Implementation Plan and Provisions for the transition from WIS1/GTS to WIS 2.0

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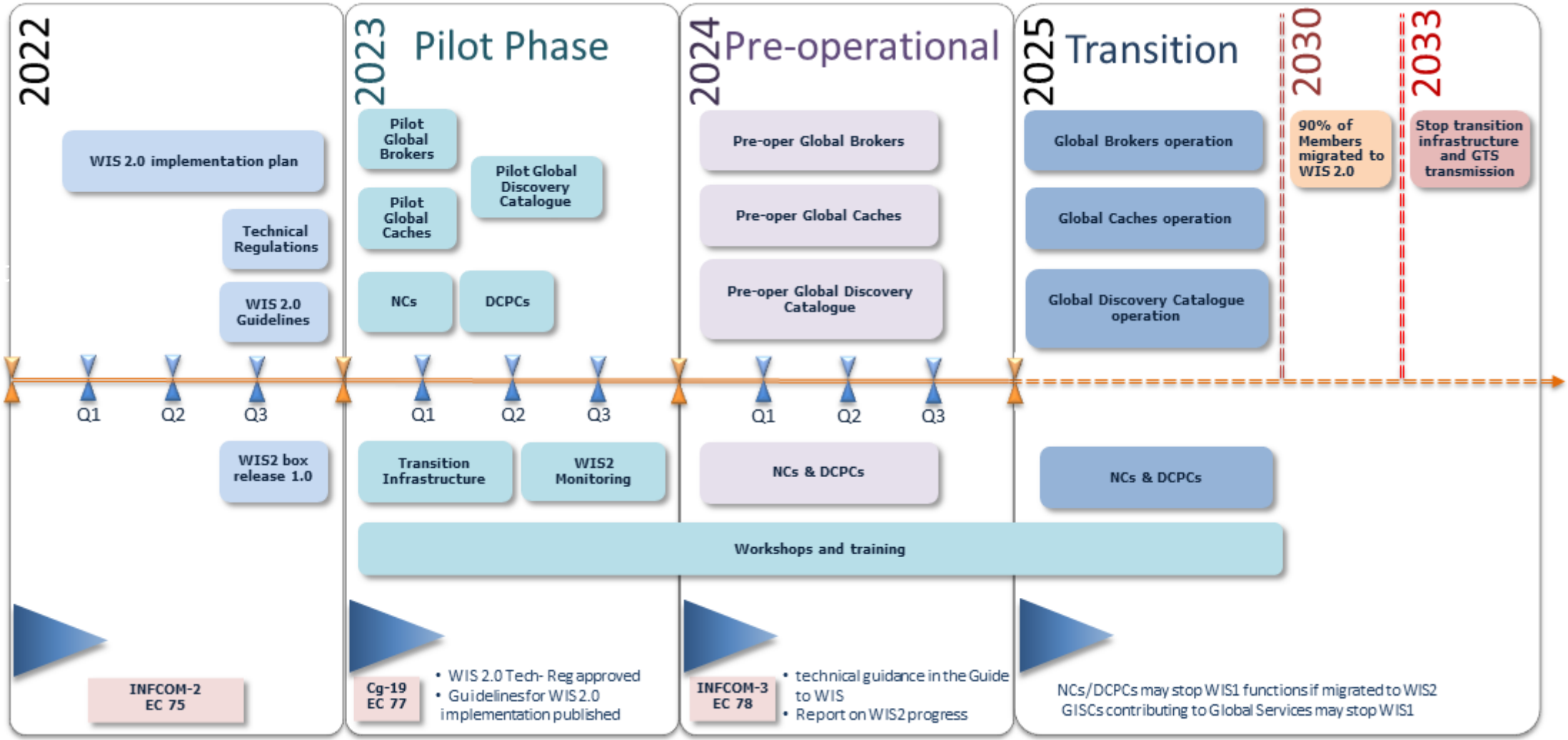
Overview

- WIS2 Implementation timeline
- Transition principles
- Data exchange between GTS and WIS2
- MSS decommissioning procedure
- Management of WIS1 and GTS

1. WIS2 Implementation Plan



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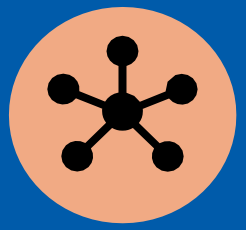
WIS2 Global Service instances

