Session 3.2

Introduction of RWC mandatory functions

Kohei MATSUDA

Japan Meteorological Agency

RWC mandatory functions

1. Regional WIGOS metadata management (work with data providers to facilitate collecting, updating and providing quality control of WIGOS metadata in OSCAR/Surface)
2. Regional WIGOS performance monitoring and incident management (WIGOS Data Quality Monitoring System; WDQMS) and follow-up with data providers in case of data availability or data quality issues

Ref. Annex to Decision 30 (EC-68) CONCEPT NOTE ON ESTABLISHMENT OF REGIONAL WMO INTEGRATED GLOBAL OBSERVING SYSTEM CENTRES

OSCAR/Surface

Members shall share metadata …

- WIGOS Manual

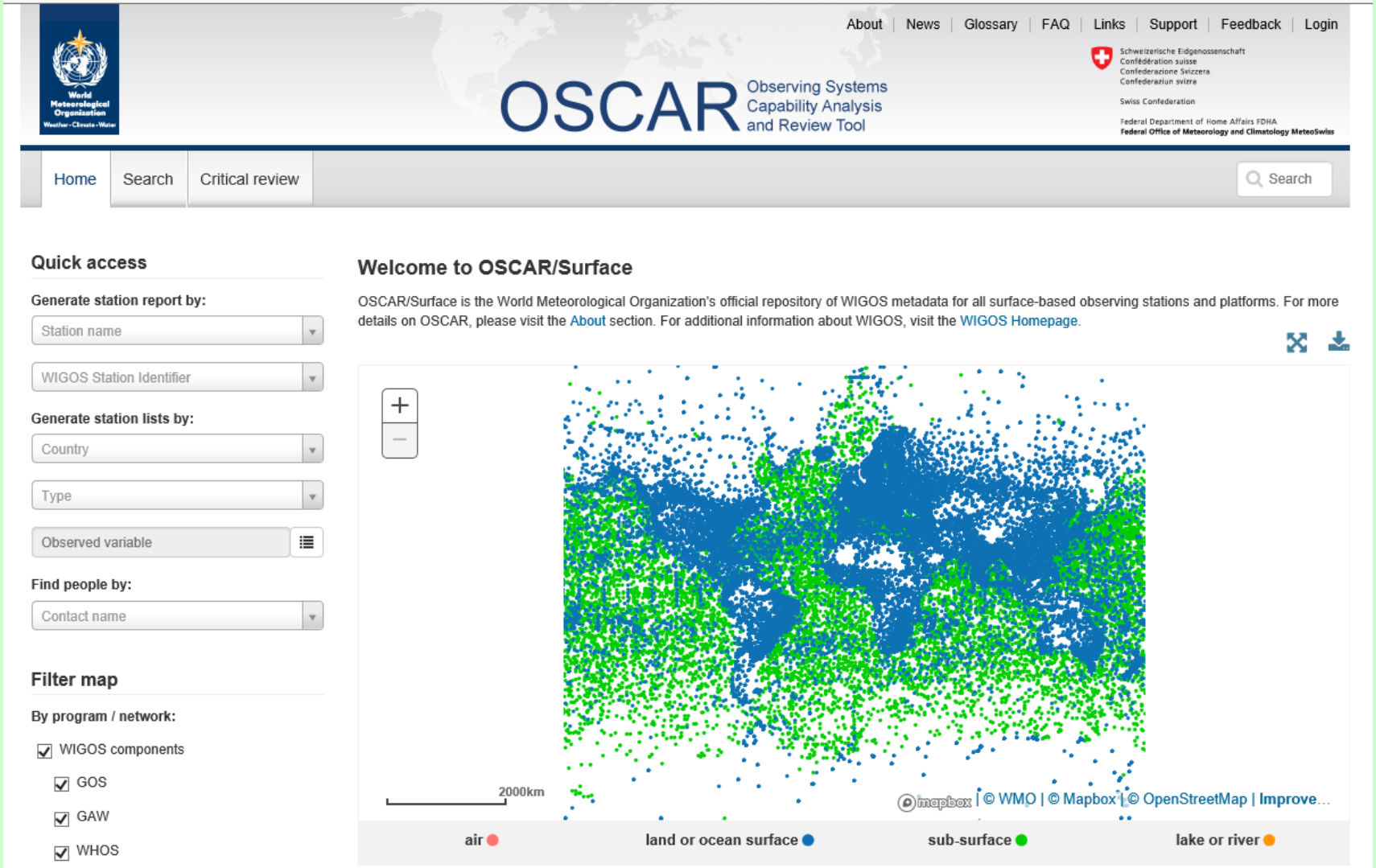
2.5.3 Global compilation of observational metadata

2.5.3.1 Members shall make available to WMO for global compilation those components of the WIGOS metadata that are specified as mandatory or conditional (whenever the condition is met).

