ONLINE WORKSHOP ON REGIONAL WIGOS CENTRE (RWC) FUNCTIONS AND TOOLS FOR REGIONAL ASSOCIATION (RA) II

12 July 2021

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Introduction to the WIGOS Data Quality Monitoring System (WDQMS)

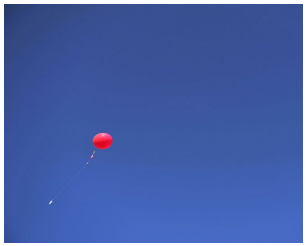
WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Weather observations and their quality

- The overall purpose of taking weather observations is to provide weather and climate information in sufficient detail to meet the needs of many different users, including the safety and well being of the public.
- To ensure that the data meets all needs, efforts are made to acquire, transmit, and archive observations with the greatest precision and consistency possible.
- Data must be as accurate as possible. However, observed data can be subject to errors (e.g. human error, sensor error or failure, issues in the data processing, coding, or transmission).
- Various means are used to "quality assure" the data.



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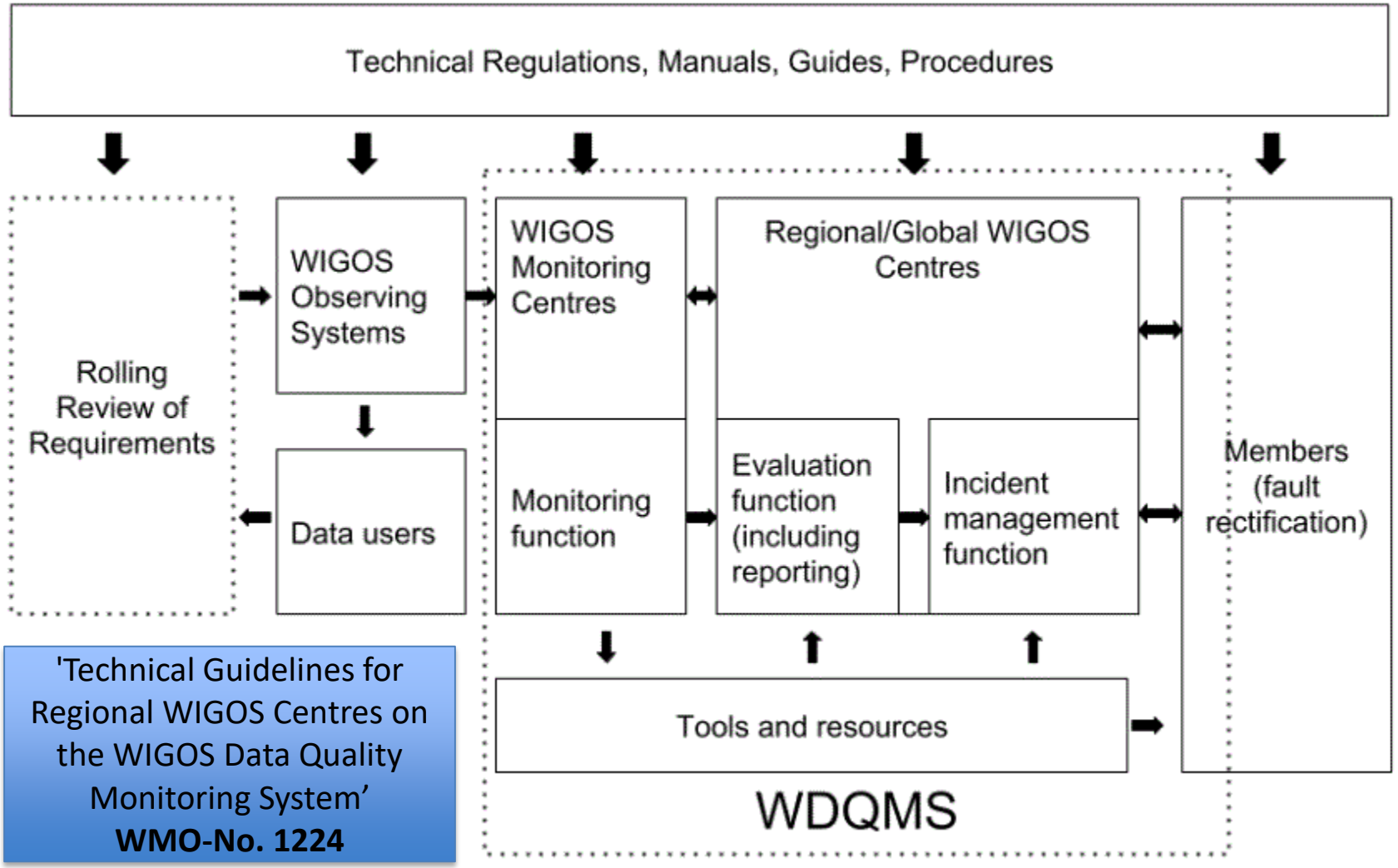
Near real-time monitoring - WDQMS

