

# WIGOS Data Quality Monitoring System (WDQMS)

## General overview



WMO OMM

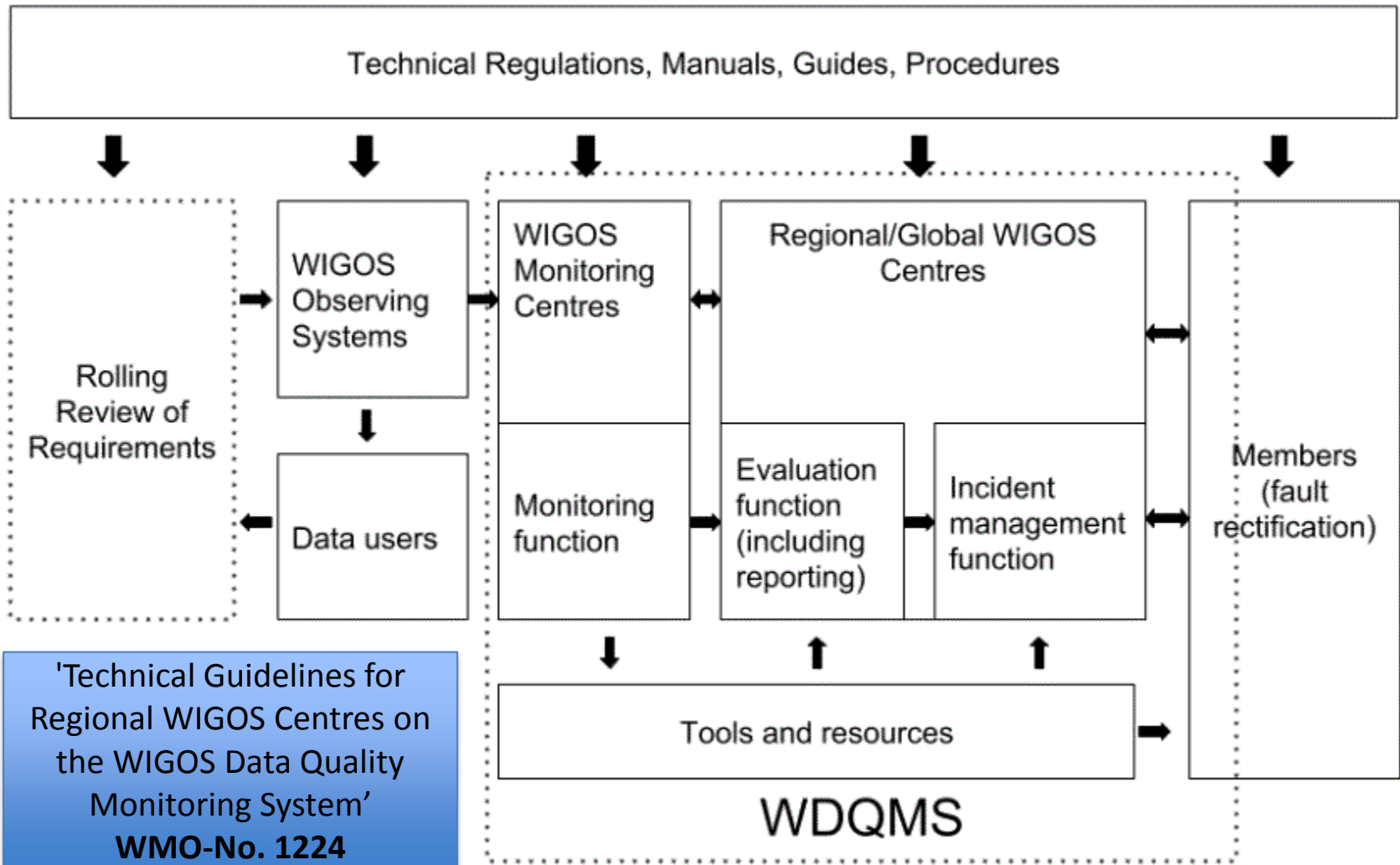
World Meteorological Organization

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# The components of the WIGOS Data Quality Monitoring System