Global Broker



Brazil
France
China
USA

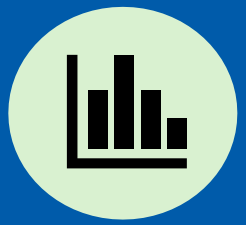
Global Discovery Catalogue

Canada
China
Germany

Global Cache

China
Germany
Japan
Republic of Korea
Saudia Arabia
USA/UK

Global Monitoring



China
Morocco

1. WIS2 implementation plan: WIS2 Node

Member	Region
Algeria	Region I
Burkina Faso	Region I
Cameroon	Region I
Chad	Region I
Congo (Brazzaville)	Region I
Eswatini	Region I
Guinea	Region I
Kenya	Region I
Libya	Region I
Malawi	Region I
Mali	Region I
Morocco	Region I
Namibia	Region I
Nigeria	Region I
Rwanda	Region I
Seychelles	Region I
South Africa	Region I
South Sudan	Region I
Togo	Region I
Zambia	Region I
Zimbabwe	Region I
Tanzania	Region I

Member	Region
China	Region II
Hong Kong, China	Region II
Hong Kong, China(swic)	Region II
India	Region II
Iran	Region II
Japan(gts-wis2 gateway)	Region II
Japan	Region II
Kyrgyzstan	Region II
South Korea	Region II
Kazakhstan	Region II
Saudi Arabia	Region II
Thailand	Region II
Israel	Region II

Member	Region
Argentina	Region III
Brazil	Region III
Chile	Region III
Peru	Region III
Guyana	Region III
Uruguay	Region III

At present there are 87 WIS2 nodes involved in exchanging WIS2 data, and 78 in them use wis2box to send messages.

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1. WIS2 implementation plan: WIS2 Node

Member	Region
Anguilla	Region IV
Antigua and Barbuda	Region IV
Bahamas	Region IV
Barbados	Region IV
Belize	Region IV
Canada	Region IV
Cayman Islands	Region IV
Cuba	Region IV
Curaçao and Sint Maarten	Region IV
Dominica	Region IV
Grenada	Region IV
Jamaica	Region IV
Monserrat	Region IV
Saint Lucia	Region IV
Sint Maarten	Region IV
St. Kitts and Nevis	Region IV
St. Vincent and the Grenadines	Region IV
Trinidad and Tobago	Region IV
Turks and Caicos Islands	Region IV
Costa Rica	Region IV

Member	Region
United States of America(us-synoptic-uas)	Region IV
United States of America(us-noaa-synoptic)	Region IV
United States of America(us-noaa-nws)	Region IV
United States of America(us-cimss)	Region IV
United States of America(us-ucsd-scripps-ldl)	Region IV

Member	Region
Indonesia	Region V
Malaysia	Region V
New Zealand	Region V
Singapore(sg-mss)	Region V
Singapore(sg-mss-asmc)	Region V
Brunei Darussalam	Region V

Member	Region
Belarus	Region VI
Bulgaria	Region VI
Cyprus	Region VI
Denmark	Region VI
France	Region VI
Germany	Region VI
Germany(gts)	Region VI
Italy	Region VI
Poland	Region VI
Russian Federation	Region VI
Sweden	Region VI
United Kingdom of Great Britain and Northern Ireland	Region VI
ECMWF	Region VI
EUMETSAT	Region VI
EUMETNET	Region VI

At present there are 87 WIS2 nodes involved in exchanging WIS2 data, and 78 in them use wis2box to send messages.

2. Transition Principles

Principle 1: Each National Meteorological and Hydrological Service (NMHS) will be able to make the migration during the agreed period 2025–2030:

- NMHSs will migrate between 2025 and 2030 at a time convenient for them. There will not be a simultaneous migration of all the WIS centres from WIS1 to WIS2.

Note: WIS centres are Global Information System Centres (GISCs), Data Collection or Production Centres (DCPCs) and National Centres (NCs).

2. Transition Principles (cont'd)

Principle 2: No GTS data loss during the transition:

- During the pre-operational phase, and in coordination with the regional associations and Global Information System Centres (GISCs), WIS2 infrastructure will be established, in order to avoid data loss during the transition. The aim of this infrastructure is to ensure that data sent on the GTS can be received by a site having migrated to WIS2, and the data, previously sent on the GTS, sent on WIS2, can be received by a site still on the GTS.

