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# The Global Basic Observing Network (GBON)

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**WMO OMM**

World Meteorological Organization

Organisation météorologique mondiale

# Outline

- Motivation, History of Development
- Why is GBON initially focusing on global NWP?
- SG-GBON work
- Current status of provisions defining GBON
- What next?
  - How GSN and GUAN can be integrated into GBON
  - How to ensure that GBON delivers to climate applications



# Motivation, History of Development

- Resolution 34 (Cg-18)-GBON
  - In response to the gaps in observational data coverage, **Congress-18 adopted the GBON Concept** as provided in the annex to the resolution;
  - **In addition, Congress requested INFCOM** to draft relevant provisions of the *Manual on the WMO Integrated Global Observing System* (WMO-No. 1160) regarding the implementation of the GBON, which will clarify international requirements for the exchange of observations and respective obligations of the Members in this regard, and to submit these to EC-72 (*deferred to EC-73 due to COVID*) for approval;

# Motivation, History of Development

- Joint CBS/OPAG-IOS and ICG-WIGOS GBON drafting group workshop has drafted provisions for GBON in Feb. 2020;
- SG GBON was put in place in spring 2020 and then further reviewed and refined the provisions text;
- SG GBON submitted the draft provisions to the INFCOM-1 part II session in November 2020;
- During INFCOM-1 part II the provisions text was further improved;
- SG-GBON is now awaiting feedback on the draft GBON provisions from WMO Members and for a decision by the Extraordinary Congress in 2021.



# Why is GBON initially focusing on global NWP?

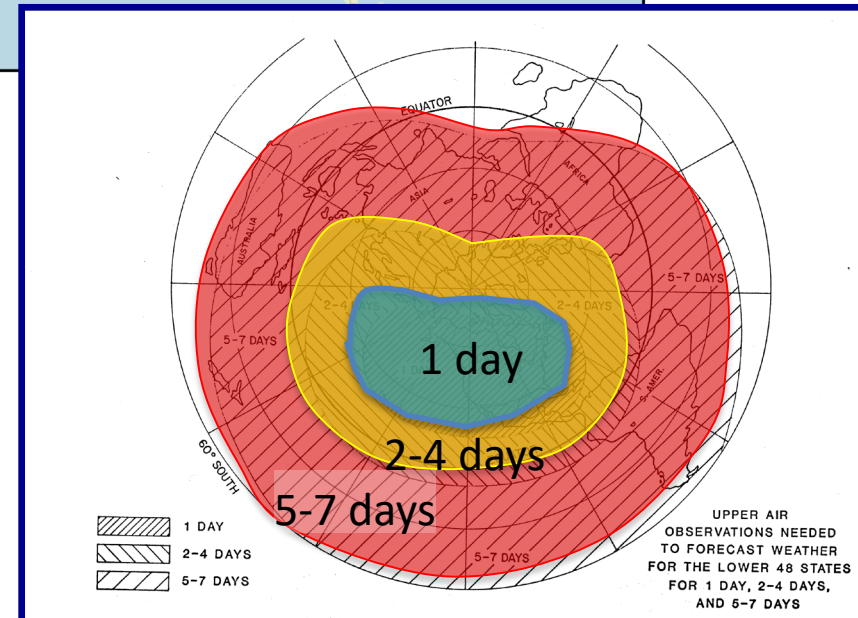
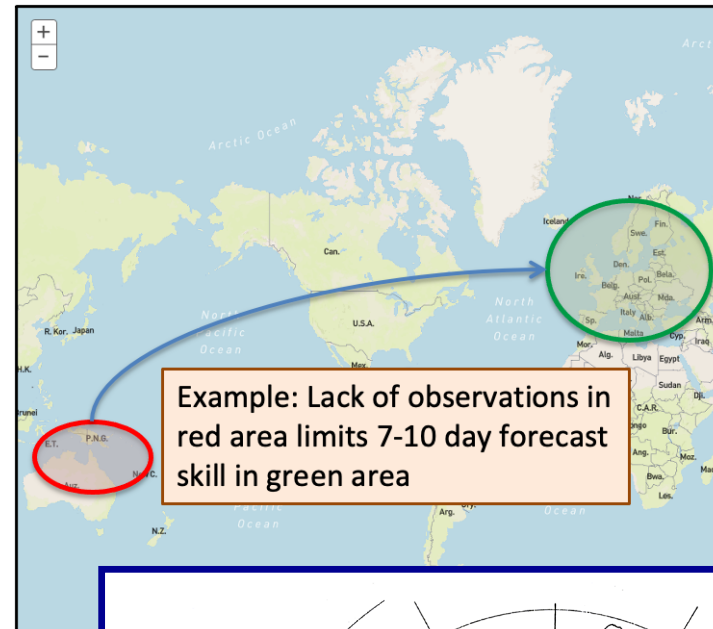
Why is global Numerical Weather Prediction (NWP) so important for WMO?

