

# The Global Atmosphere Watch Programme

Greg Carmichael & Oksana Tarasova\*  
\*WMO Research Department



WMO OMM

World Meteorological Organization

Organisation météorologique mondiale

# Global Atmosphere Watch Programme



Provides international leadership in research and capacity development in atmospheric composition observations and analysis through:

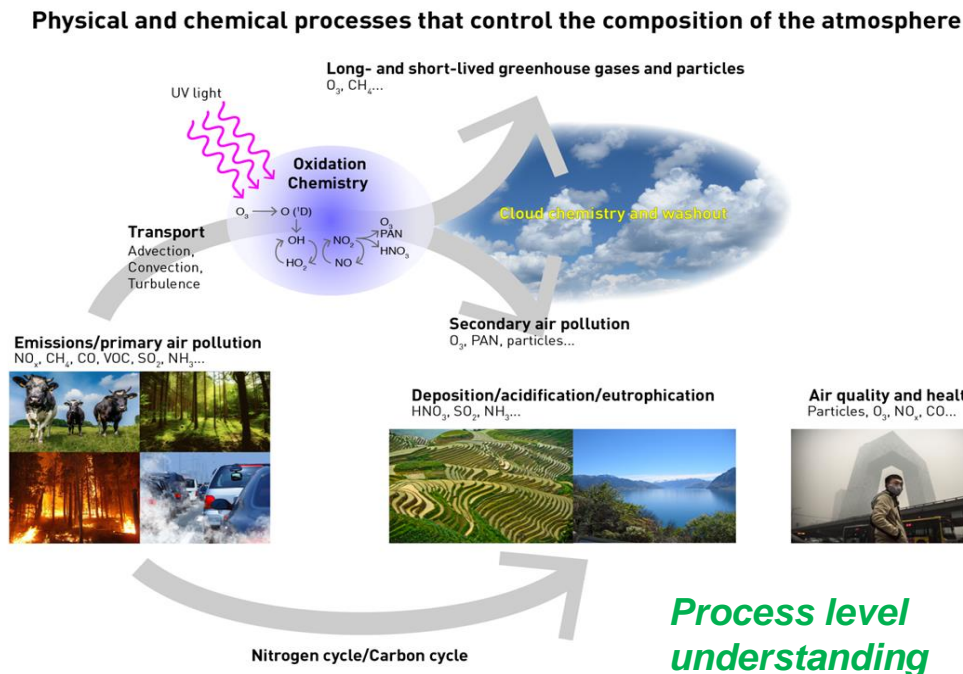
- *maintaining and applying long-term systematic observations of the chemical composition and related physical characteristics of the atmosphere,*
- *emphasizing quality assurance and quality control,*
- *delivering integrated products and services related to atmospheric composition of relevance to society.*

GAW builds on partnerships involving contributors from **100** countries (*including many contributions from research community*)



