Information Session

Standing Committee on Information Management and Technology

26 – 27 March 2024

WORLD METEOROLOGICAL ORGANIZATION

Introduction of WIS 2.0 Documents to INFCOM-3 delegates Session 2 WIS – western hemisphere 27 March 2024		
Time (UTC)	Item	Speaker
13:00 – 13:05	Opening	Peiliang Shi / Rémy Giraud
13:05 – 13:20	Update to Manual on WIS, Guide to WIS, and Transition Guide	Rémy Giraud
13:20 – 13.30	Introduction INFCOM-3 and WIS documents	Hassan Haddouch
13:30– 13:40	Capacity development	Enrico Fucile
13:40 – 14:00	General discussion	Rémy Giraud/Enrico Fucile

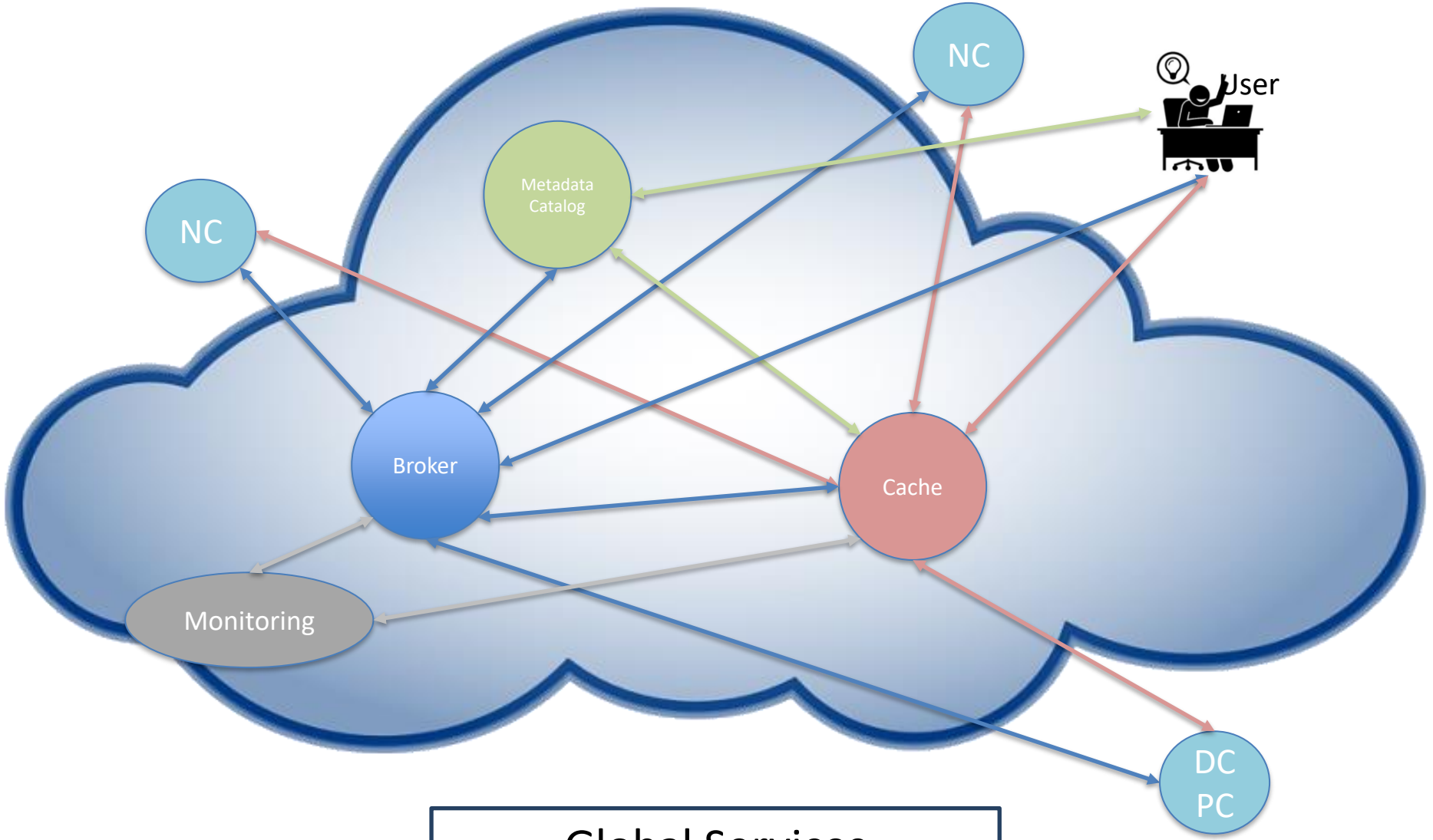
WIS2 related documents

Update to Manual on WIS, Guide to WIS, and Transition Guide

Rémy Giraud
Chair of SC-IMT

WORLD METEOROLOGICAL ORGANIZATION

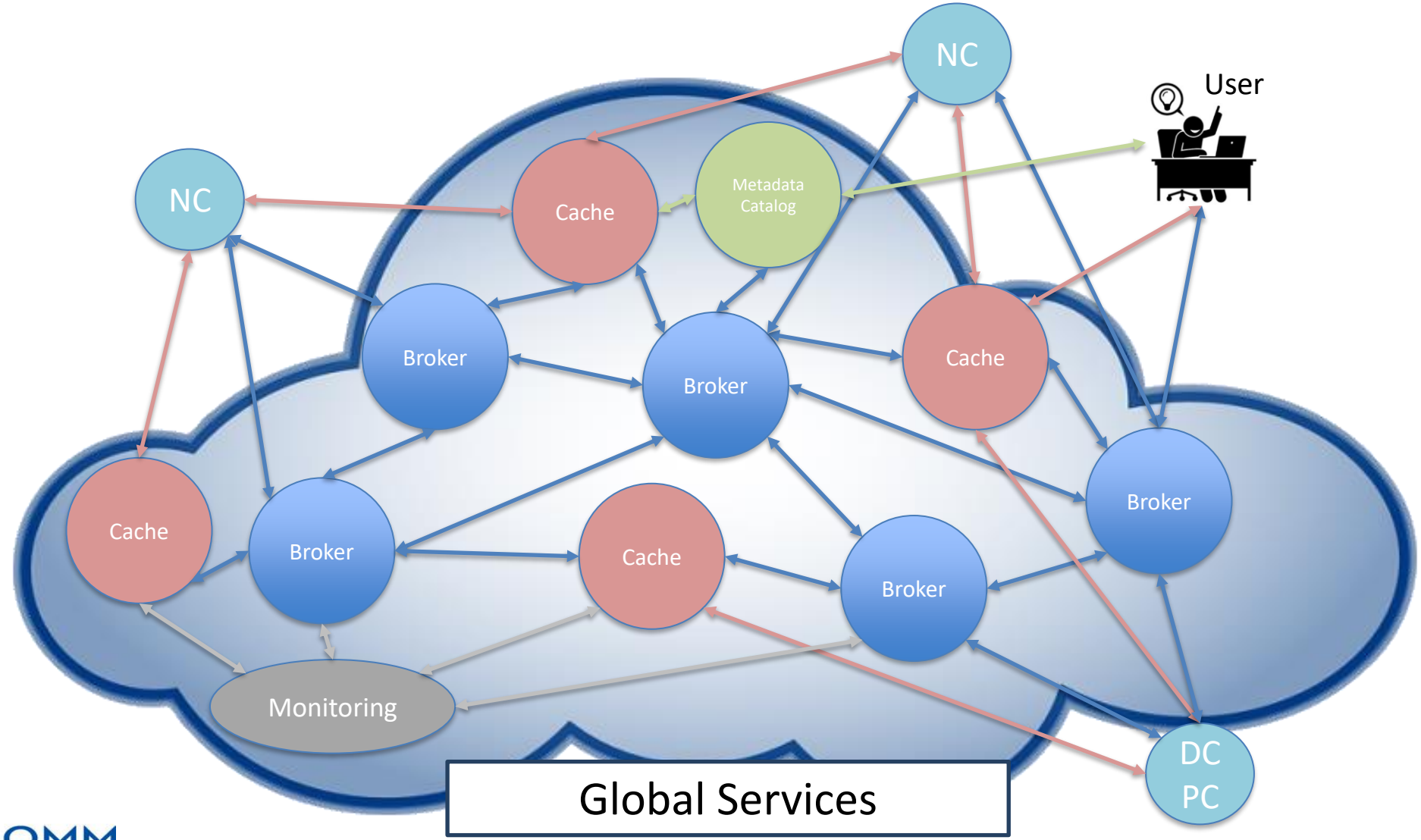
WIS2 architecture



Global Services

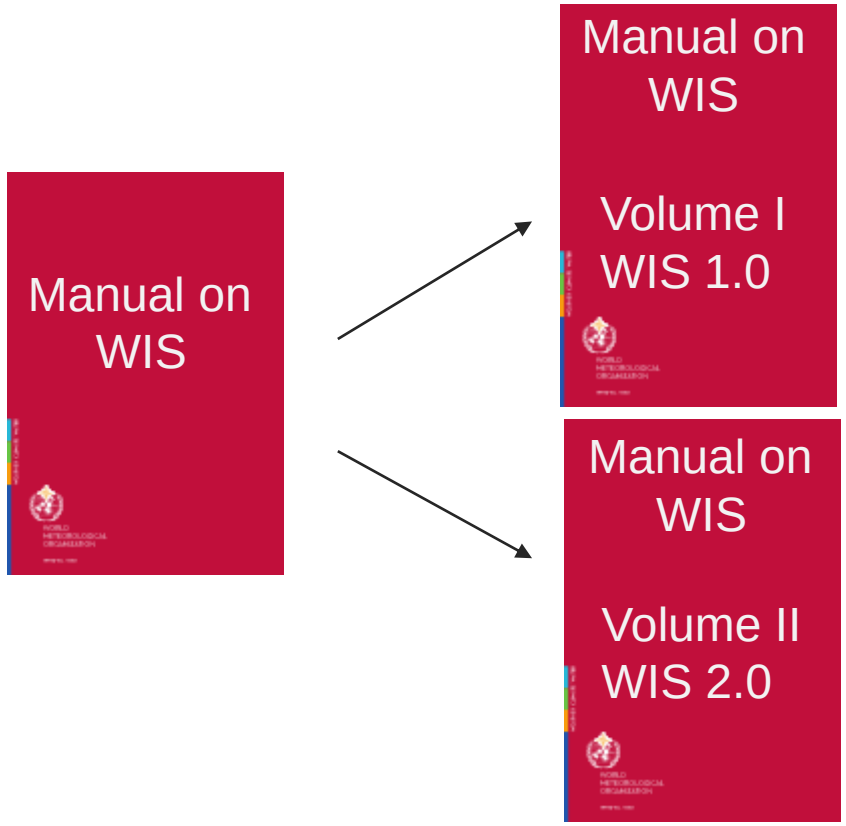
WMO OMM

WIS2 architecture with redundancy

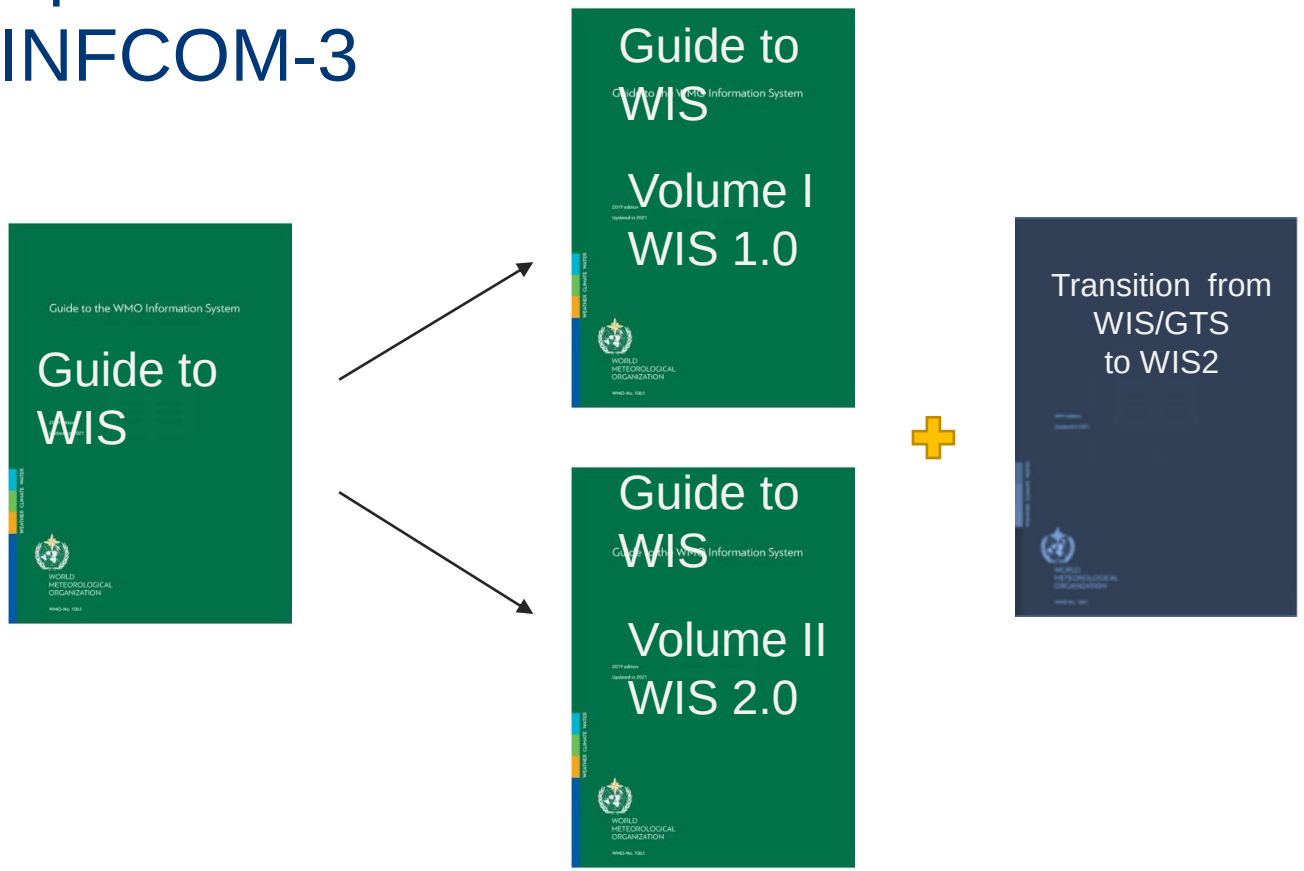


WMO OMM

