

*Joint Meeting of the CIMO
ET on Upper-Air Systems Intercomparisons (Third Session)
and
International Organizing Committee on Upper-Air Systems
Intercomparisons (Third Session)
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**WMO Integrated Global Observing
Systems (WIGOS)
and
WMO Information System (WIS)**

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Outline

- Cg-XV
- EC-LIX
- WIGOS (EC WG WIGOS/WIS-1)
 - Concept of Operations;
 - WIGOS DIP;
 - Monitoring plan;
 - Pilot and Demonstration Projects;
 - Sub Group on WIGOS.

Cg-XV

- “Towards Enhanced Integration between the WMO Observing Systems”:
 - Strategic objective of WMO and a one of the 11 major expected results for the fifteenth financial period (2008–2011) – SP, SOP, RBB;
 - Major effort of the Organization;
 - Should proceed in parallel with the planning and implementation of the WIS (end-to-end system of systems);
- Requested EC:
 - Establish a mechanism to steer and monitor the activity and to achieve the broadest possible collaboration and cooperation;
 - Submit report to Cg-XVI (2011).

EC-LIX

Established EC WG on WIGOS/WIS:

- Develop WIGOS DIP;
- Refine WIS DIP and ensure coordination between WIGOS and WIS;
- Monitor dev. & impl. of WIGOS and WIS through a “RRR” mechanism;
- Monitor the development and implementation of WIGOS/WIS “Pilot (and Demonstration) Projects.

EC-WG on WIGOS/WIS

(4-7 December 2007)

- Reviewed the guidance and recommendations adopted by CG-XV and EC-LIX;
- Developed CONOPS (ver.1);
- Developed WIGOS DIP (ver.1);
- Established Sub Group on WIGOS
- Future work programme.

Concept of Operations

To fully understand WIGOS, the CONOPS must be considered in within the WDIP.

- Purpose;
- Objectives;
- Aim;
- Characteristics;
- Levels of integration;
- Responsibilities;
- WIGOS components;
- Data policy;
- Benefits;
- Challenges.

Purpose of WIGOS

- To create an organizational, programmatic, procedural and governance structure that:
 - will significantly improve the availability of observational data and products
 - will provide a single focus for the operational and management functions of all WMO observing systems
 - will provide a mechanism for interactions with WMO co-sponsored observing systems.
- Integration will lead to efficiencies and cost savings that can be reinvested to overcome known deficiencies and gaps in the present structure and working arrangements.

Objectives of WIGOS

- Improve management and governance (use of resources, planning, institutional and programme structures, and monitoring);
- Increase interoperability between various systems with particular attention given to complementarity between the space-based and *in-situ* components;
- Address the needs of the atmospheric, hydrologic, oceanographic, cryospheric and terrestrial domains within the operational scope of a comprehensive integrated system;
- Ensure that broader governance frameworks and relationships with other international entities are sustained and strengthened.

Aim of WIGOS

- Address in the most cost-effective way all WMO Programme requirements;
- Ensure the availability of all required information produced within the various WMO observing systems (GOS, GAW, WHYCOS, etc.) and WMO cosponsored systems;
- Facilitates access in real/near-real time and delayed mode to all required information through WIS;
- Ensure required data quality standards are met and sustained;
- Facilitate improved data management including archival and data retrieval capabilities;
- Facilitate technological innovation opportunities;
- Continue coordination with instrument manufacturers in the development and testing of next generation instruments.

Benefits of WIGOS

- Improved services;
- Increased quality and access to observations:
- More efficient use of resources;
- Better preparedness to incorporate new observing systems and to interface with non-WMO systems.

WIGOS Characteristics

All WIGOS data, metadata and products will:

- be exchanged via WIS using agreed upon data and metadata representation forms and formats;
- use WIGOS compatible hardware and software;
- adhere to WIGOS standards for instruments and methods of observation as well as standard observing network practices and procedures; and
- be archived in WIGOS approved forms and resolutions at WMO agreed upon archival centers.