- WMO monitoring of conventional observations was based on monthly reports produced by Lead Centres in the past following the recommendations of WMO Manual on Global Data-processing and Forecasting System (GDPFS).
- WMO has launched an initiative to modernise the monitoring of the surface-based component of WMO Integrated Global Observing System (WIGOS).
- The goal is to move towards a near-real-time (e.g. daily) monitoring of the status of the Global Observing System (GOS) which would help WMO to take actions, namely reporting back to data providers to have the problem fixed in a timely manner.

➔ **WIGOS Data Quality Monitoring System (WDQMS)**

Interoperability of WDQMS



'Technical Guidelines for Regional WIGOS Centres on the WIGOS Data Quality Monitoring System'
WMO-No. 1224

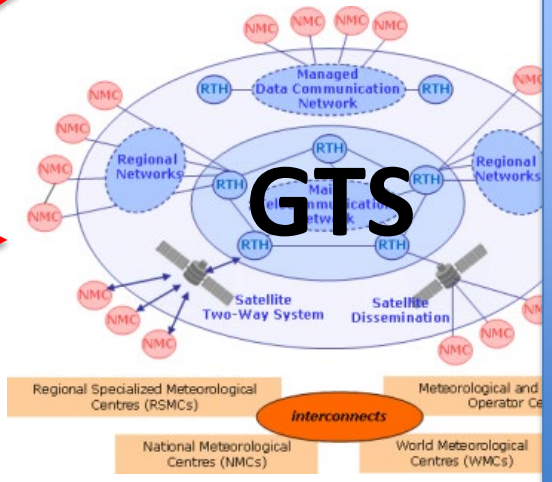
WMO OMM

International data exchange essential for WDQMS

National observing stations

Data transmission from site to NMHS Data Centre or Headquarter (HQ) Office

NMHS HQ



WDQMS starts here!

International users e.g. global NWP centres

ECMWF

NCEP

DWD

気象庁 Japan Meteorological Agency

International exchange to be indicated in OSCAR Observing Systems Capability Analysis and Review Tool

