

***ONLINE WORKSHOP ON REGIONAL WIGOS CENTRE (RWC) FUNCTIONS AND
TOOLS FOR REGIONAL ASSOCIATION (RA) II
12 July 2021***

**Examples of monitoring, evaluation and issue-solving
using the RWC tools**



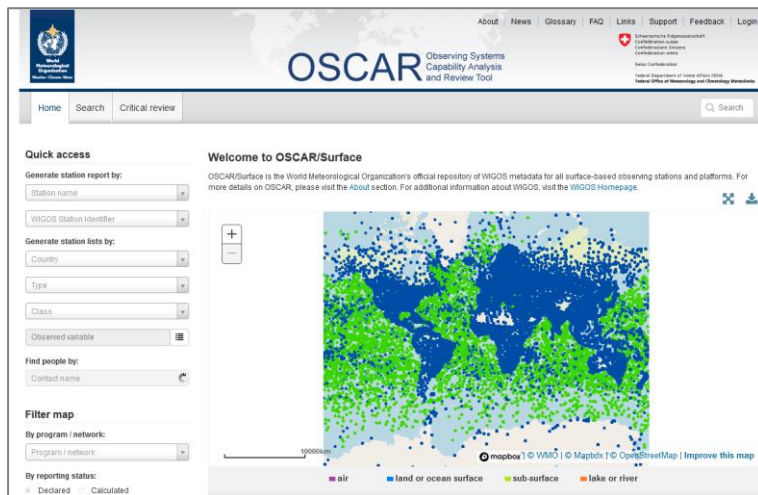
WMO OMM

World Meteorological Organization

Organisation météorologique mondiale

Global tools available for RWCs/Members

- OSCAR/Surface
- OSCAR/Surface Schedule tool
- WDQMS
- Incident Management System

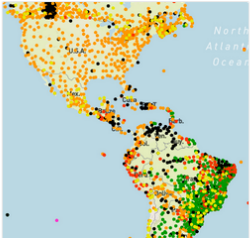


Welcome to the WIGOS Data Quality Monitoring System (WDQMS) webtool

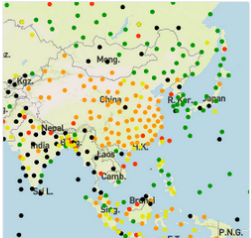
The WDQMS webtool is a resource developed by WMO to monitor the performance of all WIGOS observing components.

For more information about the webtool, click [here](#).

The NWP-based monitoring is currently available for:



Land-surface observations
Availability & Quality



Upper-air land observations
Availability & Quality

OSCAR/Surface Schedule tool

This tool allows to calculate the number of expected observations of variables from a station for the synoptic intervals (see table below) on a given day.