2. Transition Principles (cont'd)

Principle 3: Each WIS centre will decide when to decommission WIS1 and GTS:

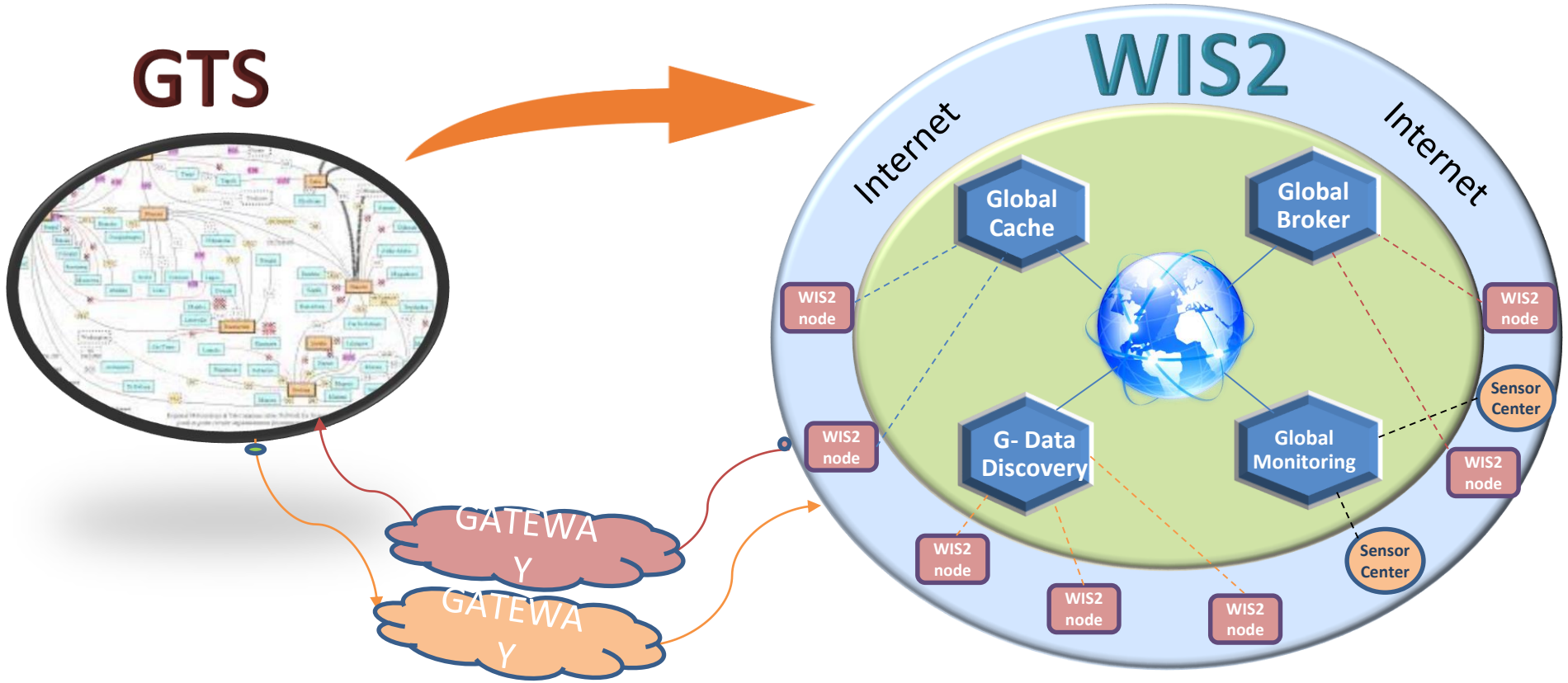
- Decommissioning WIS1 and GTS services will be the decision of each National Centre (NC), Data Collection and Production Centre (DCPC) or GISC, when they have considered that the migration is complete for them and their users;
- After migration to WIS2, there is no requirement to run a Message Switching System (MSS) to receive or send data from centres that have not made the transition. The centre will decide when and if it wishes to stop its MSS. It can also stop data dissemination to GTS.

