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| WEATHER CLIMATE WATER | **World Meteorological Organization**  **WORLD METEOROLOGICAL CONGRESS**  **Nineteenth Session** 22 May to 2 June 2023, Geneva | **Cg-19/Doc. 4.2(2)** |
| Submitted by: President of INFCOM  23.V.2023  **DRAFT 3** |

**AGENDA ITEM 4: TECHNICAL STRATEGIES SUPPORTING LONG-TERM GOALS**

**AGENDA ITEM 4.2: Earth system observations and predictions**

# The Initial Global Basic Observing Network (GBON) Composition

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| **Summary** |
| **Document presented by:** the president of the Infrastructure Commission (INFCOM) in response to [Resolution 2 (Cg-Ext(2021))](https://library.wmo.int/doc_num.php?explnum_id=11113/#page=29) – Amendments to the Technical Regulations related to the establishment of the GBON, which requested the Infrastructure Commission, inter alia*,* to develop the technical guidelines, processes and procedures needed to ensure the expedient and efficient implementation of GBON, and to prepare for the effective performance and compliance monitoring of GBON.  **Strategic objective 2020–2023:** 2.1 and its strategic output 2.1.1 on WIGOS Operational Plan 2020–2023 implemented with (i) enhanced WIGOS delivering observations to support all WMO Priorities, Programmes and application areas; (ii) increased visibility and strengthened role of National Meteorological and Hydrological Services (NMHSs) at their national level; and (iii) increased integration and open sharing of observations from WMO and non-WMO sources across national and regional boundaries.  **Financial and administrative implications:** Within the parameters of the Strategic and Operational Plans 2020–2023, will be reflected in the Strategic and Operational Plans 2024–2027.  **Key implementers:** INFCOM.  **Time frame:** 2023–2027  **Action expected:** Review and adopt the proposed draft resolution. |

# GENERAL CONSIDERATIONS

1. Through [Resolution 2 (Cg-Ext(2021))](https://library.wmo.int/doc_num.php?explnum_id=11113/#page=29) – Amendments to the Technical Regulations related to the establishment of the Global Basic Observing Network (GBON), Congress decided on Technical Regulations for GBON to come into force on 1 January 2023, and requested the Infrastructure Commission, inter alia*,* to develop the technical guidelines, processes and procedures needed to ensure the expedient and efficient implementation of GBON, and to prepare for the effective performance and compliance monitoring of GBON.
2. Shortly after Congress, the INFCOM president decided to establish a Task Team on GBON implementation (TT-GBON) to coordinate and oversee the work needed to meet Congress’s request. The role of TT-GBON was essentially to oversee and coordinate a number of tasks grouped under the broad headlines listed below:

(a) Initial composition of GBON and GBON gap analysis;

(b) Members’ GBON compliance;

(c) Updated global GBON gap analysis;

(d) OSCAR/Surface and management of the WMO Integrated Global Observing System (WIGOS) metadata for GBON;

(e) WIGOS Data Quality Monitoring System (WDQMS);

(f) Tender specifications in support of the Systematic Observations Financing Facility (SOFF);

(g) Update to WIGOS Guide;

(h) Reporting practices for GBON hourly observations;

(i) Guidance for the SOFF peer advisors;

(j) GBON/SOFF prioritization (this is effectively outside the scope of TT-GBON and managed by the SOFF Secretariat);

(k) WIS 2.0 Technical Regulations.

