

WIGOS Data Quality Monitoring System (WDQMS)

General overview



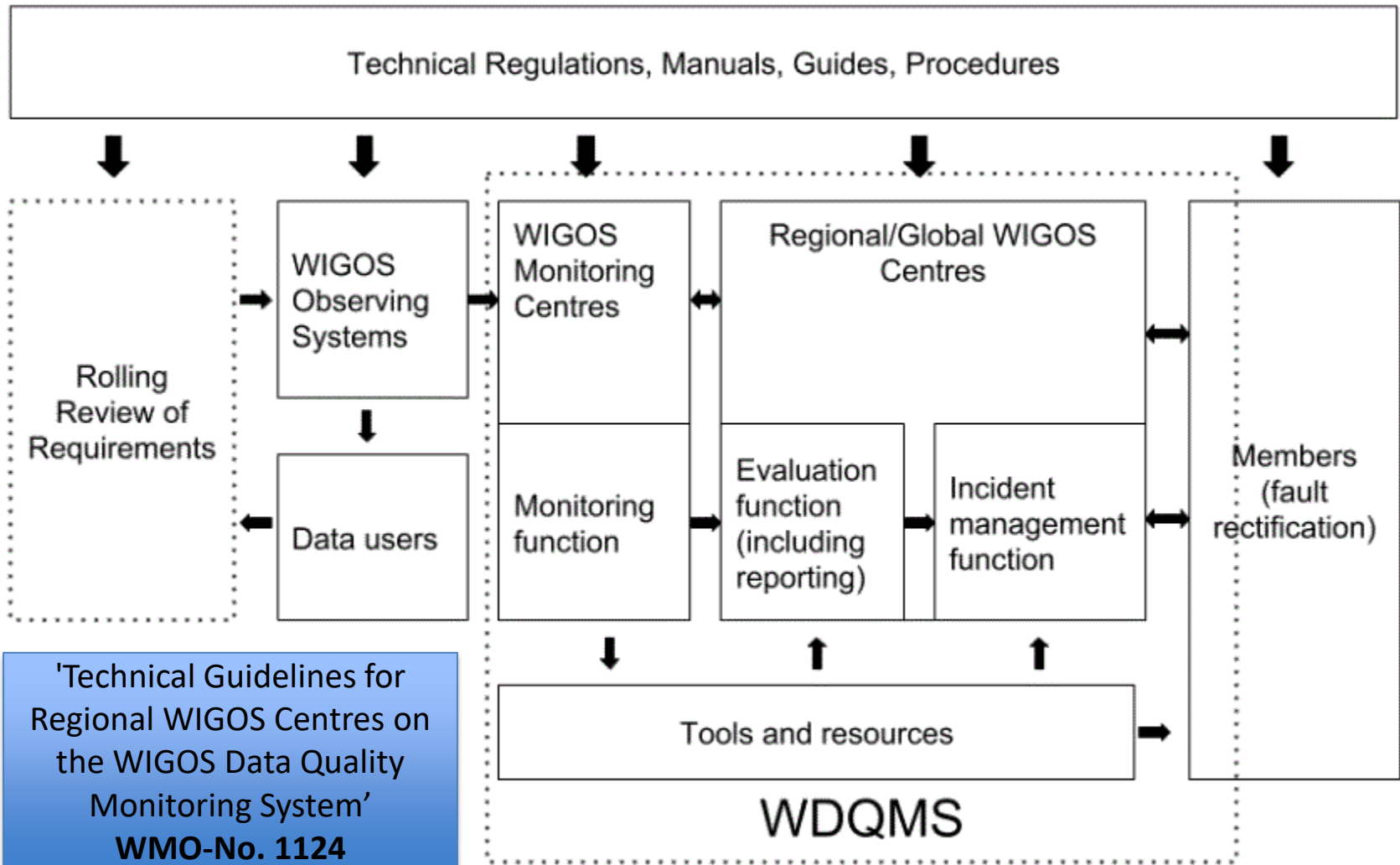
WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