2. Transition Principles (cont'd)

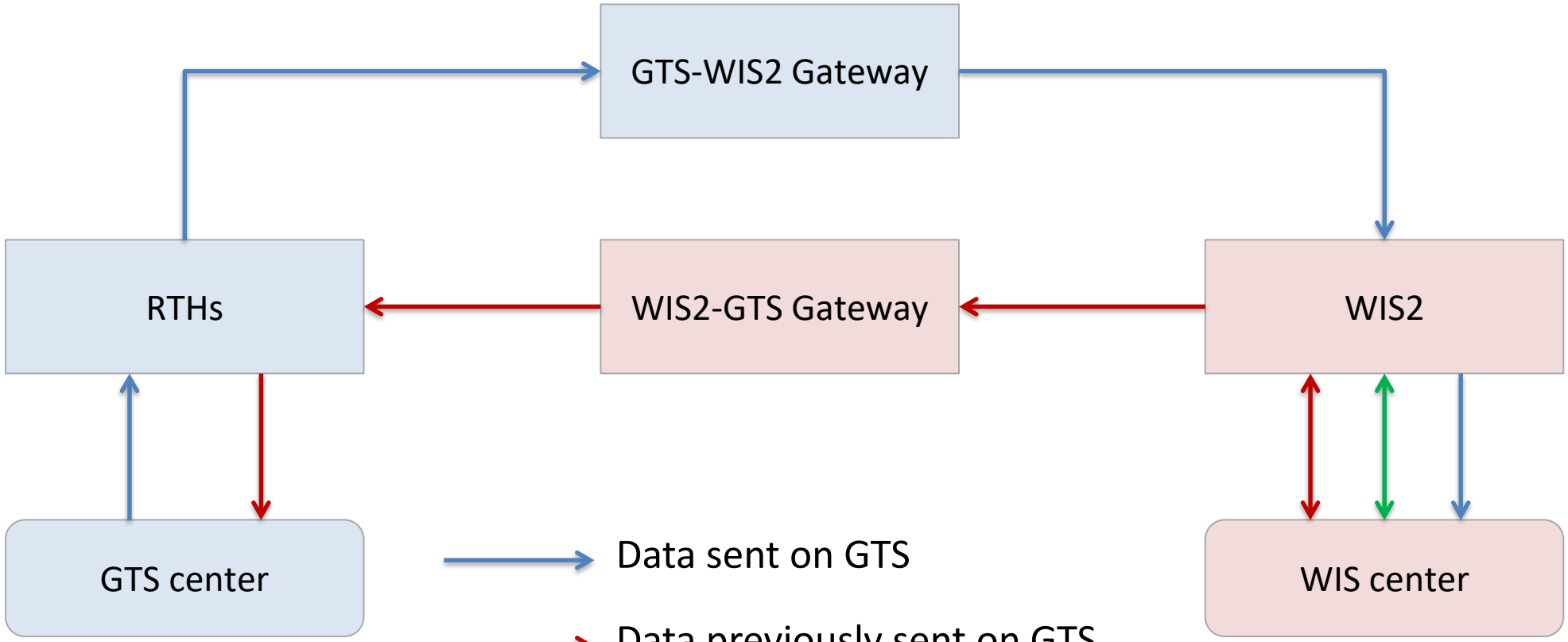
- **Principle 4:** New data (such as from the Global Basic Observing Network (GBON), or related to climate, hydrology and the cryosphere) will be exchanged solely on WIS2:

- WIS2 is designed to enable Resolution 1 (Cg-Ext(2021)) – WMO Unified Policy for the International Exchange of Earth System Data (*World Meteorological Congress: Abridged Final Report of the Extraordinary Session* (WMO-No. 1281)) and to support the WMO Global Basic Observing Network. The new data will be available on WIS2. A centre not having made the migration to WIS2 will not receive the new data. This data will not have GTS TTAAii headers and will not be exchanged over the GTS.