# GAW Implementation Plan (2016-2023)

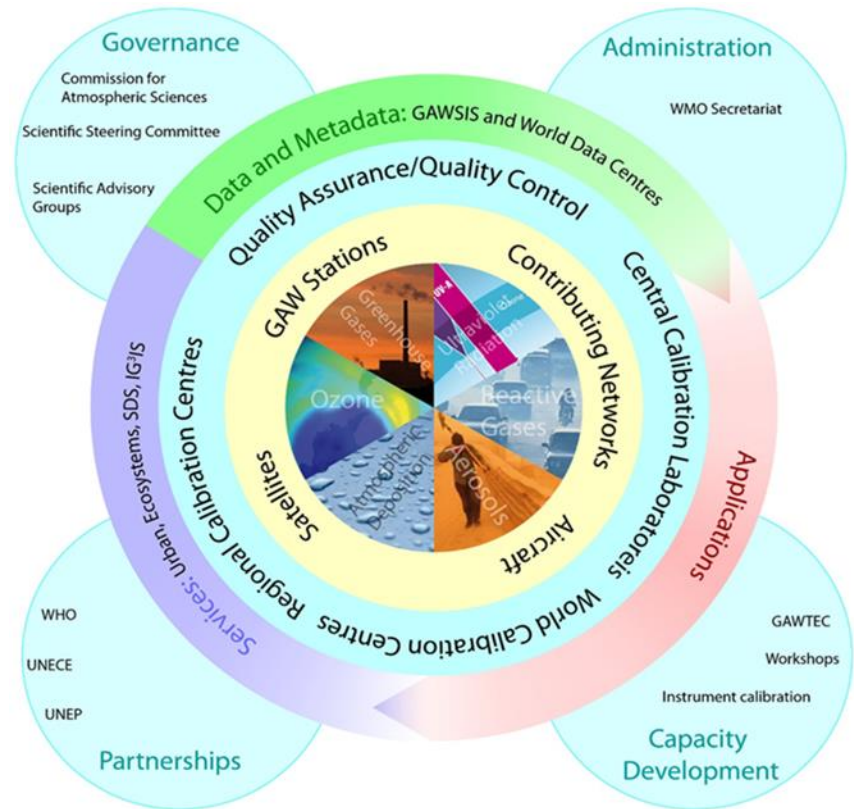
*IP builds upon the premise that **atmospheric composition matters** - to climate, weather forecasting, human health, terrestrial and aquatic ecosystems, agricultural productivity, aeronautical operations, renewable energy production, and more.*



The vision for the next decade of GAW is to grow the international network of high-quality atmospheric observations **across local to global scales** to drive high quality and **impact science** while co-producing a new generation of **research enabled** products and services. **(S4S)**

# 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*



# Examples of applications and service development in GAW

- *Support of international environmental conventions since 1970*
- *Support of the services for ecosystem*
- *Support of health services*
- *Support of transport security: volcanic ash forecasting*
- *Food security: atmospheric composition and agriculture*



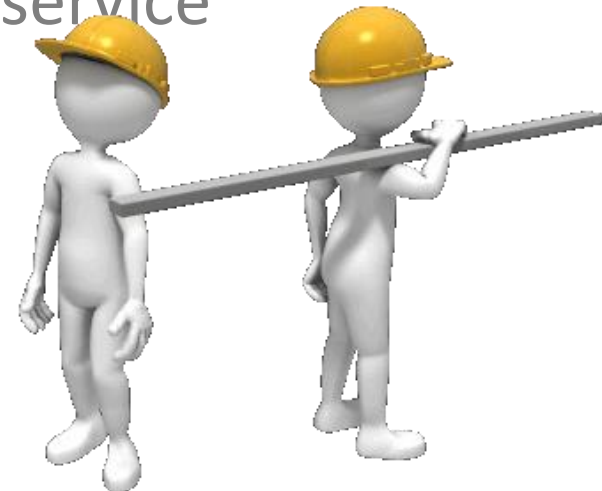
Development of the new services is driven by the CLEAR USER community