- **WIGOS monitoring function:** real-time monitoring of performance
  - data availability, timeliness and data quality,
  - all WIGOS components (WWW/GOS, observing component of GAW, WHOS, observing component of GCW),
  - searchable by region, country, station type, period, etc.
- **WIGOS evaluation function:** delayed mode monitoring of data accuracy as measured against reference sources of information for non-real time observations
- **WIGOS incident management function:** for mitigation of issues
- Will describe how well WIGOS is functioning

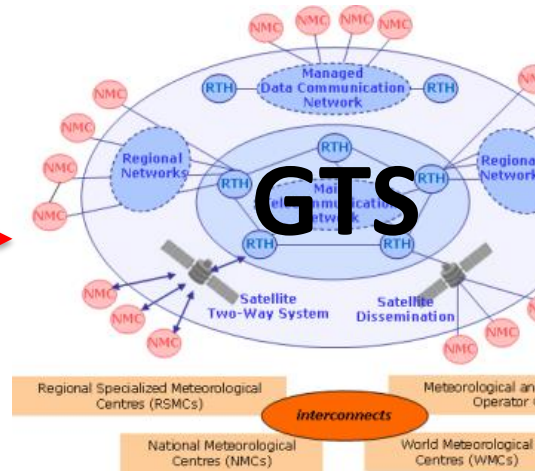
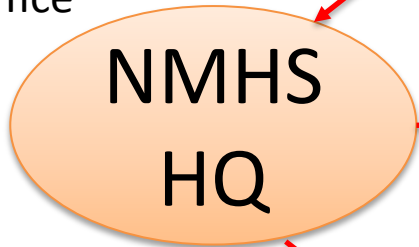
# Interoperability of WDQMS



# International data exchange essential for NWP



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



**WDQMS** starts here

**International users**  
e.g. global NWP centres



International exchange to be indicated in

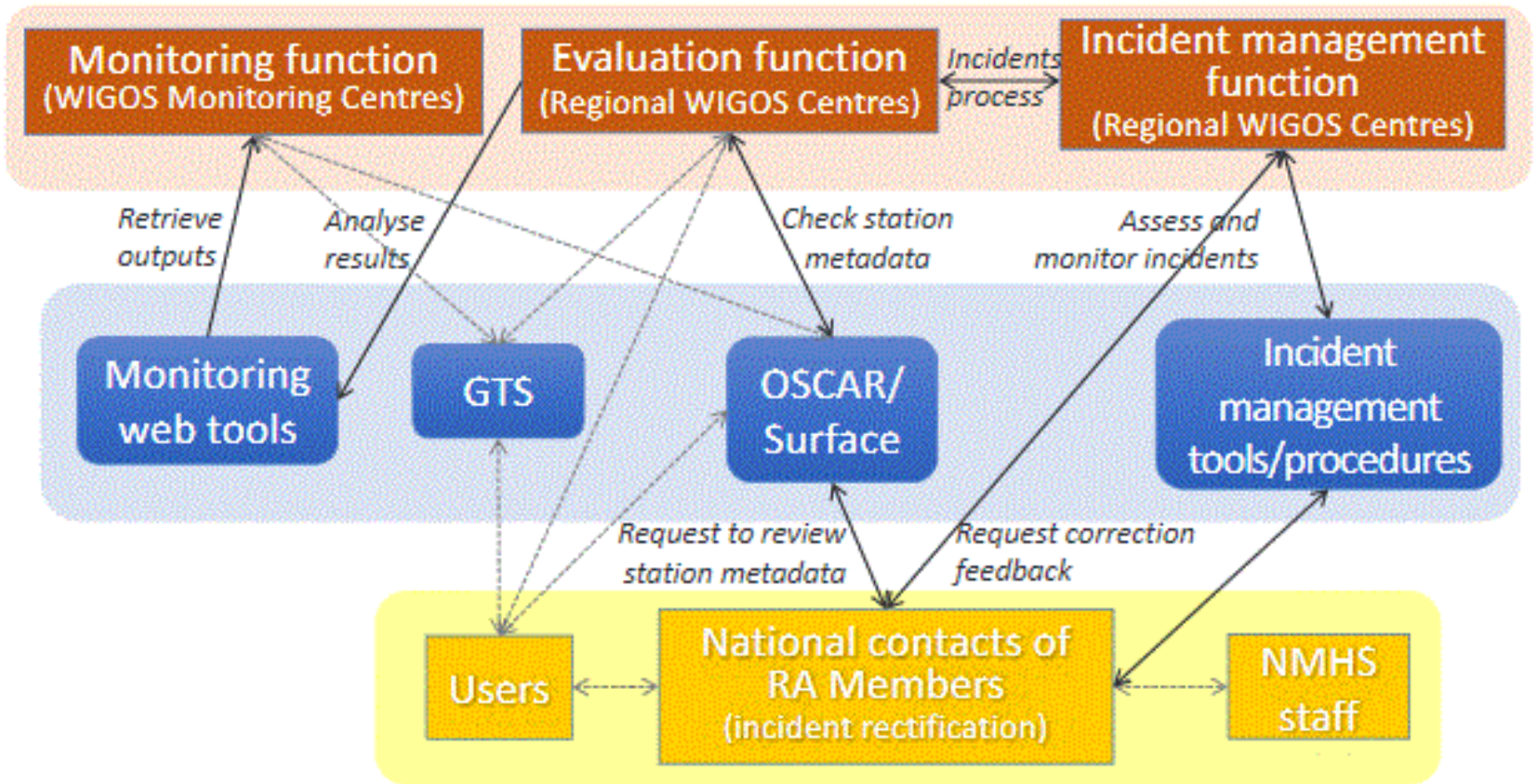
**OSCAR** Observing Systems Capability Analysis and Review Tool