Note: Global compilations of WIGOS metadata are held in several databases. The database of the Observing Systems Capability Analysis and Review tool (OSCAR) of the WIGOS Information Resource (WIR) is the key source of information for WIGOS metadata. Other global compilations of specific components of WIGOS metadata include elements of the GAW Station Information System (GAWSIS), the database of the JCOMM In Situ Observations Programme Support Centre (JCOMMOPS) and others. Purpose and management of WIR and OSCAR are described in Attachment 2.2.

WIGOS metadata model is fairly comprehensive, lots of elements to report

Why OSCAR/Surface?



Example:Tokyo

TOKYO (Japan)

in WMO Region II - Asia

Atmosphere > Pressure

Atmospheric pressure - [Geometry: Point]

Variable:	Atmospheric pressure
Geometry:	Point
Programs / network affiliations:	GOS
	RBSN(S)

Deployments

From 2016-04-29

Near Real Time: No

Instrument characteristics

Manufacturer:	(unknown)
Model:	unknown
Observing method:	(unknown / unspecified)

Coordinates

Latitude	Longitude	Elevation	Geopositioning method	From
35.6916666667°N	139.7511111111°E	24.2m		

WMO region:	II - Asia
Country / Territory:	Japan
Coordinates:	35.6916666667°N, 139.7511111111°E, 25.2m

Programs / r

Program / network affiliation
GOS
CLIMAT(C)
RBCN
RBSN(S)

WIGOS Metadata Standard

CHAPTER 2.

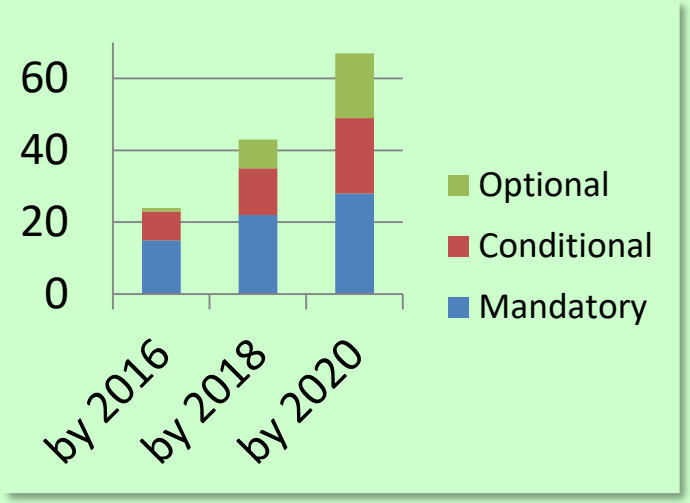
WIGOS METADATA CATEGORIES

- 10 categories of WIGOS metadata have been identified.
- They define the WIGOS Metadata Standard, each category consisting of one or more metadata elements.
- Each element is classified as mandatory (M), conditional (C) or optional (O).

https://wis.wmo.int/WIGOS-MD

Implementation of WMDS

- Reporting obligations
  - Mandatory items (28)
  - Conditional items (21)
  - Optional items (18)
- Adoption in 3 phases
  - Phase I 2016 (24)
  - Phase II 2017-2018 (19)
  - Phase III 2019-2020 (24)



Implementation of WMDS

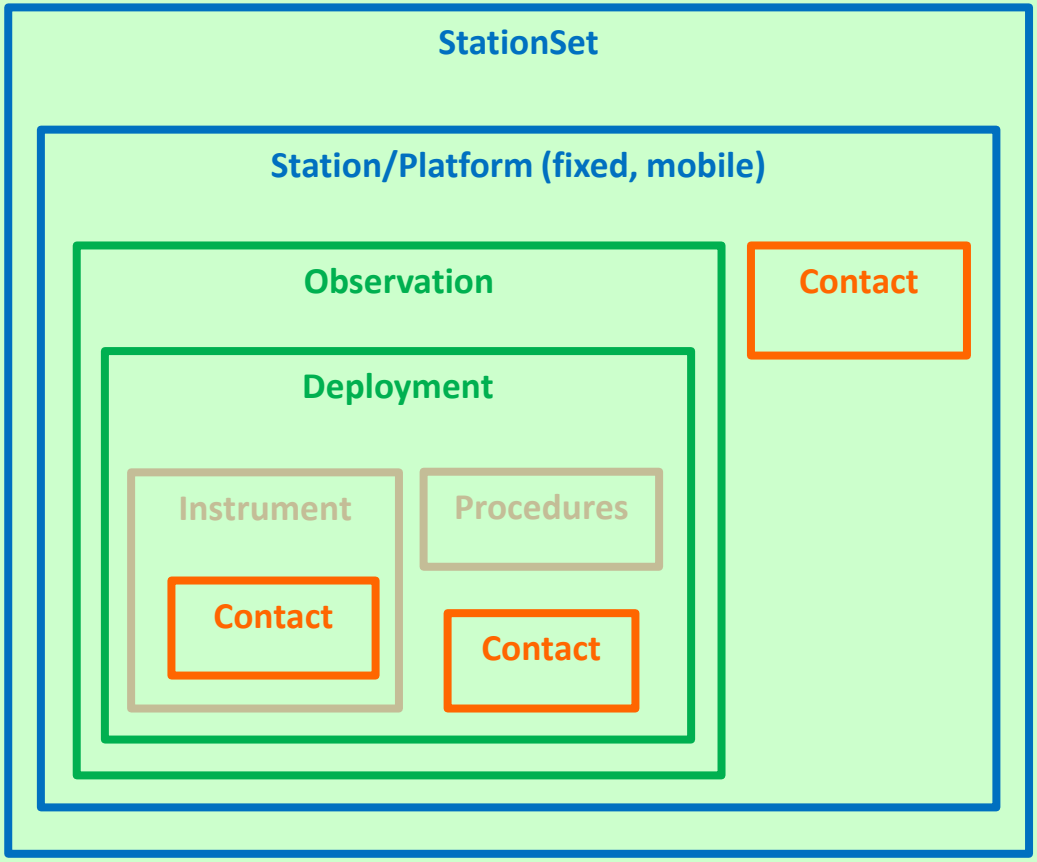
Category	ID	Name	*Phase I 2016*	*Phase II 2018*	*Phase III 2020*
1.Observed variable	*1-01*	*Observed variable – measurand*	*M*		
	1-02	*Measurement unit*	*C*		
	1-03	*Temporal extent*	*M*		
	1-04	*Spatial extent*	*M*		
	1-05	*Representativeness*		*O*	

