

HIGHWAY scientific and technical workshop

EUMETNET - Regional WIGOS Centre Pilot

in RA-VI

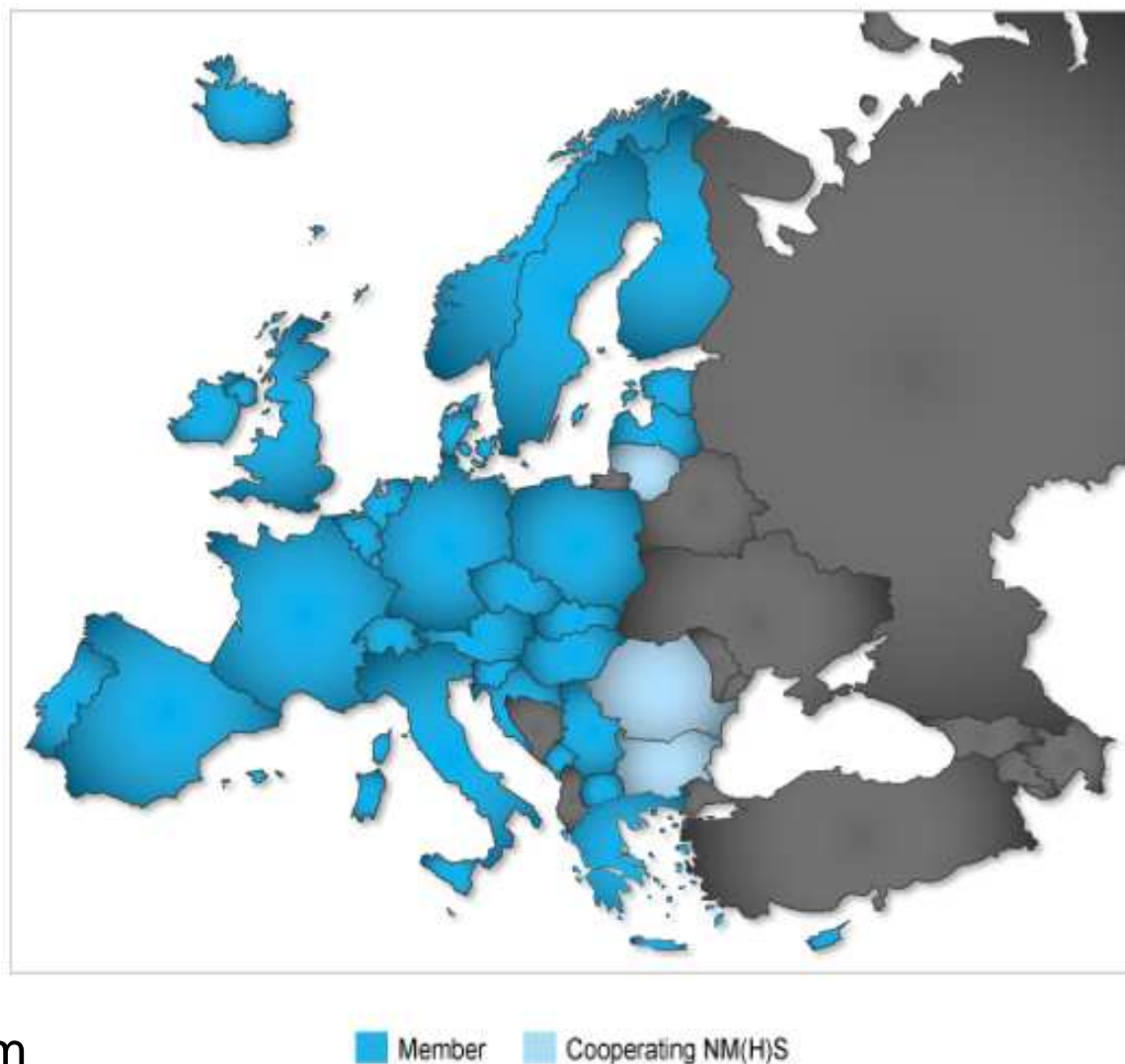
Nairobi, 26th February 2018

EUMETNET QM and Operations Manager
Tanja Kleinert (DWD)

31 EUMETNET Members

The National Met Services of:

Austria	Latvia
Belgium	Luxemburg
Croatia	Montenegro
Cyprus	Netherlands
Czech Rep.	Malta
Denmark	Norway
Estonia	Poland
Finland	Portugal
France	Slovakia
Germany	Serbia
Greece	Slovenia
Hungary	Spain
Iceland	Sweden
Ireland	The FYROM
Italy	Switzerland
	United Kingdom



EUMETNET Activities

Through the programmes Members can develop their collective capability to serve environment management and climate monitoring and bring to all European users the best available quality of meteorological information.

