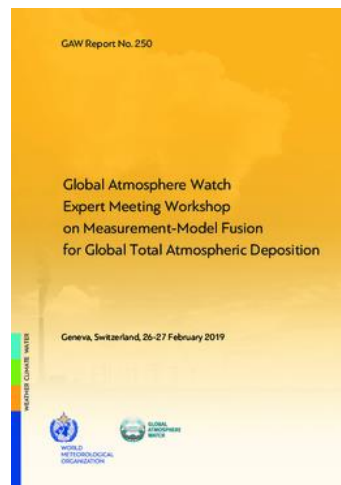
Steering committees of the “Science-for-Services” initiatives were formed through the open call and had first telecons last week of April:

- Integrated Global Greenhouse Gas Information System
- Measurement–Model Fusion for Global Total Atmospheric Deposition
- Global Air Quality Forecasting and Information System



A coordination group was formed to make a community assessment of the impacts of COVID on atmospheric composition and to develop a common analysis methodology

The report on the concept of the Measurement-Model Fusion was published in April (GAW Report 250)

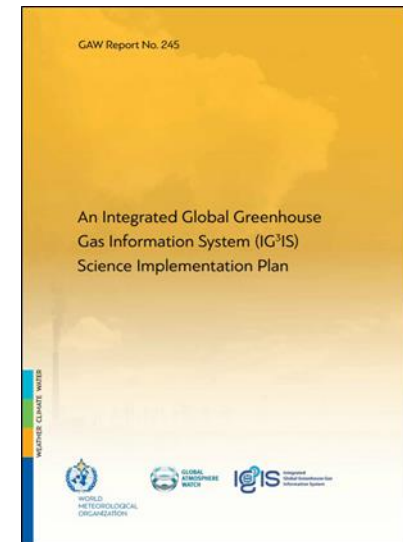


Integrated Global Greenhouse Gas Information System (IG³IS) is

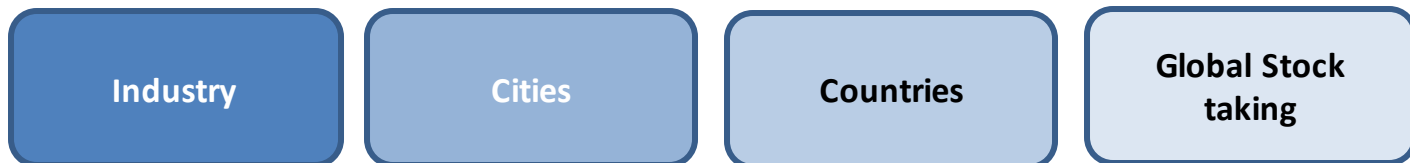


... a common framework for provision of the **systematic services to user community** who intend to reduce its greenhouse gas emissions

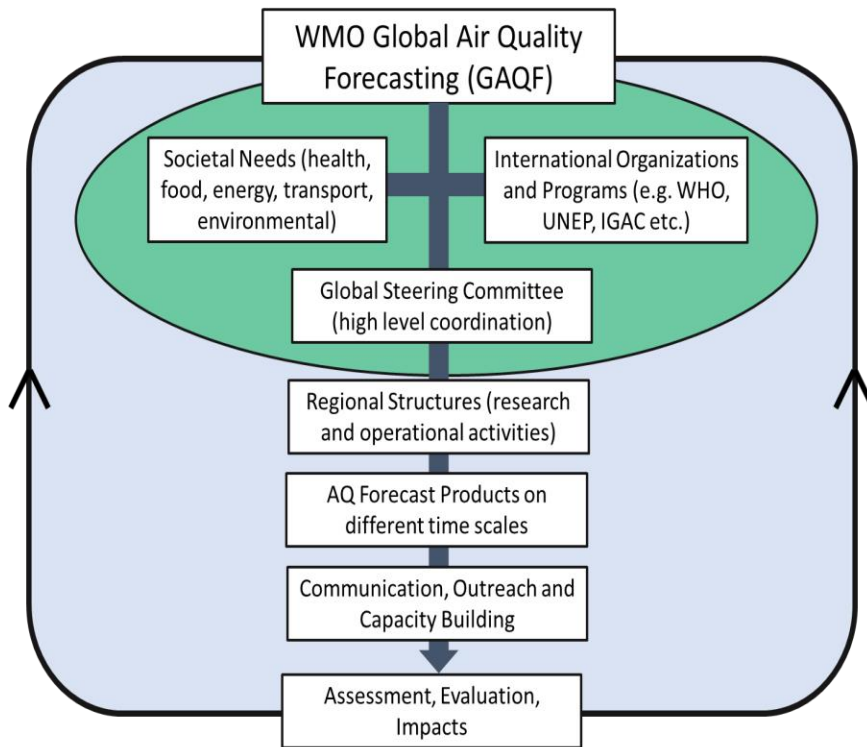
- Support the use of atmospheric concentration data to improve emission estimates
- Consensus on a coherent set of good-practice methods and guidelines
- Quality control (**benchmarking**)



