

Webinars on the process for the designation of GBON Stations

(6 and 7 October 2022)

The GBON Stations designation process

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WMO OMM

**World Meteorological Organization
Organisation météorologique mondiale**

Webinar Programme

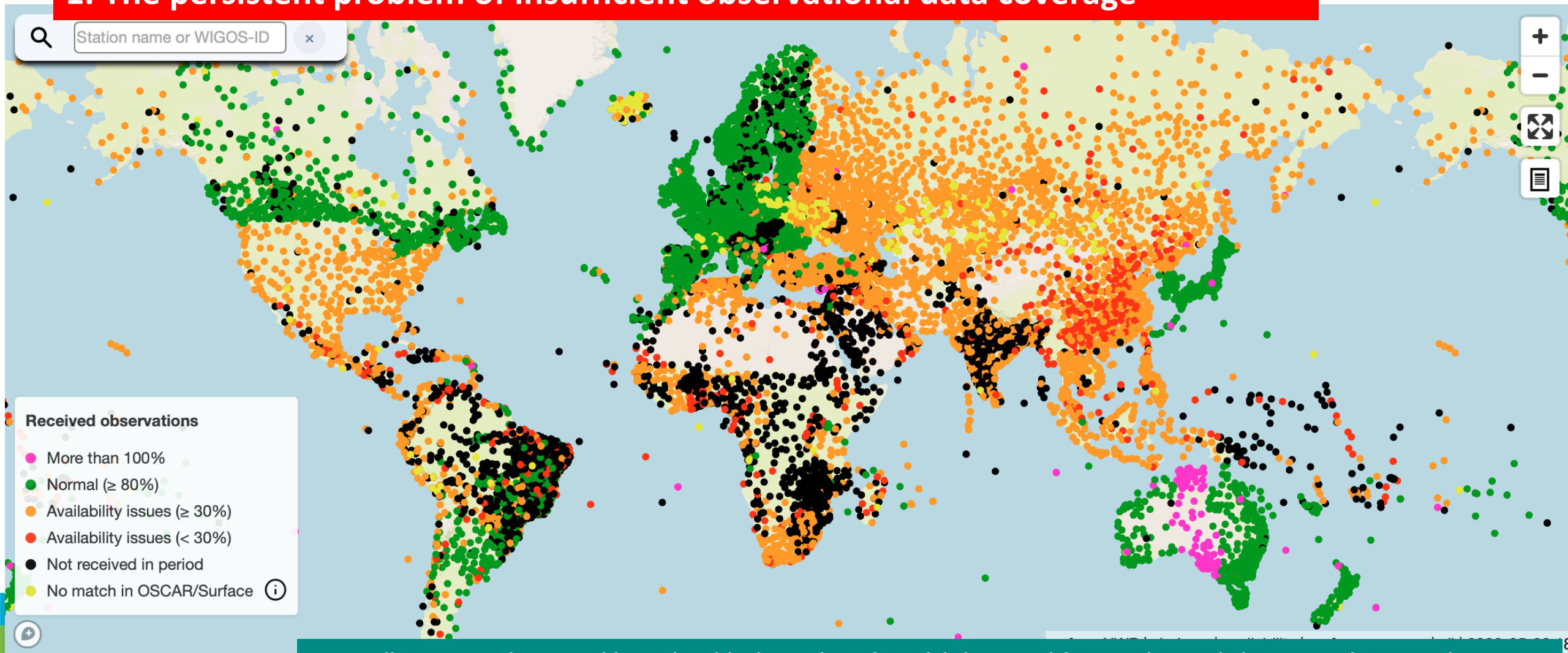
15 min	<ul style="list-style-type: none">• Webinar modus operandi, incl. recording and sharing• Introduction to GBON and target for Congress decision in mid-2023, the Circular Letter & what Members are required to do	Etienne Charpentier
5 min	<ul style="list-style-type: none">• The results of the Global Gap Analysis (Annex 4 of the circular letter)	Timo Proescholdt
10 min	<ul style="list-style-type: none">• The use of OSCAR/Surface to designate GBON stations• The GBON Web tool	Luis Nunes
20 min	<ul style="list-style-type: none">• National Gap Analysis and National Contribution Plan	Minna Huuskonen
5 min	<ul style="list-style-type: none">• The reporting of BUFR data	Timo Proescholdt
5 min	<ul style="list-style-type: none">• Compliance monitoring (station and Country level)• WDQMS GBON compliance at station level	Tim Oakley
10 min	<ul style="list-style-type: none">• SOFF and how to benefit from it	Lorena Santamaria
50 min	<ul style="list-style-type: none">• Questions and Answers	All participants

What is GBON ?