Our missions

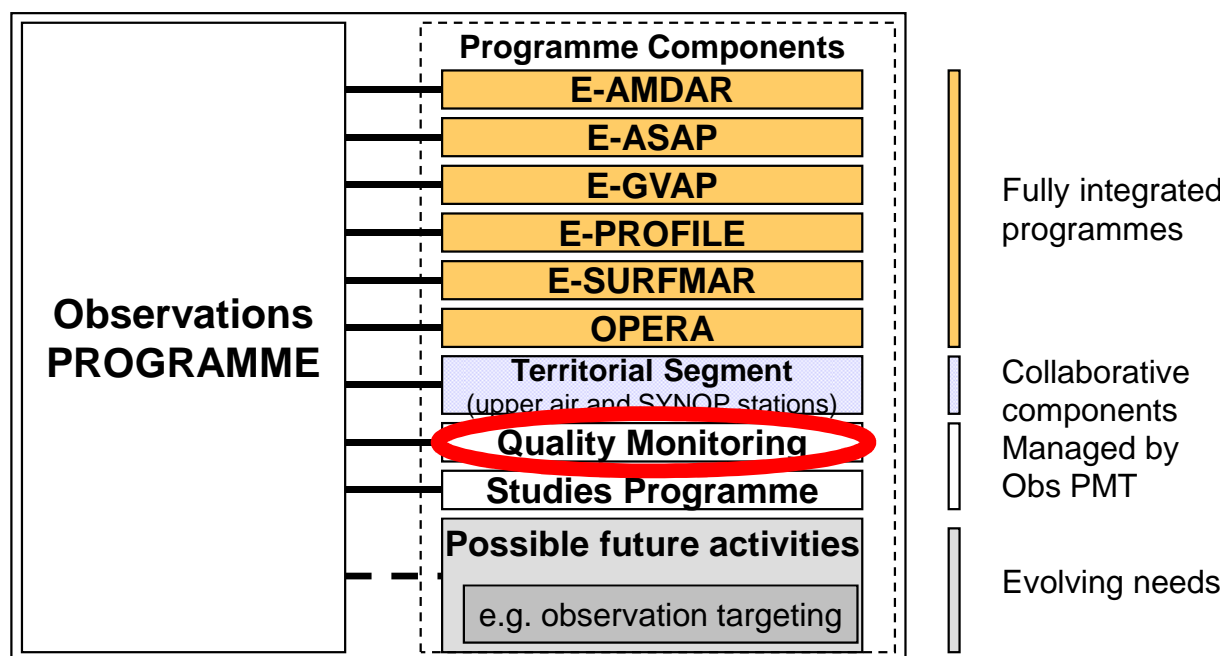
- Focus on delivery
- Offer clear economic benefits (savings/results that cannot be obtained easily by individual NMSs)
- Bring a political benefit by contributing to the build of a consolidated and efficient EMI



EUMETNET Observations Programme

Management Tasks:

- Coordinating the evolution of the ground based EUMETNET Composite Observing System (EUCOS),
- **Monitoring the EUCOS performance,**
- Supporting Members' observation activities where possible and
- Organising a studies programme.



The current EUCOS networks

- European radiosonde stations
- Selected European synoptic weather stations
- European commercial AMDAR aircraft
- European ships of the Automated Shipboard Aerological Programme
- European moored buoys and drifting buoys
- European Voluntary Observing Ships
- European wind profilers, weather radars delivering vertical wind profiles, lidars/ceilometers
- European OPERA weather radars
- European GNSS sites



EUCOS Quality Monitoring

- One of the major tasks of the EUMETNET Observations Programme Management Team is to **monitor the performance of all EUCOS networks** against agreed EUCOS Performance Standards;
- EUCOS has set up a web-based EUCOS Quality Monitoring Portal (QMP) for all EUCOS networks as well as a WMO QMP for RBSN surface land stations and radiosonde stations of RA VI and GCOS stations globally;



Welcome to the EUMETNET Observations Quality Monitoring

You have access to the following applications:

[EUCOS Quality Monitoring Portal](#)