June 2023 Cg-19



April 2024 INFCOM-3



[Manual on WIS Volume II WMO Information System 2.0]

8.3(1) Amendments To The Manual On The WIS

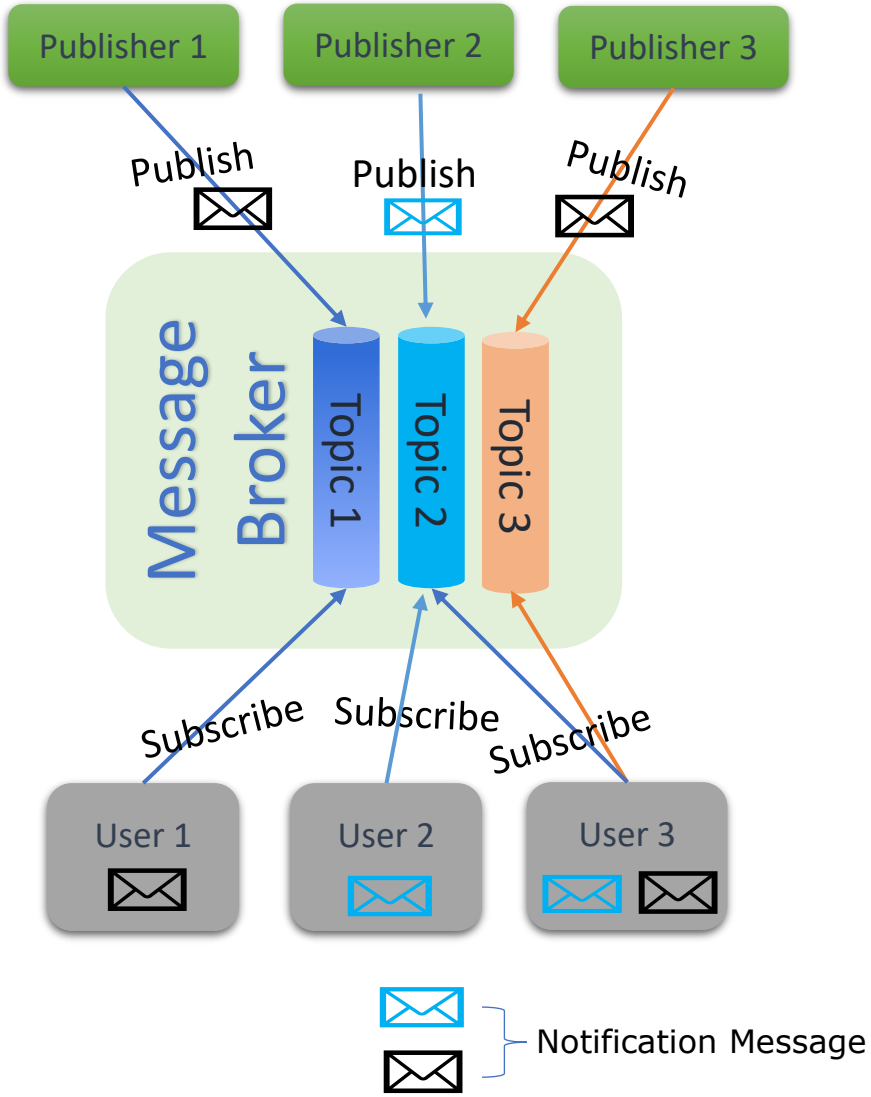
THE EXECUTIVE COUNCIL,

…

Amendments to the Manual on WIS

Addition of

- WMO Core Metadata Profile 2.0 – *New standard for WIS Metadata*
- WIS2 Topic Hierarchy – *"Backbone" of the notification architecture where the messages will be available*
- WIS2 Notification Message – *Format of the Notification Messages*