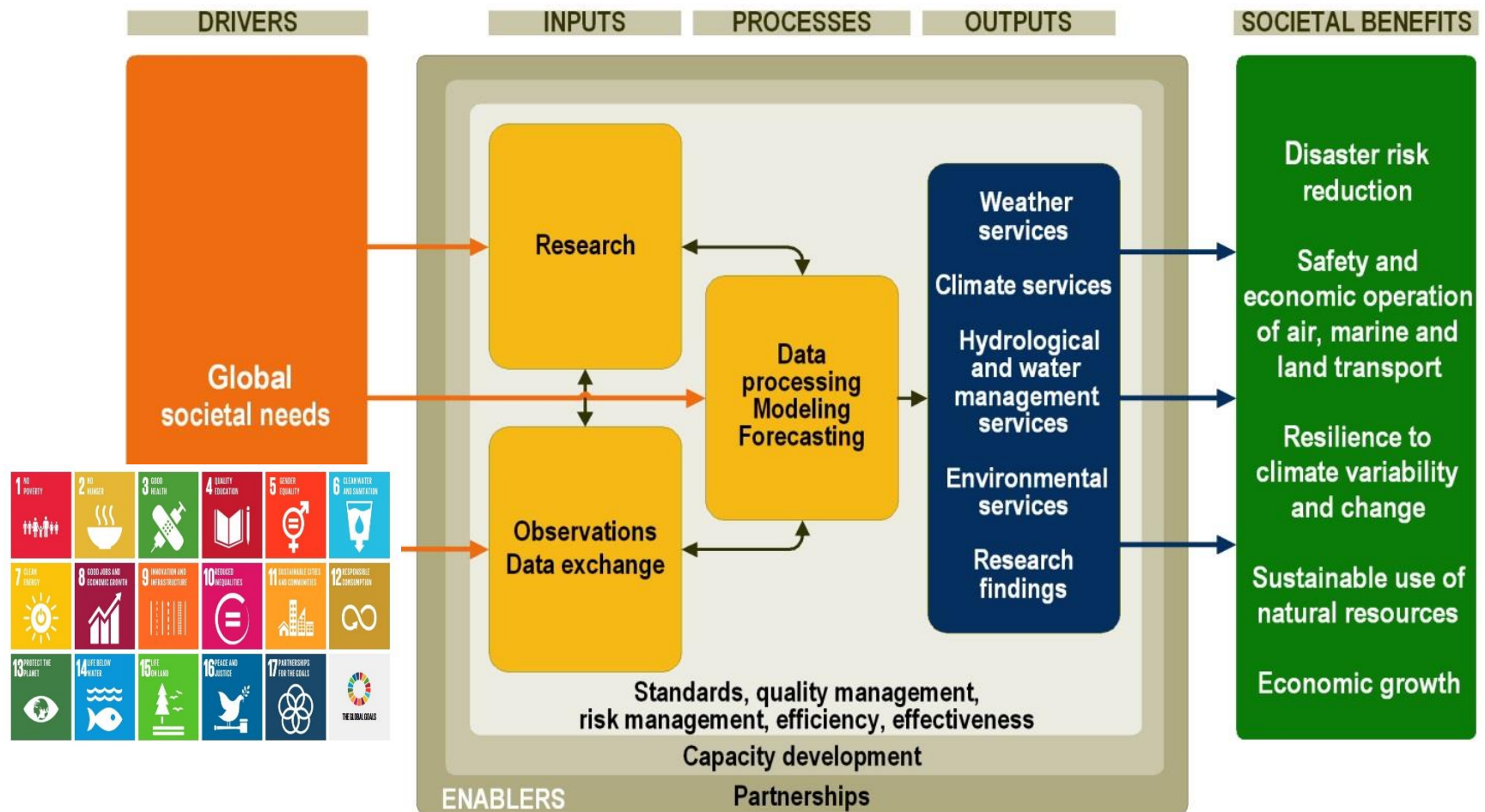
WMO OMM

# Cross-cutting thematic projects to develop new services :

- Integrated Global Greenhouse Gas Information System - IG<sup>3</sup>IS (support of climate services)
- Measurement-model fusion for total deposition (support of the ecosystem assessment and food security)
- MAP-AQ (support of the health sector)
- Contribution to the integrated urban service



# Overarching Objective - Improve Prediction Capabilities via Incorporating/Integrating Composition, Weather and Climate



WMO Initiative – Seamless Prediction *Across all Relevant Temporal and Spatial Scales (GDPFS)*

# Collaboration Spaces

- Enhancing observing systems (ECV, )
  - GHG fluxes (**Integrated Global Greenhouse Gas Information System (IG<sup>3</sup>IS)**)
  - SLCPs (aerosols, ozone, ..)
- Enhancing modelling capabilities (seamless/integrated) (including assimilation, verification, aerosol/radiation/microphysics, S2S, reanalysis, etc.) (Africa projects....)
- Strengthening applications of modern data science
- Capacity building (including young scientists)
- ***Next steps ..... Continue active engagement***



