

# Webinars on the process for the designation of GBON Stations

6 and 7 October 2022

## National GBON Gap Analysis

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# GBON National Gap Analysis – Objective

A starting phase for the national implementation of the GBON regulations

- Identifies the number of existent observing stations that are compliant with the GBON requirements and the number of stations that need to be installed or improved to become compliant with the mandatory requirements
- Guidance for a step-by-step process for defining the national GBON gap
- Template given for completing the analysis
- Serves as the basis for the GBON National Contribution Plan

# GBON National Gap Analysis – Step 1 Analysis of requirements

## Review of the WMO *global* GBON gap analysis results

- Review of the estimate of surface and upper-air stations required based on the GBON mandatory horizontal resolution requirements (target)
  - Number of stations reporting as per the WIGOS Data Quality Monitoring System (WDQMS) tool
  - The total national GBON gap
- GBON target adjusted by the Member
  - Number of reporting stations confirmed
  - Gaps can be initially taken as a default per Global Gap Analysis

### Caveats:

- The reporting threshold for GBON upper-air stations over land was one daily sounding
- The surface area was computed based on a geographic information system model and may slightly deviate from official records.

## Output of the Step 1 – country example

GBON requirements	GBON target	Reporting	Gap improve	Gap new	Gap total
Surface stations – standard density	15	2	3	9	13
Surface stations – high density	33	2	3	28	31
Upper-air stations	3	0	0	3	3
Marine	2	0	0	2	2



# GBON Gap Analysis – Step 2 Existing stations

The number of existent surface, upper-air and marine observing stations are assessed, according to:

- NMHS stations
- 3rd party stations
- Whether the station is reporting to WIS / to be improved
- Which GBON variables the station is measuring
- Reporting cycle: how often is the station reporting

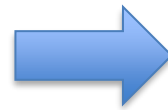
Output of Step 2a

GBON requirements	Existing observation stations (# of stations)			
	NMHS network		3 <sup>rd</sup> party networks	
	Reporting	Improve	Reporting	Improve
<b>SURFACE STATIONS</b>				
Standard density	2	25	0	38
SURFACE Stations High density	2	25	0	38
<b>UPPER-AIR STATIONS</b>				
Over land	0	1	0	1
Over marine	0	0	0	0
<b>MARINE SURFACE STATIONS</b>	0	0	0	0

# GBON Gap Analysis – Step 2 Existing stations

Step 2a

GBON requirements	Existing observation stations (# of stations)			
	NMHS network		3 <sup>rd</sup> party networks	
	Reporting	Improve	Reporting	Improve
<b>SURFACE STATIONS</b>				
Standard density	2	25	0	38
SURFACE Stations High density	2	25	0	38
<b>UPPER-AIR STATIONS</b>				
Over land	0	1	0	1
Over marine				
<b>MARINE SURFACE STATIONS</b>	0	0	0	0



Step 2b

Station name	Station type (S/UA)	NMHS/3 <sup>rd</sup> party station	GBON variable measured						Reporting cycle	GBON Compliance (Yes/No)
			SLP	T	H	W	P	SD		
Station 1	S	NMHS	x	x	x	x	x	-	24	Y
Station 2	S	NMHS	x	x	x	x	-	-	8	N
Station 3	U	NMHS	N/A	x	x	x	N/A	N/A	0	N
Station 4	U	3 <sup>rd</sup> party	N/A	-	-	x	N/A	N/A	1	N
Station 5	S	NMHS	x	x	x	-	-	-	4	N
Station 6	S	NMHS	x	x	x	x	x	-	24	Y
Station 7	S	3 <sup>rd</sup> party	-	-	-	-	x	-	1	N
Station 8	S	3 <sup>rd</sup> party	-	-	-	-	x	-	1	N
Station 9	S	3 <sup>rd</sup> party	x	x	x	x	x	-	13	N
etc.										

# GBON Gap Analysis – Step 3 Results

Step 3a and 3b

## The Steps 1 and 2 are summarized:

- # of confirmed target stations
- # of stations currently compliant with GBON requirements
- # of new and improved GBON stations needed to comply with GBON requirements

Compliant stations are listed for designation to GBON network by registering the stations in OSCAR/Surface

The results of the gap analysis are incorporated into the National Contribution Plan and used as the basis to define the National GBON target

GBON REQUIREMENTS	GBON TARGET	COMPLIANT STATIONS WITH GBON	STATIONS NEEDED AGAINST GBON REQUIREMENT	
			NEW	IMPROVED
SURFACE STATIONS STANDARD DENSITY, 200km				
SURFACE STATIONS HIGH DENSITY, 100km				
UPPER-AIR STATIONS OVER LAND 500km, OVER MARINE 1000km				
MARINE STATIONS 500km				
			STATION NAME	STATION TYPE (S/UA/M)