0-20000-0-12345 WIGOS Station Identifier 1981 / 01 / 25 Date

Variables

Result



Incident Management System for RWC / RWC-33

06102020-South Africa-Royal National Park-Suspicious surface pressure values

Details

Type: Issue

Status: **OPEN**

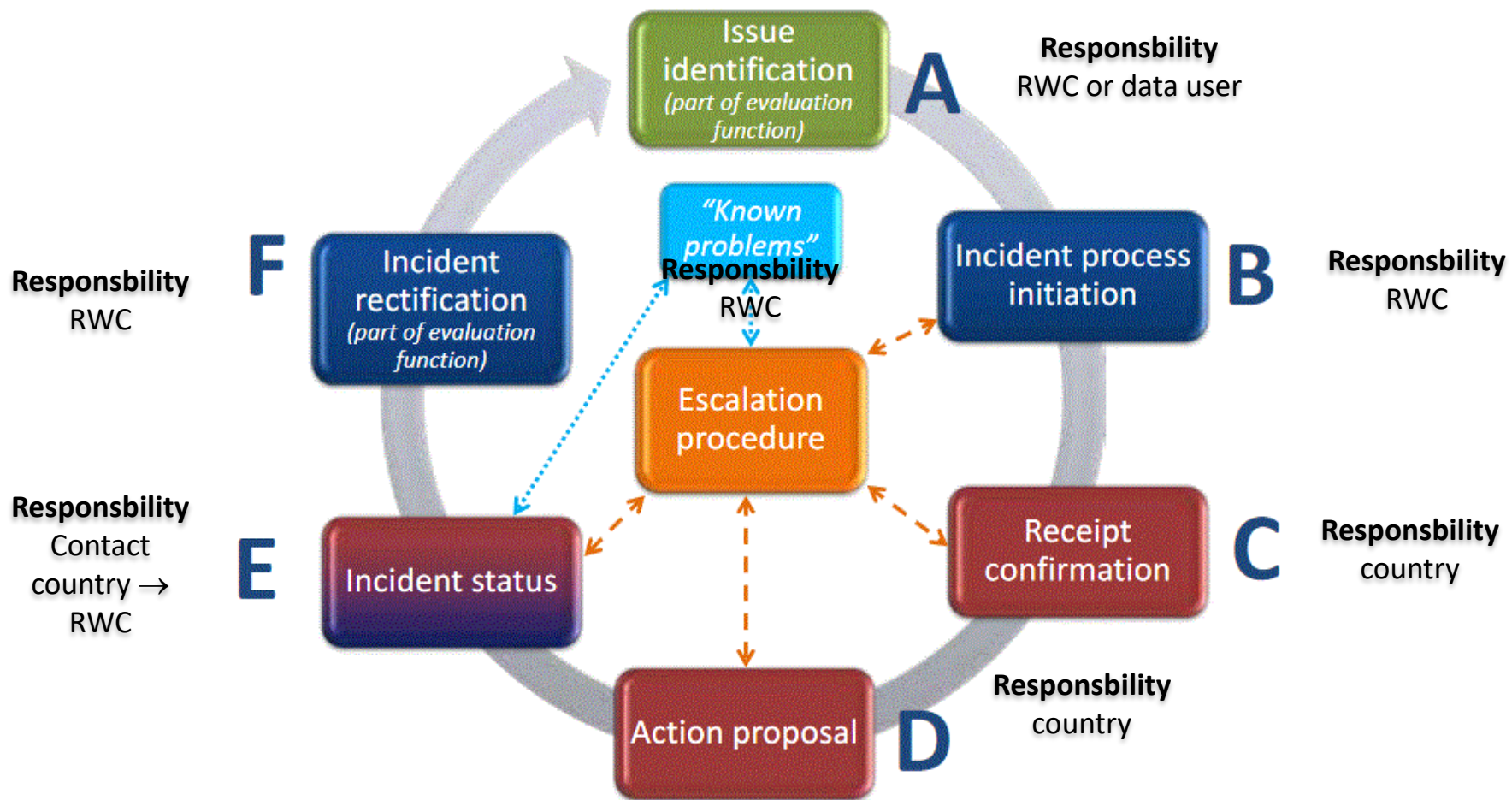
Priority: **High**

Component/s: **RWC South Africa**

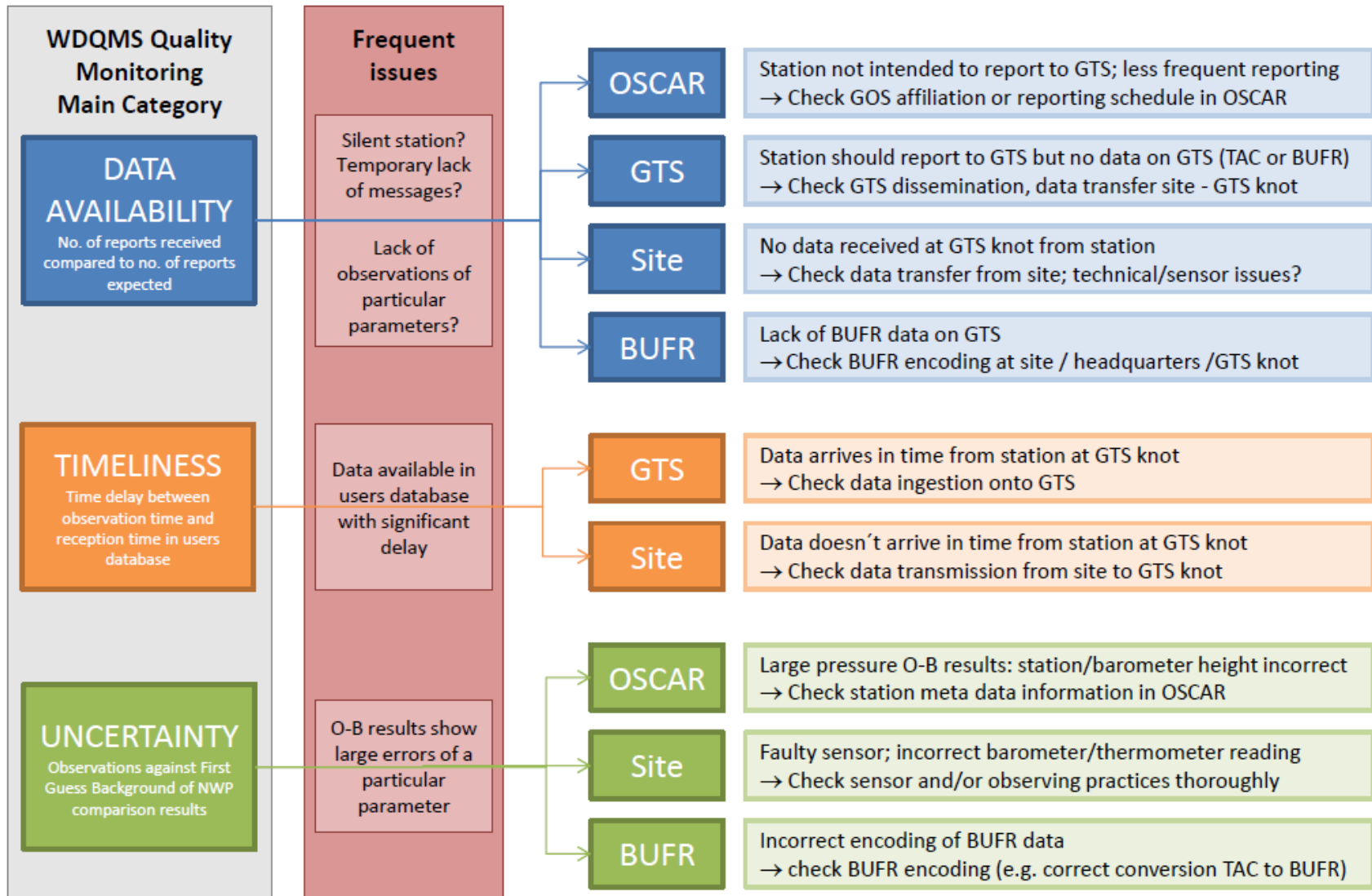
WIGOS ID: **0-20000-0-68474**

WIGOS Issue Category: **Surface quality**

Incident Management System Procedure



Frequent issues arising in WDAQMS Quality Monitoring and their potential sources



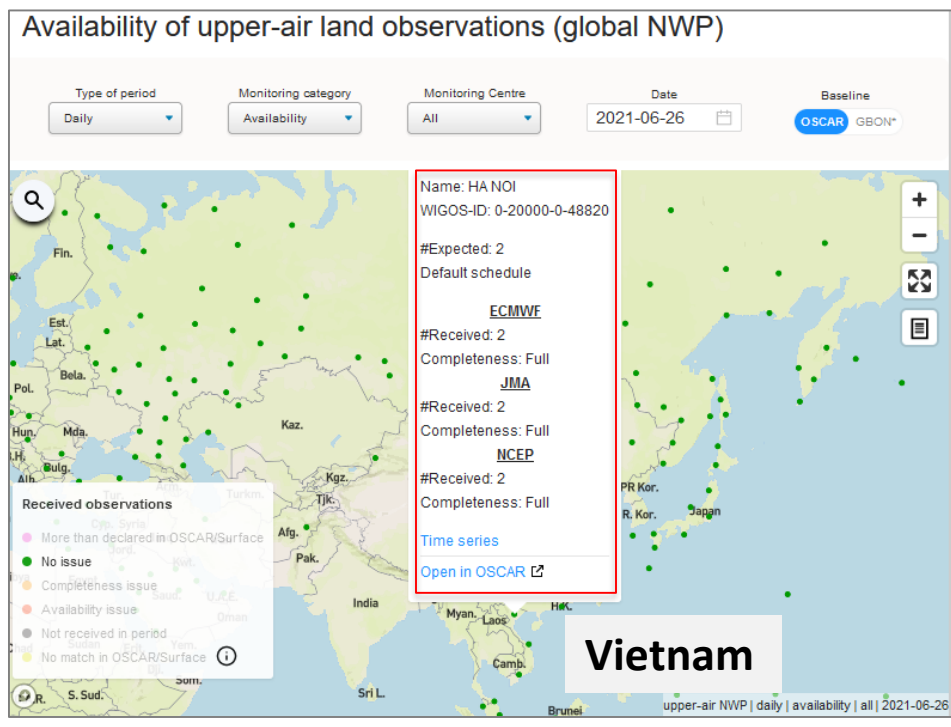
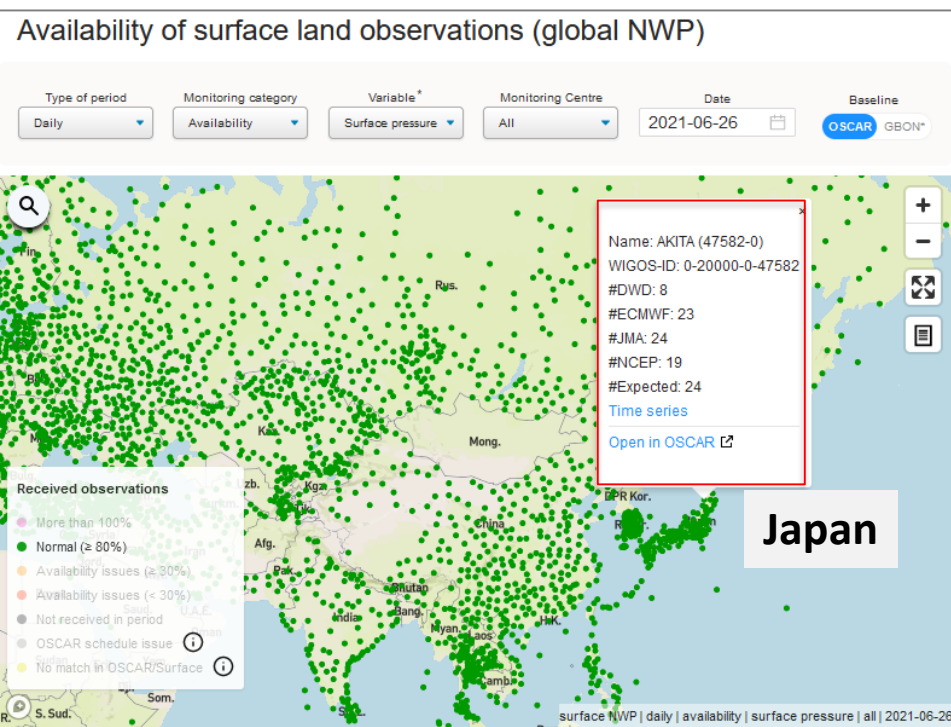
Issues with surface land stations – Level of Priority