1. Accordingly, an operating plan for TT-GBON was agreed upon and executed, resulting, inter alia, in INFCOM-2 adopting [Recommendation 7 (INFCOM-2)](https://meetings.wmo.int/INFCOM-2/_layouts/15/WopiFrame.aspx?sourcedoc=/INFCOM-2/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/INFCOM-2-d06-1(9)-GBON-INITIAL-COMPOSITION-approved_en.docx&action=default) on the initial composition of GBON. This also followed the draft circular letter to Members 18876/2022/I/WIGOS/ONM/GBON dated 15 August 2022 whereby Members were provided with guidance material prepared by TT-GBON and requested to undertake actions for their nomination of GBON stations no later than 15 November 2022 (this deadline was later extended to 31 January 2023). A series of Webinars were organized in October 2022 and January 2023 in WMO official languages and different time zones with WIGOS and OSCAR/Surface National Focal Points to assist Members with the tasks listed in the circular letter, provide additional guidance and receive their feedback.
2. According to the process proposed by TT-GBON and [Recommendation 7 (INFCOM-2)](https://meetings.wmo.int/INFCOM-2/_layouts/15/WopiFrame.aspx?sourcedoc=/INFCOM-2/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/INFCOM-2-d06-1(9)-GBON-INITIAL-COMPOSITION-approved_en.docx&action=default), the list of GBON stations proposed to compose the initial GBON, as of 30 April 2023, is recommended by the INFCOM president based on Members’ proposals. The list has been published through the [dedicated web tool](https://community.wmo.int/global-basic-observing-network-gbon-station-designations-map) for its review by Members and is submitted here to Congress for its review and adoption. The list is also provided in [Cg-19-INF 4.2(2)](https://meetings.wmo.int/Cg-19/InformationDocuments/Forms/AllItems.aspx).

# DRAFT RESOLUTION

## Draft Resolution 4.2(2)/1 (Cg-19)

## Initial GBON Composition

THE WORLD METEOROLOGICAL CONGRESS,

**Recalling:**

(1) [Resolution 9 (EC-73)](https://library.wmo.int/doc_num.php?explnum_id=11008/#page=34) – Plan for the WMO Integrated Global Observing System Initial Operational Phase (2020–2023),

(2) [Resolution 2 (Cg-Ext(2021)](https://library.wmo.int/doc_num.php?explnum_id=11113/#page=29)) – Amendments to the Technical Regulations related to the establishment of the Global Basic Observing Network,

**Recognizing** that the essential operational observing systems of a National Meteorological and Hydrological service can be adversely affected during times of crisis, affecting their ability to meet GBON requirements; *[president of INFCOM]*

**Reaffirming** that Members can request emergency support from WMO to facilitate the return of observing networks to operation in a timely and effective manner for continuity of global observational data; *[president of INFCOM]*

**Recognizing further** that numerical weather prediction models are increasingly relying on the assimilation of high resolution data while the number of surface land stations and upper air stations designated for GBON does not currently allow the GBON high density requirements per provisions 3.2.2.8 and 3.2.2.13 of [WMO-No. 1160](https://library.wmo.int/doc_num.php?explnum_id=11157) to be reached, i.e. 100 km for surface land stations and 200 km for upper air stations respectively, [*president of INFCOM*]

**Noting** [Resolution 18 (EC-76)](https://meetings.wmo.int/EC-76/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/EC-76-d03-2(1)-AMENDMENT-MANUAL-WIGOS-1160-approved_en.docx?Web=1) – Amendments to the *Manual on the WMO Integrated Global Observing System* (WMO-No. 1160), namely Appendix 3.1 of its Annex,

**Having considered:**

(1) [Recommendation 7 (INFCOM-2)](https://meetings.wmo.int/INFCOM-2/_layouts/15/WopiFrame.aspx?sourcedoc=/INFCOM-2/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/INFCOM-2-d06-1(9)-GBON-INITIAL-COMPOSITION-approved_en.docx&action=default) - Initial GBON Composition, and the recommendation of the president of the Commission for Observation, Infrastructure and Information Systems (INFCOM), based on proposals from Members, regarding the list of GBON stations to compose the initial GBON,

(2) The [*Manual on the WMO Integrated Global Observing System*](https://meetings.wmo.int/EC-76/_layouts/15/WopiFrame.aspx?sourcedoc=/EC-76/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/EC-76-d03-2(1)-AMENDMENT-MANUAL-WIGOS-1160-ANNEX-approved_en.docx&action=default) (WMO-No. 1160), Appendix 3.1, reproduced in [Annex 1](#_Annex_1_to) to this Resolution for easy reference,