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## National GBON Contribution Plan

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# GBON National Contribution Plan – Objective & Structure

- Identifies the infrastructure, human, institutional and financial capacity needed to close the GBON gap and how to operate stations compliant with the GBON requirements
- Defines the activities required to implement GBON under a gradual/phased approach
- Fives modules provide a standard approach which can be adjusted based on the national needs and expectations
  - Key components defined to implement GBON
  - Modules are undertaken in parallel
- The activities are planned to meet the National Target toward GBON compliance in each Module.
- The Plan should be reviewed regularly with an aim to advance the activities defined for meeting the full GBON compliance in a sustainable manner
- Simple template report given



# Module 1. Set a National GBON Target

- NMHS sets a National GBON Target towards progressive GBON compliance.
- The target reflects the level of ambition of the NMHS, taking into account the gradual process, national circumstances and the feasibility of implementing the activities to achieve such a target.
- The target should be progressive so that the elements of the target are increased periodically for aiming the NMHS to achieve full GBON compliance in a reasonable period of time.
- The target is set in terms of number of new/improved stations and percentage of reports exchanged.

# Module 2. Institutional and financial capacity development

- Assessment of stakeholders and partnerships for supporting operations of GBON, nationally and (sub-)regionally
- Development of a financial management plan, including
  - Current NMHS financial model
  - Financial plan of operating modernized infrastructure – including O&M and life cycle considerations
  - Business plan over 5 to 10 years - a plan supporting an increase in financing for the capital purchase and operations of the network
- Assessment of existing NMHS strategies for developing and improving observing networks
- Assessment of the national legislation in terms of GBON regulations
  - Review of the legislation related to procurement, importation and customs processes to enable fluent implementation of the Plan

# Module 3. Infrastructure development

- Define the surface and upper-air observing network design, including the networks ran by third parties, technical specifications and an operating plan for network operations and management
- Define the ICT infrastructure and services design (per WIS 2.0)
- Define the data management system design
  - Data storage, acquisition of data to and from WIS, metadata management, monitoring of data

# Module 3 – WMO technical regulations

Examples of the guidance material available as references for outputs required in Module 3

- Manual on the WMO Integrated Global Observing System (WMO-No.1160)
- Guide to Instruments and Methods of Observation (WMO-No. 8)
- Manual on the WMO Information System (WMO-No. 1060)
- Manual on Codes (WMO-No. 306)
- Manual on the Global Telecommunication System (WMO-No. 386)
- Guide to Competency (WMO-No. 1205)
- Guidelines for Trainers in Meteorological, Hydrological and Climate Services (WMO- No. 1114)
- Guide to the Implementation of Education and Training Standards in Meteorology and Hydrology, (WMO- No. 1083)
- Guide to the Implementation of Quality Management Systems for National Meteorological and Hydrological Services and Other Relevant Service Providers (WMO-No. 1100)

# Module 4. Human capacity development

- Assessment of current human capacity to operate and maintain GBON, incl. staff skills, education levels and technical and managerial capacity gaps
- Recommendations on capacity development activities for technical and management staff, including training activities and recruitments

# Module 5. Risk management

- Identification and assessment of the most relevant risks including the operation and maintenance of GBON
- Recommendations for risk mitigation activities for successful implementation of the Plan – focus on operational sustainability

# Final Report Template

- Annex I provides a template where the national target and technical documentation can be summarized

## Annex I. Template for the GBON National Contribution Plan Report

### GBON National Contribution Plan [Country Name]

Please summarize the outputs of the Plan by each Module and provide technical details for each activity in the form of annexes.

#### Module 1. National Target toward GBON compliance

Requirements	National target toward GBON compliance and timeline	Long-term target toward full GBON compliance and timeline
<b>Horizontal resolution</b>		
Surface-based	# of stations	# of stations by XX
Upper-air	# of stations	# of stations by XX
Marine	# of stations	# of stations by XX
<b>Reporting cycle</b>		
Surface-based	% of monthly reports exchanged	% of monthly reports exchanged by XX
Upper air	% of monthly reports exchanged	% of monthly reports exchanged h by XX
Marine	% of monthly reports exchanged	% of monthly reports exchanged by XX

#### Modules 2-5 Outputs

Activities per Output	Technical details
<b>Module 2. Institutional capacity development</b>	Annex xx
	Annex xx
	Annex xx
	...
<b>Module 3. Infrastructure development</b>	



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Thank You