8.3(2) Transition From WIS/GTS To WIS 2.0, Including Capacity Development

THE EXECUTIVE COUNCIL,

…

Decides

(1) to approve the publication of the "Provisions for the transition from WIS 1.0 and GTS to WIS 2.0" in Annex

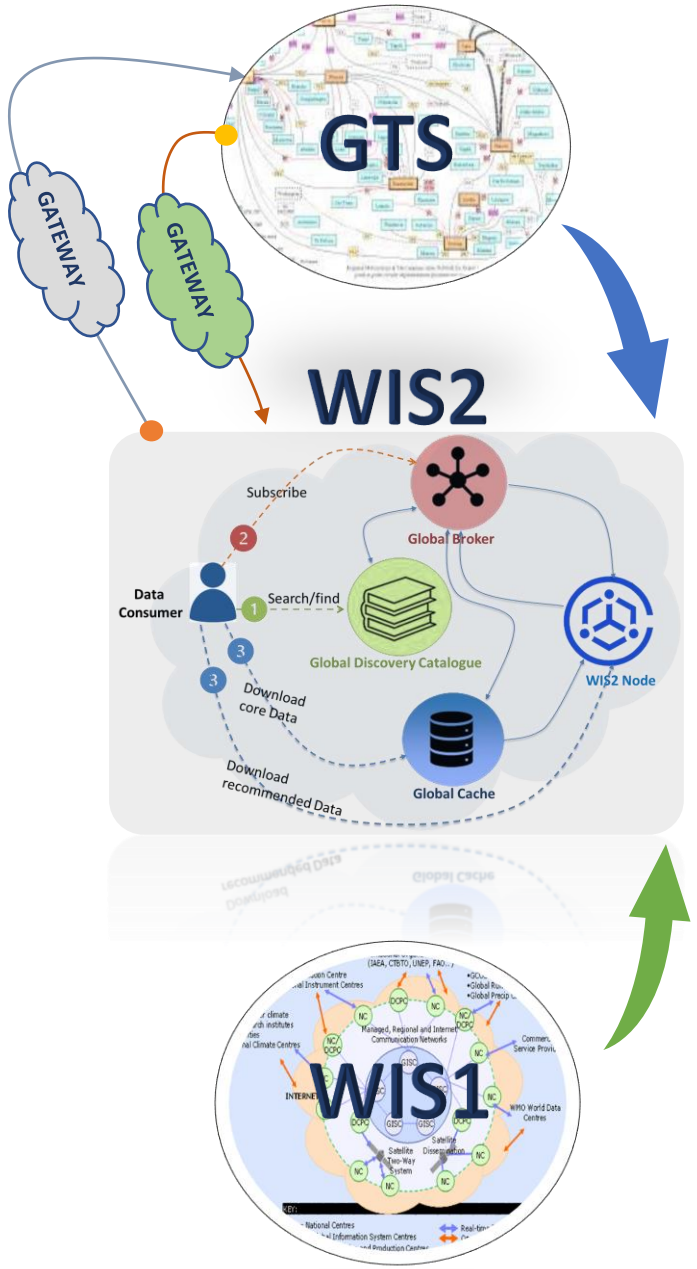
(2) that the *Manual on the GTS* (WMO-No. 386) will no longer be updated from 31 December 2024

…

Requests Secretary-General

…

(2) to liaise with the ICAO in respect of an extant requirement for Attachment II-5 *Data designators T1T2A1A2ii in abbreviated headings* of the Manual on the Global Telecommunication System (WMO-No. 386) to be maintained by WMO in an appropriate, alternative official publication in future,



Provisions for Transition from WIS/GTS to WIS 2.0

Introduction	Migration from GTS to WIS2	Temporary global services	Management of WIS1 and GTS	Management of WIS centres	References
1. Preamble 2. Introduction 3. Principles	4.1. Pre-operational and operational phases 4.1.1. Definition of pre-operational phase 4.1.2. How to transition from the pilot to pre-operational phase 4.1.3. How to make the transition from the pre-operational to operational phase	5.1. GTS to WIS2 Gateway 5.1.1. Purpose 5.1.2. GTS to WIS2 Gateway provider 5.1.3. Technical requirements 5.2. WIS2 to GTS Gateway 5.2.1. Purpose 5.2.2. WIS2 to GTS Gateway operators 5.2.3. Technical requirements 6. Stopping a Message Switching System	7.1. Maintenance and operation of Message Switching System (MSS) 7.1.1. Main Telecommunication Network 7.1.2. Regional Telecommunication Hubs 7.1.3. National Meteorological Centres 7.2. Maintenance and operation of WIS1 Catalogue and Cache by GISCs 7.3. Management of GTS Abbreviated Headings 7.3.1. GTS Headings for ICAO (AFTN)	8.1. National Centres 8.2. Data Collection and Production Centres 8.3. Global Information System Centres	9.1. Normative 9.2. Informative

8.3(3) Update of the Guide to the WIS (WMO-No. 1061)