- New observing network replacing the former Regional Basic Synoptic and Climatological Networks (RBSN and RBCN)
 - Introduces more stringent requirements which WMO Members shall meet
 - Focused on surface land stations, upper air stations, and marine stations in Exclusive Economic Zones
- Addresses the requirements of Global Numerical Weather Prediction (GNWP) and Climate Data re-Analysis
 - Filling the identified gaps
 - Making data of existing stations available
- Composition of GBON to be decided by World Meteorological Congress
 - Cg-19 in June 2023
- Complements the new Regional Basic Observing Network (RBON)
 - All GBON stations are also RBON stations by definition
 - RBON stations addressing additional requirements as decided by the regional associations
- Technical Regulations in [WMO-No-1160](#), Manual on the WIGOS, section 3.2.2



1. The persistent problem of insufficient observational data coverage



Especially in areas dominated by red or black, quality of model data used for weather and climate prediction and monitoring will be relatively poor, and the possibility of verification will be limited

Surface pressure observations received by global NWP Centers on May 8 2022, 18Z)

(source: [WIGOS Data Quality Monitoring System](#))

GBON requirements summary

(mandatory in bold)

	HR	VR	Obs cycle	Variables	Other requirements
Surface land stations	200km 100km*	n/a	1h	SLP, T, U, Wind, precip, snow depth	Exchanged in real time through WIS2
Upper air stations operated from land	500km 200km*	100m	2/24h	T, U, wind	Up to 30 hPa, exchanged in real time through WIS-2
Subset of upper air stations up to 10hPa	1000km*	100m	24h	T, U, wind	Up to 10hPa, Exchanged in real time through WIS2
Surface marine stations in EEZs	500km	n/a	1h	SLP, SST	Exchanged in real time through WIS2
Upper air stations operated in EEZs	1000km	100m	2/24h	T, U, wind	Up to 30 hPa, exchanged in real time through WIS2
Aircraft data	100km at flight level	300m for profiles	1h	T, U, wind	Data exchange per licensing agreement
Remote sensing profiler observations	Where available	100m	1h	T, U, wind	n/a

What have we done to facilitate designation of GBON stations by Members ?

- Conducted global gap analysis (existing capabilities & data availability vs. requirements)
- Proposed initial seeding of GBON (all actively reporting stations)
- Wrote to all WMO Members
 - Explain the process & their tasks
 - Provide reference and guidance material
 - Provide results from the global gap analysis for each Country, and results from the proposed initial seeding of GBON

Circular to Members on Implementation of GBON – Initial Composition of GBON

(Ref: 8876/2022/I/WIGOS/ONM/GBON dated 15 August 2022)

- Asking Members to take steps to prepare for their contribution to GBON
- GBON Guidance material referred in the letter
- **On 8 September** “Green and Orange” stations were automatically assigned to GBON in OSCAR/Surface in “Pending Approval” status according to the proposed initial seeding of GBON
- NFPs for OSCAR/Surface can remove automatic designation **before 15 November 2022** (no action = concurrence)



Circular to Members on Implementation of GBON

- Letter has 4 annexes (1: Reference to useful material, 2: Required actions by Members for initial composition of GBON, 3: Criterial for initial seeding of GBON, 4: Global gap analysis for the Country)
- Members invited to
 - **Conduct national gap analysis using TT-GBON guidance and template**
 - **Set national targets and develop national contribution plan per TT-GBON guidance**
 - **Nominate NFP for OSCAR/Surface**
 - **Consider proposals of the Secretariat on initial seeding of GBON stations**
 - Confirm (do nothing) or object (un-assign designation to GBON)
 - **Designate additional GBON stations using OSCAR/Surface**
- See also [website with above guidance](#)