Category	ID	Name	*Phase I 2016*	*Phase II 2018*	*Phase III 2020*
4.Environment	*4-01*	*Surface cover*			*C*
	4-02	*Surface cover classification scheme*			*C*
	4-03	*Topography or bathymetry*			*C*
	4-04	*Events at observing facility*		*O*	
	4-05	*Site information*		*O*	
	4-06	*Surface roughness*			*O*
	4-07	*Climate zone*			*O*

mandatory (M) conditional (C) optional (O)

10 WIGOS metadata categories
WMDS vs OSCAR/Surface

1. Observed variable
2. Purpose of observation
3. Station/ platform
4. Environment
5. Instruments & methods of observation
6. Sampling
7. Data processing and reporting
8. Data Quality
9. Ownership and Data Policy
10. Contact



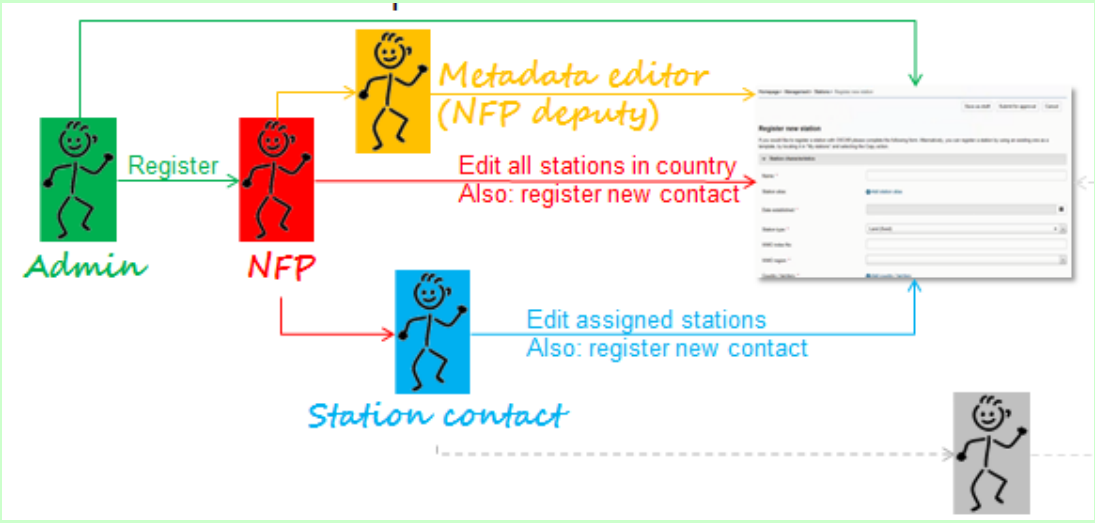
→ Defines categories and elements
→ **flat**