Range of scales



Global Air Quality Forecasting and Information system (GAFIS)



- Contribution from existing systems
- Focus on common performance scores
- Development of the common delivery mechanism
- Downscaling techniques
- **Ultimate goal is to translate capabilities to operational services**



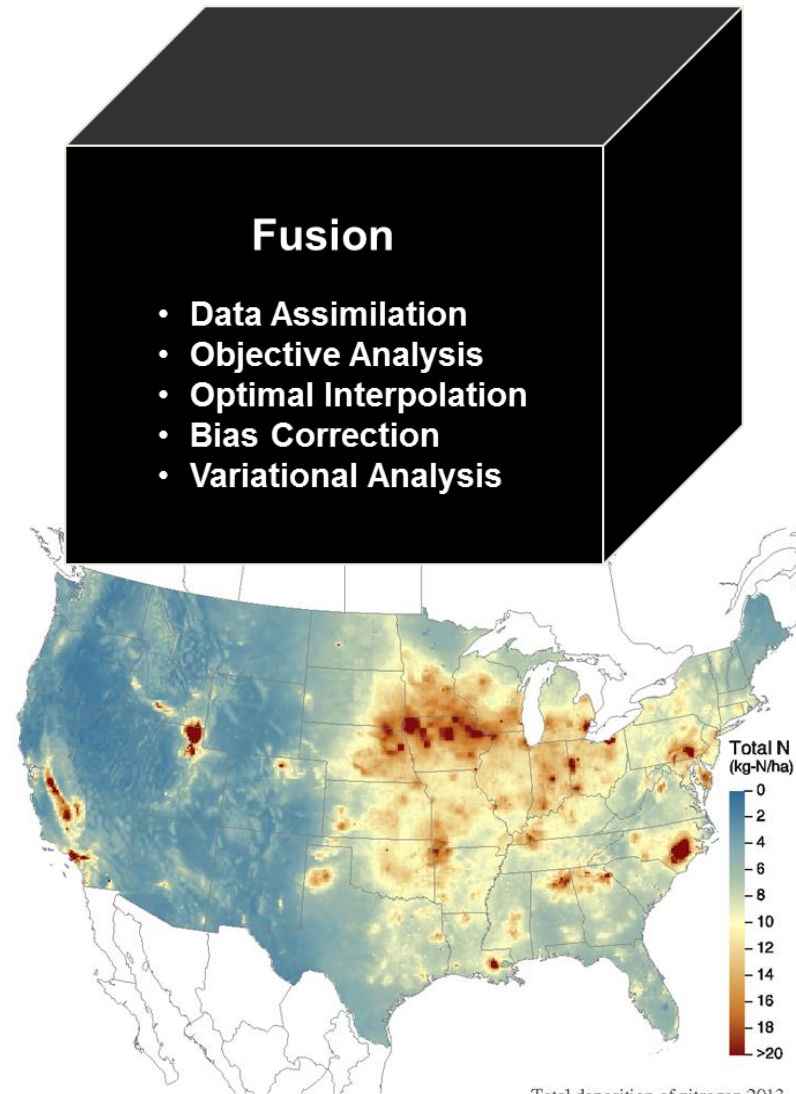
Aligned with WMO strategic plan, the system will **enable access to, and use of, air quality prediction and analysis products at different temporal and spatial scales**. This will be done through coordination of activities to facilitate seamless provision of atmospheric composition information at various scales, also benefiting NWP and climate modelling.