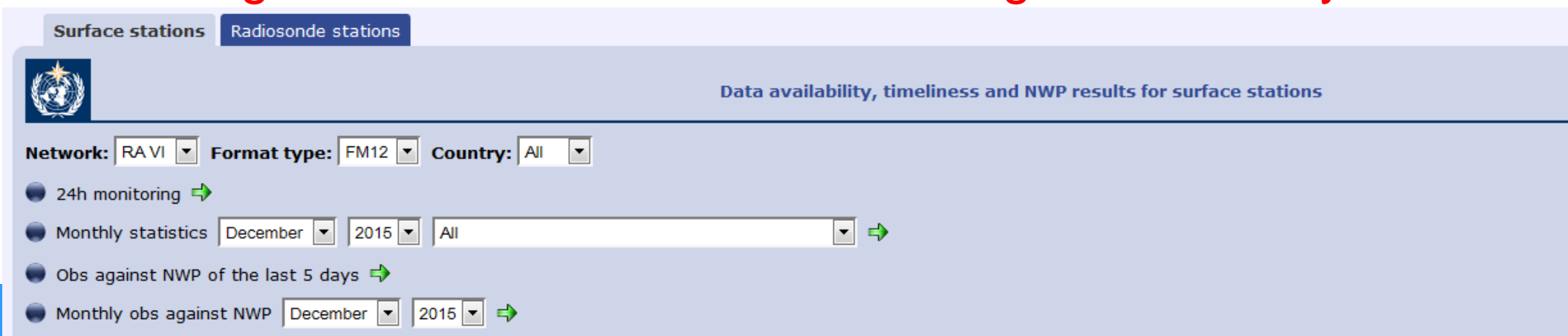
[WMO Quality Monitoring Portal](#)

[E-AMDAR Portal](#)

<https://eucos.dwd.de>

WMO Quality Monitoring Portal

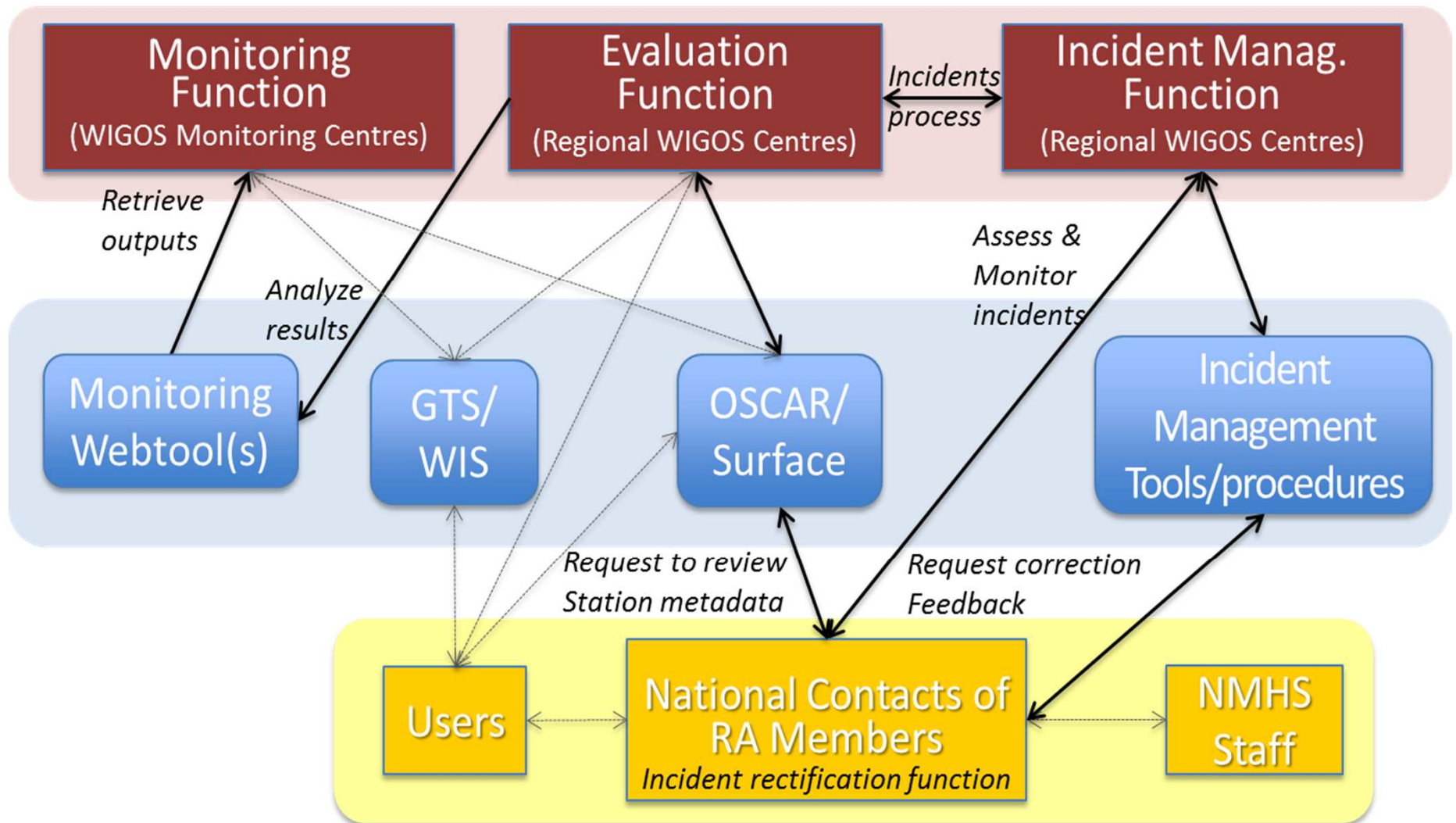
- Web-based automated quality monitoring of:
 - RA VI RBSN surface land stations, radiosonde stations
 - GCOS GSN surface land stations and GUAN radiosonde stations worldwide
- Display of QM statistics of TAC and BUFR messages archived **in DWD's database** regarding observation totals data availability and timeliness/latency
- Display of accuracy monitoring results based on **obs minus background differences of ECMWF's global NWP system**