3. Data exchange between the two systems



3. Data exchange between the two systems (cont'd)

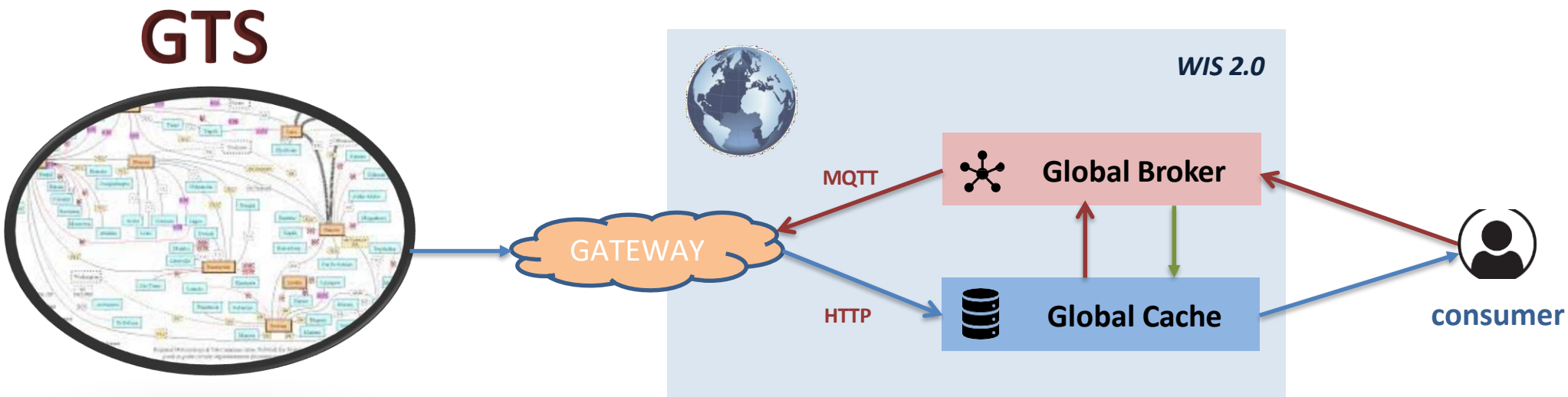


3. Data exchange between the two systems (cont'd)

3. Data exchange between the two systems
- GTS-WIS2 gateway

- **Purpose:** The purpose of the GTS to WIS2 gateway is to enable Members who have migrated to WIS2, and stopped their GTS systems, to continue receiving GTS data from WIS2. This gateway also enables users who are not connected to GTS to access GTS data from WIS2, during the transition phase. The GTS to WIS2 gateway will forward the GTS traffic it receives to WIS2. In accordance with the WIS2 specification, all data received on one GTS link will be stored on an HTTP(s) endpoint of the gateway, and will generate a WIS2 Notification Message.

3. Data exchange between the two systems
- GTS-WIS2 gateway (cont'd)



Topic Hierarchy:

origin/a/wis2/de-dwd-gts-to-wis2/data/[core|recommended]/T1/T2/ A1/A2/ii/CCCC

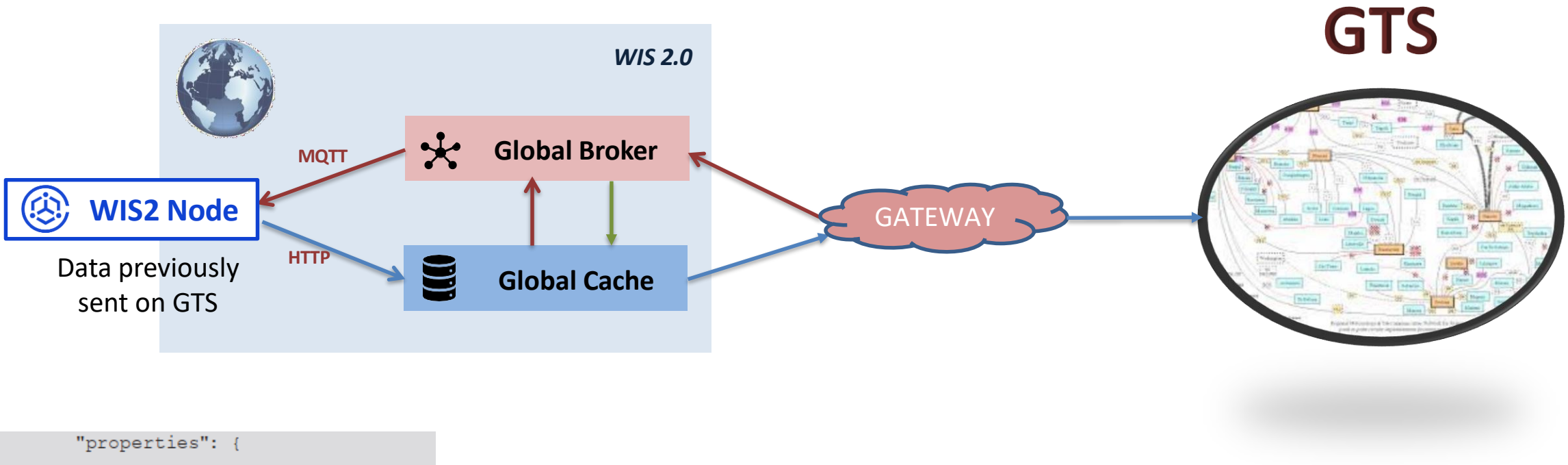
3. Data exchange between the two systems *- GTS-WIS2 gateway*