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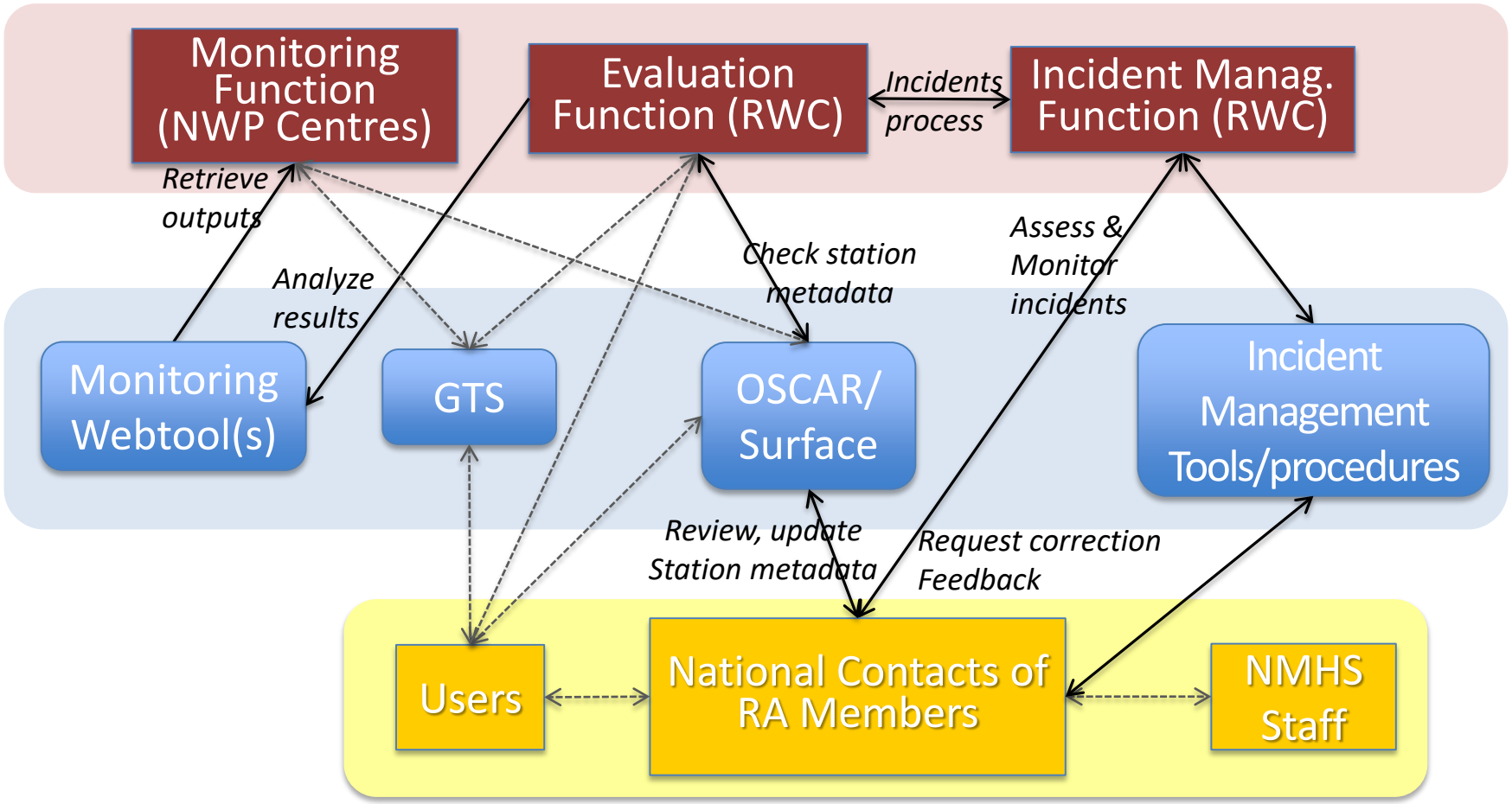
The WDQMS process



- WDQMS will describe how well WIGOS is functioning

The WIGOS monitoring function

- **WIGOS Monitoring Centre (WMC):** a WMO Centre in charge of running the WIGOS monitoring function with a global or regional scope for one or more observing systems/components
- Four Global NWP centers (ECMWF, NCEP, JMA, DWD) are providing quality monitoring outputs in near-real time (every six hours) at the moment;
- Simple ASCII files in commonly agreed format contain the following information for each individual observing station:
  - Observation received within operational data cut-off (yes/no)
  - Observation used in assimilation (yes/no)
  - If not used, why not (flag)
  - Observation minus background residual (value)
- Quality monitoring outputs for different variables
  (mainly surface pressure, 2m temperature, wind and 2m relative humidity)

The link between the WIGOS monitoring function and WIGOS evaluation function

- The use of the WDQMS web tool (https://wdqms.wmo.int/) for displaying the quality monitoring outputs from the WIGOS Monitoring Centres is beneficial to evaluate the performances within a RWC´s responsibility
- The web tool is serving as part of the WIGOS monitoring function by displaying the quality monitoring outputs and
- Serving as part of the WIGOS evaluation function by aggregating the performances on a daily basis or in time series

https://wdqms.wmo.int/

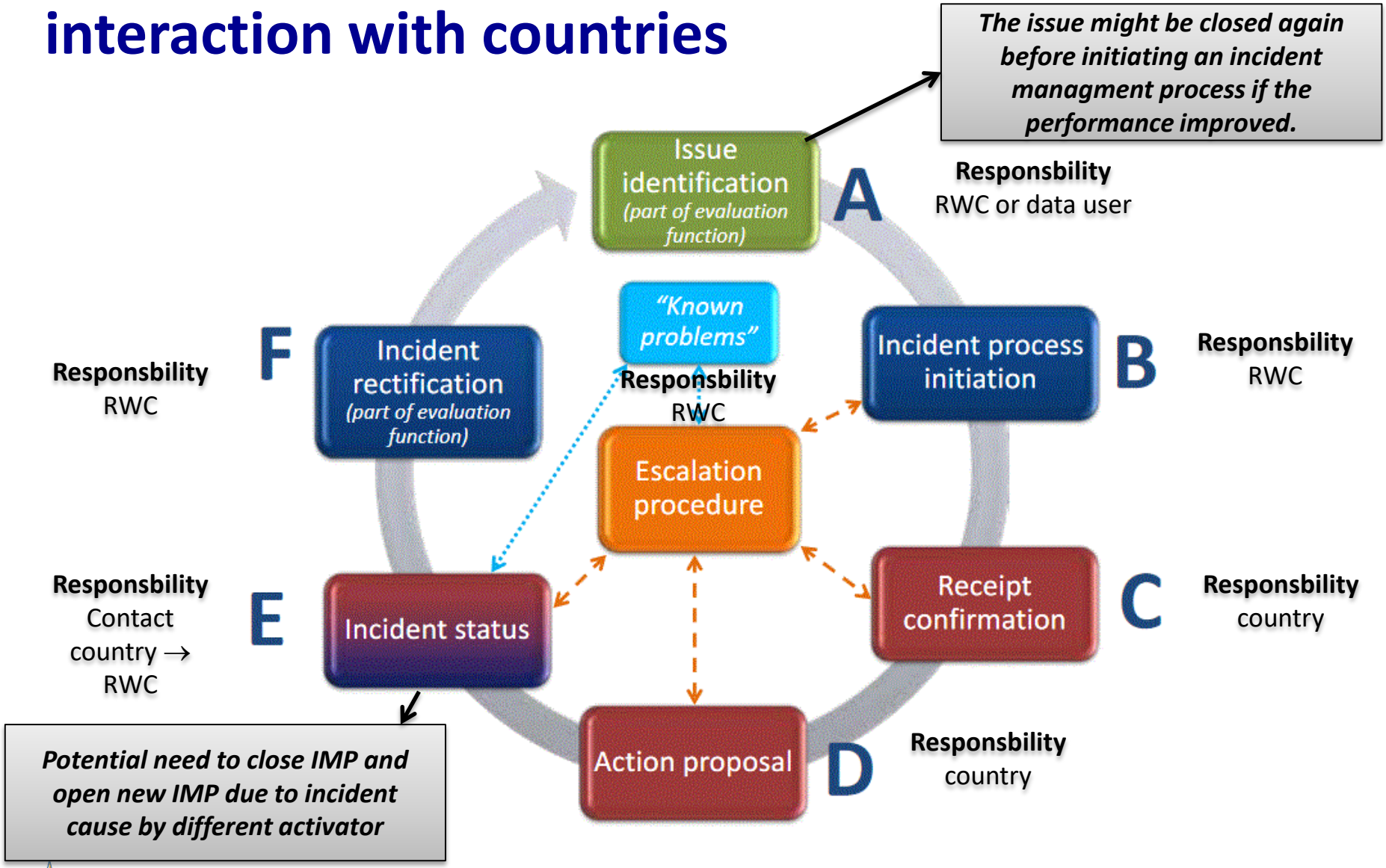
The WIGOS evaluation function

- Regional WIGOS Centres (RWC) evaluate the performance of stations of countries under their responsibility on a daily basis by reviewing the automated quality monitoring outputs received from the WIGOS Monitoring Centres (global NWP centres) which are displayed in the available web tool outputs.
- Check the performance concerning the three main quality monitoring categories **data availability**, **timeliness** and **accuracy** regarding the WDQMS performance targets (e.g. referring to GBON requirements for designated GBON stations).
- Identifies stations showing non-compliance and monitoring the performance in the next days.
- Initiates the incident management process if the issue turns into an incident (non-compliance over several days).