Air Quality and Meteorological Prediction and Forecasting Improvement for Africa (PREFIA) – a candidate pilot project for seamless prediction



Measurement-Model Fusion for Global Total Atmospheric Deposition

- **MMF brings together best-available data and modelling results** on precipitation chemistry, precipitation depth, air concentrations and dry deposition velocities to estimate wet, dry and total deposition
- **Combines measured and modelled**
 1. precipitation concentrations
 2. air concentrations
 3. precipitation depth
- **Uses dry deposition estimates of unmeasured species**



Cooperation with study group on integrated health services

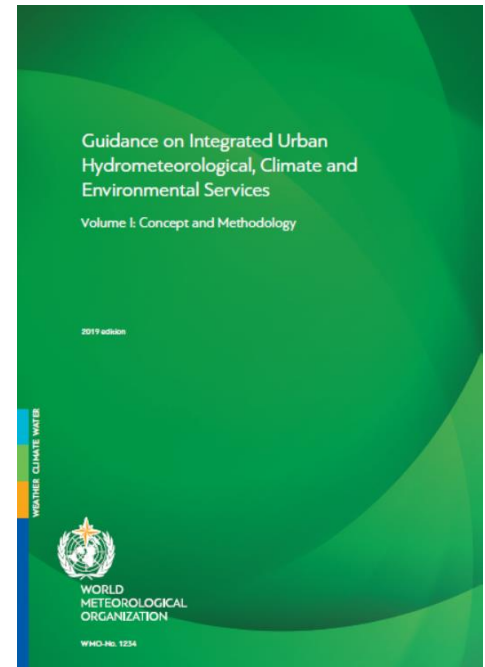


Action Area 4 of the Joint WMO/WHO workplan: Research and development of information products

- ✓ Identify and map air pollution and its sources and health impacts to enable impactful action.
- ✓ Identify health impacts and preventive interventions for occupational exposure of outdoor workers to health risks arising from air quality, solar radiation, and extreme temperatures
- ✓ Identify national or regional strategies integrating climate change and increased UV radiation.
- ✓ Evaluate the effectiveness of preventive interventions, measures and products for reducing exposure and health impacts of air pollution to identify appropriate preventive interventions, measures and products for the public and for occupational workers.

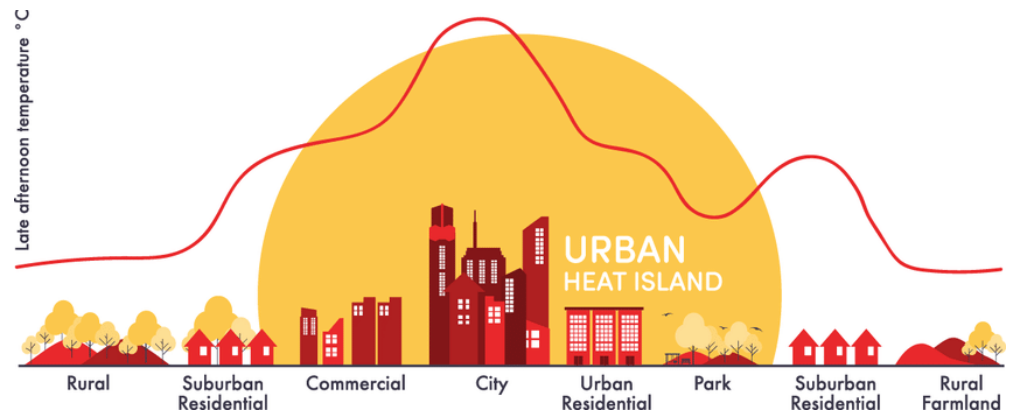
Cooperation with study group on integrated urban services

The general purpose of the Study Group on Integrated Urban Services (SG-URB) is to implement the WMO Strategic Plan under the overall guidance of the Services Commission in collaboration with Research Board and Infrastructure Commission in creating and sustaining an ongoing programme of service delivery for urban complexes and thus contribute to reducing the risk of hydro-meteorological hazards for urban areas.



Integrated urban services are supported by GURME SAG

The Guidance for the Urban Heat Island is currently under development



Thank you! Merci!

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



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**GLOBAL
ATMOSPHERE
WATCH**