Introduction to WIGOS

The WMO Integrated Global Observing System

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Outline

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What is WIGOS?

- WMO **foundational activity addressing the observing needs** of the weather, climate, water and environmental services of its Members
- A **framework for integrating** all WMO observing systems and WMO contributions to co-sponsored observing systems under a **common regulatory** and **management framework**
- WIGOS is not:
  - Replacing or taking over existing observing systems, which will continue to be owned and operated by a diverse array of organizations and programmes, national as well as international.

– *WIGOS homepage*

What is WIGOS?

World Weather Watch

GOS

GDPFS

GTS

WIGOS

GAW

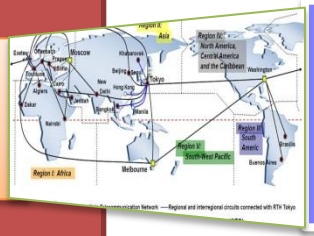
GCW

Hydro OS

GCOS

Partners

Co-sponsors



WMO Information System -WIS

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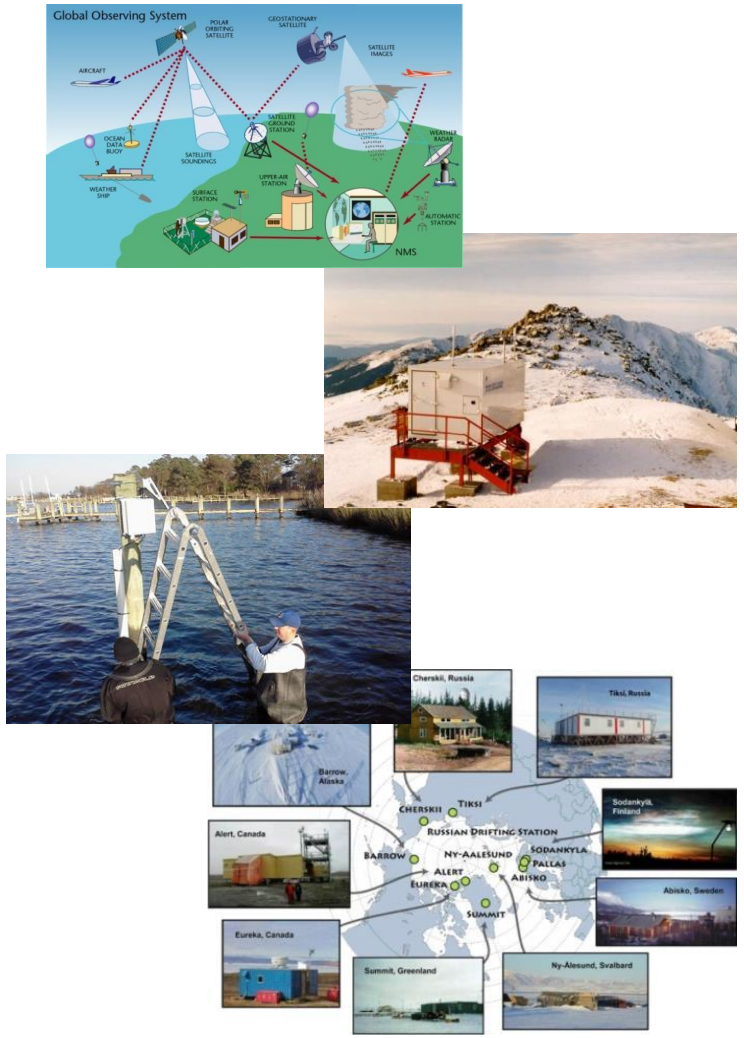
Observing Components of WIGOS

- Global Observing System (WWW/**GOS**)
- Observing component of Global Atmospheric Watch (**GAW**)
- WMO Hydrological Observations (including **WHYCOS**)
- Observing component of Global Cryosphere Watch (**GCW**)
- Co-sponsored programmes:
  - Global Climate Observing System (**GCOS**)



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WHY WIGOS?

WIGOS responds to …

I. NMHS mandate typically broader now than when the World Weather Watch and the GOS were created, including e.g.

- Climate monitoring/climate change/mitigation, Air quality, atmospheric composition, Oceans, Cryosphere, Water resources

II. Technical and scientific advances:

- Observing technology, Telecommunications, Numerical modeling and data assimilation, Increased user demand to access and use observations in decision making

III. Economic realities

- Budgetary pressure on many NMHS, in spite of expanding mandates and increasing demand for services
- NMHSs need to collaborate to fulfill their mandate

WIGOS Principles

How to implement WIGOS?

- Integration & increased interoperability of systems
- Sharing internationally (more) data and metadata
- Partnerships & cooperation
  - at national and regional levels
- Leadership
  - of NMHSs
- Planning
  - National Observing Strategy and WIGOS Implementation Plans
- Culture of compliance

  (with regards to the WMO Technical Regulations)

What do we mean by Integration

I. **Integrated network design:**
   - Across national borders

II. **Integration across disciplines:**
   - Multi-purpose networks

III. **Integration across organizational boundaries:**
   - With organizations outside NMHS that operated observing systems

IV. **Integration across technological boundaries:**
   - Space- and surface-based observing system as one

V. **Integration across different levels of performance:**
   - Concept of tiered networks to include Reference/traceable networks, Standard/operational networks and massive/unknown quality of data

An example of what WIGOS is addressing …

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An example of what WIGOS is addressing …

There are more capabilities than the NMHS can provide, in fact several institutions are active, but they don't necessarily collaborate. As a result, scarce ressources may be wasted, and synergies are not exploited.

A vision for a better future …

- All observations are documented publicly (metadata)
- Instruments are calibrated and mantained
- Observations are exchanged and compared
- Obsolete instrumentation may be de-commissioned
- User requirements can be met better at less cost

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The WIGOS Systems and Tools

I. **WIGOS Station Identifier (WSI)**

WSI is used to register an observing station or platform in the OSCAR/Surface database

II. **The Observing Systems Capabilities analysis and Review tool (OSCAR)** - Consists in three databases:

- OSCAR/Requirements – repository of user requirements for observations
- OSCAR/Surface – repository of surface observations metadata
- OSCAR/Space – repository of space-based observations metadata

III. **WIGOS Data Quality Monitoring System (WDQMS)**

A near real time system for monitoring the availability, quality and timeliness of observations

IV. **Regional WIGOS Centers**

Regional structures to run the Evaluation (of the monitoring outputs) and the Incident Management Functions of the WDQMS, as well as to assist with the management of WIGOS metadata

V. **RRR (Rolling Review of Requirements)**

A process developed to provide a consensus view on the design and implementation of WMO integrated observing systems, in particular where the need and implementation occur on global or regional scales

Summary

- WIGOS is a global framework for integrating all WMO and co-sponsored observing systems under a common regulatory and management umbrella
  - It is now in place and is expected to become operational from 2020 onwards
- Purpose is to help WMO Members provide and gain access to more and better observational data at reduced cost by taking an integrated approach
- Regulatory material (e.g. Manual on the WIGOS), related guides (e.g. Guide to the WIGOS, Technical Guidelines for RWCs on the WDQMS) and technical systems (OSCAR/Surface, WDQMS and Incident Management System) have been developed by WMO
- Regional WIGOS Centers will provide critical support functions for Members to help translate the global WIGOS concepts into regional and national action plans
- Strong involvement from Members, e.g. to implement WIGOS at national level, is necessary and is already happening

Thank you

For further information

Luis Nunes <lfnunes@wmo.int> WMO Secretariat

https://community.wmo.int/activity-areas/wigos

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