Category	Description	Level of priority
Data availability (issues/incidents might be identified in Traditional Alphanumeric Code (TAC) and/or Binary Universal Form for the Representation of meteorological data (BUFR) data)	One station showed data outages occasionally	Low
	Several/all stations of one National Meteorological and Hydrological Service (NMHS)/country showed data outages occasionally since 5 d ago	Medium
	One station did not provide any data since 5 d ago	High
	Several/all stations of one NMHS/country did not provide any data since 5 d ago	Very high
Timeliness (SYNOP data should be available for users within 50 min after the nominal observation time)	Data of one station seemed to arrive delayed (later than 100 min) occasionally since 5 d ago	Low
	Data of several/all stations of one NMHS/country seemed to arrive delayed (later than 100 min) occasionally since 5 d ago	Medium
	All data of one station seemed to arrive delayed (later than 100 min) since 5 d ago	High
	All data of several/all stations of one NMHS/country seemed to arrive delayed (later than 100 min) since 5 d ago	Very high
Accuracy/ measurement uncertainty (issues/incidents might be identified for several parameters, for example pressure, temperature, wind and humidity)	Daily averages of quantitative measures of performance characteristics (based on observation minus background (O-B) results from numerical weather prediction (NWP)) of one station exceeded the target occasionally since 5 d ago (regarding bias [trueness], standard deviation [precision] or number of gross errors)	Low
	Daily averages of quantitative measures of performance characteristics (based on NWP O-B results) of several/all stations of one NMHS/country exceeded the target occasionally since 5 d ago (regarding bias [trueness], standard deviation [precision] or number of gross errors)	Medium
	All daily averages of quantitative measures of performance characteristics (based on NWP O-B results) of one station exceeded the target since 5 d ago (regarding bias [trueness], standard deviation [precision] or number of gross errors)	High
	All daily averages of quantitative measures of performance characteristics (based on NWP O-B results) of several/all stations of one NMHS/country exceeded the target since 5 d ago (regarding bias [trueness], standard deviation [precision] or number of gross errors)	Very high
Quality (issues/incidents might be identified concerning suspicious values in reports, for example negative temperatures or snow during the summer)	One station showed suspicious values in reports occasionally in the last 5 d	Low
	Several/all stations of one NMHS/country showed suspicious values in reports occasionally in the last 5 d	Medium
	All data of one station showed suspicious values in reports over several days (in the last 5 d)	High
	All data of several/all stations of one NMHS/country showed suspicious values in reports over several days (in the last 5 d)	Very high

● Normal ($\geq 80\%$)

➔ station is performing well, no action required 😊

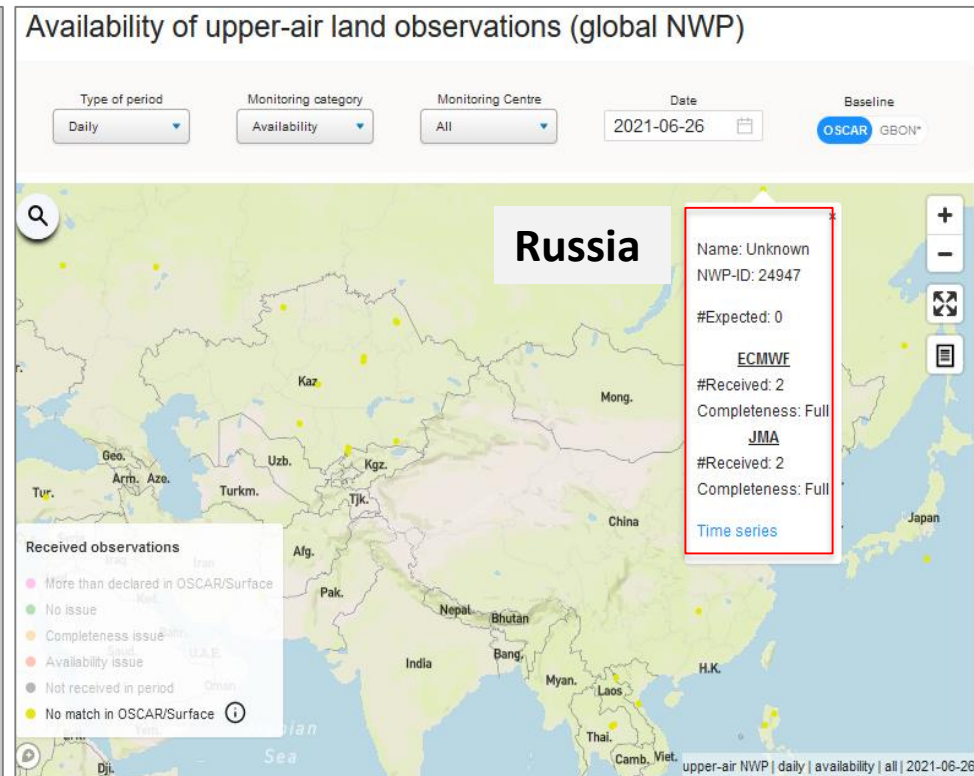
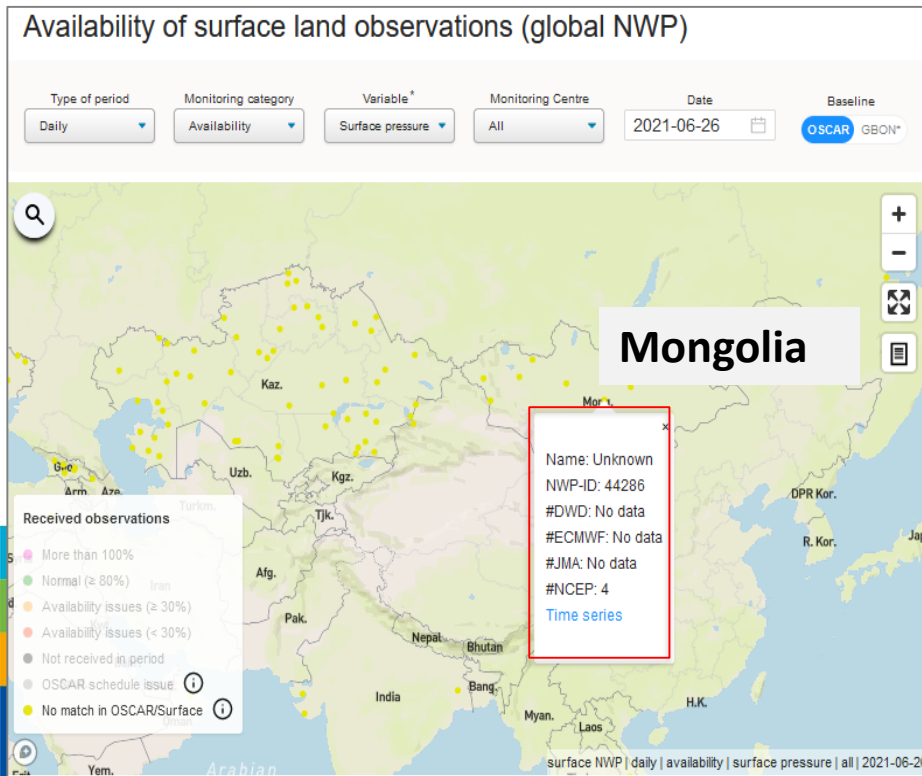
- WIGOS-ID assigned
- #Expected = #Received for at least 2 Monitoring Centres
- Link to open the station in OSCAR



● No match in OSCAR/Surface

- ➔ **Evaluation:** Name Unknown
NWP-ID instead of WIGOS-ID
No #Expected , Data received
No link to open station in OSCAR

➔ **Action required:** Station to be registered in OSCAR/Surface



● Example of OSCAR schedule issue

- ➔ **Evaluation:**
- Field for 'Used for International reporting' not set. #Expected=0
 - 2 Reporting schedules under 'Data generation'
 - No active schedule (OSCAR/Surface Schedule tool)

- ➔ **Action required:** Delete 1 of the reporting schedules. Update remaining schedule with correct information and indicate if used for international exchange Used for International reporting

Availability of surface land observations (global NWP)

Type of period: Daily | Monitoring category: Availability | Variable*: Surface pressure | Monitoring Centre: All | Date: 2021-06-26 | Baseline: OSCAR GBON*

Received observations

- More than 100%
- Normal (≥ 80%)
- Availability issues (≥ 30%)
- Availability issues (< 30%)
- Not received in period
- OSCAR schedule issue
- No match in OSCAR/Surface

Name: LINHAI
WIGOS-ID: 0-20000-0-58652
#DWD: 8
#ECMWF: 8
#JMA: 8
#NCEP: 4
#Expected: 0
Time series
Open in OSCAR

China

Brvisurface NWP | daily | availability | surface pressure | all | 2021-06-26

table below) on a given day.