→ Reference implementation of WMDS
→ **Hierarchical structure**

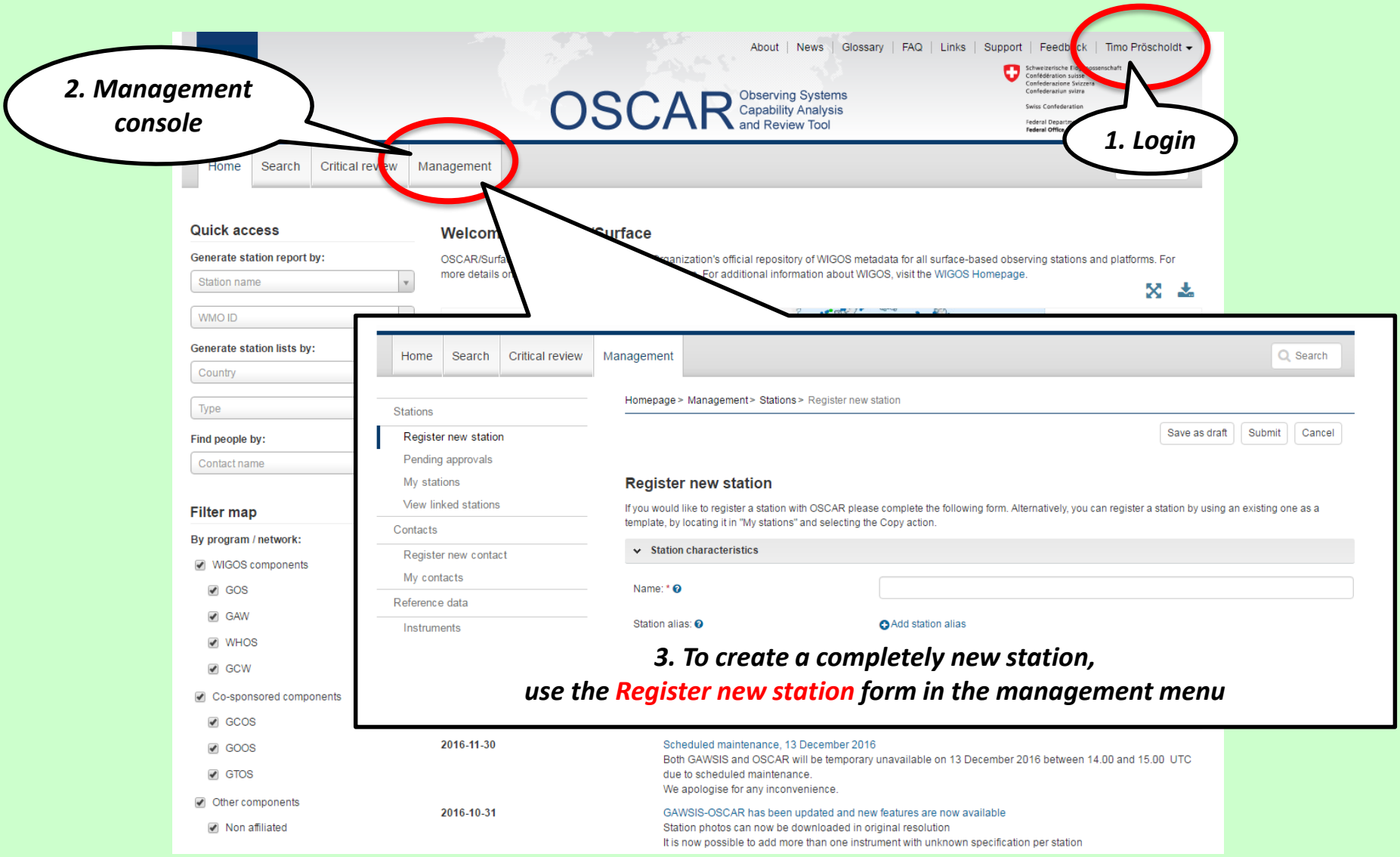
How to get an account?

There are two ways to get an account

1. Designation as National Focal Point (NFP) for OSCAR/Surface by Permanent Representative
2. NFP, or other delegee, creates a user in OSCAR/Surface



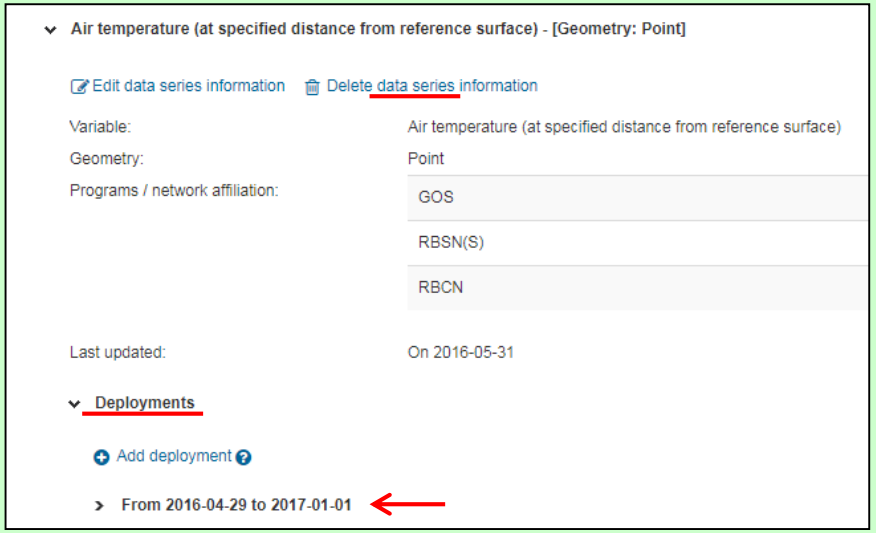
How to create a new station?



How to close a station?

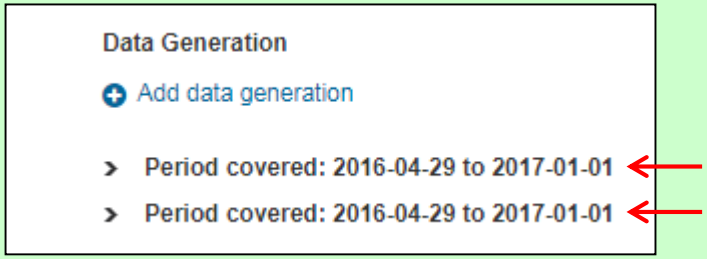
① Close Data Series

Put End-Date on
Deployments
Data-Series

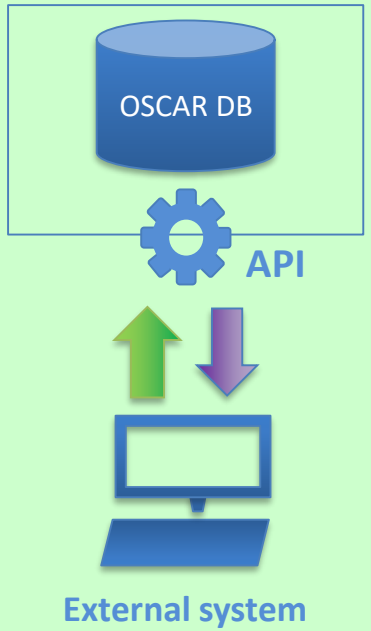


② Put Deployment End-Date

Set End-Date on **Data-Generations** under the Deployment (deployment End-date will be set automatically)

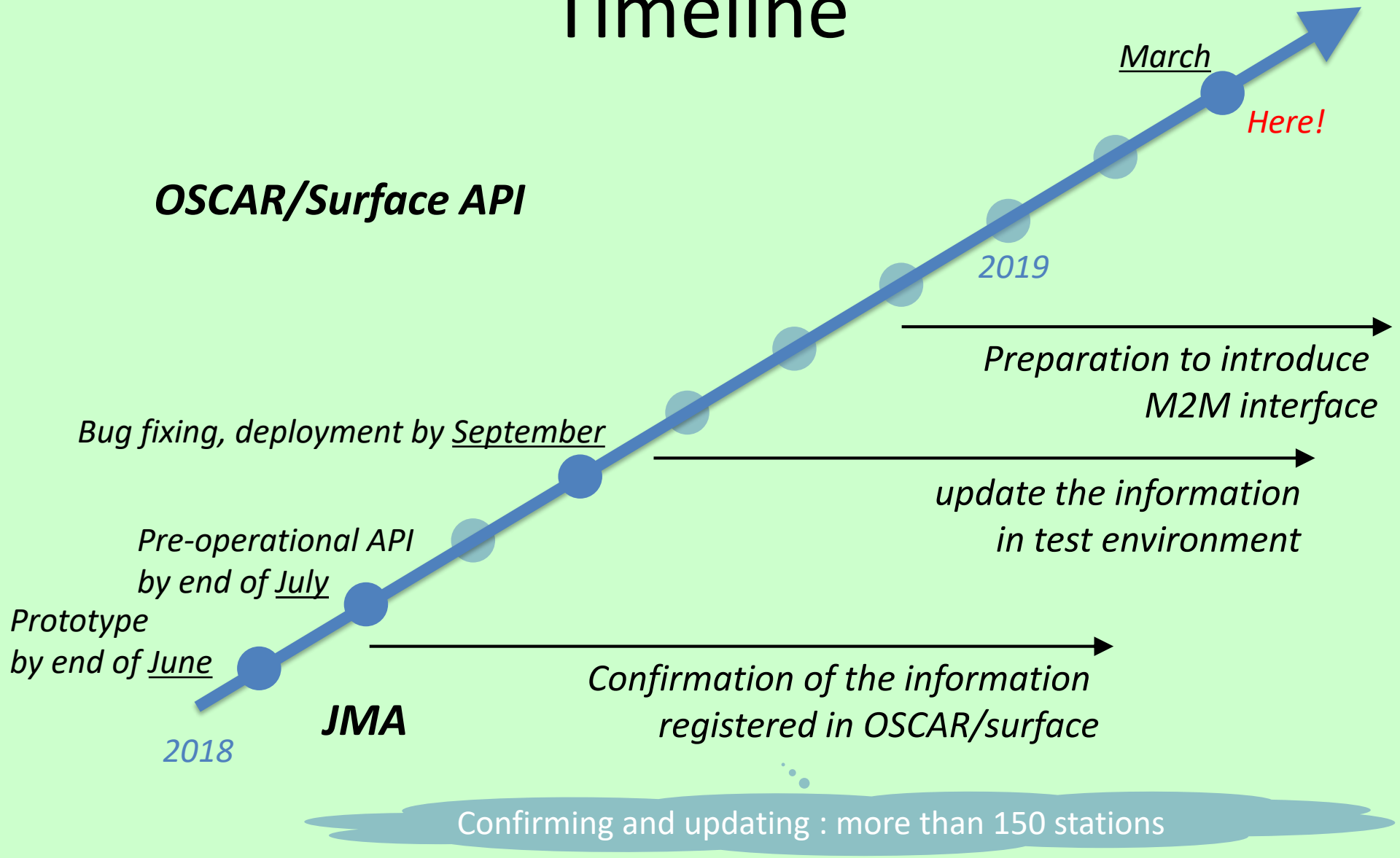


The OSCAR/Surface API



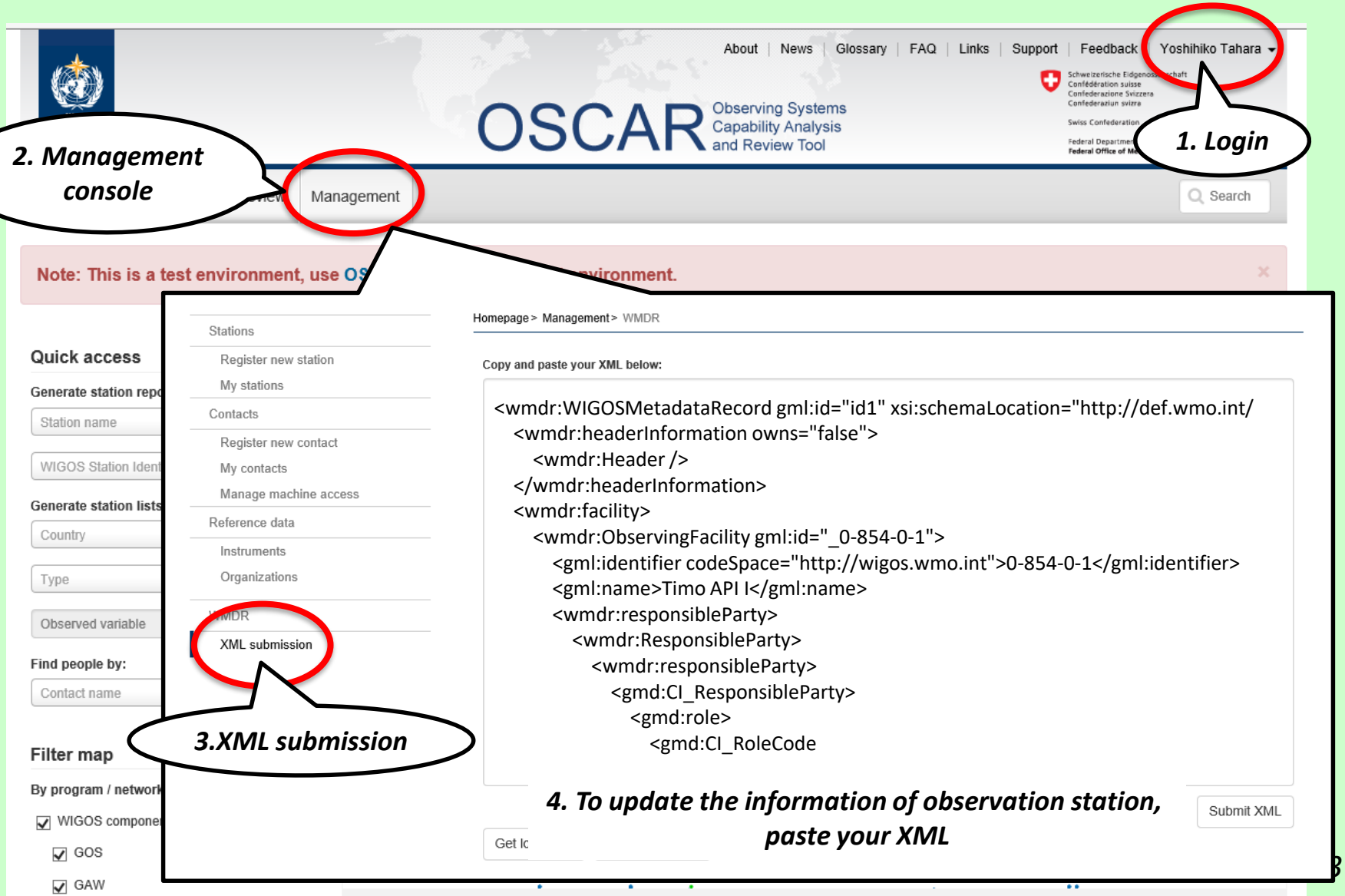
- Send and retrieve information from/to OSCAR/Surface in JSON/XML
  - Search stations: /rest/api/search/station
  - Download results: /rest/search/download/stationSRs
  - Download WMD XML representation of station
- An API (Application Programming Interface) allows machine-to-machine interaction, intended to support bulk operations or repeated updates

Timeline



Confirming and updating : more than 150 stations

OSCAR/Surface TEST environment



Summary

- OSCAR/Surface manages metadata comprehensively based on WIGOS Metadata Standard
  - 10 categories, reporting obligations, 3phase
- In OSCAR/Surface, the procedure of registration and the update of metadata is simple

- Make plans for registration of metadata and keep the data up-to-date
- The final goal is to manage all metadata in OSCAR/Surface

WDQMS

What is WDQMS?

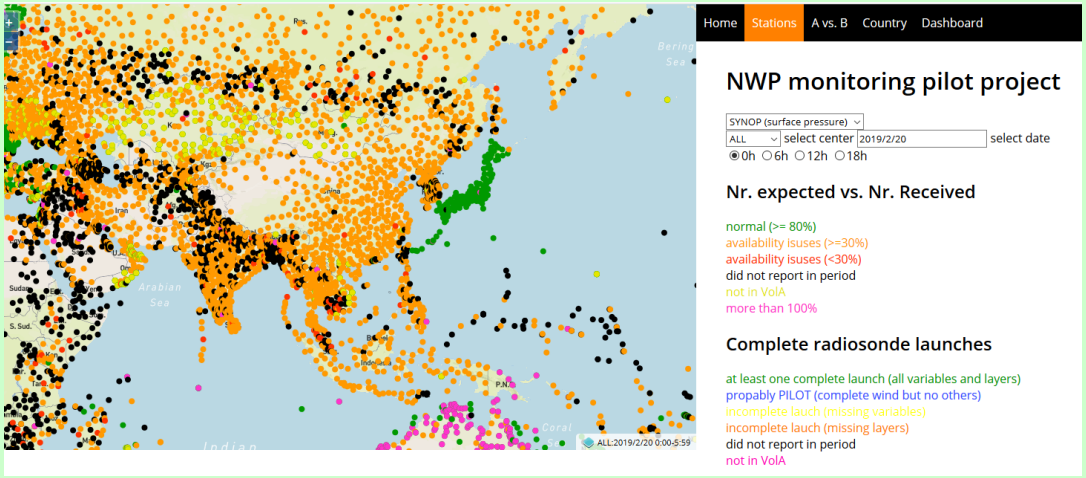
- WIGOS Data Quality Monitoring System
  - Addressed by the two WIGOS Workshops on Quality Monitoring and Incident Management held in December 2014 and December 2015
  - Based on the request to review and modernize the Numerical Weather Prediction(NWP)-based monitoring of the conventional components of the GOS.

WDQMS components

- WDQMS consists of:
  - the WIGOS Monitoring Function,
  - the WIGOS Evaluation Function and
  - the WIGOS Incident Management Function.

Monitoring

- Essentially undertaken by WIGOS Monitoring Centers (e.g. Global NWP Centers)
- Monitoring reports for each station of the GOS should be generated and made available by the WIGOS Monitoring Centers on a daily basis



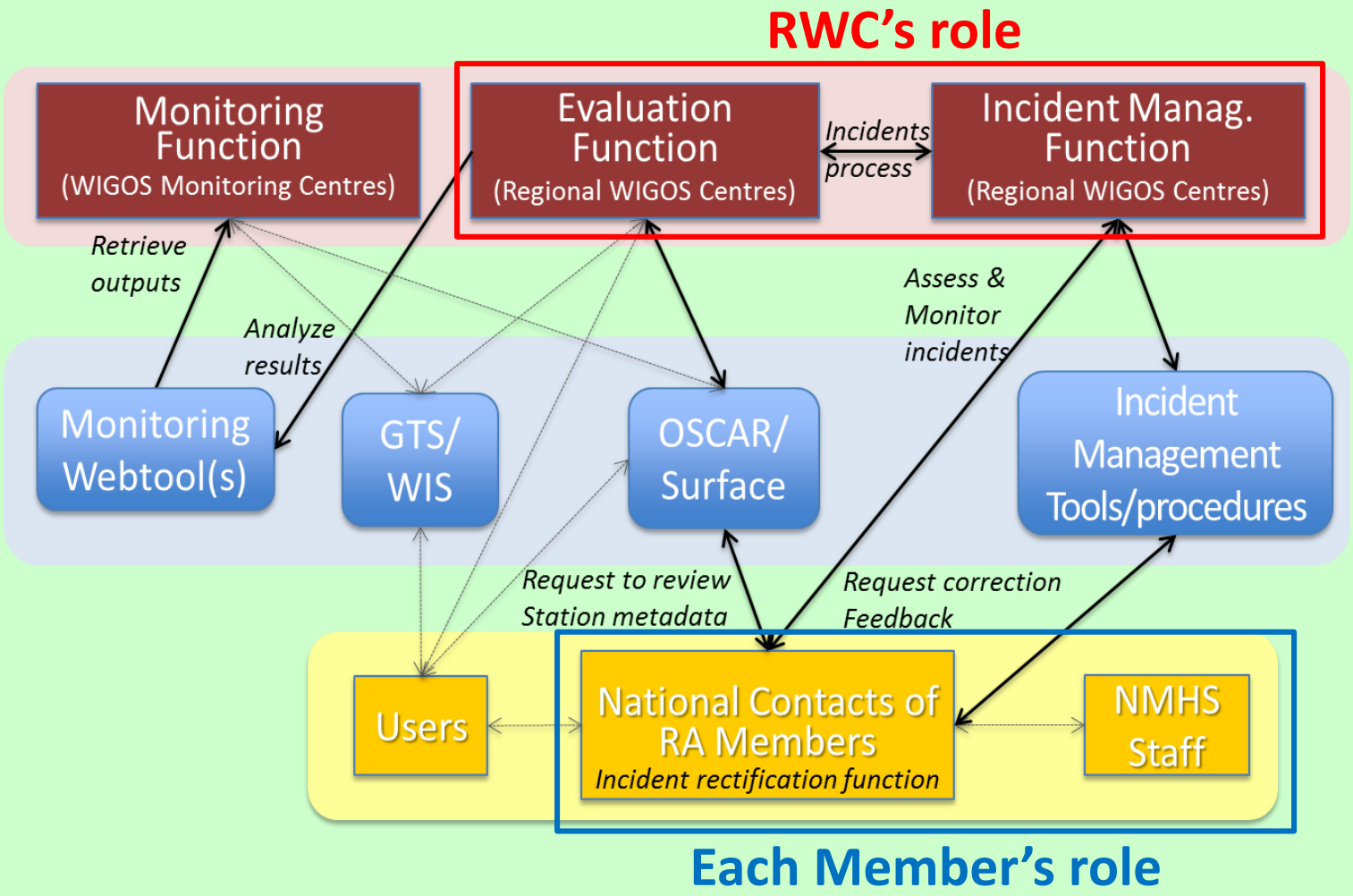
Evaluation

- To take the Monitoring outputs from all the contributing WIGOS Monitoring Centers taking into account all relevant information
- To generate routine daily performance reports based on at least two performance indicators:
  - a comparison with the availability to the expected number of observations as described in OSCAR/Surface
  - Trends in network performance
- Should be undertaken by Regional WIGOS Centers

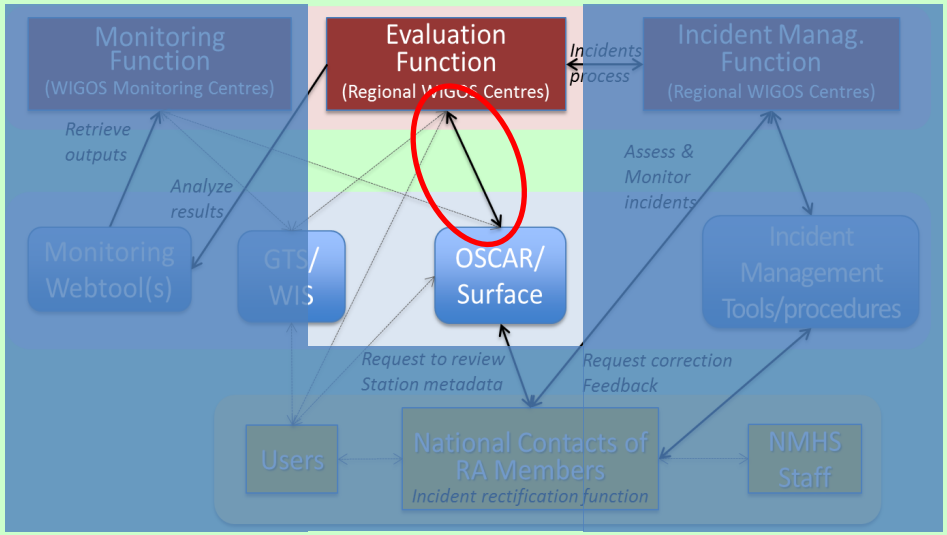
Incident Management

- To undertake the incidents raised by the Evaluation function
- Should be undertaken by Regional WIGOS Centers
- Key to success of this function is clear communication of the incident with the supplier
- Such communication is assumed to be realized by the web-based issue tracking tools
- In most cases, the task to correct the incident will be the responsibility of the suppliers / Members

The process of the WDQMS



Relation to the OSCAR/Surface



- Evaluation function should evaluate availability, timeliness and accuracy from monitoring outputs.
- Evaluation of availability requires the expected number of observations which should be referred to the OSCAR/Surface metadata.
- Evaluation of accuracy sometimes needs the information such as barometer or station heights and station positions in the OSCAR/Surface metadata.

Reference

TECHNICAL GUIDELINES FOR REGIONAL WIGOS CENTRES (RWCS) ON THE WIGOS DATA QUALITY MONITORING SYSTEM (WDQMS) FOR SURFACE-BASED STATIONS OF THE GOS (Technical Guidance)

http://www.wmo.int/pages/prog/www/wigos/documents/Tools/WDQMS-RWC_en.docx

Summary

- WDQMS composed of Monitoring, Evaluation and Incident Management functions.
- Clear communication is key to success.
- WDQMS refers to OSCAR/Surface as “correct” information, thus management of its metadata is fundamental.

Each Member should understand how WDQMS works.

Thank you for your attention.