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 (GOS, GAW, WHOS, GCW, GCOS),
 - 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

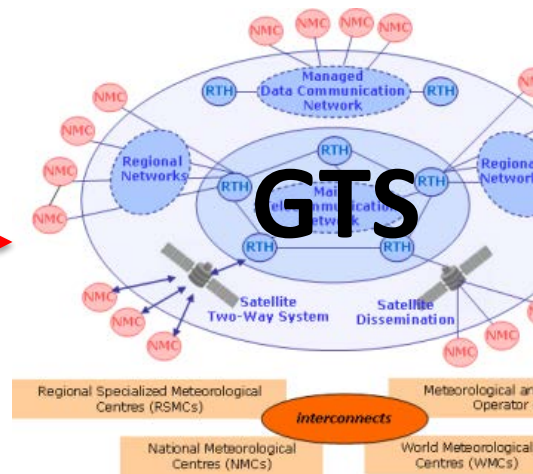
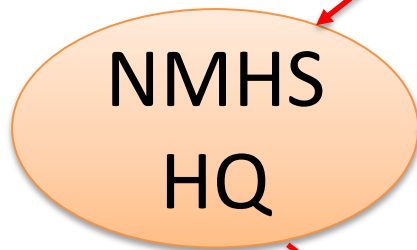
Interoperability of WDQMS



International data exchange essential for WIGOS Data Quality Monitoring System



Data transmission
from site to HQ



WDQMS

starts here

International users

e.g. global NWP centres



International exchange
to be indicated in

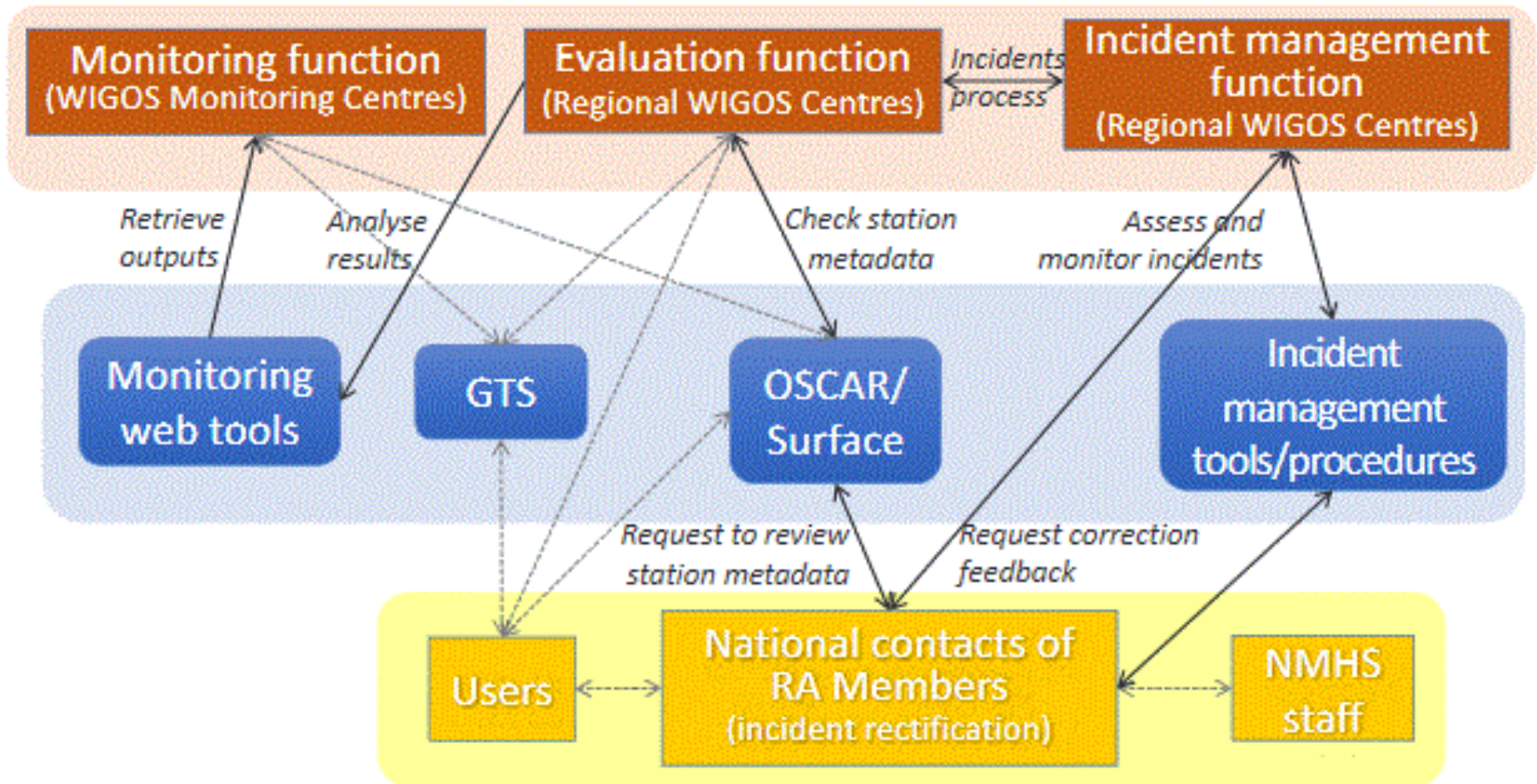
OSCAR Observing Systems
Capability Analysis
and Review Tool