WIGOS Characteristics

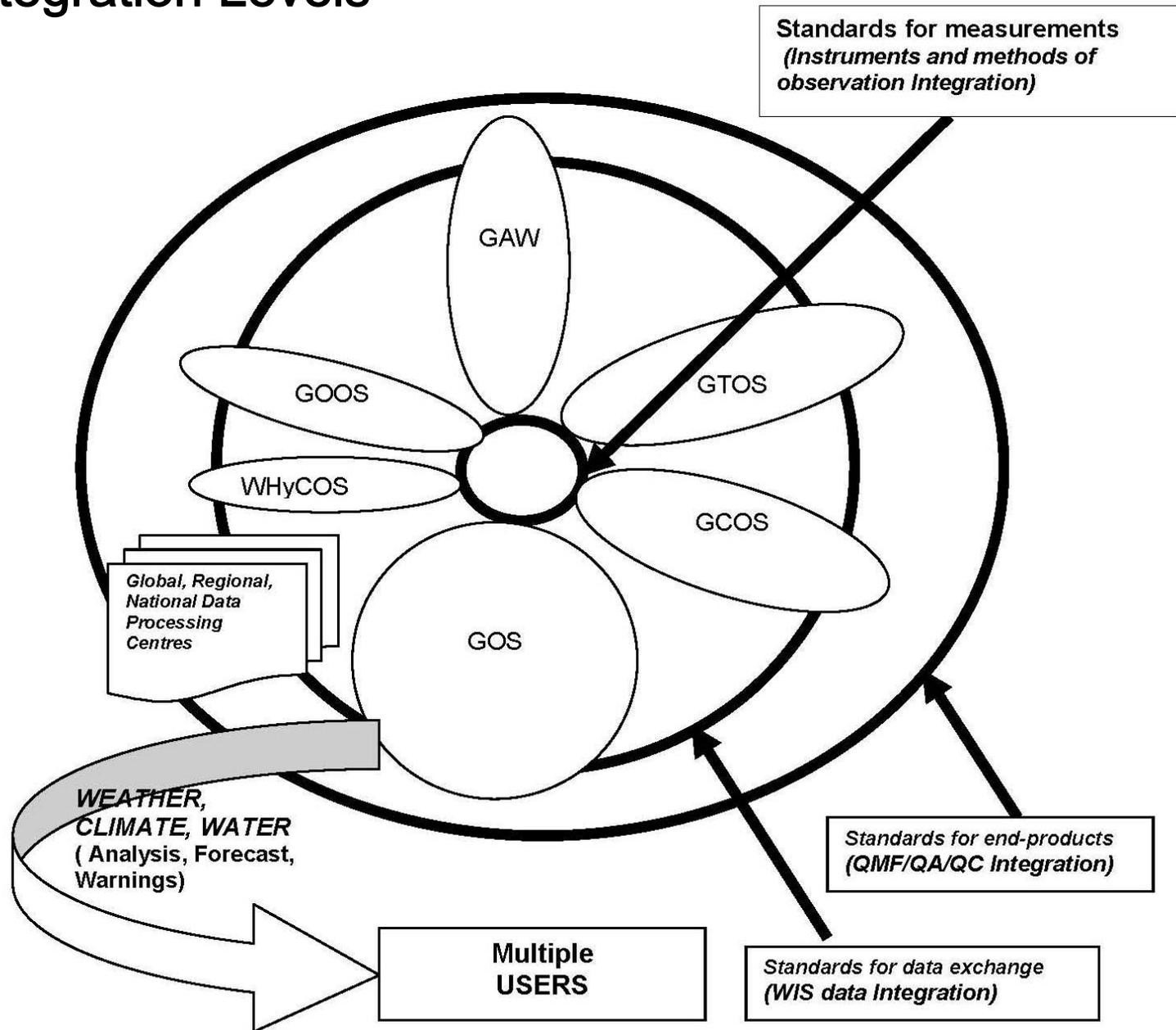
- Develop strategies to satisfy observational requirements from WMO Programmes and international partners through the WMO Rolling Requirements Review Process;
- Develop strategies to guarantee system interoperability, including data quality of observing systems and instruments;
- Evaluate existing WIGOS capabilities before developing, acquiring, and or deploying new observing systems or sensors;
- Exploit existing platforms and employ multi-sensor platform concepts to the maximum possible extent;
- Coordinate requirements, plans and activities with all appropriate TCs, RAs and Programmes;
- Be built upon existing observing systems/networks as a system of observing systems.