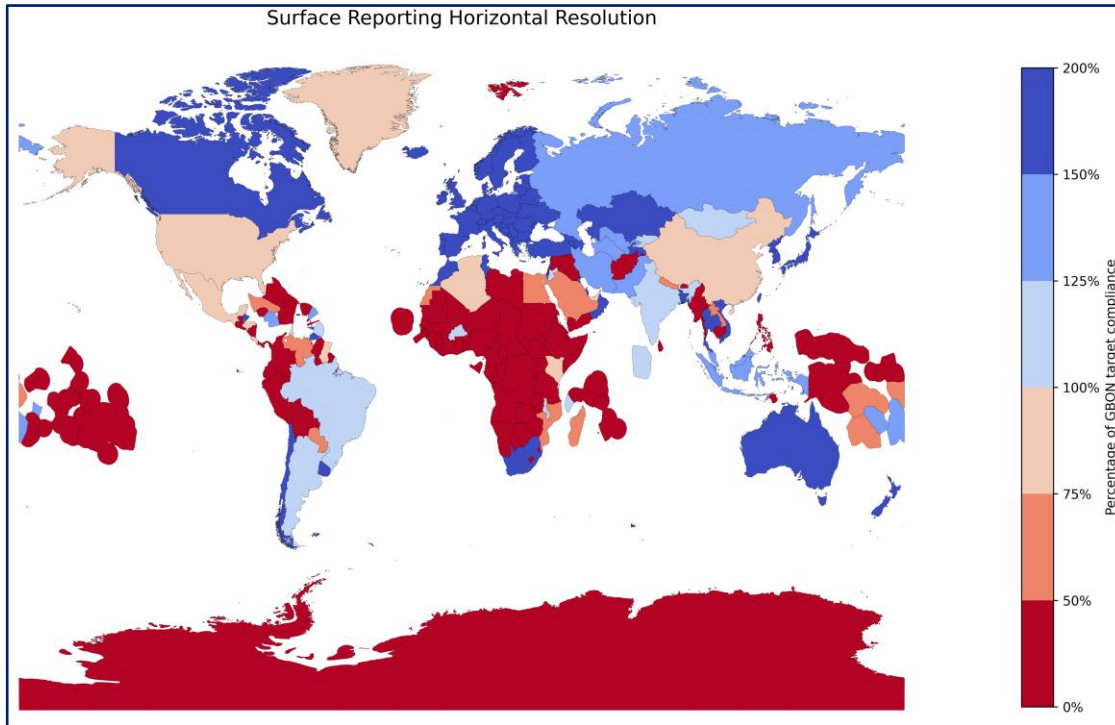


Global GBON Gap Analysis

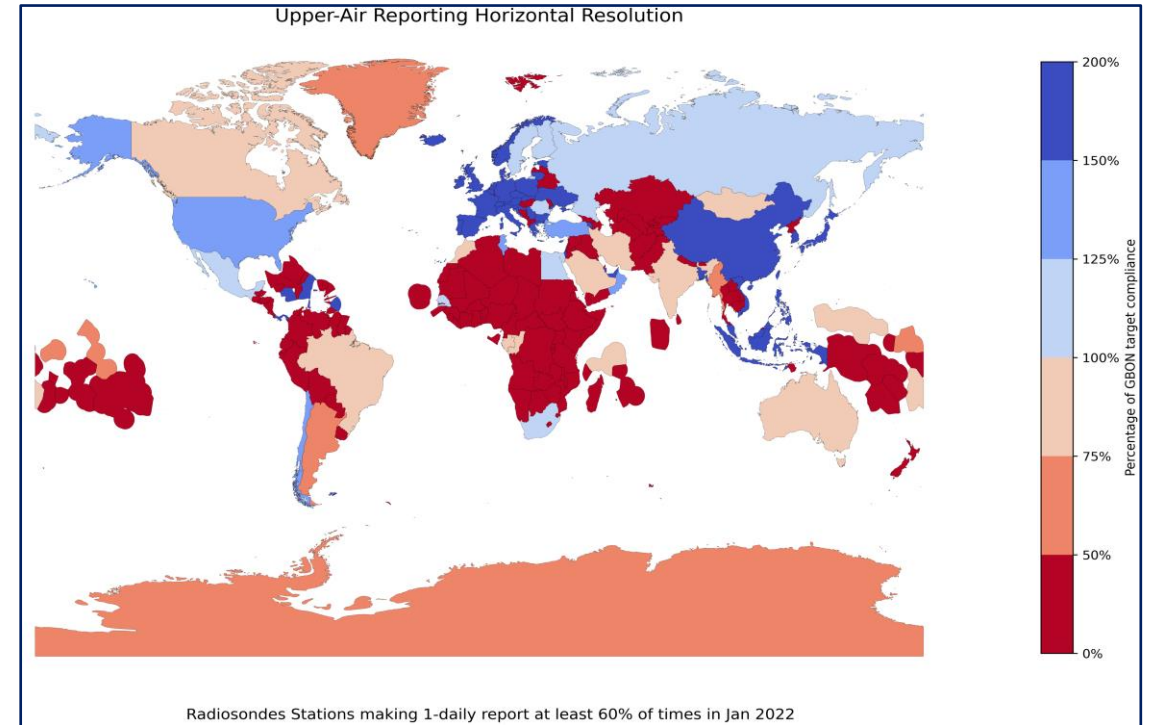
- Based on 1 January 2022 baseline & status of **actively reporting stations** (**green** or **orange** in [WDQMS](#))
 - ⇒ Reports > 30% of required obs. for more than 60% of the days
- Computed against GBON requirements
- Gives estimate of number of missing surface- and upper air stations (required minus baseline)
- These are only estimates / first guess – only Members know their capabilities in detail