WIGOS Station Identifier: 0-20000-0-58652 | Date: 1981 / 01 / 25 | Variables: ALL, Air temperature (224), Atmospheric pressure (216), Humidity (251)

Result

Station: 0-20000-0-58652 (LINHAI)

No active schedules

Atmospheric pressure - [Geometry: Point]

Variable: Atmospheric pressure
Geometry: Point
Programs / network affiliations: GOS
Last updated: On 2016-05-31

Deployments

- From 2007-01-01
 - Near Real Time: No
 - Instrument characteristics
 - Data Generation
 - From: 2007-01-01
 - Reporting
 - Month: January - December
 - Day: Monday - Sunday
 - Time (UTC): 00:00 - 12:59
 - Diurnal base time: 00:00
 - Reporting interval: 3 h (hour)
 - Measurement unit: (unknown) (unknown)
 - Reference datum: mean sea level
- From: 2007-01-01
 - Reporting
 - Month: January - December
 - Day: Monday - Sunday
 - Time (UTC): 18:00 - 21:59
 - Diurnal base time: 00:00
 - Reporting interval: 3 h (hour)
 - Measurement unit: (unknown) (unknown)
 - Reference datum: mean sea level

● OSCAR schedule issue

- ➔ **Evaluation:** - Deployments: No information – From unspecified
- Data Generation: No information – From unspecified
- 'Used for International reporting' not set. #Expected=0
- No active schedule (OSCAR/Surface Schedule tool)

➔ **Action required:** Enter Observations/Measurement information

The screenshot displays the WMO OMM OSCAR/Surface Schedule tool interface. The top section, titled "Availability of surface land observations (global NWP)", includes filters for Type of period (Daily), Monitoring category (Availability), Variable* (Surface pressure), Monitoring Centre (All), Date (2021-06-26), and Baseline (OSCAR). A map of India is shown with a pop-up for station MEERUT (WIGOS-ID: 0-20000-0-42139). The pop-up lists: #DWD: 4, #ECMWF: 4, #JMA: 4, #NCEP: No data, and #Expected: 0 (circled in red). A legend for "Received observations" includes categories like "More than 100%", "Normal (≥ 80%)", "Availability issues (≥ 30%)", and "Availability issues (< 30%)".

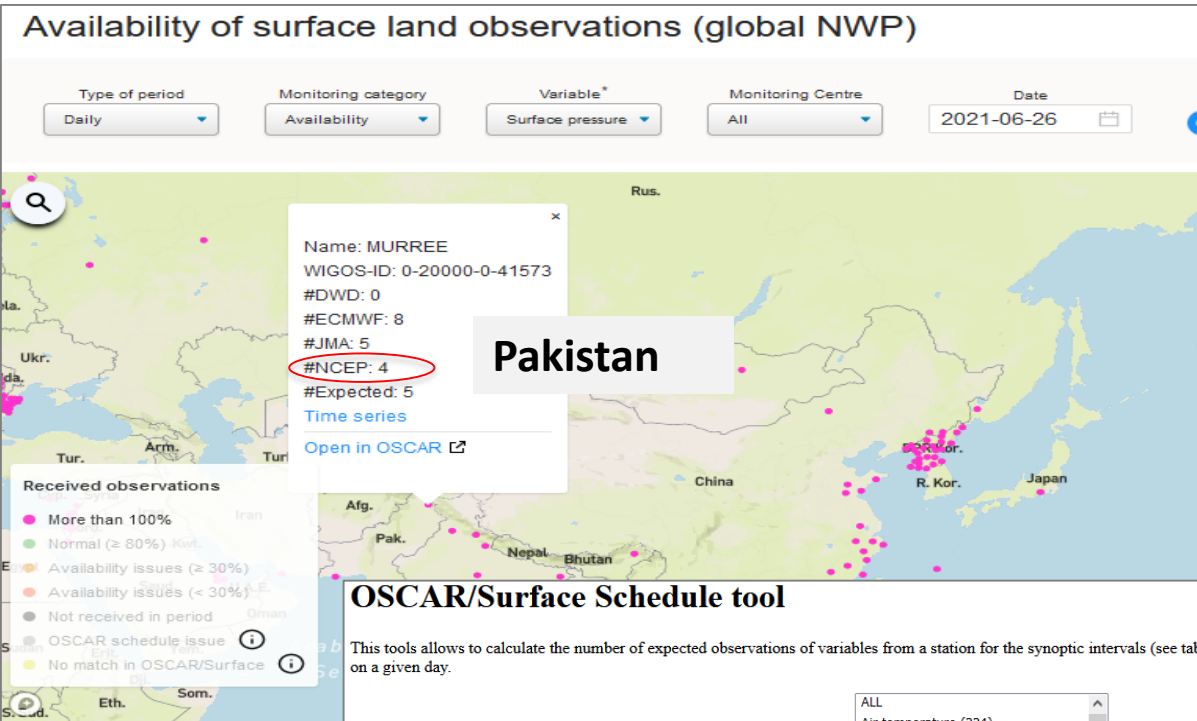
The right panel shows details for "Atmosphere > Pressure" and "Atmospheric pressure - [Geometry: Point]". It lists: Variable: Atmospheric pressure, Geometry: Point, Programs / network affiliations: GOS, Last updated: On 2016-05-31. Under "Deployments", it shows "From unspecified" with "Near Real Time: No". The "Data Generation" section is highlighted with a red box, showing "From: unspecified" and "Reporting" (unknown).

The bottom panel, titled "OSCAR/Surface Schedule tool", contains a form with "WIGOS Station Identifier" (0-20000-0-42139) and "Date" (2021/01/25). The "Variables" dropdown is set to "Atmospheric pressure (216)". The "Result" section shows "Station: 0-20000-0-42139 (MEERUT)" and "No active schedules" (circled in red).

● More than 100%

- ➔ **Evaluation:**
 - 2 Reporting schedules under 'Data generation'
 - Both reporting schedules are for intended for international exchange
 - #Expected<#Received for 1 Monitoring Centre
 - Processing error (OSCAR/Surface Schedule tool)

➔ **Action required:** Delete 1 of the reporting schedules. Update remaining schedule with correct information



Deployments

From 2016-04-29

Near Real Time: No

Instrument characteristics

Data Generation

From: 2016-04-29

Reporting

Intended for international exchange:	Yes
Month:	January - December
Day:	Monday - Sunday
Time (UTC):	00:00 - 12:59
Diurnal base time:	00:00
Reporting interval:	3 h (hour)
Measurement unit:	(unknown) (unknown)
Reference datum:	850 HPA

OSCAR/Surface Schedule tool

This tool allows to calculate the number of expected observations of variables from a station for the synoptic intervals (see table below) on a given day.