WIGOS Components

- Weather observing networks (e.g. WWW/GOS, AMDAR, ASAP etc);
- Atmospheric composition observing networks (e.g. GAW);
- Radiation observing networks (e.g. BSRN);
- Marine meteorological networks and arrays (e.g. VOS, drifting and moored buoy arrays etc.);
- Hydrological observing networks (e.g. observing components of WHYCOS etc.); and
- Climate components of various atmospheric, oceanographic and terrestrial observing systems contributing to GCOS;
- Other possible components yet to be defined.



WIGOS Integration Levels



WIGOS Integration Levels

- **1st - Instrument level:** Should encompass homogeneity, interoperability, compatibility of all observations. This should be achieved through meeting the requirements on instruments and methods of observations established by CIMO/networks including tests, calibration and intercomparisons;
- **2nd - Data level:** Data and information generated by all WIGOS constituent networks should meet a comprehensive, standardized set of WIS data presentation and exchange requirements for all WMO Programmes;
- **3rd - End Product level:** Should meet quality management framework requirements to ensure the best possible products to be delivered to end users.

WIGOS DIP (ver.1)

- Introduction;
- Planning and Implementation phases (Strategic Roadmap for Integration);
- Pilot Projects;
- Demonstration Projects;
- Policy and Governance;
- WMO Technical Regulations;
- WMO Programmes & Technical Commissions;
- Jointly Sponsored Observing Systems;
- Integration levels within WIGOS.

WIGOS Pilot Projects (PPs)

- EC-WG discussed the status of WIGOS PPs identified by Cg-XV and proposed some changes:
- The PP “Integration of WWW/GOS and GAW into WIGOS” was renamed to: “Joint GOS-GAW Pilot Project to accelerate implementation of WIGOS/WIS”;
- EC-WG reviewed activities on the planning and implementation of PPs and requested the TCs concerned to provide report on their progress towards implementation to the next session of the EC-WG.

WIGOS Pilot Projects

1. Joint GOS-GAW Pilot Project to accelerate implementation of WIGOS/WIS;
2. Initiation of a Global Hydrologic Network addressing a GCOS Requirement;
3. Integration of AMDAR into WIGOS;
4. Elaborating on the Underpinning/cross-cutting Role of IMOP and CIMO in the Context of WIGOS; and
5. Integration of Marine Meteorological and other appropriate Oceanographic Observation Systems into WIGOS.

WIGOS Demonstration Projects

- EC-WG agreed that helping Members to more fully understand WIGOS and keeping them current on its practical development, agreed that this can be achieved through launching Demonstration Projects in selected NMHSs;
- EC-WG agreed that Kenya and Namibia (RA I), Republic of Korea (RA II), Brazil (RA III), USA (RA-IV), Australia (RA V); the Russian Federation (RA VI) would host "test-bed" Demonstration Projects in their Services;
- Some other proposal under considerations.

Policy & Governance

To accomplish the stated goals regarding the development of a truly integrated WMO global observing systems, adjustments must be made in:

- the WMO Technical Regulations,
- the WMO Programme structure,
- the working structure and function of the Technical Commission,
- and of the WMO Secretariat.

Co-sponsored OS

- The joint WMO-IOC-UNEP-ICSU Global Climate Observing System (**GCOS**);
- The WMO contribution to the joint IOC-UNEP-WMO-ICSU Global Ocean Observing System (**GOOS**); and
- Those terrestrial/hydrological observing systems which serve as part of the FAO-UNEPWMO-ICSU Global Terrestrial Observing System (**GTOS**).

Future Work Plan

- EC-WG developed its work programme for the forthcoming inter-sessional period;
- EC-WG established a Sub Group on WIGOS;
- EC-WG developed the layout and possible content of the document on WIGOS-WIS to be submitted to EC-LX.

Sub-group on WIGOS (TOR)

- To provide overall technical guidance;
- To elaborate in detail the three levels of integration of WIGOS;
- To work with each WIGOS component;
- To refine the CONOPS;
- To coordinate the WIGOS planning phases (Including PPs) according to DIP;
- To coordinate WIGOS implementation with the planning and implementation WIS;
- Advice on aspects related to WIGOS management, governance and interoperability.

Membership of SG-WIGOS

- CIMO President (chairperson);
- Chairman, ICG-WIS;
- A representative from each WIGOS Pilot Projects;
- A representative from each WMO observing system not represented in a Pilot Project;
- A representative from each co-sponsored observing system.