1. It underpins all products and services provided by all WMO Members to their citizens;
2. WMO truism: “Weather and climate know no boundaries”;
  - **Translated into NWP terms:** “The atmosphere has no horizontal boundaries, and artificially setting boundary conditions on models of it does not work”;
  - NWP therefore **must** involve the entire globe;
  - Global NWP depends on supply of observations from the entire global domain; **WMO coordinates the necessary exchange of data;**

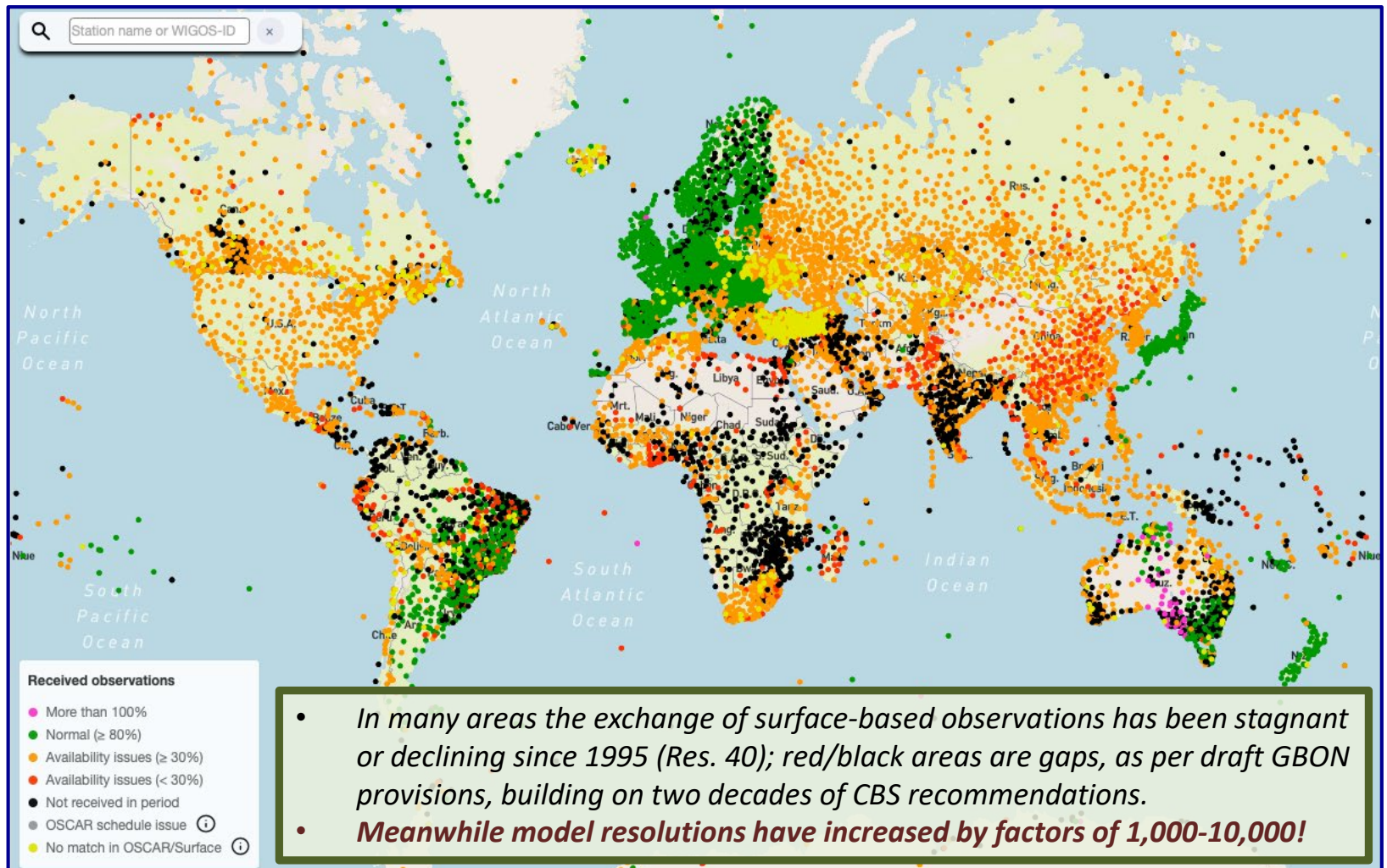


# Inherently global nature of NWP has profound implications for observational requirements

- **Observations are valuable, BUT**
  - Single, isolated observations are not a useful basis for prediction;
  - Jigsaw puzzle analogy: Individual pieces are useless; many pieces together can form a picture;
  - In meteorology the puzzle is global, requiring international data exchange;
- Many extremely important observations are made not for local users, but for the benefit of fellow WMO Members, especially at longer forecast ranges;
- International exchange important even for localized NWP: Limited Area Models cannot be run effectively inside a global model if the two see different sets of observations;