The WIGOS incident management function

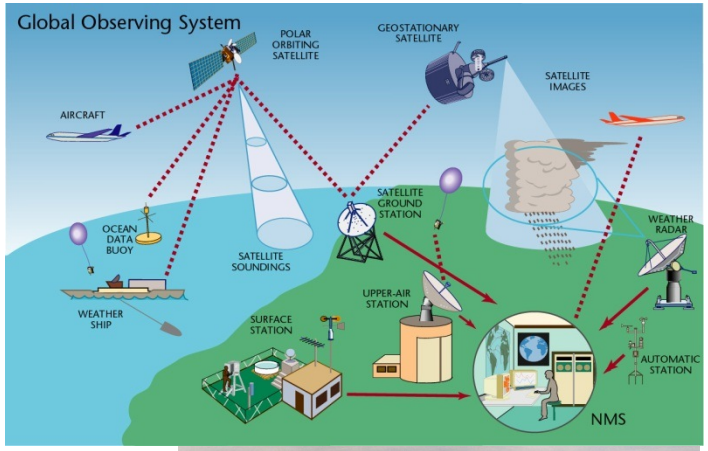
- In the case of any non-compliance of a particular station RWC **raises an incident ticket** by describing the **issue**.
- If an issue **continued for 5 (or more) days** an incident management process (IMP) be initiated by turning the issue into an incident and **the data provider be contacted** asking for incident rectification.
- RWC **monitors the status of raised incident tickets** and ensure that the country to which an incident has been reported confirmed the reception (WDQMS national focal point, NFP) and provided an appropriate action proposal to resolve the incident.
- **Close an incident ticket** after the WDQMS NFP has reported incident rectification, **check the improvement in performance** and **inform issue reporters** about successful incident rectification.

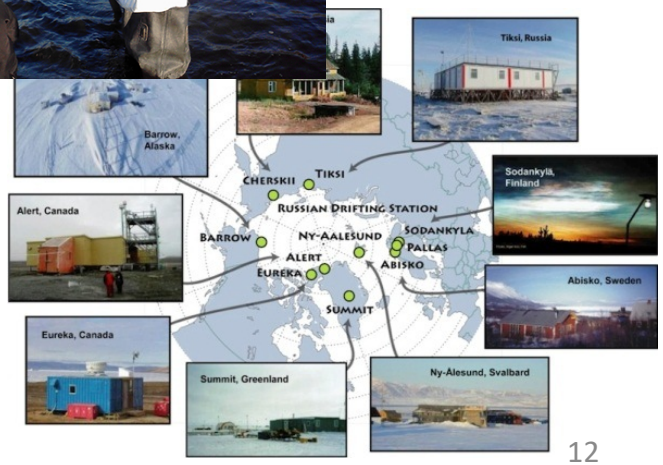
WIGOS incident management function – interaction with countries



The scope of the WDQMS

- To initiate the operationalisation of Regional WIGOS Centres the main focus will be on the **GOS networks**.
- In the future **all WIGOS components** should be considered in the WDQMS.
- Other networks, such as GAW (Global Atmosphere Watch) or the GCW (Global Cryosphere Watch) or others might be added at a later stage.

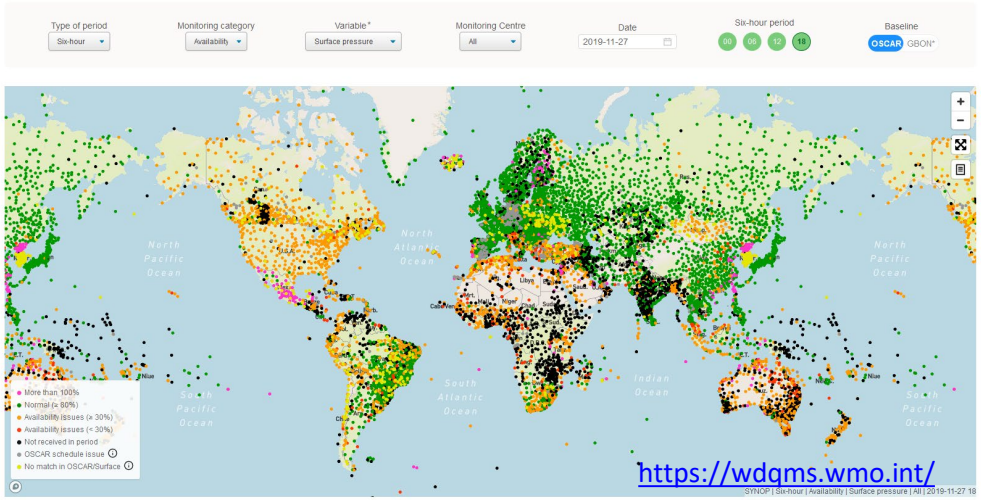




Result…

- The WDQMS will describe how well WIGOS is functioning
- And will improve the overall global performance of WIGOS

✓ **In an ideal world all stations would turn into green color…**



➢ **OSCAR-WDQMS webinars:** see Moodle sites WIGOS Learning Portal https://etrp.wmo.int/course/view.php?id=146

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Thank you

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https://community.wmo.int/activity-areas/wigos

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