- The topic hierarchy for GTS data on WIS2 will be:
  - origin/a/wis2/{centre-id}/data/[core|recommended]/T1/T2/A1/A2/ii/CCCC
- Example for DWD:
  - origin/a/wis2/de-dwd-gts-to-wis2/data/[core|recommended]/T1/T2/A1/A2/ii/CCCC
- Example for JMA:
  - origin/a/wis2/jp-jma-gts-to-wis2/data/[core|recommended]/T1/T2/A1/A2/ii/CCCC
- The T1/T2/A1/A2/ii/CCCC above is derived from the headers of the data received on the GTS

3. Data exchange between the two systems
- WIS2-GTS gateway

- **Purpose:** When a National Meteorological Centre (NMC), running a Message Switching System and exchanging data on the GTS, has implemented WIS2, it may wish to stop sending its data directly on the GTS so that it can stop the MSS. For a Member that wishes to stop MSS, the WIS2 to GTS gateway will ensure that only data currently available on the GTS will be re-published on the GTS, so that no data is lost during the transition. To ensure resilient operation, there will be more than one WIS2 to GTS gateway.

3. Data exchange between the two systems
- *WIS2-GTS gateway (cont'd)*

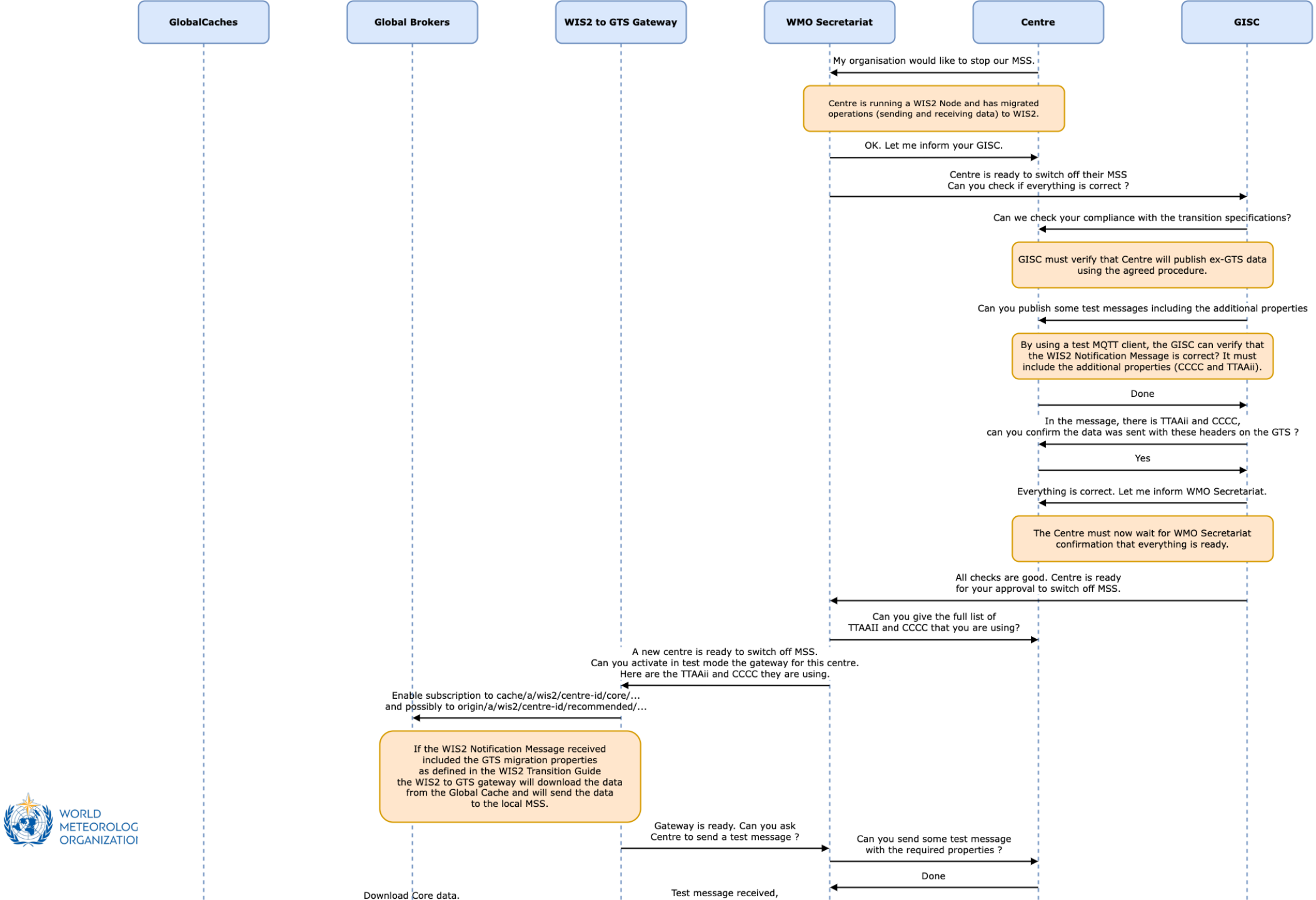



```
"properties": {
…
"gts": {
"ttaaii": "FTAE31",
"cccc": "VTBB"
}
}
```

- The gts property enables the WIS2 to GTS gateway operator to easily identify data for republication on the GTS, and the AHL of the associated data.

4. MSS decommissioning procedure

- **Initiation and Notification**: The Centre notifies the WMO Secretariat of its intention to stop MSS. The Centre, running a WIS2 node and having completed configuration, informs GISC about its readiness.
- **Compliance Check by GISC**: GISC checks if the Centre can publish via - GTS data using the specified procedure and verifies if test messages include required additional properties (TTAI and CCCC) with a test client.
- **WMO Secretariat Notification and Go - Ahead**: After GISC confirms everything is correct, the Centre notifies the WMO Secretariat. The WMO Secretariat gives the go - ahead after all checks.
- **Gateway and Message Testing**: The Centre provides TTAAII and CCCC to the WIS2 to GTS Gateway. The Gateway checks message sending, and the Centre sends test messages. The WIS2 to GTS Gateway notifies the Centre about gateway enablement for publishing on the GTS.
- **Gateway Configuration and Data Sending Adjustment**: Properties are added to messages for GTS data. Sending data on the GTS stops at a specified time, and the gateway for the Centre is enabled at same time for data sending via the WIS2 to GTS Gateway.
- **Gateway Enablement and Verification**: The gateway function for data from the Centre is enabled. After stopping sending data on the GTS, it's verified by the GISC that data is still received on the GTS. The migration is complete, and the center can switch off MSS.



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5. Management of WIS1 and GTS
- Maintenance and operation of MSS

- **Main Telecommunication Network**
  - During the migration to WIS2, the Main Telecommunication Network (MTN), along with the WMCs and designated RTHs, shall keep their MSS operational. They shall continue to publish data, collect the bulletins from their associated NMCs and transmit them in the appropriate form on the MTN, either directly or through the appropriate WMC, until the transition from GTS to WIS2 is completed.

5. Management of WIS1 and GTS
- Maintenance and operation of MSS (cont'd)

- ***Regional Telecommunication Hubs***
  - Regional Telecommunication Hubs (RTHs) shall keep their MSS operational and continue to publish data collecting the bulletins from their associated NMCs and transmitting them in the appropriate form on the MTN, either directly or through the appropriate WMC/RTH in GTS until all Members in their area of responsibility migrate from GTS to WIS2.
  - When RTHs have migrated to WIS2 and all Members in their area of responsibility have migrated to WIS2, RTHs may decide to turn off their MSS. In this case, they should contact the WMO Secretariat to switch off their MSS in a coordinated manner.