WIGOS Station Identifier: 0-20000-0-41573 | Date: 1981 / 01 / 25

Submit Query

Variables: ALL, Air temperature (224), **Atmospheric pressure (216)**, Humidity (251)

Result

Processing error

From: 2016-04-29

Reporting

Intended for international exchange:	Yes
Month:	January - December
Day:	Monday - Sunday
Time (UTC):	18:00 - 18:59
Diurnal base time:	00:00
Measurement unit:	(unknown) (unknown)
Reference datum:	850 HPA



● More than 100%

- ➔ **Evaluation:**
 - 2 'Deployments' with only 1 having a Reporting schedule
 - Both reporting schedules are for intended for international exchange
 - #Expected<#Received for 3 Monitoring Centres
 - 1 Ascent at 12h00 (OSCAR/Surface Schedule tool)

➔ **Action required:** Delete the first reporting schedule. Update remaining schedule with correct ascent information

Availability of upper-air land observations (global NWP)

Type of period: Daily | Monitoring category: Availability | Monitoring Centre: All | Date: 2021-06-26 | Baseline: OSCAR GBON*

Myanmar

Name: YANPON
WIGOS-ID: 0-20000-0-48097
#Expected: 0
#Received: 1
Completeness: Full

ECMWF
#Received: 1
Completeness: Full

JMA
#Received: 1
Completeness: Full

NCEP
#Received: 1
Completeness: Full

[Time series](#)
[Open in OSCAR](#)

Deployments

- From unspecified
 - Near Real Time: No
 - Instrument characteristics
 - Data Generation
- From: unspecified
 - Reporting
 - Measurement unit: (unknown) (unknown)
- From 2020-10-14
 - Source of observation: Instrumental automatic reading
 - Distance from reference surface (m): 21m from sea surface
 - Organization: Department of Meteorology and Hydrology [Myanmar]
 - Near Real Time: Yes
 - Instrument characteristics
 - Data Generation
- From: 2020-10-14
 - Reporting
 - Intended for international exchange: Yes** (circled in red)
 - Month: January - December
 - Day: Monday - Sunday
 - Time (UTC): 12:00 - 12:00
 - Diurnal base time: 00:00
 - Reporting interval: 1 d (day)
 - Measurement unit: hectopascal (hPa)

Result

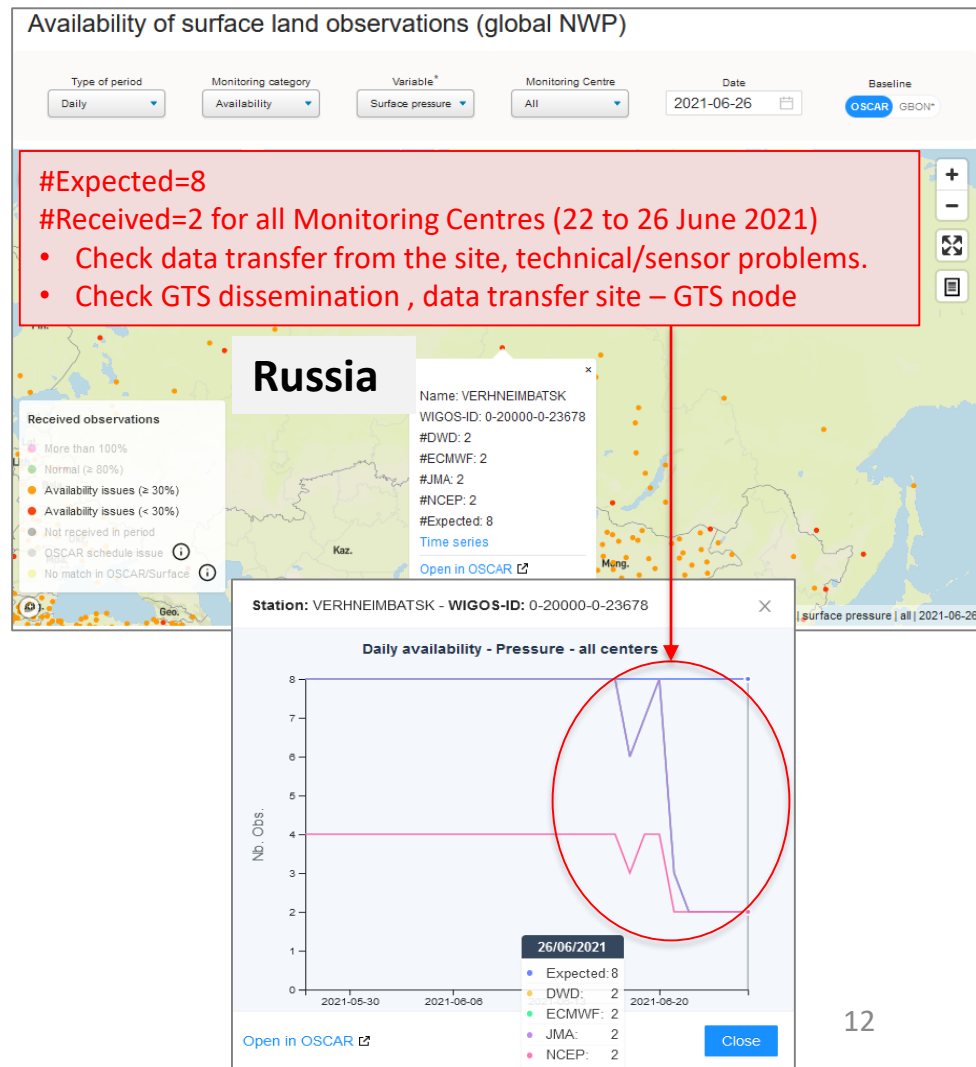
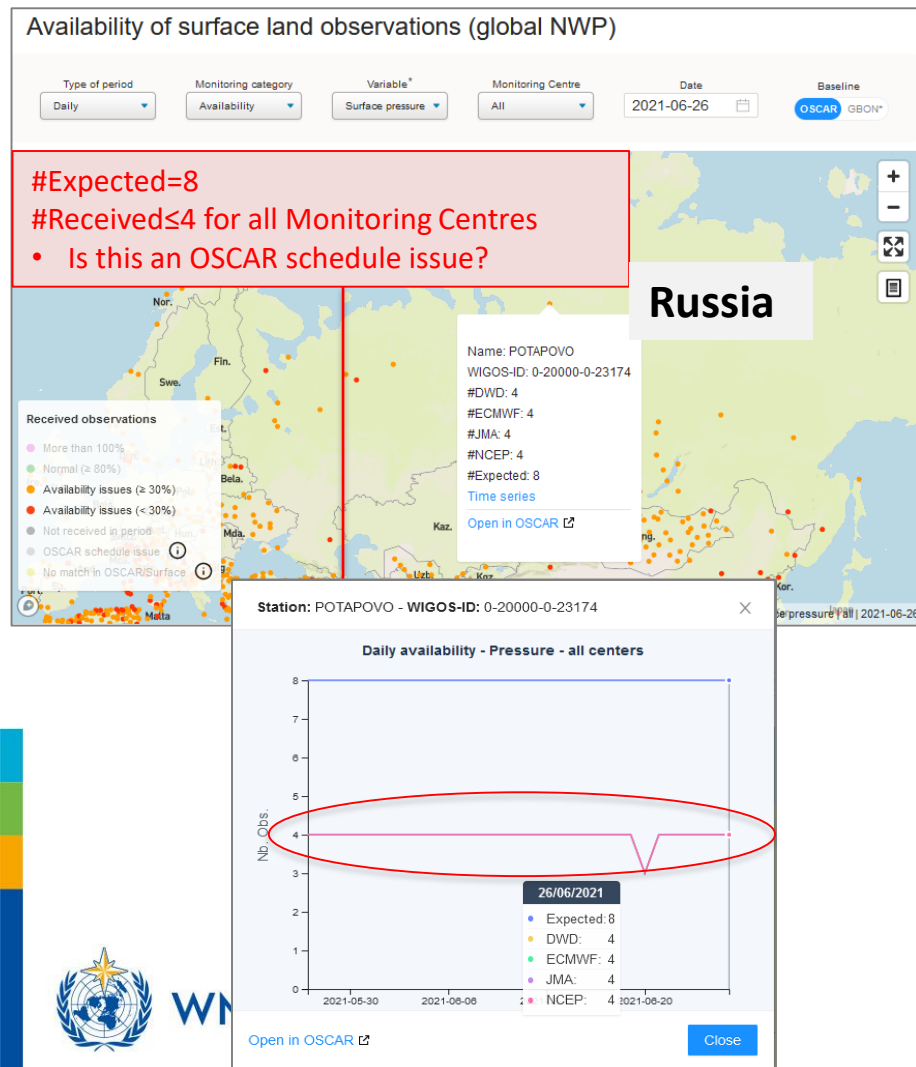
Station: 0-20000-0-48097 (YANPON)