# The WDQMS process

- **WIGOS monitoring centres** provide quality monitoring information on a daily basis
  - quality monitoring reports as basis of the WIGOS monitoring function
  - provide input to the WIGOS evaluation function.
- The **WIGOS evaluation function** generates routine performance reports on the basis of the relevant information
  - From the quality monitoring reports
  - From metadata about the observing stations, from the Observing Systems Capability Analysis and Review (OSCAR)/Surface tool,
  - From the WMO Information System (WIS).
- The **WIGOS incident management function** will take up the issues that the evaluation function raised as incidents, and follows up actions with the data supplier to resolve the incident.



# The WDQMS process



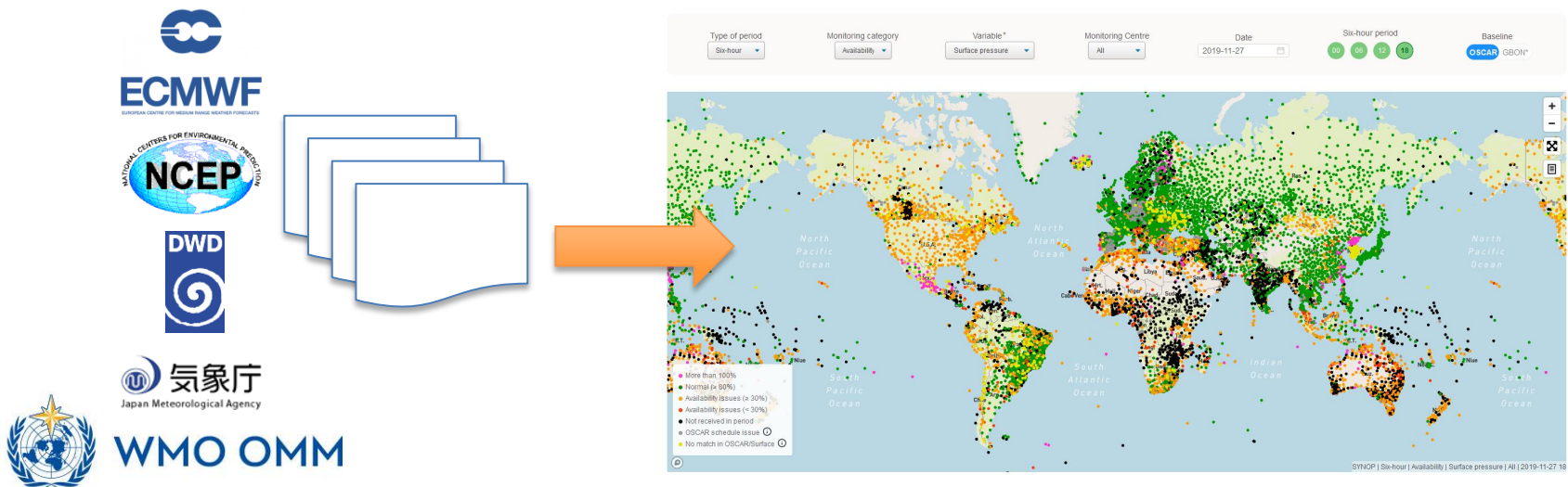
# The WIGOS monitoring function

- **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 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 a web tool 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





# 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 WDAQMS 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)

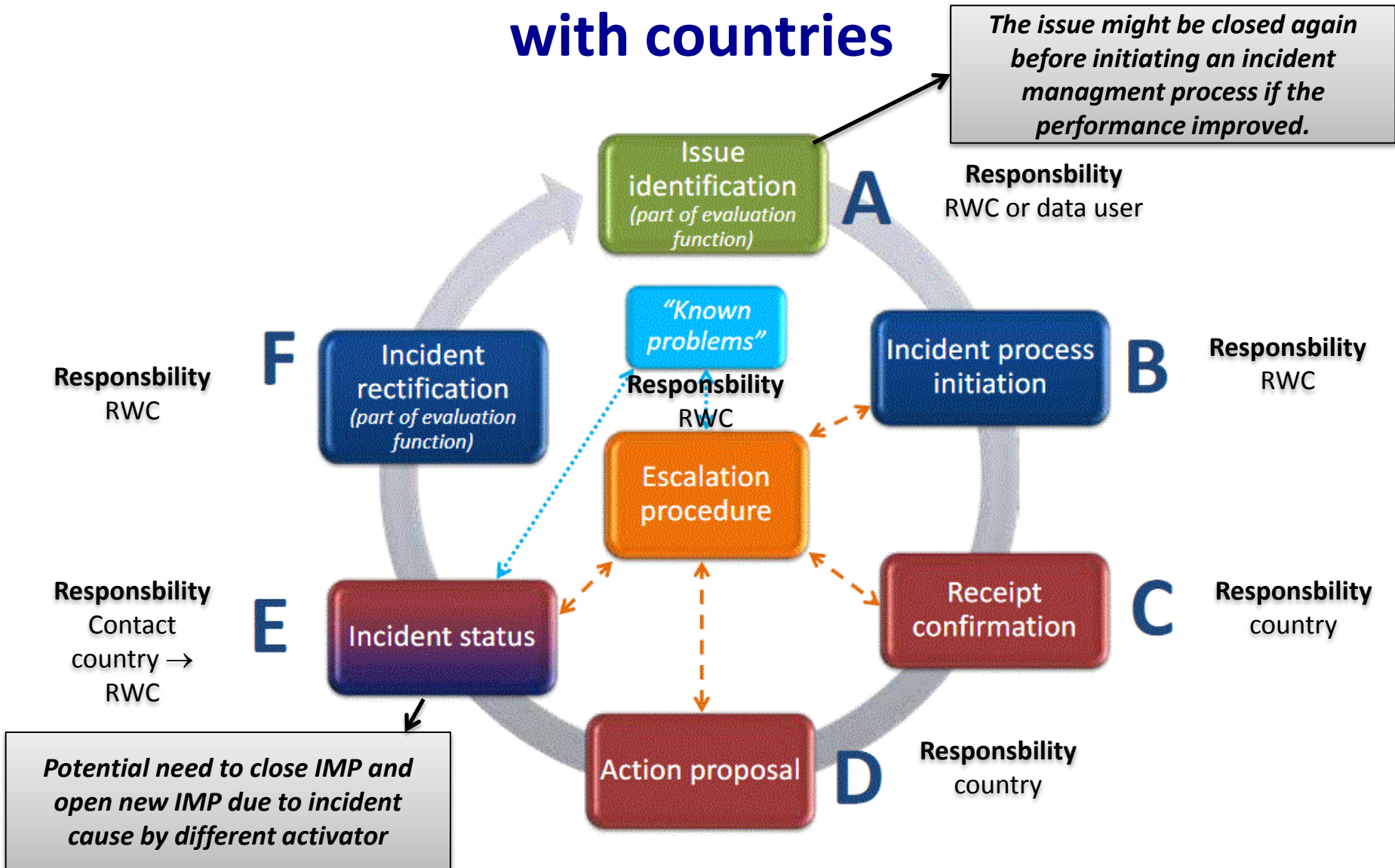