**Adopts** the initial GBON composition referred to in the [WMO web tool](https://community.wmo.int/global-basic-observing-network-gbon-station-designations-map) as of 30 April 2023 [the list is also provided in [Cg-19/INF. 4.2(2)](https://meetings.wmo.int/Cg-19/InformationDocuments/Forms/AllItems.aspx) for convenience] with the changes provided in [Annex 2](#_Annex_2_to) to this Resolution;

**Authorizes** the Commission for Observation, Infrastructure and Information Systems (INFCOM) to make subsequent decisions on the maintenance of the GBON composition in accordance with the *Manual on the WMO Integrated Global Observing System* (WMO-No. 1160), [section 3.2.2](https://meetings.wmo.int/EC-76/_layouts/15/WopiFrame.aspx?sourcedoc=/EC-76/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/EC-76-d03-2(1)-AMENDMENT-MANUAL-WIGOS-1160-ANNEX-approved_en.docx&action=default#page=64) and [Appendix 3.1](https://meetings.wmo.int/EC-76/_layouts/15/WopiFrame.aspx?sourcedoc=/EC-76/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/EC-76-d03-2(1)-AMENDMENT-MANUAL-WIGOS-1160-ANNEX-approved_en.docx&action=default#page=75);

**Authorizes** the president of INFCOM to make any subsequent minor changes to the list of GBON stations, in consultation with the Members concerned;

**Requests** the Secretary-General:

(1) To publish the initial GBON composition in OSCAR/Surface;

(2) To bring the present resolution to the attention of all concerned;

**Requests** INFCOM:

1. To identify gaps between the GBON requirements and its initial composition and closely monitor compliance of GBON to regularly report progress in the GBON implementation to seek guidance by the Executive Council as appropriate, to plan for its further evolution and maintenance;
2. To develop guidance material during the INFCOM intersessional period on how to implement the GBON high density requirements for surface land stations (100 km) and upper air stations (200 km) where capability exists respectively; [president of INFCOM]

**Requests** the Executive Council to provide guidance to INFCOM on how to fill the identified gaps, in cooperation with relevant stakeholders inclusive of development partners;

**Urges** Members**:**

(1) To collaborate with INFCOM and contribute to the GBON composition, with the support of the Secretary-General where needed through various initiatives and projects including SOFF; [Ethiopia]

(2) To continue to keep the GBON composition under review, update the GBON composition as needed, and pay particular attention to compliance with the GBON high density requirements for surface land stations (100 km) and upper air stations (200 km) where capability exists, and make sure that there will be no degradation of the existing international reporting and exchange of such station data according to the GBON January 2022 baseline [president of INFCOM].

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[Annex 1](#_Annex_to_draft_3): Appendix 3.1 Designation and approval [*president of INFCOM*] process of GBON stations

[Annex 2](#_Annex_2_to): Congress changes to the list of designated GBON stations as recommended by the president of INFCOM and published in the GBON webtool as of 30 April 2023.

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## Annex 1 to draft Resolution 4.2(2)/1 (Cg-19)

## Appendix 3.1 Designation and approval [*president of INFCOM*] process of GBON stations

(Identical to the Annex to [Resolution 18 (EC-76)](https://meetings.wmo.int/EC-76/_layouts/15/WopiFrame.aspx?sourcedoc=/EC-76/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/EC-76-d03-2(1)-AMENDMENT-MANUAL-WIGOS-1160-approved_en.docx&action=default) – AMENDMENTS TO THE *MANUAL ON THE WMO INTEGRATED GLOBAL OBSERVING SYSTEM* (WMO-No. 1160), Appendix 3.1)

### Designation and approval [*president of INFCOM*] process of GBON stations as specified in this Appendix shall be followed by all stakeholders.

### Note: In accordance with Resolution 4.2(2)/1 (Cg-19) Initial composition of GBON, maintenance of the composition of GBON is delegated by Congress to INFCOM.

1. The list of GBON stations/platforms is drawn from the list of all available stations/ platforms in WIGOS as registered in OSCAR/Surface by the Members, and monitored by the WDQMS for data quality.