Variable	0h:	[21-3]:	[6h:	[3-9]:	[12h:	[9-15]:	[18h:	[15-21]:	Schedules and reporting intervals
12000	0	0	0	1	0	0	0	0	Jan-Dec/Mon-Sun/12.0-11.59 [1 day, 0.00.00] <12.0-;

Availability issues ● ($\geq 30\%$) and ● ($< 30\%$)

➔ **Evaluation:** - #Received < #Expected

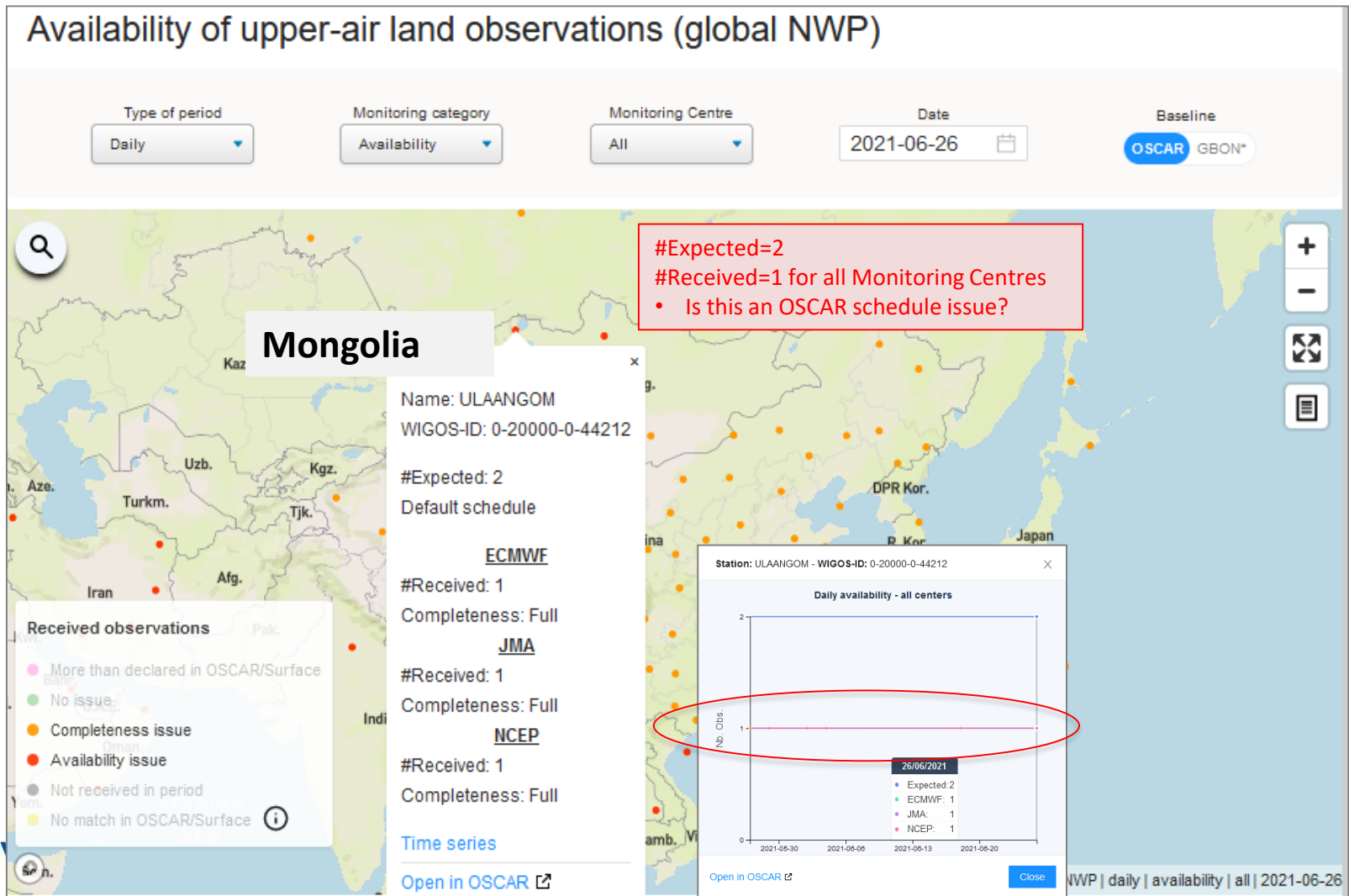
➔ **Action required:** NFP:WDQMS investigate the cause of the issue.



● Availability issue

→ Evaluation: - #Received < #Expected

→ Action required: NFP:WDQMS investigate the cause of the issue. NFP:OSCAR/Surface to update reporting schedule

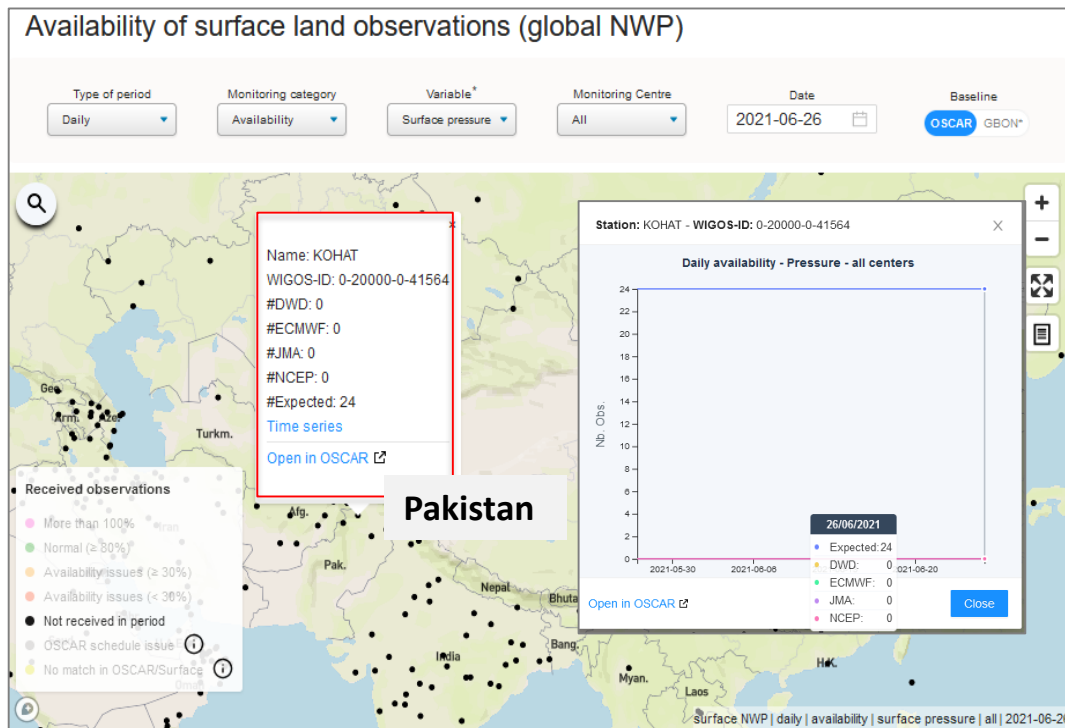


● Data not received in period

- ➔ **Evaluation:** - #Expected:24
- #Received: 0 for all Monitoring Centres

➔ Action required:

- NFP:WDQMS investigate the cause of the issue
 - Station is not intended to report to WIS: *WDQMS NFP together with OSCAR/Surface NFP to check GOS affiliation in OSCAR/Surface*
 - Technical issue at site: *WDQMS NFP to work with WIS NFP Issues related to data transmission or sensor malfunctioning*
 - Station data is expected in the WIS but no data available
- NFP:OSCAR/Surface to update metadata e.g. Not for international exchange



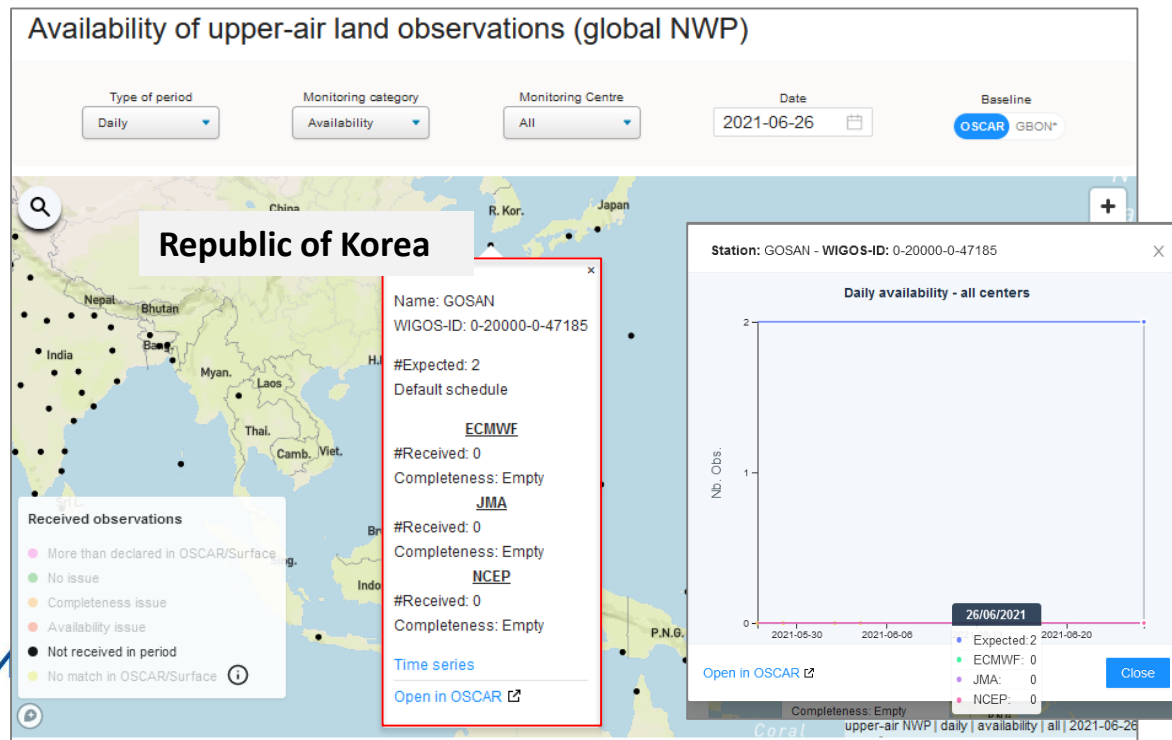
● Data not received in period

➔ **Evaluation:** - #Expected:2

- #Received: 0 for all Monitoring Centres

➔ **Action required:**

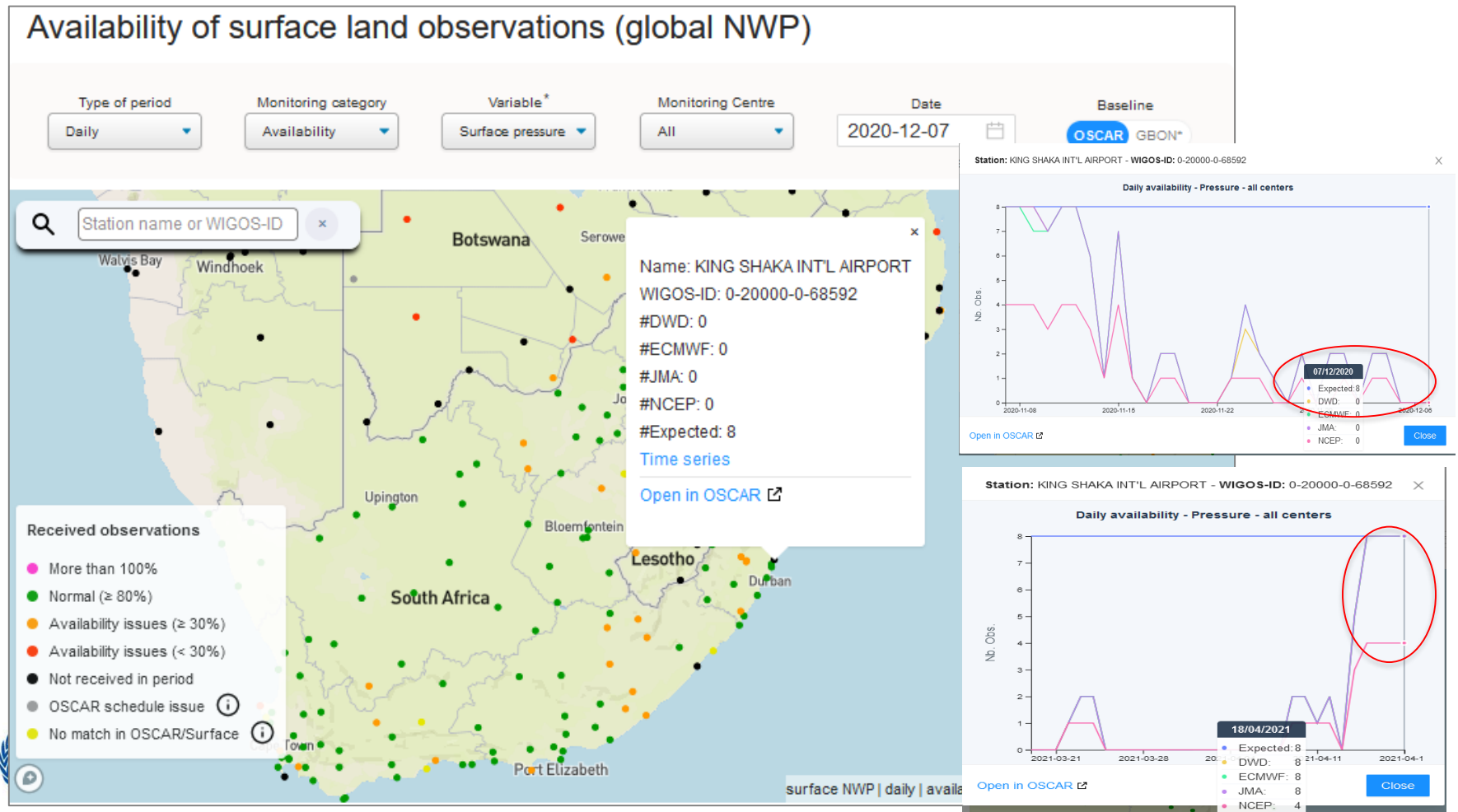
- NFP:WDQMS investigate the cause of the issue
 - Station is not intended to report to WIS: *WDQMS NFP together with OSCAR/Surface NFP to check GOS affiliation in OSCAR/Surface*
 - Technical issue at site: *WDQMS NFP to work with WIS NFP Issues related to data transmission or sensor malfunctioning*
 - Station data is expected in the WIS but no data available
- NFP:OSCAR/Surface to update metadata e.g. Not for international exchange



Example of Data Availability Issue

Station 68592: King Shaka Int'l Airport (South Africa) did not report data since 5 December 2020.