GBON Gap, January 2022

Surface observations



Upper air observations



Gap in SIDS and LDCs (standard density): **596 surface stations**; existing network (actively reporting) delivers roughly **9% of required number of observations**;

Gap in SIDS and LDCs (standard density): **139 upper air stations**; existing existing network delivers roughly **8% of required number of observations**;



Letter to Members on Implementation of GBON Global Gap Analysis (Annex 4, example)

- Based on January 2022 baseline
- Estimates of how many surface and UA stations needed
- Some notes, caveat and disclaimer

WMO Member: ██████████					
Surface area: 796.100 square km					
Station type	Target	Reporting	Gap (total)	Gap (improve)	Gap (new)
GBON Surface Land stations (standard density)	20	38	0	0	0
GBON Surface Land stations (high density)	80	38	42	5	37
GBON Upper-Air stations over land	4	0	4	4	0

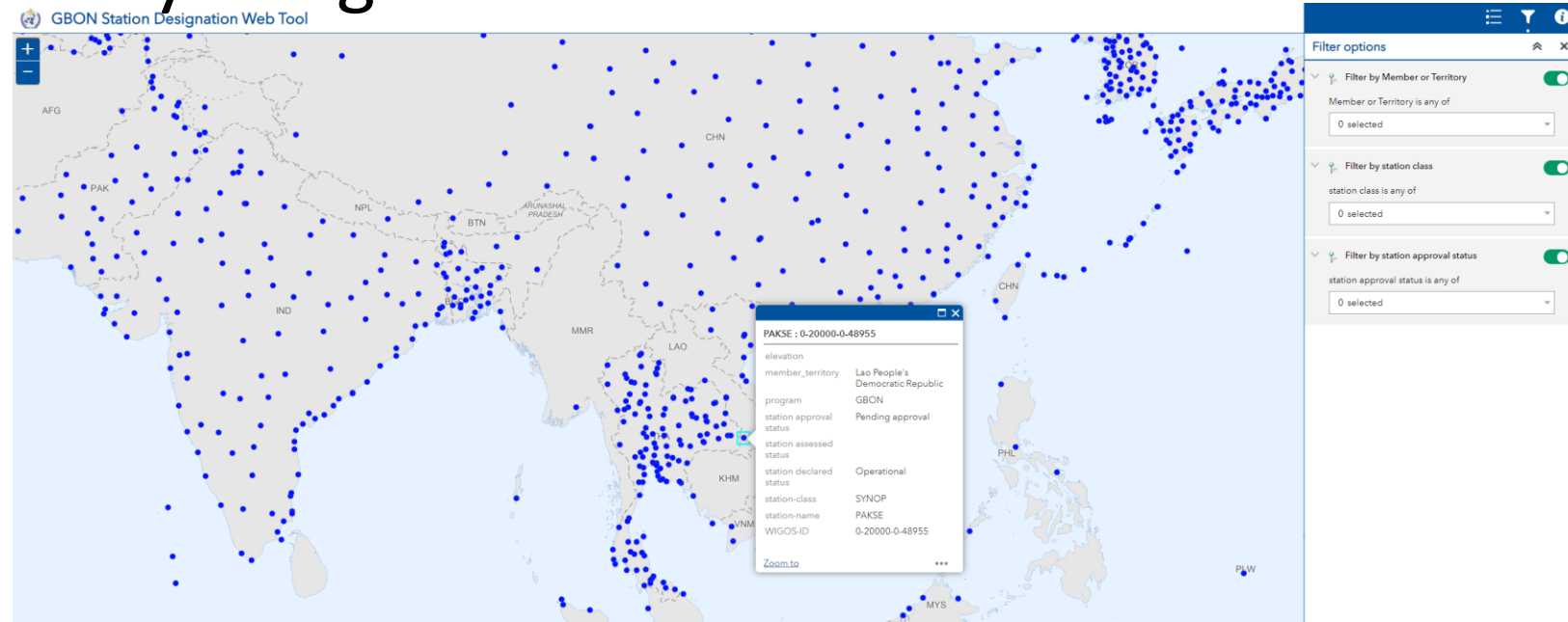
Initial seeding of GBON

- **Only Members have the authority** to nominate stations in GBON
- Small changes can be decided by the President of WMO
- **Initial seeding:** All existing surface and upper air stations (RBSN, RBCN, AntON stations merged into RBON) which are considered to meeting GBON requirements closely enough, and are actually operating and reporting (i.e. the **green** and **orange** stations in [WDQMS](#) for data availability) should be initially seeded into GBON, with possible subsequent adjustments (or objections) by Members
- Global and national gap analysis allows to **identify areas where additional efforts will be needed** for more stations to be eventually committed into GBON



GBON Station Designation [Web Tool](#)

- Synchronized automatically with OSCAR/Surface
- Filter by Country, Station Class, Approval Status
- Gives global view on all designated stations
- All designations/un-designation to be done in OSCAR/Surface only
- Will be used as reference by Congress to decide on initial composition of GBON
- Can download list of filtered stations



GBON compliance criteria

- Based on stations registered in OSCAR/Surface with GBON affiliation
- Monitor only BUFR reports
- **By station:**
 - Based on SLP reports for surface stations
 - Based on T profiles for upper air stations
 - **Computed for Availability, Timeliness, and Quality** using monthly monitoring of GBON availability statistics per station
- **By WMO Member:**
 - Designated GBON stations assumed to provide the required horizontal spacing
 - **Counting the number of compliant stations**
 - Monthly assessment computed on quarterly basis