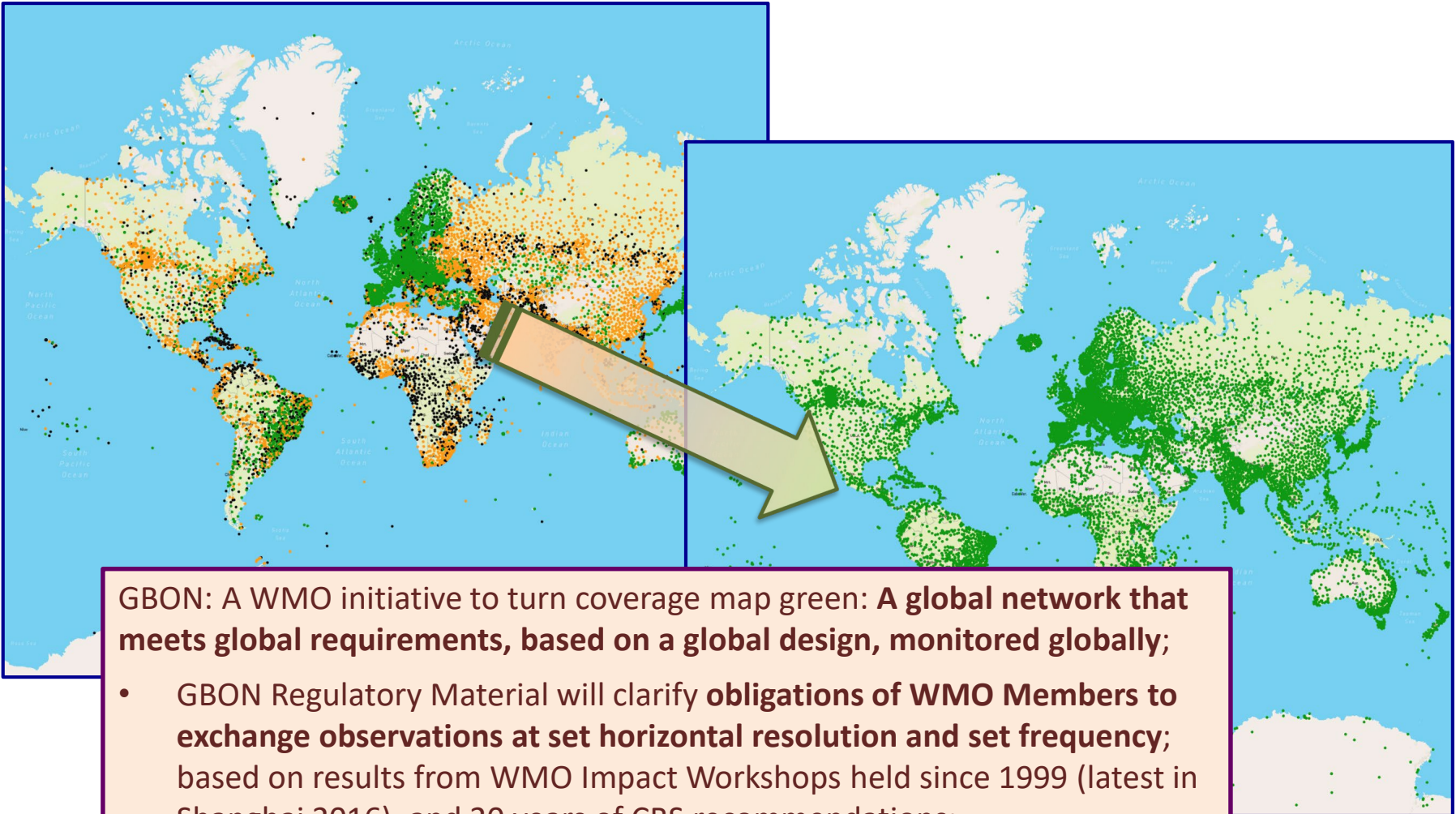
# How do we know that there is a gap in data coverage?