5. Management of WIS1 and GTS
- Maintenance and operation of MSS (cont'd)

- ***National Meteorological Centres***
  - National Meteorological Centres (NMCs) shall operate a WIS2 Node to share their data and discovery metadata in WIS2.
  - NMCs that have implemented a WIS2 Node and published all the data transmitted on the GTS on WIS2 may, if they wish, turn off their MSS, and stop transmitting data on the GTS. When NMCs decide to decommission and turn off their GTS MSS and stop transmitting their data on GTS, they shall include the GTS properties in the WIS2 Notification Message as described in the WIS2 to GTS gateway technical requirements (section 3.2.3).

5. Management of WIS1 and GTS

- Maintenance and operation of WIS1 Catalogue and Cache by GISCs

- Each Global Information System Centres (GISC) shall maintain their WIS1 Catalogue and Cache as long as WIS users are using their services for operations. GISCs are invited to help users migrate to WIS2. When a GISC has successfully migrated its users to WIS2, the GISC may stop its WIS1 Cache and Catalogue service and shall inform the WMO Secretariat.
- GISC Seoul and GISC Offenbach will continue to provide WIS1 discovery metadata and the WIS1 Catalogue until the transition from GTS and WIS1 to WIS2 is completed or deemed unnecessary when all WIS1 users have migrated to WIS2.
- Neither new discovery metadata nor changes to existing metadata will be allowed in the WIS1 Catalogue from 2025 onwards. For WIS2, new metadata will only be added as WMO Core Metadata Profile version 2 (WCMP2) to the Global Discovery Catalogue.

5. Management of GTS abbreviated headings

- The GTS abbreviated headings are described in the *Manual on the Global Telecommunication System* (WMO-No. 386) (*Manual on GTS*). The data designators T1T2A1A2ii are defined in Attachment II.5 of the *Manual on GTS*. The GTS abbreviated headings are not required in WIS2, and their use is limited to the exchange of data on the GTS. Once WIS2 becomes operational, any further evolution of the GTS, including the transmission of new data, will not be permitted. Therefore, the *Manual on GTS* will no longer be updated from 31 December 2024. The publication *Weather Reporting* (WMO-No. 9), Volume C1, contains the list of meteorological bulletins exchanged on the GTS. Members are required to update Volume C1 every time a change in the bulletins takes place, however only a few Members are doing so with regularity. The list is therefore incomplete and is not consistent with the bulletins effectively exchanged on GTS. With the start of the WIS2 operational phase, there will not be any change in the list of meteorological bulletins transmitted on GTS, therefore Volume C1 will not be updated any longer from 31 December 2024.

6. Management of WIS Centers

- National Centres (NCs) can start migrating to WIS2 from January 2025 when WIS2 will be operational. It is recommended to start planning and preparation in advance and in a way that the migration will be completed preferably by 2030 and not later than 2033. The migration to WIS2 by a National Centre can be considered complete when at least one WIS2 Node for the NC is operational and all the datasets transmitted on GTS are also shared on WIS2 in compliance with the technical requirements described in the *Manual on WIS*, Volume II and the *Guide to WIS*, Volume II. A National Centre that has fully migrated to WIS2 shall communicate to the WMO Secretariat that its migration is complete and shall keep the WIS1 and GTS operational in parallel with the WIS2 systems until reception of a communication from the WMO Secretariat allowing the switch from the WIS1 and GTS systems.

6. Management of WIS Centers (cont'd)

- Data Collection and Production Centres (DCPCs) can start migrating to WIS2 from January 2025 when WIS2 will be operational. It is recommended to start planning and preparation in advance and in a way that the migration will be completed preferably by 2030 and not later than 2033. The migration to WIS2 by a DCPC can be considered complete when at least one WIS2 Node for the DCPC is operational and all the datasets transmitted on GTS are also shared on WIS2 in compliance with the technical requirements described in the *Manual on WIS*, Volume II and the *Guide to WIS*, Volume II. A DCPC that has fully migrated to WIS2 shall communicate to the WMO Secretariat that its migration is complete and shall keep the WIS1 and GTS operational in parallel with the WIS2 systems until reception of a communication from the WMO Secretariat allowing the switch from the WIS1 and GTS systems.

6. Management of WIS Centers (cont'd)

- A GISC shall support Members in its area of responsibility in the migration and operation of WIS2.

Thank you

Merci

Gracias

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