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** should generate 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



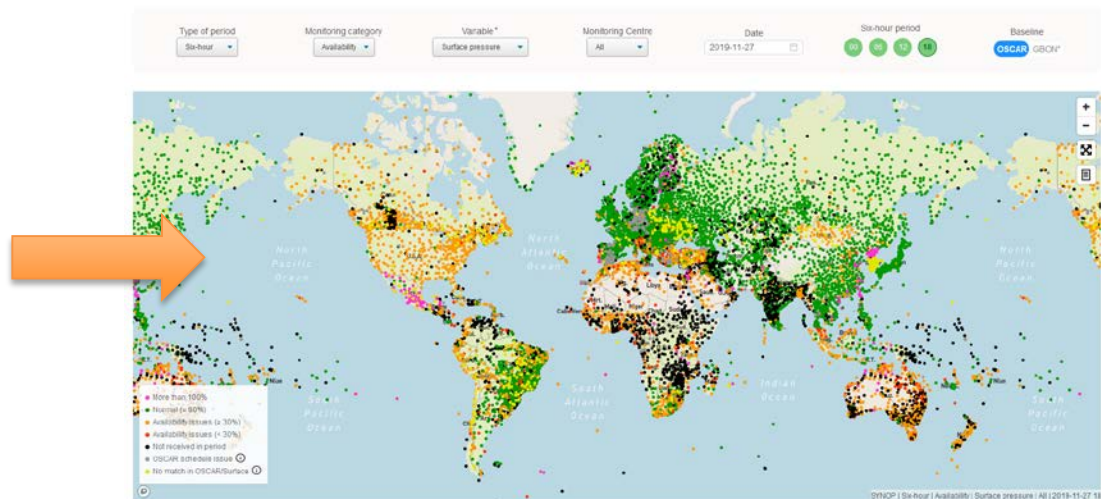
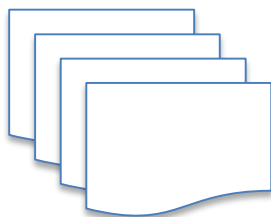
The WIGOS monitoring function

- **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) should 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)
- Identifying stations showing non-compliance and monitoring the performance in the next days
- Initiating the incident management process if the issue turns into an incident (non-compliance over several days)