The screenshot shows the WMO Quality Monitoring Portal interface. At the top, there are two tabs: "Surface stations" (selected) and "Radiosonde stations". Below the tabs is a header bar with the WMO logo on the left and the text "Data availability, timeliness and NWP results for surface stations" on the right. The main content area contains several search and filter options:

- Network:** RA VI (dropdown)
- Format type:** FM12 (dropdown)
- Country:** All (dropdown)
- 24h monitoring** (radio button, selected) with a green arrow icon.
- Monthly statistics** (radio button) with a dropdown menu showing "December", "2015", and "All", followed by a green arrow icon.
- Obs against NWP of the last 5 days** (radio button) with a green arrow icon.
- Monthly obs against NWP** (radio button) with a dropdown menu showing "December", "2015", and a green arrow icon.

WIGOS Data Quality Monitoring System (WDQMS)



EUMETNET's Quality Monitoring Process

Monitoring Function: operating the EUCOS and WMO QMP displaying monitoring statistics collected from DWD/ECMWF

Evaluation Function: the network performance and data quality is evaluated on a regular basis by checking the results of the EUCOS QMP

Incident Management Function:

- EUMETNET Members are contacted in case of incidents e.g. missing or erroneous data identified in the QMP
- Raised incident tickets, status updates, closure of tickets are well documented

Feedback to Members and data users: Quarterly EUMETNET Quality Monitoring Reports provide performance summaries per network and per Member

Benefits for EUMETNET Members

- Members are provided with fault reports in cases of outages or whenever EUCOS targets are exceeded as well with quarterly and annual network performance summaries
- Members can monitor the performance of their national stations by using the EUCOS QMP themselves
- Members are welcomed to add additional stations to the EUCOS QMP besides the defined EUCOS stations to monitor all national stations reporting to WIS/GTS.
- The EUCOS QMP helps to identify data transmission problems via GTS due to the fact that the QM statistics base on observations archived in DWD's and ECMWF's database.
- The EUCOS QMP offers a download functionality for further processing of the monitoring data on national level.

Questions and comments?

Contact Details

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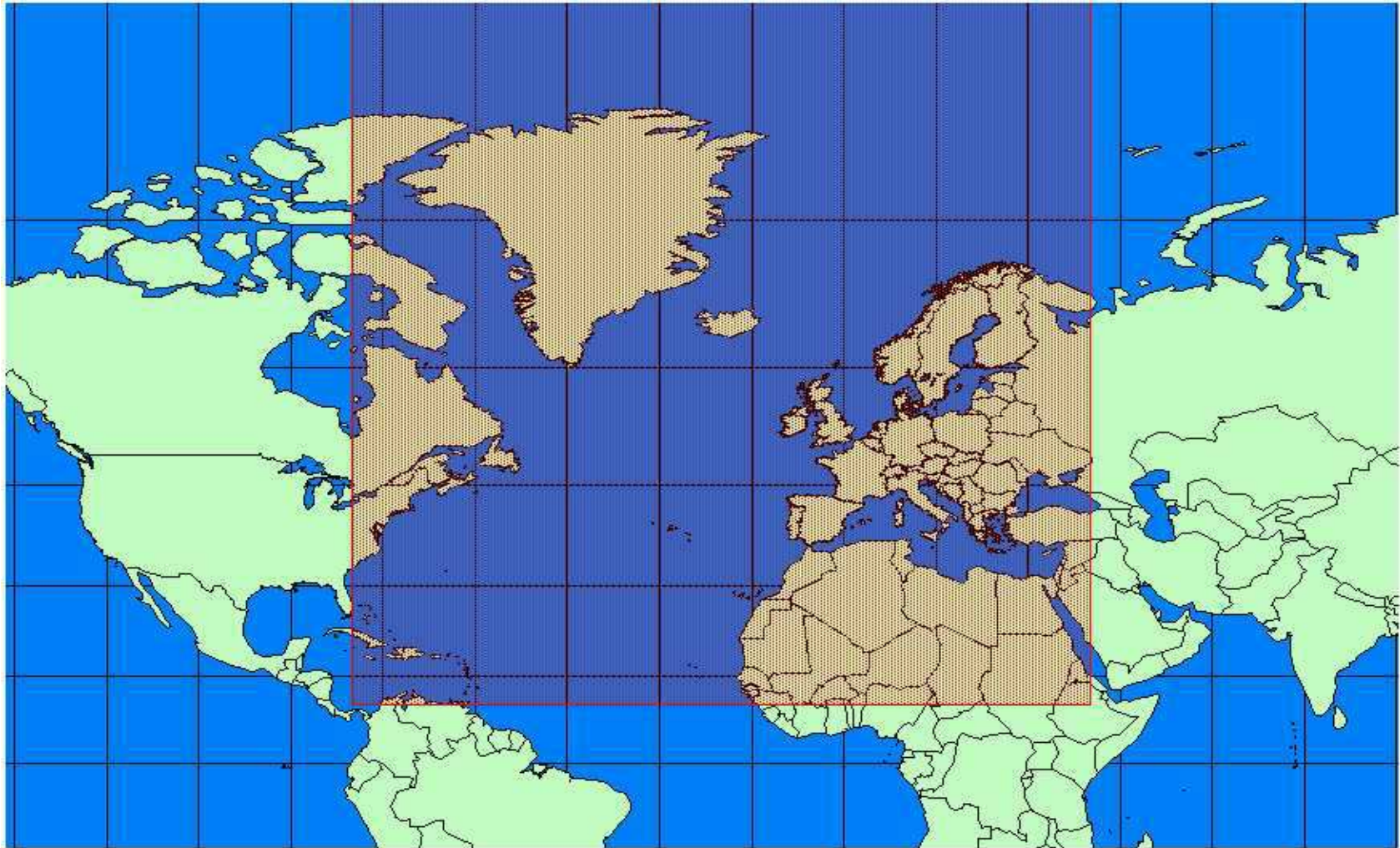
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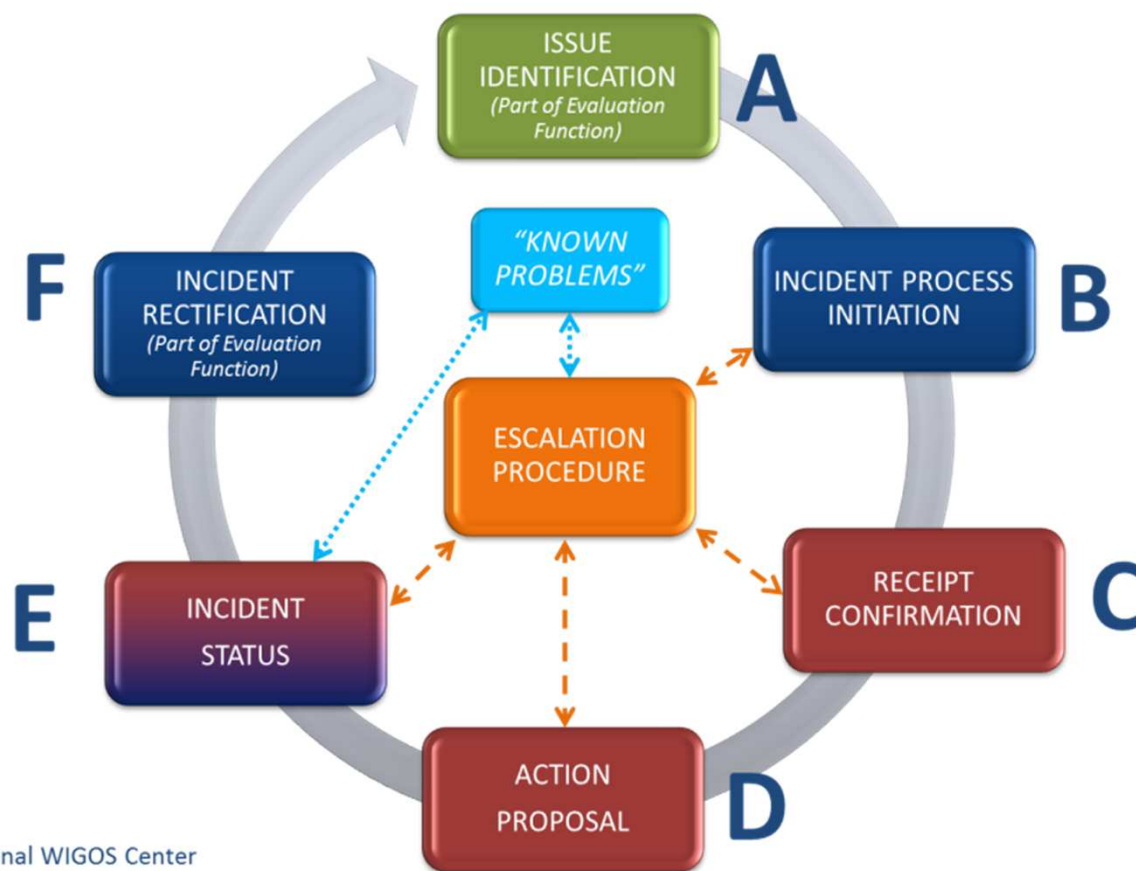
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Email: info@eumetnet.eu
Web: www.eumetnet.eu

EUCOS area (10N-90N, 70W-40E)



WDQMS Incident Management Procedure

WDQMS - Incident Management Procedure



RWC = Regional WIGOS Center

The EUCOS/WMO QMP

- Provides quality monitoring information for several stations or a particular station on the basis of observations archived in DWD's database:
 - on observation totals/data availability and
 - Timeliness
 - Achieving geopotential heights 100/50 hPa (radiosonde stations/ASAP)
- The statistics are provided as tables on a daily and monthly basis;
- storage of the information for 12 months;
- Color-coding if agreed EUCOS targets are exceeded (deactivated for WMO QMP).
- Providing monthly observation totals and average timeliness and percentage achieving EUCOS targets (only EUCOS QMP)

The EUCOS/WMO QMP

Surface stations

Radiosonde stations

Monthly statistic of GCOS surface synoptic data BUFR
month 10 year 2017 country code IDN station All

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Export as CSV

SURFACE LAND STATIONS - BUFR

Legend

Identifier	Station	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Σ / Ø
96073	SIBOLGA/PINANGSORI	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	8	8	8	8	8	8	245	
		15	15	15	15	15	15	15	15	15	17	15	15	15	15	15	17	15	15	15	15	15	15	15	55	14	18	15	14	15	15	16	
96145	TAREMPA	8	8	8	7	8	8	8	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	7	8	8	8	8	8	242	
		17	15	15	19	15	15	15	15	17	15	42	22	15	27	15	15	15	15	15	24	27	15	23	55	14	15	23	16	21	15	19	
96163	PADANG/TABING	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	8	8	8	8	8	8	245	
		15	17	15	15	15	23	17	15	17	15	15	15	16	15	15	15	15	15	17	15	16	15	15	15	55	14	15	15	14	15	21	17
96745	JAKARTA/OBSERVATORY	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	8	8	8	8	8	8	245	
		15	15	20	29	21	15	15	15	17	15	15	21	15	31	15	15	17	22	17	21	49	15	17	15	55	14	15	15	14	15	15	19
96805	CILACAP	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	8	8	8	8	8	8	245	
		17	15	15	15	15	21	17	15	15	15	24	15	15	15	15	19	15	15	15	15	15	15	15	55	14	15	15	14	15	15	17	
96925	SANGKAPURA (BAWEAN IS.)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	8	8	8	8	8	8	245	
		15	15	22	15	15	15	15	15	21	15	15	15	15	15	15	15	15	17	15	15	15	15	15	55	14	15	15	14	15	17	16	
97014	MENADO/ SAM RATULANGI	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	8	8	8	8	8	8	245	
		15	15	15	15	17	15	15	15	15	21	18	15	15	15	15	15	15	15	15	15	15	15	15	57	14	17	15	14	15	15	16	
97146	KENDARI/WOLTER MONGINSIDI	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	154	
		15	18	15	19	15	15	21	23	21	15	18	24	21	15	15	15	15	15	15	25	18	15	15	85	21	18	18	14	19	15	19	
97240	MATARAM/LOMBOK INTERNATIONAL AIRPORT	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	8	8	8	8	8	8	245	
		38	15	15	18	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	17	15	15	15	94	15	15	15	14	15	20	18	
97340	WAINGAPU/MAU HAU	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	8	8	8	8	8	8	245	
		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	55	14	15	15	14	15	15	16	

Surface stations

Radiosonde stations

Monthly statistic of GCOS radiosonde data BUFR
month 10 year 2017 country code AUS station All

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Export as CSV

RADIOSONDE STATIONS - BUFR

Legend

Identifier	Station	01	02	03	04	05	06	07	08	09	10	Ø / Σ													
94120	DARWIN	2	19	2	18	2	18	2	17	2	20	20	17												
		16	43	13	43	31	63	20	46	20	52	21	57	18	47	23	54	19	49	15	52	9	25		
		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	20	20	
94203	BROOME	1	10	1	15	1	10	1	17	1	10	1	10	1	13	1	10	1	10	1	10	1	10	11	
		57	95	31	67	29	69	24	55	18	60	52	97	27	62	32	74	26	72	42	89	16	37		
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	
94294	TOWNSVILLE	1	10	1	9	1	13	1	9	1	9	1	10	1	10	1	10	1	10	1	10	1	10	10	
		32	75	17	64	13	51	23	71	19	59	15	63	29	70	15	53	32	71	19	64	10	32		
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	
94299	WILLIS ISLAND	1	15	1	13	1	10	1	10	1	30	1	27	1	10	1	13	1	10	1	10	1	16	10	15
		12	48	7	47	14	49	18	68	46	61	26	44	14	52	25	60	13	47	11	40	9	25		
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	
94461	GILES	1	19	1	10	1	10	1	14	1	10	1	10	1	14	1	13	1	9	1	10	10	12		
		11	40	32	68	29	70	25	55	19	64	19	62	23	66	29	67	16	68	12	59	10	30		
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	
94510	CHARLEVILLE	-	-	-	-	-	-	-	-	1	100	1	10	1	10	1	14	1	15	1	8	6	26		
		-	-	-	-	-	-	-	-	25	-	20	58	48	84	18	50	17	49	15	61	11	30		
		-	-	-	-	-	-	-	-	1	-	1	1	1	1	1	1	1	1	1	1	6	5		
94610	PERTH	2	12	2	19	2	24	2	22	2	22	2	16	2	20	2	29	2	20	2	28	20	21		
		20	58	23	52	12	42	20	44	10	34	7	40	7	37	13	40	9	43	15	37	6	21		

The EUCOS/WMO QMP

- Provides accuracy monitoring information for particular stations on the basis of **obs minus background of ECMWFs' first guess**
- Parameters depending on the network (temperature, wind, humidity, pressure,...)
- The statistics are provided as tables/time-series plots on a daily and monthly basis;
- Storage of the information for 12 months. Color-coding if agreed EUCOS targets are exceeded.

Surface stations Radiosonde stations

GCOS Surface stations monthly obs against NWP selection (11/2017)
country code IDN

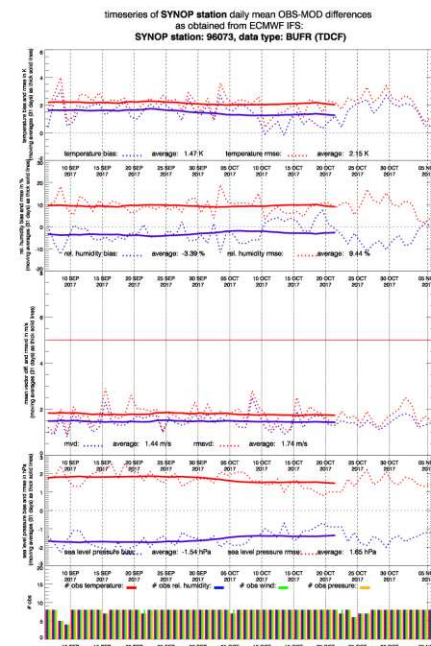
Back Export as CSV 18 stations found.

96073

Issue: constant P bias (-1.5 hPa) → station meta data?

Identifier	01	02	03	04	05	06	07	08	09	10
8	8	8	8	8	8	-	-	-	-	-
2.1	2.0	1.5	0.5	0.5	-	-	-	-	-	-
2.7	2.4	1.6	0.8	1.1	-	-	-	-	-	-
8	8	8	8	8	-	-	-	-	-	-
1.8	1.7	1.2	1.3	1.4	-	-	-	-	-	-
2.3	2.2	1.3	1.7	1.5	-	-	-	-	-	-
8	8	8	8	8	-	-	-	-	-	-
2.6	3.7	7.3	4.3	4.3	-	-	-	-	-	-
11.7	10.4	2.7	1.9	4.0	-	-	-	-	-	-
8	8	8	8	8	-	-	-	-	-	-
-1.7	-1.5	-1.4	-1.2	-1.2	-	-	-	-	-	-
1.8	1.7	1.4	1.3	1.4	-	-	-	-	-	-
8	8	7	8	8	-	-	-	-	-	-
0.6	0.6	1.5	0.6	1.8	-	-	-	-	-	-
1.3	1.2	2.6	2.3	2.6	-	-	-	-	-	-
8	8	8	8	8	-	-	-	-	-	-
4.0	3.0	6.4	2.0	3.0	-	-	-	-	-	-
4.1	3.2	13.5	2.5	3.2	-	-	-	-	-	-
8	8	7	8	8	-	-	-	-	-	-
4.8	5.2	4.3	4.4	5.7	-	-	-	-	-	-

96145



Radiosonde (and ASAP units in EUCOS QMP)

Additional information for radiosonde stations in TAC and BUFR, e.g.

- 5-days statistics on availability of TEMP parts and achieved burst heights

Surface stations Radiosonde stations

GCOS 5 days statistic of Station: DARWIN (94120) BUFR

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BUFR

Time	Up to 100hPa	Entire sounding	Burst[hPa]	Link
07.11.2017				
00	✓ 07.11.2017 00:06:12	✓ 07.11.2017 00:44:32	13	Plot
06.11.2017				
00	✓ 06.11.2017 00:21:38	✓ 06.11.2017 01:03:06	10	Plot
12	✓ 06.11.2017 12:14:13	✓ 06.11.2017 12:31:10	30	Plot
05.11.2017				
00	✓ 05.11.2017 00:20:14	✓ 05.11.2017 01:11:10	10	Plot
12	✓ 05.11.2017 12:13:07	✓ 05.11.2017 12:30:09	30	Plot
04.11.2017				
00				
12				
03.11.2017				
00				
12				

Surface stations Radiosonde stations

GCOS 5 days statistic of Station: DARWIN (94120) FM35

[Back](#)

Issue: launch time 8GGgg only reported in TEMP part B

FM35

Time	A	B	C	D	Burst[hPa]	Link
07.11.2017						
00	✓ 07.11.2017 01:31:32	✗ -	✓ 07.11.2017 01:31:32	✗ -	20	Plot
00	✗ -	✓ 07.11.2017 01:31:32	✗ -	✓ 07.11.2017 01:31:32	13	Plot
06.11.2017						
00	✓ 06.11.2017 01:32:09	✗ -	✓ 06.11.2017 01:32:09	✗ -	20	Plot
00	✗ -	✓ 06.11.2017 01:32:09	✗ -	✓ 06.11.2017 01:32:09	12	Plot
12	✓ 06.11.2017 13:32:14	✗ -	✓ 06.11.2017 13:32:14	✗ -	30	Plot
12	✗ -	✓ 06.11.2017 13:32:14	✗ -	✓ 06.11.2017 13:32:14	30	Plot
05.11.2017						

Radiosonde (and ASAP units in EUCOS QMP)

Additional information for radiosonde stations in TAC and BUFR, e.g.

- Weekly statistics of radiosonde ascents
- Selection of a particular sounding → display of sounding plots