Surface pressure observations received by global NWP Centers on Oct 13 2020, 18Z)

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

# *GBON Concept in a nutshell:* “Turn the map green and fill in the missing dots”



**GBON: A WMO initiative to turn coverage map green: A global network that meets global requirements, based on a global design, monitored globally;**

- GBON Regulatory Material will clarify **obligations of WMO Members to exchange observations at set horizontal resolution and set frequency;** based on results from WMO Impact Workshops held since 1999 (latest in Shanghai 2016), and 20 years of CBS recommendations;
- Some Members will need support in order to implement GBON: Systematic Observations Finance Facility (SOFF)

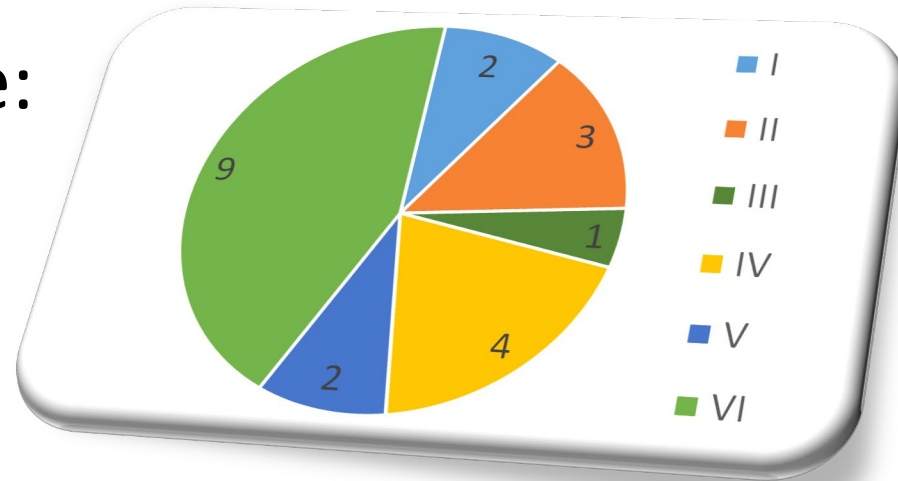


## SG GBON work

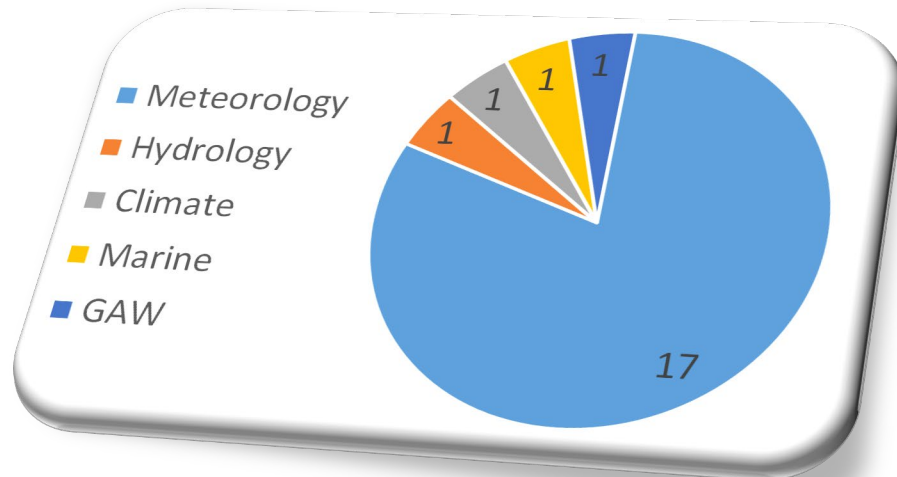
- Drafting provisions of the Manual on the WMO Integrated Global Observing System (WMO-No. 1160) regarding the implementation of the GBON;
- Drafting proposal for a process for nomination, review and approval of the composition of the GBON;

# SG GBON composition

- Regional balance:  
Chair (RA VI)  
Co-Chair (RA I)



- Domain balance:



## Current status of provisions defining GBON

- During INFCOM-1 part II the provisions text was further improved;
- SG-GBON is now awaiting feedback on the draft GBON provisions from WMO Members and for a decision by the Extraordinary Congress in 2021

# What next?

How GSN and GUAN can be integrated into GBON

- Integration shouldn't be too complicated!

Example: Radiosonde sites

- “GUAN” and “GBON” are two different categories into which any radiosonde site can fall if it meets the requirements, respectively.
- Requirements for GUAN: “spacing of GUAN stations is set at 5 to 10 degrees latitude, sufficient to resolve synoptic-scale waves”
- **Almost any GUAN radiosonde site will also qualify to be a GBON site.** Simply because the spacing requirement for GBON is slightly tighter: 500km.

GSN: Probably not much different.

## What next?

How to ensure that GBON delivers to climate applications

- Discussion...

# Thank you Merci



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