 - Each Member assessed against the quarterly reports on annual basis

Next steps for GBON implementation

- **September to 15 November 2022:**
 - **Members working on their designation of GBON stations**
(some work still possible until the end of 2022)
- **24-28 October 2022, INFCOM-2 expected to**
 - Recommend Regulatory & Guidance material
 - Give authority to P/INFCOM to recommend initial composition of GBON
- **Early 2023:** P/INFCOM to recommend initial composition of GBON (i.e. list of GBON stations)
- **22 May - 2 June 2023, 19th Congress** expected to adopt:
 - Updated regulatory & guidance material (including new GBON Guide)
 - **Initial composition of GBON**
- **After June 2023:**
 - **GBON Compliance Monitoring**
 - INFCOM to discuss if we have the right tools and how they should evolve
 - **Maintenance of GBON by INFCOM and Members**





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Thank You

Key points to remember

1. Global Gap Analysis is an indication of gaps as of January 2022; Members are encouraged to do a national gap analysis
2. Initial seeding done by the Secretariat is our first guess; Members are urged to check and update the list of designated stations according to their understanding of the Country capacity
3. Members can add/delete affiliation to GBON while in "Pending Approval" mode. This can still be done beyond the 15 November 2022 deadline but no later than 15 January 2023
4. National gap analysis and contribution plan are encouraged; not mandatory; templates are provided in case Members wish to use them
5. Congress in May/June 2023 will decide on the final list of stations
6. **Compliance against GBON requirements at Station level and Country level will be assessed after 19th Congress and all Members informed about remaining gaps**
7. The Least Developed and SIDSs can apply for SOFF funding for their GBON network; developing countries can apply for SOFF technical assistance (contact: Markus Repnik of SOFF Secretariat: mrepnik@wmo.int, see also <https://alliancehydromet.org/soff/>)
8. Guidance material available here: <https://community.wmo.int/activity-areas/wigos/gbon/implementation-global-basic-observing-network-gbon/defining-initial-composition-gbon> (we are working at fixing some broken links)
9. GBON Webtool: <https://community.wmo.int/global-basic-observing-network-gbon-station-designations-map>
10. Material from this Webinar is available here: <https://etrp.wmo.int/course/view.php?id=146>
11. **Further questions:** check [FAQ](#); otherwise ask echarpentier@wmo.int