# The WIGOS incident management function

- 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.

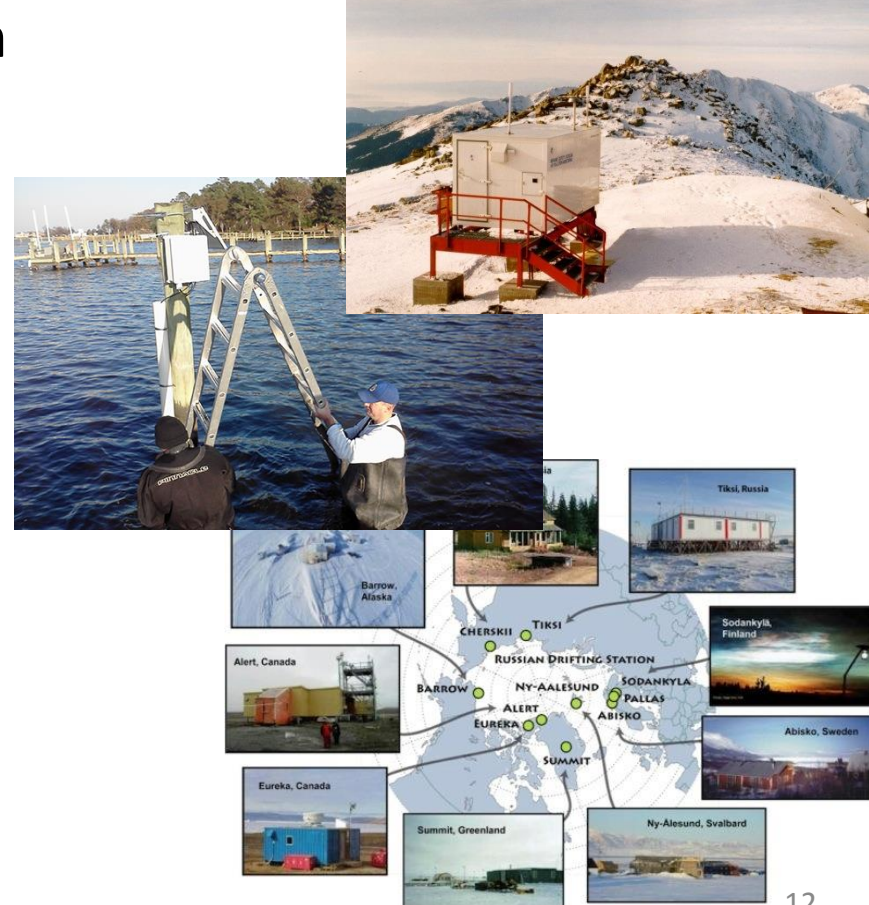
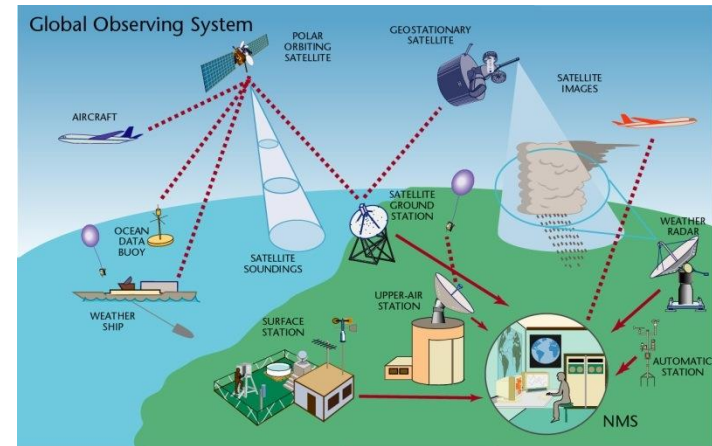


# WIGOS IMP – interaction with countries



# The scope of the WDQMS

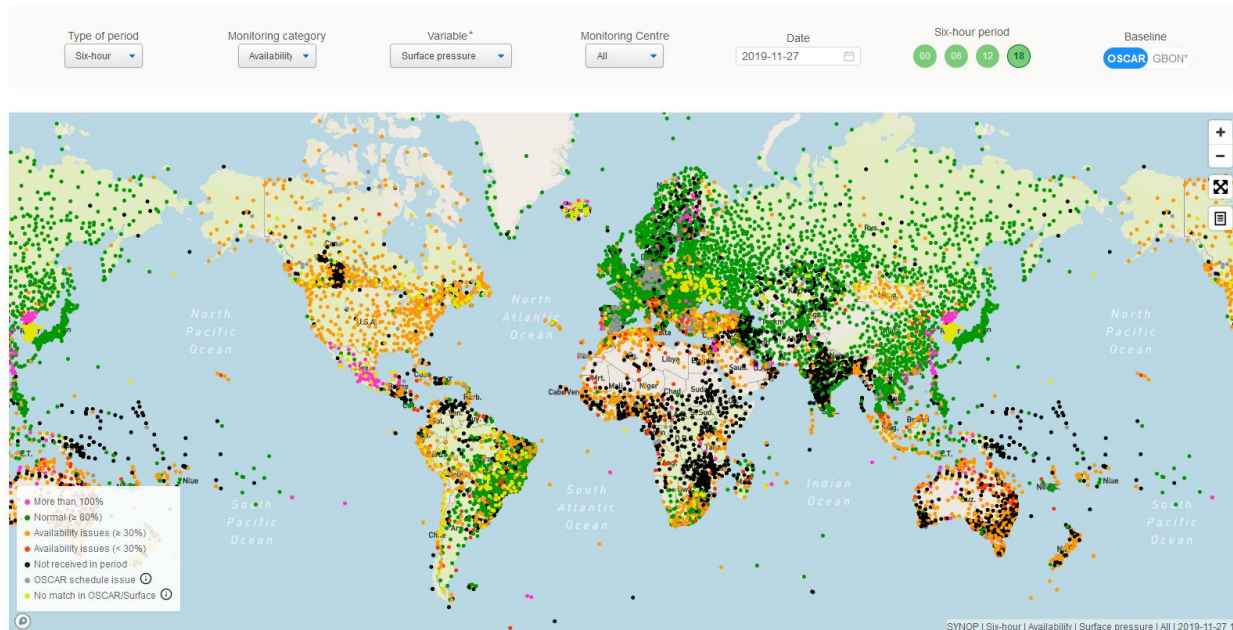
- In the future **all WIGOS components** should be considered in the WDQMS.
- To initiate the operationalisation of Regional WIGOS Centres the main focus will be on the **GOS networks**.
- Other networks, such as GAW (Global Atmosphere Watch) or the GCW (Global Cryosphere Watch) or others might be added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



# Thank you

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



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