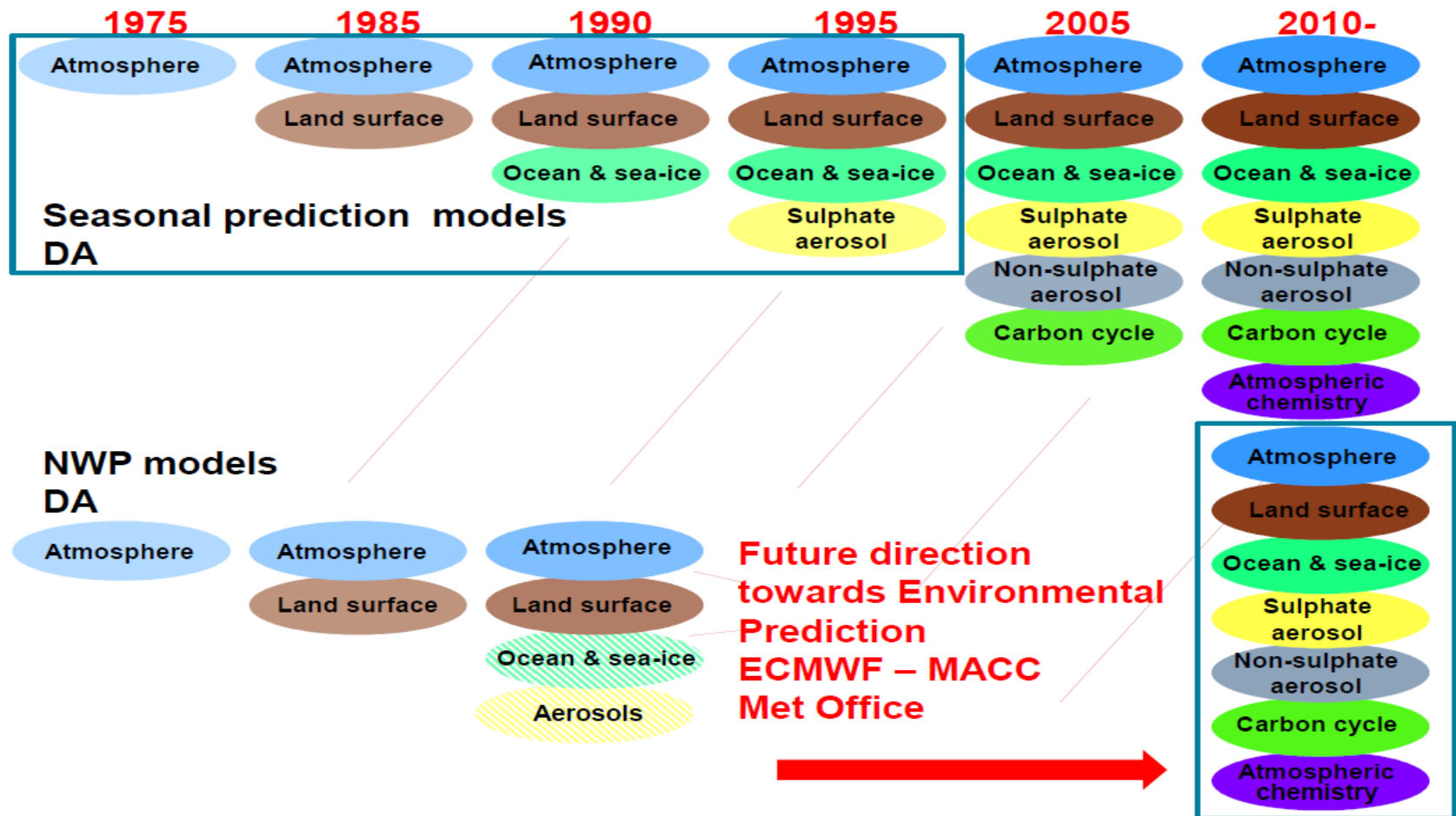


# Collaboration Space

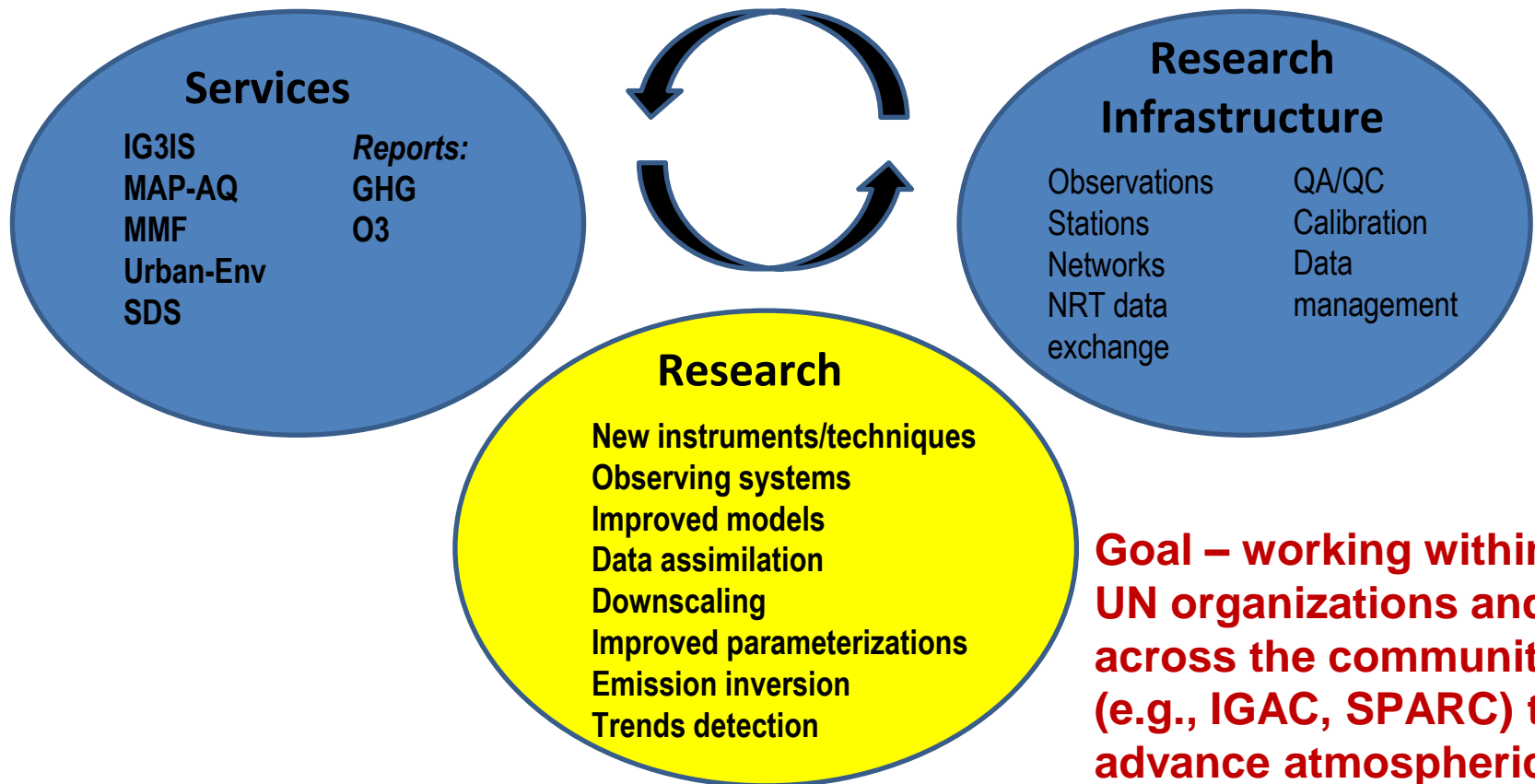
# Atmospheric Composition/Chemistry is being more Integrated with Weather and Climate Predictions

## Towards Seamless Prediction *(Earth System Models)*

### Climate models



# GAW Program Elements: Exploring Ways to Align with New WMO Structure



**Goal – working within the UN organizations and across the communities (e.g., IGAC, SPARC) to advance atmospheric chemistry research and its impacts on society.**