2. The identification of the subset to be proposed by Members for GBON designation is based on provisions 3.2.2.7–3.2.2.10 and 3.2.2.12–3.2.2.15.

3. The list of GBON stations/platforms is elaborated in collaboration between the Members and INFCOM.

4. The Commission for Observation, Infrastructure and Information Systems (INFCOM) undertakes a regular analysis of the status of the GBON implementation that provides, for each Member, the number of surface stations and the number of upper air stations that are required for the Member to meet their obligations under 3.2.2.7–3.2.2.10 and 3.2.2.12–3.2.2.15.

5. For each Member, INFCOM reviews their designated contribution as per 3.2.2.21 and assesses whether it meets the requirements specified in 3.2.2.7–3.2.2.10 and 3.2.2.12–3.2.2.15, and informs the Member in writing of its findings.

6. For the maintenance of GBON, the proposed designation or removal of GBON stations/platforms [*Secretariat*] by Members is made and recorded in OSCAR/Surface by their National Focal Points for OSCAR/Surface. All designated GBON stations/platforms [*Secretariat*] will then automatically appear on the dedicated GBON web tool. The stations/platforms [Secretariat] designated by Members in OSCAR/Surface are recorded with “Pending Approval” status with regard to their GBON affiliation.

### Note: When removing GBON stations from their networks, Members must ensure that the integrity and quality of the GBON network are maintained.

7. The President of INFCOM, assisted by the Secretariat, reviews the proposed designations and prepares the draft Resolution to INFCOM on the updated GBON composition and makes it available to all Members three months before the INFCOM Session.

8. Based on the feedback provided by Members, a final version of the draft Resolution on the GBON composition is submitted to INFCOM for approval.

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## Annex 2 to draft Resolution 4.2(2)/1 (Cg-19)

## Congress changes to the list of designated GBON stations as recommended by INFCOM president and published in the GBON web tool as of 30 April 2023

[the list as of 30 April 2023 is also provided in [Cg-19/INF. 4.2(2)](https://meetings.wmo.int/Cg-19/InformationDocuments/Forms/AllItems.aspx) for convenience]

Congress approves the list of GBON stations/platforms as registered in “pending Approval” mode in OSCAR/Surface by the Members as of 30 April 2023 with the changes listed in tables 1 and 2 below for surface land stations and upper air stations respectively.

**Disclaimer:** The designations employed in Tables 1 and 2 below, as well as the depiction and use of boundaries, geographic names and related data in these tables, the [GBON web tool](https://wmo.maps.arcgis.com/apps/webappviewer/index.html?id=795bbc05ca8a4da7a5f5f0aebb210aa8&locale=en), [OSCAR/Surface](https://oscar.wmo.int/surface/#/) or the WIGOS Data Quality Monitoring System ([WDQMS](https://wdqms.wmo.int/)), do not imply the expression of any opinion whatsoever on the part of the Secretariat of the WMO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. [Secretariat]

**Table 1**: Changes to the list of GBON surface land stations [to be completed during Congress]

| ***WMO Member or Territory*** | ***Station name*** | ***WIGOS-ID*** | ***Station class*** | ***Latitude*** | ***Longitude*** | ***Change (add, update, delete)*** |
| --- | --- | --- | --- | --- | --- | --- |
| Brazil [Brazil] | RIO DE JANEIRO (84950-0) | 0-20000-0-84950 | Surface land station | -22.99 | -43.42 | Delete |
| Brazil [Brazil] | VOTUPORANGA (86815-0) | 0-20000-0-86815 | Surface | -20.42 | -49.97 | Delete |
| Brazil [Brazil] | ALVORADA DO GURGUEIA | 0-20000-0-81846 | Surface | -8.44 | -43.87 | Delete |
| Brazil [Brazil] | CONDE | 0-20000-0-86639 | Surface | -12.04 | -37.68 | Delete |
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**Table 2**: Changes to the list of GBON upper air stations [to be completed during Congress]

| ***WMO Member or Territory*** | ***Station name*** | ***WIGOS-ID*** | ***Station class*** | ***Latitude*** | ***Longitude*** | ***Change (add, update, delete)*** |
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