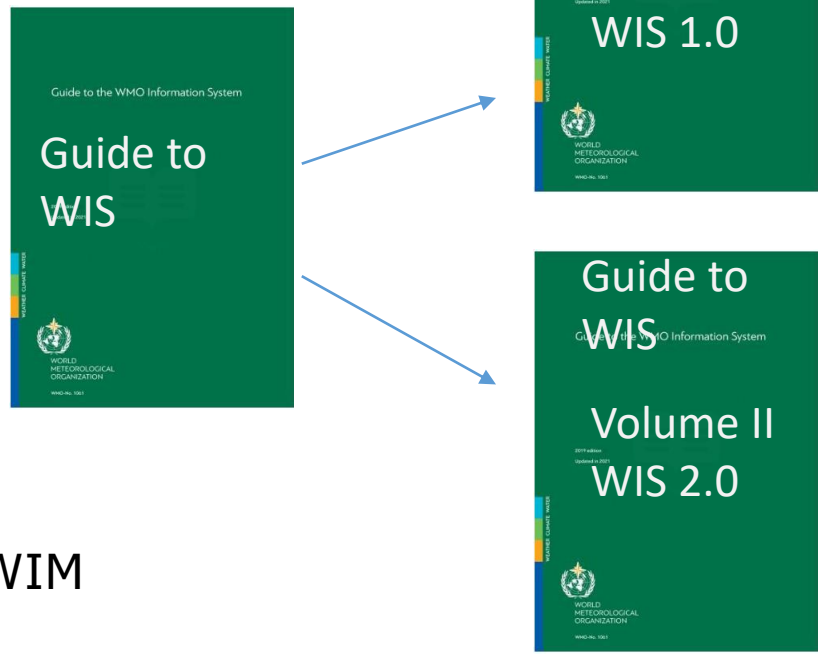
THE COMMISSION FOR OBSERVATION, INFRASTRUCTURE AND INFORMATION SYSTEMS,

…

Adopts the draft update of the Guide to the WMO Information System provided by the Standing Committee on Information Management and Technology and reported in the appendix to the present resolution;

Guide to the WIS split in two volumes

- Vol. I – WIS1
- Vol. II – WIS2



Critical aspect included in the Guide:

- Publishing aviation weather data from WIS 2.0 into ICAO SWIM

GUIDE TO WMO INFORMATION SYSTEM VOLUME II

PART I

1.1. Introduction to WIS2
1.1.1. Leveraging open standards
1.1.2. Simpler data exchange
1.1.3. Cloud-ready solutions
1.1.4. Why are datasets so important?
1.2. Data consumer
1.2.1. How to search the Global Discovery Catalogue to find Datasets
1.2.2. How to subscribe to notifications about availability of new data
1.2.3. How to use a notification message to decide whether to download data
1.2.4. How to download data
1.2.5. How to use data
1.2.6. Further reading for data consumers
1.3. Data publisher
1.3.1. How to get started
1.3.2. How to provide discovery metadata to WIS2
1.3.3. How to provide data to WIS2
1.3.4. Further reading for data publishers

PART II

2.1. WIS2 Architecture
2.2. Roles in WIS2
2.2.1. Data Publisher
2.2.2. Global Coordinator
2.2.3. Global Service operator
2.2.4. Data Consumer
2.3. Specifications of WIS2
2.4. Components of WIS2
2.4.1. WIS2 Node
2.4.2. Global Broker
2.4.3. Global Cache
2.4.4. Global Discovery Catalogue
2.4.5. Global Monitor
2.5. Protocols configuration
2.5.1. Publish-Subscribe protocol (MQTT)
2.5.2. Download protocol (HTTP)
2.6. Implementation and operation of a WIS2 Node
2.6.1. Practices and procedures
2.6.2. Performance management
2.6.3. WIS2 Node reference implementation: wis2box
2.7. Implementation and operation of a Global Service
2.7.1. Procedure for registration of a new Global Service
2.7.2. Performance management and monitoring of a Global Service
2.7.3. Global Broker
2.7.4. Global Cache
2.7.5. Global Discovery Catalogue
2.7.6. Global Monitor
2.8. Operations
2.8.1. Interoperability with external systems

PART III

3.1. Information management
3.1.1. Introduction
3.1.2. Principles of information management
3.1.3. The information management lifecycle
3.1.4. Other considerations

PART IV & PAR V

4.1. Security

5.1. Competencies

SC-IMT INFCOM-3 documents

Hassan Haddouch
WIS 2.0 Manager

WORLD METEOROLOGICAL ORGANIZATION

SC-IMT INFCOM-3 documents (1)

8.3(1) - **AMENDMENTS TO THE MANUAL ON THE WMO INFORMATION SYSTEM (WMO-NO. 1060)**

Annex: Amendments to the Manual on Codes (WMO No. 306)

8.3(2) - **TRANSITION FROM WIS 1.0 AND GTS TO WIS 2.0, INCLUDING CAPACITY DEVELOPMENT**

Annex: Provisions for the transition from WIS 1.0 and GTS to WIS 2.0

INF-8.3(2a) – WIS 2.0 Capacity Development

INF-8.3(2b) – WIS 2.0 pilot phase final report

8.3(3) - **UPDATE OF THE GUIDE TO THE WMO INFORMATION SYSTEM (WMO-NO. 1061)**

Annex: Update of the Guide to the WIS

8.3(4) – **STANDARDIZATION OF FIRST-MILE DATA COLLECTION**

INF-08.3(4) – Statement from the workshop on standardization of first-mile data collection

SC-IMT INFCOM-3 documents (2)

8.3(5) - **ESTABLISHMENT OF A STUDY GROUP ON FUTURE DATA INFRASTRUCTURE**

8.3(6) - **CLIMATE DATA MANAGEMENT INCLUDING THE UPDATE OF THE CLIMATE DATA MANAGEMENT SYSTEM SPECIFICATIONS (WMO-NO. 1131)**

INF 8.3(6) update of the Climate Data Management System Specifications (WMO No. 1131)

INF 8.3(6a) Experimental Climate Data Model

INF 8.3(6b) Climate Data Management System (CDMS) Specifications

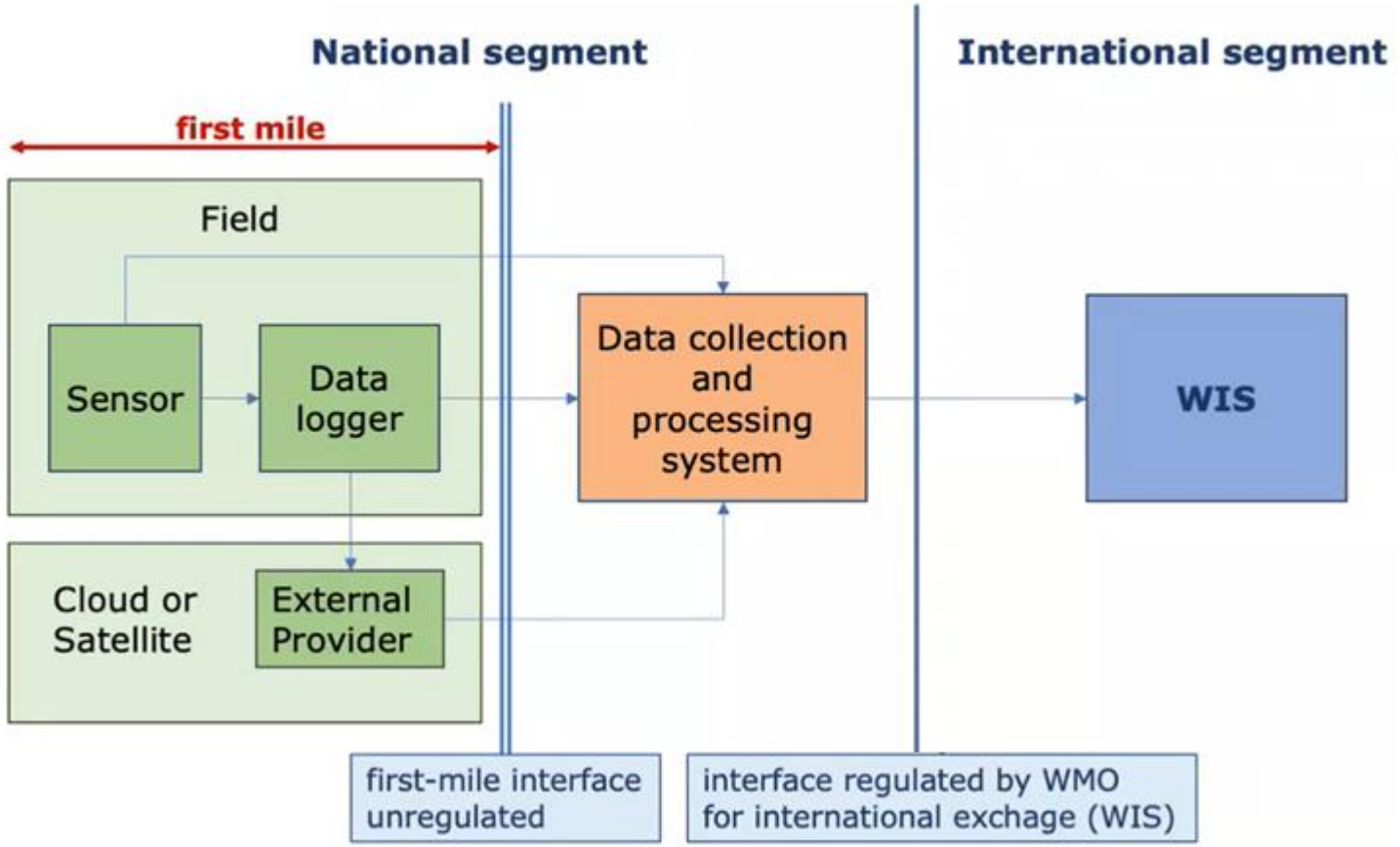
8.3(7) - **AMENDMENTS TO THE MANUAL ON CODES (WMO-NO. 306)**

8.3(4) Standardization of first mile data collection

WMO Workshop on Standardization of First-mile Data Collection from Automatic Observing Stations and Platforms

Geneva 19-20 February 2024 – hybrid

https://wmo.int/events/workshop/wmo-workshop-standardization-of-first-mile-data-collection-from-automatic-observing-stations-and



INFCOM decides:

(1) To underline the importance of addressing the issues associated to the lack of standardization of the first mile of data collection from observing platform;

(2) To request the SC-IMT to lead an activity of standardization in this domain in collaboration with SC-ON, SC-MINT and HMEI.

(3) To request SC-IMT to report on the activity to INFCOM-4.

- INF-8.3(4) - Statement from the Workshop on Standardization of first mile data collection

8.3(5) Establishment Of A Study Group On Future Data Infrastructure

Overview of proposed SG-FIT

Disruptors to data exchange patterns:

- Big(ger) Data (open data)
- Cloud Adoption
- Artificial Intelligence (data-driven models)

Study Group on Future Data Infrastructure (SG-FIT)

Purpose:

a) identify technological advances on data exchange and articulate directions and opportunities for WMO Members;

b) identify blockers within the community and enablers to mitigate them;

c) explore principles of sustainability and business models of these new environments;

d) focusing on challenges faced by Big Data Centres in sharing content with all WMO Members

Activities:

a) Review and assessment of technological advances on data exchange and requirements;

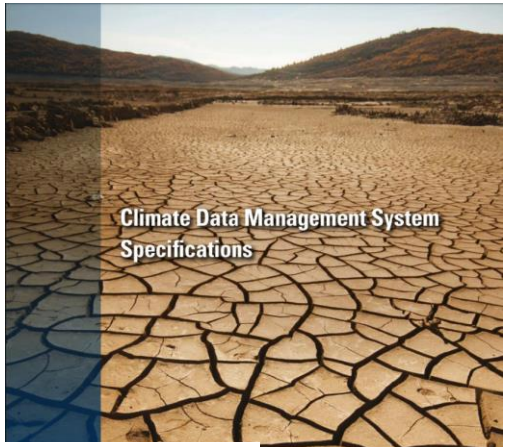
b) AI-based data compression;

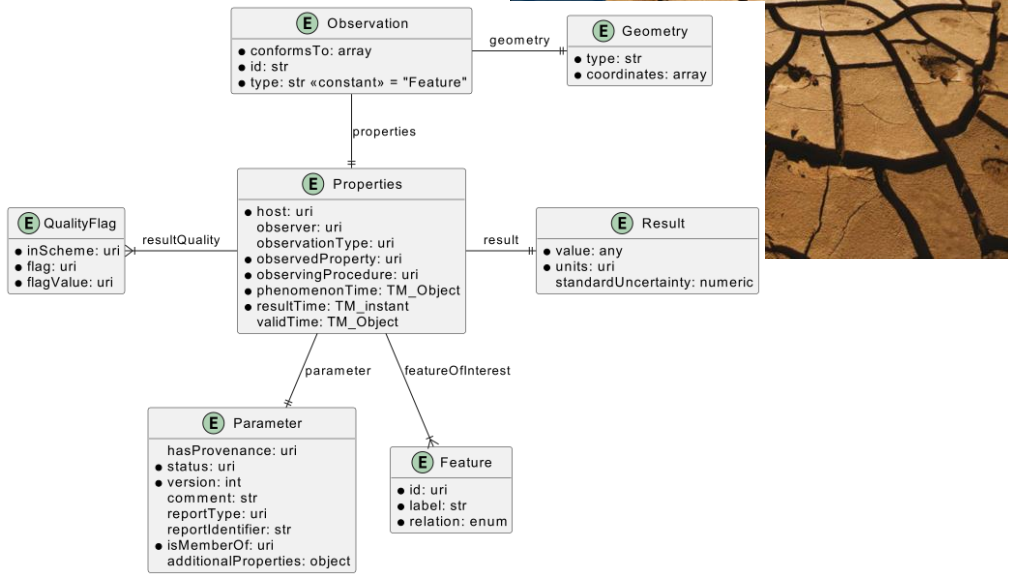
c) Business models and concepts;

d) Standards and parameters.

8.3(6) Climate Data Management including the update of the Climate Data Management System Specifications (WMO-No. 1131)

- First major update to the WMO Climate Data Management System Specifications (WMO-No. 1131)(*non regulatory material).*
  - Extensive review of changes by experts from the climate community, ET-DRC and ET-IM.
  - Updated to reflect changes in WMO Technical Regulations.
  - Alignment with best practices for information management, as described in the WIS Guide (WMO-No. 1061).
  - Updated to support climate products (e.g. CLIMAT, DAYCLI).
- Draft resolution to endorse experimental use of a new data model and representation for climate data
  - Application of the OGC Observations, Measurements, and Samples (OMS) data model to climate data, requirements from WMO-No. 1131.
  - Explicit linkages to WCMP2 and WIGOS metadata, link to provenance metadata recommended.
- Recognition of Coriolis/IFREMER, France as new Global Data Assembly Centre (GDAC) for moored buoy within the Marine Climate Data System,





8.3(7) Amendments to the Manual on Codes

THE EXECUTIVE COUNCIL,

…

Noting

(1) The migration plan from the Global Telecommunication System (GTS) to WIS 2.0 that is accelerating the implementation of BUFR,

(2) the very limited use of CREX format by Members in the operational data exchange,

(3) that the development of new CREX codes has stopped for many years for lack of requests by Members,

Having considered, the General summary of the work of the session (Cg-XIV) – stating that the use of CREX was an interim step in the migration to BUFR;

…

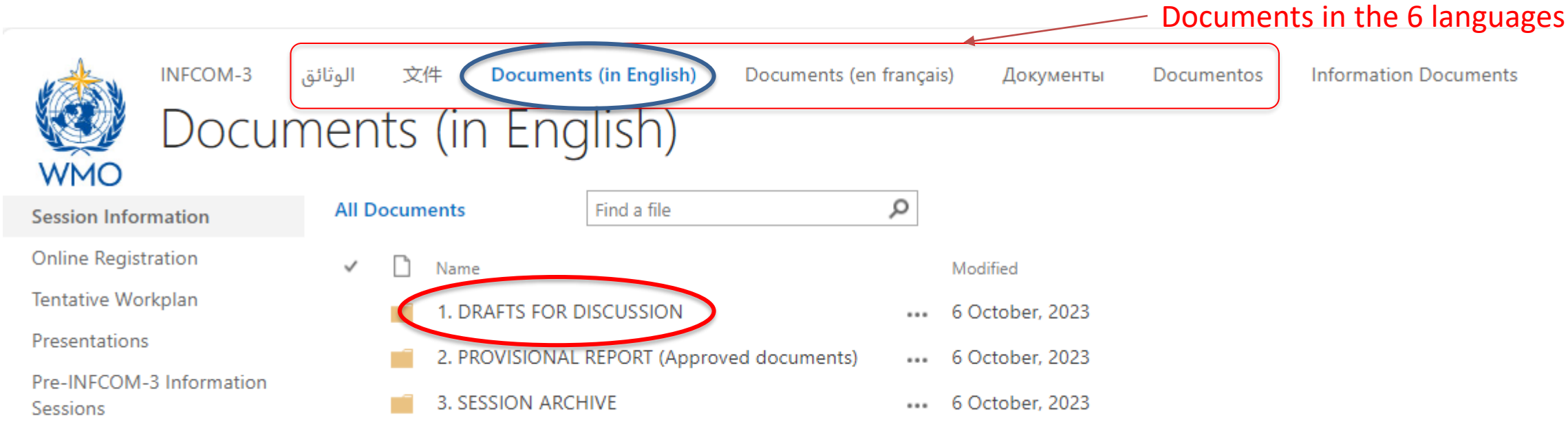
Decides

(1) to adopt the amendments to the Manual on Codes (WMO No. 306) reported in Annex to the present resolution,

(2) **that the CREX tables in the Manual on Codes (WMO No. 306) Vol. I.2 will no longer be updated**

How to access to the documents

https://meetings.wmo.int/INFCOM-3



INFCOM-3 الوثائق 文件 **Documents (in English)** Documents (en français) Документы Documentos Information Docu

Documents (in English) ▸ 1. DRAFTS FOR DISCUSSION

- Session Information
- Online Registration
- Tentative Workplan
- Presentations
- Pre-INFCOM-3 Information Sessions

All Documents

INFCOM-3-d08-3 ✕

	Name	Modified
	INFCOM-3-d08-3(1)-AMENDMENTS-WIS-MANUAL-draft1_en	6 days ago
	INFCOM-3-d08-3(2)-TRANSITION-TO-WIS2-draft1_en	26 February
	INFCOM-3-d08-3(3)-UPDATE-WIS-GUIDE-draft1_en	26 February
	INFCOM-3-d08-3(4)-STANDARDIZATION-OF-DATA-COLLECTION-draft1_en	26 February
	INFCOM-3-d08-3(5)-ESTABLISHMENT-OF-SG-FIT-draft1_en	26 February
	INFCOM-3-d08-3(7)-AMENDMENTS-MANUAL-ON-CODES-draft1_en	26 February

WMO OMM

Capacity development

Enrico Fucile
Head of Data and Information Management Division

WORLD
METEOROLOGICAL
ORGANIZATION

8.3(2) Transition From WIS/GTS To WIS 2.0, Including Capacity Development

THE EXECUTIVE COUNCIL,

…

Encourages Members to contribute to the further development of the "WIS2 in a box" project with technical contributions to the open-source software and financial contributions to the WIS trust fund.