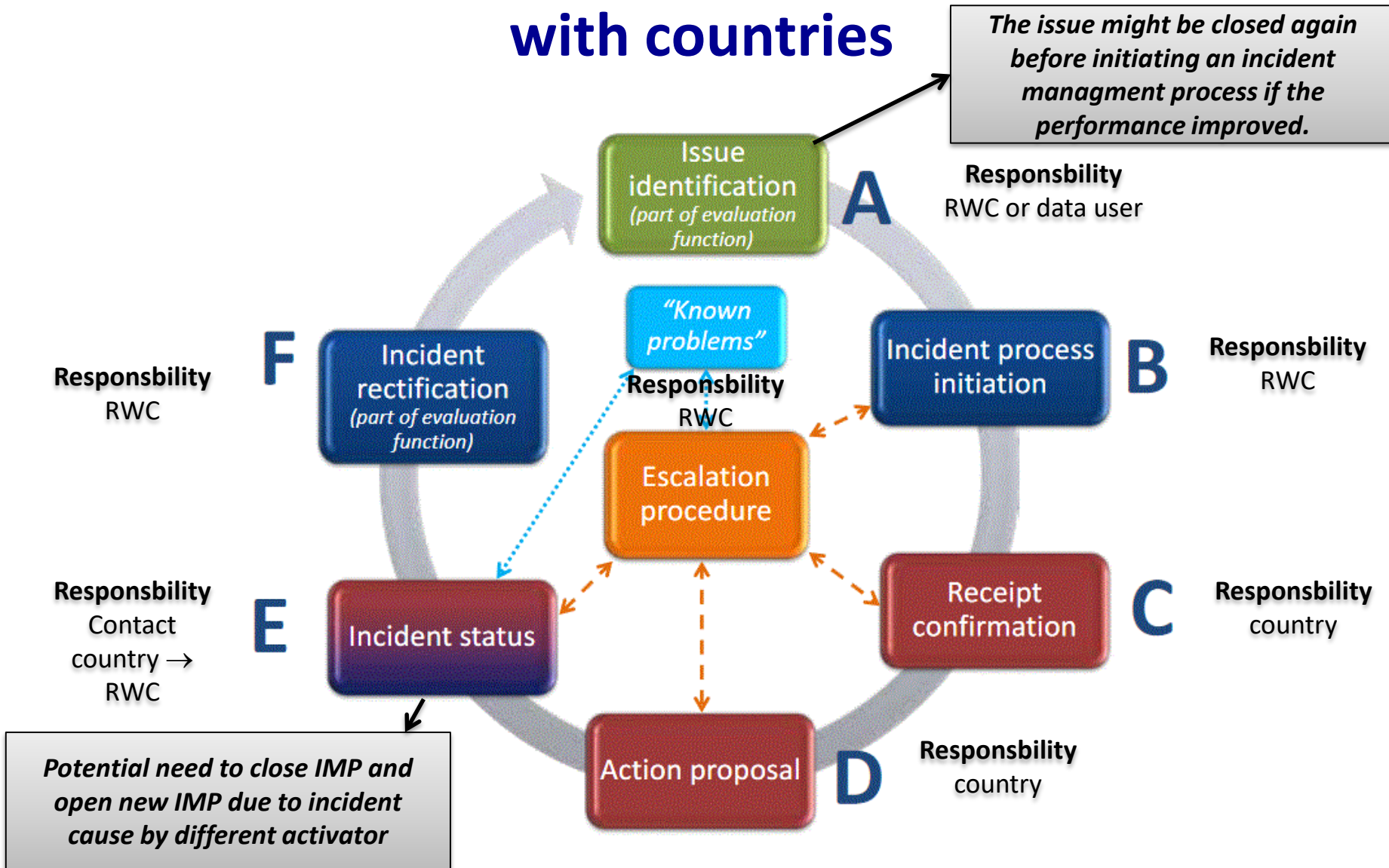


The WIGOS incident management function

- In the case of any non-compliance of a particular station RWC should **raise an incident ticket** by describing the **issue**.
- If an issue **continued for 5 (or more) days** an incident management process (IMP) should be initiated by turning the issue into an incident and **the data provider should be contacted** asking for incident rectification.
- RWC should **monitor 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.

