

Highlights related to CD activities from INFCOM/Infrastructure Department



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World Meteorological Organization
Organisation météorologique mondiale

**Capacity Development Panel - 7
March 2023**

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With contributions from INFCOM and
the Infrastructure Department

Strategic directions, coordination and engagement

- Integration of activities across all Earth Systems domains (climate, atmospheric composition, ocean, hydrology, cryosphere ..)
- Coordination and engagement with Regional Associations, members, SERCOM/RB and others:
 - Regional requirements, provision of implementation solutions and technical support
 - Requirements for data and products
 - Science and innovations ensuring evolution of measurements, data exchange/processing and modelling
 - Regional and national entities involved in capacity development
 - Private sector



Implementation of the WMO Unified Data Policy

- Amendments to the *Manual on the Global Data-Processing and Forecasting Systems (GDPFS)* (WMO-No. 485)
- Development of a Compliance review mechanism and monitoring
- Case studies and exemplars to address
 - National Policies and regulations on free and unrestricted data exchange; (sharing of data with research and education (led by RB))
 - Partnerships with non-NMHS entities
 - Attribution of data
 - Coordination with WMO partners and stakeholders
 - Relationship between public sector data providers and private sector data users etc

Home — Our mandate — What we do — Observations - Data - Modelling — WMO Unified Data Policy Resolution (Res.1)



The Unified Data Policy, GBON and SOFF have been painstakingly developed through extensive consultation with thousands of experts and other stakeholders around the globe to meet the explosive growth in demand for weather and climate data products and services from all sectors of society.

Approval of the Unified Data Policy provides a comprehensive update of the policies guiding the international exchange of weather, climate and related Earth system data between the 193 Member states and territories of WMO. The new policy reaffirms the commitment to the free and unrestricted exchange of data, which has been the bedrock of WMO since it was established more than 70 years ago.

WMO Unified Data Policy Resolution (Res.1)

The 2021 Extraordinary World Meteorological Congress (11-22 October) approved the WMO Unified Data Policy, along with two other sweeping initiatives – the Global Basic Observing Network (GBON) and the Systematic Observations Financing Facility (SOFF) – to dramatically strengthen the world's weather and climate services through a systematic increase in much-needed observational data and data products from across the globe.



Resolution text · Implementation · **Exemplars** · Background/Materials · FAQs · Contact

Implementation of the Global Basic Observing Network

- Implementation of GBON – January 1, 2023 (per Technical Regulations)
- Proposed changes to the *Manual on the WMO Integrated Global Observing System* (WMO-No.1160) and the *Guide to the WMO Integrated Global Observing System* (WMO-No. 1165)
- Guide to GBON as new chapter of WIGOS Guide (WMO-No. 1165) (for Cg-19) posted to EC-76 for Members consideration
- Guidance material and training for the SOFF (Systematic Observing Financing Facility) for LDCs and SIDS
- WIGOS and OSCAR/Surface National Focal Points to assist
- Webinars on GBON, GBON Webtools
 - ➔ Sequential expansion for GBON – study for cryosphere and hydrology, ocean

GBON Station Designation Web Tool use the options in the table to export the station list

member_territory	station-name	WIGOS-ID	station-class	program	station approval status	station assessed status	station declared status	LATITUDE	LONGITUDE
Albania	GJROKASTRA	0-20000-0-13625	SYNOP	GBON	Pending approval		Operational	40.08	20.15
Albania	KORCA	0-20000-0-13629	SYNOP	GBON	Pending approval		Operational	40.60	20.77
Albania	KUKES	0-20000-0-13610	SYNOP	GBON	Pending approval		Operational	42.03	20.42
Albania	PESHKOPI	0-20000-0-13619	SYNOP	GBON	Pending approval		Operational	41.68	20.43
Albania	QYTETI STALIN	0-20000-0-13624	SYNOP	GBON	Pending approval		Operational	40.80	19.90
Albania	SHKODRA	0-20000-0-13600	SYNOP	GBON	Pending approval		Operational	42.10	19.53

<https://wmo.maps.arcgis.com/apps/webappviewer/index.html?id=795bbc05ca8a4da7a5f5f0aebb210aa8&locale=en>

WMO ETRP Moodle Site English (en)

WIGOS Learning Portal

Dashboard / My courses / WIGOS Learning Portal / 2. Global Basic Observing Network (GBON) / Webinars on the process for the designation of GBON stations

Webinars on the process for the designation of GBON stations_part 2

Webinars on the process for the designation of GBON stations (part 2) - 05/01/2023

- GBON-Webinar_20230105_HHaddouch-PPT-The reporting of GBON data to WIS.pdf
- GBON-Webinar-20230105-ECharpentier-PPT-GBON Requirements.pptx
- GBON-Webinar-20230105-LNunes-PPT-ComplianceMonitoring.pptx
- GBON-Webinar-20230105-LNunes-PPT-The use of OSCAR Surface to designate GBON stations.pptx
- GBON-Webinar-20230105-Program.pdf
- GBON-Webinar-20230105-IPWaniha-PPT-Overview of WMO INFCOMs role in implementing GBON.pptx

<https://etrp.wmo.int/mod/folder/view.php?id=22162>

WMO Integrated Global Observing System Initial Operational Phase (2020-2023)

- Progress with implementation of WIGOS
- Compliance based on WIGOS Data Quality Monitoring System (WDQMS) and incident management System
- Consolidation of network of RWCs: established Regional WIGOS Centres – Beijing, Tokyo. **Pilot** RWCs: Casablanca, Dar es Salaam, Kenya, South Africa, Argentina, Brazil, Fiji, Indonesia, Singapore, EUMETNET
- Training on OSCAR, WDQMS and Incident Management System (IMS)
- WIGOS Newsletter
- WIGOS Learning Portal
- Process for the design of RBON in 2023
- New releases to better address requirements for OSCAR/Surface
- High Level Guidance on evolution global observing systems (2023-2027) - WIGOS Vision 2040

➡ Use of space-based components of WIGOS: *Strategy for VLab for ETR in satellite Meteorology 2024-2027 (EC-76)*



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Contents

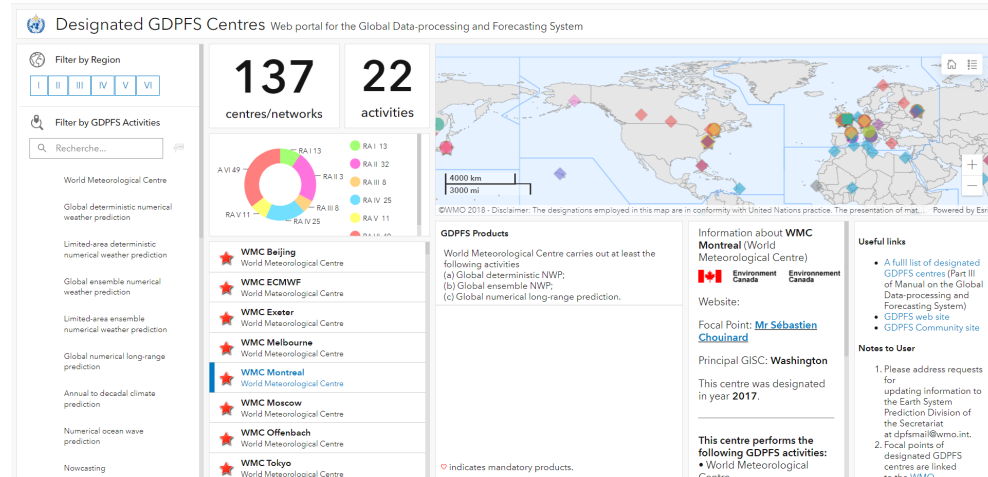
1. [Relevant outcomes from SC-ON meeting \(hybrid, 16-18 November 2022, Geneva, Switzerland\)](#)
2. [UAS demonstration campaign status & progress](#)
3. [Relevant outcomes from RWC Audit workshop \(hybrid, 18-19 January 2023, Geneva, Switzerland\)](#)
4. [GBON webinars \(5 January 2023\)](#)
5. [The Round-trip Drifting Sounding System \(RDSS\)](#)
6. [WIGOS community webpages with new structure and contents](#)
7. [Hybrid workshop for Regional WIGOS Centre in RA IV \(13- 15 December 2022, San Jose, Costa Rica\)](#)
8. [WIGOS related events/meetings](#)
9. [New WIGOS related publications](#)

<https://community.wmo.int/en/activity-areas/WIGOS>

WMO Global Data-Processing System

- Development of a Seamless GDPFS Roadmap
- Pilot projects to implement GDPFS in Earth-system domains
- Engagement with regional associations and Members regarding implementation and access to products
- Renewal of the Guide on the Global Data-processing System (WMO-No. 305)
- Development of Guideline on High-resolution NWP – Amendments to the Manual on the Global Data-Processing and Forecasting System (WMO-No. 485); guidelines on WIS metadata for GDPFS
- Development of standardized review process for GDPFS Centres compliance
- 3rd Workshop for operational climate prediction
- Evolution of the GDPFS Web Portal

➔ Post 2023: Expanding GDPFS to all Earth system- missing core data



<https://wmo.maps.arcgis.com/apps/dashboards/7c3d45e5003a417988bad63e91ad8748>



Additional Priorities

WIS:

- Implementation plan and engagement with regional associations
- WIS 2.0 pilot projects supporting Data Policy, SOFF, GBON and LDCs
- WMO Hydrology Observation System (WHOS) Operational implementation in WIS

➔ Transition to WIS 2.0 +2024

Other Priorities 2024-2027

- WIS 2.0 pilot projects supporting Core Data
- Continued Earth System integration of components
- Promote emerging deliverables from science to operational applications
- Coordinated GHG monitoring and tracking infrastructure
- Guidance and training for environment sustainability of observations
- Roadmap cryosphere hazards in collaboration SERCOM-RB
- And others



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WIS2 in a box

<https://community.wmo.int/en/activity-areas/wis>

Documentation - Welcome

Welcome

WIS2 in a box (wis2box) is a Free and Open Source (FOSS) Reference Implementation of a WMO WIS2 node. The project provides a plug and play toolset to ingest, process, and publish weather/climate/water data using standards-based approaches in alignment with the WIS2 principles. It also provides access to all data in the [WIS2 network](#). wis2box is designed to have a low barrier to entry for data providers, providing enabling structure and services for data discovery, access, and visualization.

wis2box enables World Meteorological Organization (WMO) members to publish and download data through the WIS2 network. The main features are:

- WIS2 compliant: easily register your wis2box to WIS2 infrastructure, conformant to WMO data and metadata standards
- WIS2 compliance: enables sharing of data to WIS2 using standards in compliance with WIS2 technical regulations
- event driven or interactive data ingest/process/publishing pipelines
- visualization of stations/data on interactive maps
- discovery metadata management and publishing
- download/access of data from WIS 2 network to your local environment
- standards-based data services and access mechanisms:
- robust and extensible plugin framework. Write your own data processing engines and integrate seamlessly into wis2box!

WIS 2.0	WIS 1.0	MANUALS AND GUIDES
<p>Click to expand [-]</p> <ul style="list-style-type: none"> ■ WIS 2.0 ■ Manual on WIS Vol II : WIS 2.0 (to be adopted at Cg19) ■ Guidance on Technical Specifications of WIS 2.0 ■ Guidance on Transition from GTS to WIS 2.0 ■ WIS 2.0 Demonstration Projects ■ WIS 2.0 in a box 	<p>Click to expand [-]</p> <ul style="list-style-type: none"> ■ WIS Overview ■ History ■ Operational Information Service ■ Global Information System Centres (GISCs) ■ GISC Operations ■ Database of WIS Centres ■ Global Telecommunication System (GTS) 	<p>Click to expand [-]</p> <ul style="list-style-type: none"> ■ Manuals ■ Guides ■ Amendment Processes for WIS Manuals and Guides ■ WMO Codes Registry ■ Schema Repository ■ GRIB Edition 3 ■ GBON BUFR ■ WMO CF Extensions ■ WIS Metadata KPIs

RELATED NEWS

- Operational Newsletter
- WIS Newsletter
- WIS 2.0 Demo is available
- WIS 2.0 Introduction to Industry Workshop
- Our latest WIS Newsletter is now available!
- Bulletin 70 (2) 2021 Article 4 (Data Exchange): Now available online
- WIS 2.0 Demonstration Projects Workshop

<https://community.wmo.int/en/meetings/wis2-introduction-to-infcom-delegates>

Focus on CD and Training

SC-ON sub-group on CD: Final report available soon

Informal coordination mechanism on CD:

- Address decision paper ([INFCOM-2/Doc. 8](#)) which supports activities related to CD
- CDP representative, Coordinator on Engagement, nominated focal points by each subgroup, technical coordinators for Infrastructure in regional associations
- Enhance awareness and access to CD and training material for members (Capacity Development Materials Dashboard)
- Support collection and sharing of information on CD – enhance collaboration
- Share and learn from good practices

Actions and Recommendations will help define high level principles, and support succession planning

Commission for Observation, Infrastructure and Information Systems (INFCOM)

Update of INFCOM website on WMO Community Platform

Capacity Development Materials Dashboard

ACTIVITY AREAS (1)	Area	Newsletter	Manual and Guides	Other publications	Awareness and training materials
<ul style="list-style-type: none"> Commission for Observation, Infrastructure and Information Systems (INFCOM) 	Information Management and Technology	WIS Newsletter Operational Newsletter	WIS Manuals Guide to WIS		
	Earth Observing Systems and Monitoring Networks	WIGOS Newsletters Aircraft based Observation (ABO) and AMDAR Newsletters	WIGOS Manual Guide to WIGOS Metadata Standard	WIGOS Technical reports	OSCAR/Surface WIGOS Learning Portal
	Satellite data applications	RA II WIGOS Newsletters Space-based Weather and Climate Extremes Monitoring (SWCEM) Newsletters		Guidelines on Best Practices for Achieving User Readiness for New Meteorological Satellite (WMO-No. 1187) Guidelines on Satellite Skills	OSCAR/Space WMO-CGMS VLab Coordination Group on Satellite Data Requirements for RA III and RA IV (RA III-IV SDR-Group) RA II WIGOS Project

Capacity Development (INFCOM-2/Doc.8)

Decisions to support:

- Review of existing **Competency Frameworks** and development of new frameworks;
- **Endorsement of CD activities** listed in Information paper;
- Enhanced collaboration of **INFCOM-related regional centres** (e.g. RWCs, RICs, RMICs, MLs) **with RTCs/Regional offices**
- Enhanced collaboration with **WMO Global Campus** and other partners;
- **Leverage** existing CD and training material and **facilitate access**;
- Explore **innovative ways** to provide material in various languages;
- **Coordination mechanism** on CD activities among INFCOM groups;
- Use of **WMO TECOs** as opportunities for CD and training.

UN Early Warning for All Initiative

- Close coordination to involve INFCOM
- Creation of Expert Team-Early Warning Services to include expertise in technical areas such as observations, telecommunication and data-processing (EC-76/Doc. 4(2), APPROVED)
- Building capacity and capability of members:
 - Support to regional centres and structures
 - Acceleration of WIS 2.0
 - Use of global NWP and satellite products
 - Leveraging SOFF, CREWS, VLab and other mechanisms

Thank you

Adoption without debate (recommendations TCC) for
Long-Term Goal 2 – Enhance Earth system observations and predictions:
Strengthening the technical foundation for the future

EC-76 Resolution	Title
3.2(1)/1	Amendments to the Manual on the WMO Integrated Global Observing System (WMO-No. 1160)
3.2(2)/1	Guide to the WMO Integrated Global Observing System (WMO-No. 1165)
3.2(4)/1	Update of the Guide to Aircraft-Based Observations (WMO-No. 1200)
3.2(5)/1	Publication and translation of the Guide to Instruments and Methods of Observation (WMO-No. 8)
3.2(6)/1	Update of the Guide to the WMO Information System
3.2(7)/1	Update of the Manual on Codes



Adoption without debate (recommendations TCC) for
 Long-Term Goal 2 – Enhance Earth system observations and predictions:
 Strengthening the technical foundation for the future

EC-76 Resolution	Title
3.2 (8)/1	Establishment of a Data Acquisition Centre for marine meteorological and oceanographic climate data within the Marine Climate Data System and associated updates to the Guide to Marine Meteorological Services (WMO-No. 471), Appendix 1
3.2(9)/1	Designation of Global Producing Centres for Long-range Forecasts (GPC-LRF), Sub-seasonal Forecasts (GPC-SSF) and Lead Centre for the coordination of multi-model ensembles for sub-seasonal forecasts (LC-SSFMMME)
3.2(10)/1	Termination of Annual WMO Technical Progress Report on the Global Data-Processing and Forecasting System (GDPFS) and Numerical Weather Prediction (NWP) Research
3.2(11)/1	Establishment of the Compliance Review Process for Regional Specialized Meteorological Centres (RSMCs)
3.2(12)/1	Renewal of the Guide on the Global Data-processing System (WMO-No. 305)
3.2(13)/1	Amendments to the Manual on the Global Data-processing and Forecasting System (WMO-No. 485) proposed by SERCOM



Adoption without debate (recommendations TCC) for
Long-Term Goal 2 – Enhance Earth system observations and predictions:
Strengthening the technical foundation for the future

EC-76 Resolution	Title
3.2(14)/1	New Guide to Operational Weather Radar Best Practices
3.2(15)/1	Towards a change of radiation references
3.2(17)/1	Strategy for the Virtual Laboratory for Education and Training in Satellite Meteorology 2024–2027
3.2(18)/1	Improving Climate Observations
3.2(19)/1	Implementation plan update of the WMO Information System 2.0
3.2(20)/1	WMO Hydrology Observation System (WHOS) Operational Implementation



Adoption without debate (recommendations TCC) for
Long-Term Goal 2 – Enhance Earth system observations and predictions:
Strengthening the technical foundation for the future

EC-76 Resolution	Title
3.2(21)/1	Regional Marine Instrument Centres – Updated Terms of Reference, governance and assessment process
3.2(22)/1	Regional Instrument Centres (RICs)