…

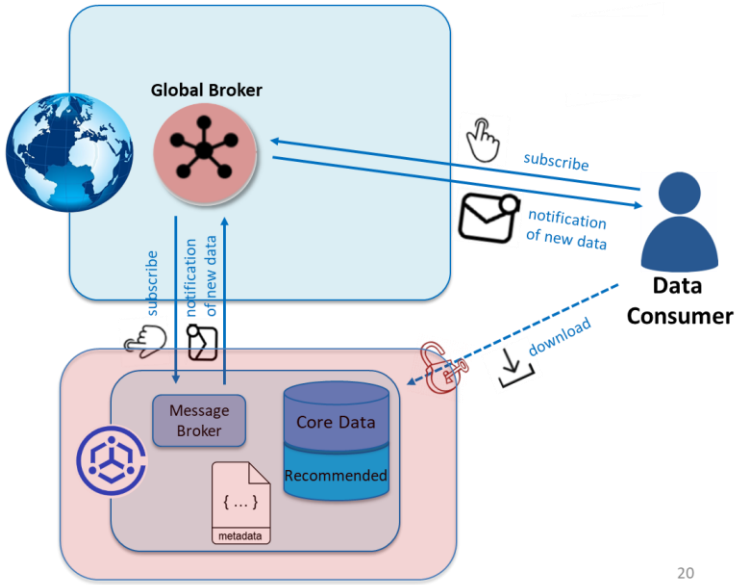
Requests Secretary-General

…

(3) to support the development of the "WIS2 in a box" software and to assist in mobilizing financial resources for the relevant expert work and for the development of WIS2 in a box,

(4) to engage with the HMEI to ensure that the private sector is prepared for supporting Members in the migration to WIS 2.0, including the WIS2 in a box software implementation and technical support

(5) to support the WIS 2.0 capacity development program at regional level considering the need for training in different languages.



- **WIS2 in a box is a reference implementation of a WIS2 Node**
  - **MQTT**
  - **HTTP**
- **Software** (not hardware)
- **Publishing facility/capability** compliant to WIS 2.0 Architecture
  - Provides basic data transformation
  - Can **integrate** with existing data management systems

WIS 2.0 Training workshops

March 2023, Windhoek, Namibia

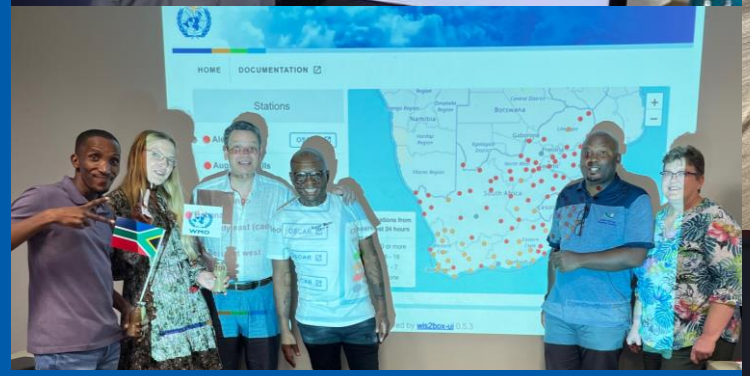
1. **Algeria**
2. **Eswatini**
3. **Kenya**
4. **Malawi**
5. **Morocco**
6. **Namibia**
7. **Republic of Congo**
8. **South Africa**
9. Tanzania
10. **Zambia**
11. **Zimbabwe**

June 2023, Port of Spain, Trinidad and Tobago

1. **Antigua and Barbuda**
2. **Barbados**
3. **Belize**
4. **Cayman Islands**
5. **Dominica**
6. **Guyana**
7. **Jamaica**
8. **Saint Lucia**
9. **Sint Maarten**
10. **Trinidad and Tobago**
11. **Turks and Caicos Islands**
12. **Cuba, Grenada**
13. **St. Kitts and Nevis**
14. **St. Vincent, and the Grenadine**

October 2023, Jakarta, Indonesia

1. **Brazil**
2. **Brunei Darussalam**
3. **China**
4. **India**
5. **Indonesia**
6. Malaysia
7. Micronesia
8. **New Zealand**
9. Oman
10. Philippines
11. **the Republic of Korea**
12. **Singapore**
13. Timor-Leste



31 out of 38 now share data on WIS2

Training plan 2024/25

1. Brazil (Spanish)
2. Morocco (French)
3. China
4. Italy
5. Fiji
6. Oman

WIS2 node implementation: status Spring-2024

Infrastructure

- On-premise 31
- Public cloud (AWS, Azure, Google,...) 17
- Private cloud (EWC/GISC-Casablanca) 6

Software

- Open source (wis2box) 45
- Commercial (IBL …) 2
- Custom 7

Operation

- NMHS 38
- Regional, sub-regional 15
- Private company (Synoptic …) 1

Support

- Level 0 = No support 13
- Level 1 = Generic answers 16
- Level 2 = Bespoke suggestions 18
- Level 3 = Technical intervention 7

From 2025 onward (start of the operational phase) :

- For installation and support on the software (whatever the solution used), and if needed, WIS Centres will rely on the Industry
- For day-to-day support, the GISCs will support the WIS Centres in their area of responsibility.

Thank you.

WORLD METEOROLOGICAL ORGANIZATION

wmo.int

Contact

Your questions will be answered either during the information session, or later in writing to the following address:

wis@wmo.int