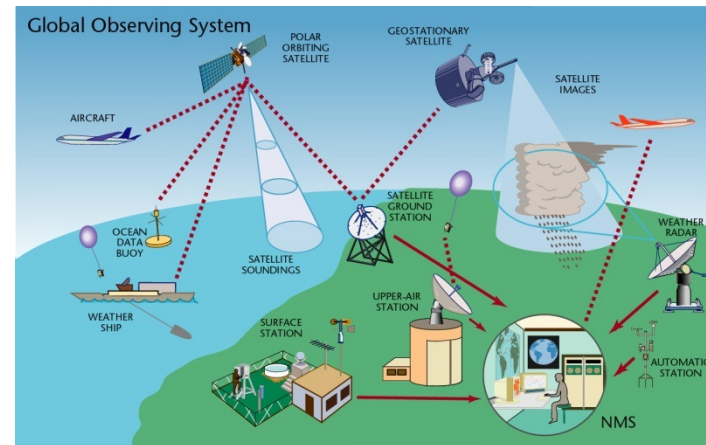


WIGOS IMP – interaction with countries



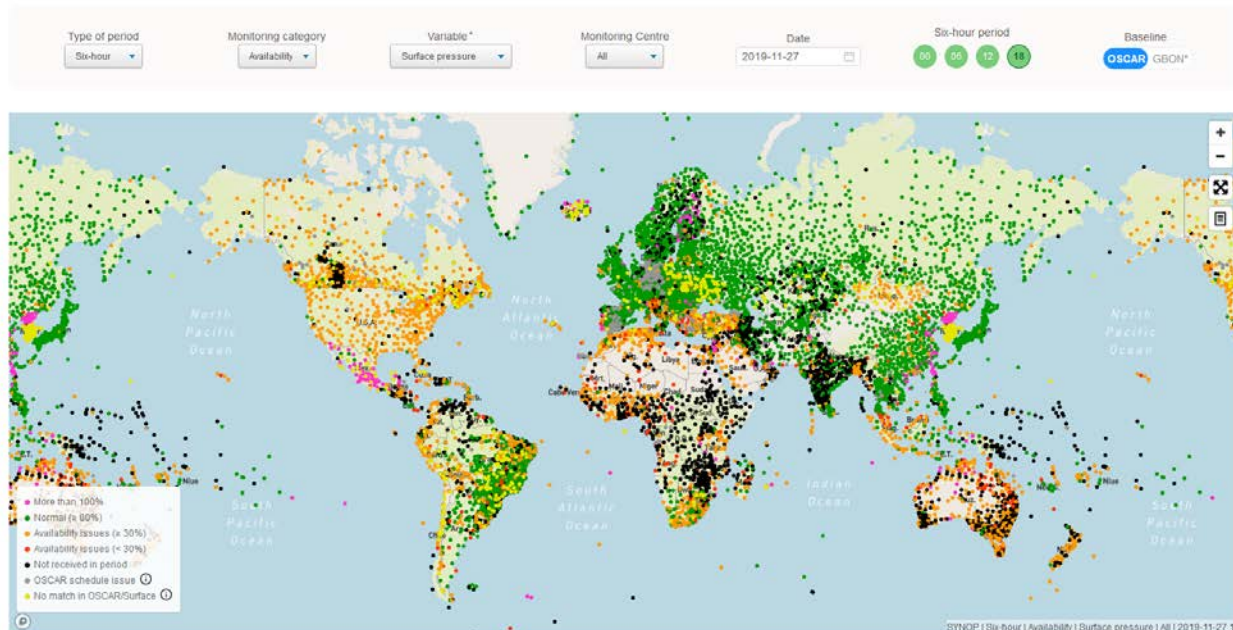
The scope of the WDQMS

- 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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