Ticket RWC-62 was issued - **Surface data availability:** ≤ 2 surface observations received for the past 30 days.





Incident Management System for RWC / RWC-62

20012021-South Africa-King Shaka Int'l Airport-Surface data availability

[Edit](#) [Comment](#) [Assign](#) [More](#) [Reopen](#)

Details

Type: Issue Status: CLOSED
Priority: High
Component/s: [RWC South Africa](#)
WIGOS ID: 0-20000-0-68592
WIGOS Issue: [Surface availability](#)
Category:

Description

King Shaka Int'l Airport

Incident date: December 2020


Surface data availability: <=2 surface observations received for the past 30 days.




▼ Activity

All Comments Work Log History Activity




▼  Samantha Linnerts added a comment - 27/Jan/21 7:37 AM


The radio link at the site is malfunctioning. The local Met. Technician and Technologists are attending to the problem.

▼  Samantha Linnerts added a comment - 09/Feb/21 9:15 AM

The local Office is in the process of procuring a replacement radio link

▼  Syfred FUNDE added a comment - 07/Apr/21 10:19 AM

The radio link at the site is malfunctioning. The Met. Technician and Technologist will install the radio link on the 21st April 2021.

▼  Samantha Linnerts added a comment - 22/Apr/21 3:15 PM

The radio link was replaced on 14 April 2021. All variables are available on WDAQMS

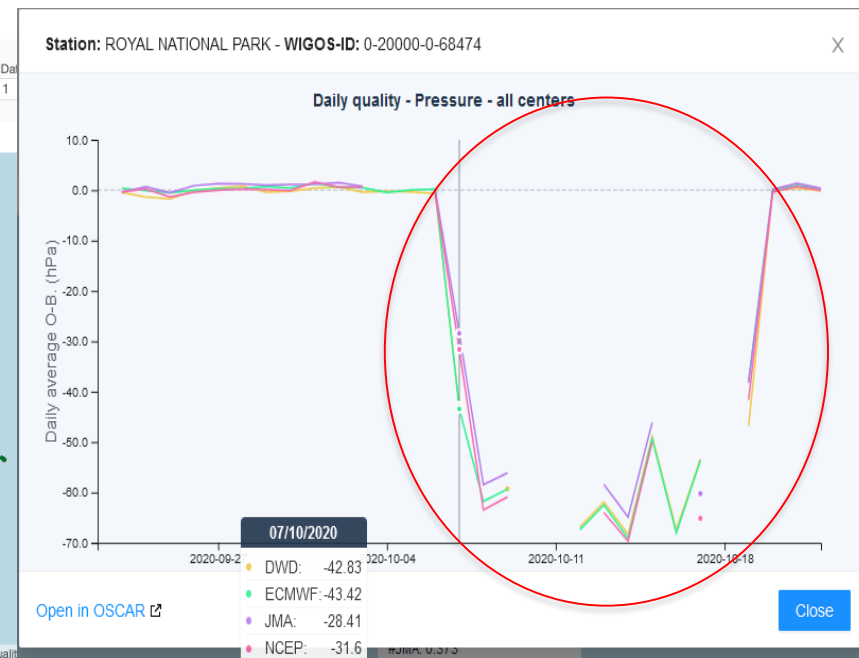
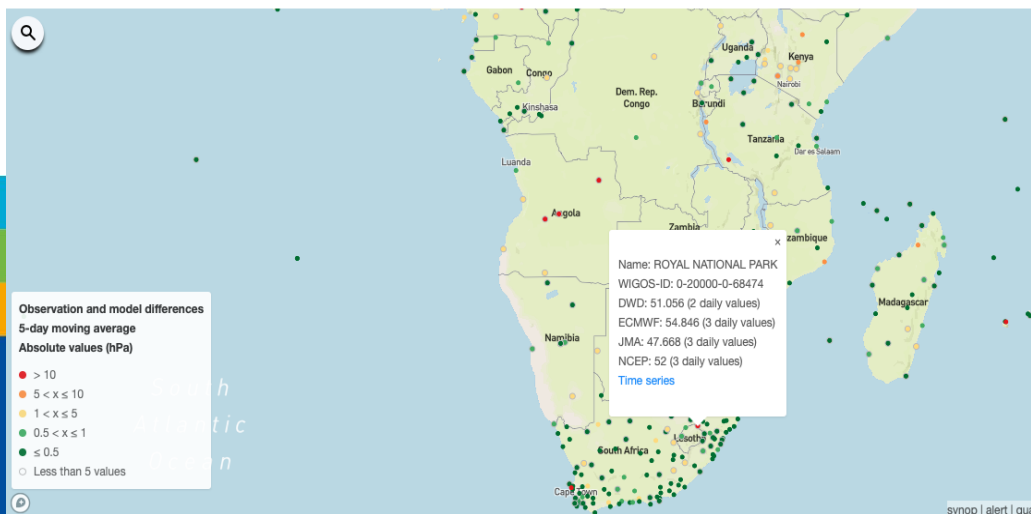
Example of Data Quality Issue

STATION 68474: ROYAL NATIONAL PARK

- Low pressure O-B results (≤ 1 hPa) but since 06th October 2020 the O-B results dropped significantly (≥ -60 hPa) for all monitoring centres
- Potentially sensor drift leading to increasing wrong measurements at site
- RWC would have to raise a ticket related to this incident after 5 days the latest, i.e. on 11th October 2020 (high priority ●)

Quality of surface observations

Type of period: Alert
Monitoring category: Quality
Variable: Surface pressure
Monitoring Centre: All
Date: 2020-10-11







06102020-South Africa-Royal National Park- Suspicious surface pressure values

- Edit
- Comment
- Assign
- More
- Convert to Incident
- No incident

Details

Type:  Issue
Status: **OPEN**
Priority:  High
Component/s: RWC South Africa
WIGOS ID: 0-20000-0-68474
WIGOS Issue Category: Surface quality


Description

Royal National Park

Incident date: 6 to 9 October 2020

Surface Pressure: On 6th October 2020 the O-B results dropped significantly (≥ -60 hPa) for all monitoring centres.

Attachments

 Drop files to attach, or browse.

People

Assignee:

 Samantha Linnerts

Reporter:

 Samantha Linnerts



06102020-South Africa-Royal National Park- Suspicious surface pressure values

- Edit
- Comment
- Assign
- More
- Confirm

Details

Type: Issue
Status: **INCIDENT**
Priority: High
Component/s: RWC South Africa
WIGOS ID: 0-20000-0-68474
WIGOS Issue Category: Surface quality

Converted to incident Problem ongoing for >5days

Activity

- All
- Comments
- Work Log
- History
- Activity
- Source

▼ Samantha Linnerts added a comment - 1 minute ago

The Chief Meteorological Technician will visit the station on Monday, 19 October 2020





06102020-South Africa-Royal National Park-Suspicious surface pressure values

- Edit
- Comment
- Assign
- More
- Reopen

Details

Type: Issue
Priority: High
Component/s: RWC South Africa
WIGOS ID: 0-20000-0-68474
WIGOS Issue Category: Surface quality

Status: **CLOSED**

Samantha Linnerts added a comment - 04/Dec/20 12:51 PM

Data logger had a power error(EO09 10) during download. The logger was reprogrammed. The issue is resolved

Thank you

Samantha.linnnerts@weathersa.co.za
<https://community.wmo.int/activity-areas/wigos>



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale