



Observations Programme Status report

E-GVAP Expert Team Meeting
Copenhagen, 6th - 7th December 2016

OBS Programme Management Team:
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E-GVAP literature study at STAC13

CONCLUSION STAC13.07: Study specifications for Study 1

STAC noted that the E-GVAP literature study (study 4 in table 1) has been finalized in July 2016 as a review paper for AMT (Atmospheric Measurement Techniques) and accepted the paper as is (no additional report nor study required).

Preparation of next phase

The current phase ends on December 31, 2018, as we had a prolongation of 1 year.

- Preparation work has to start not later than spring 2017
- Nov/Dec2018 Assembly can formally vote the new programme decisions and associated budget

Preparation of next phase: start in spring 2017

	Deliverables	Milestones
Phase 1: preparatory work	WGs agree on <ul style="list-style-type: none"> • capability areas • future programme structures • ToRs for future requirements drafting teams • overall affordability 	Establish WG members and missions statements for Spring 2017 Deliverables for Autumn 2017 meetings
Phase 2: draft requirements	Requirements doc for each of the funded programmes, activities and/or projects.	Spring 2018 meetings
Phase 3: tendering process	Awarding programmes to Coordinating Members from Bids	for Assembly Autumn 2018 meeting approval

NOAA data discussed at Assembly 17

CONCLUSION PFAC13.14: Difficulty in obtaining GNSS data from NOAA Assembly?

- PFAC recommends that the EUMETNET Chairman writes to NOAA/NWS to express the deep concerns of European NMSs about this situation and what it may entail in the future.
- PFAC also recommends that EUMETNET coordinates with both ECMWF and EUMETSAT on this and informs WMO of this issue.

Quarterly monitoring reports

The EUMETNET Observations Programme Management produces quarterly monitoring reports showing the

- data availability and
- timeliness and
- Comparing observations against NWP model output of ECMWF
- Quarterly performances of EUMETNETs Composite Observing System EUCOS
- Quarterly performances of EUMETNET operated networks

E-GVAP is included the second time!

Q3 2016 Network	Data availability	Timeliness HH+50 (Radiosondes: TEMP AB)	Timeliness HH+100 (Radiosondes: TEMP CD)	Achieving 100 hPa	Achieving 50 hPa	Individual targets subprogrammes
Territorial networks						
Surface stations (Monitoring of BUFR data)	Target: 95% 94.7% →	Target: 90% 99.6% →	Target: 95% 99.8% →	---	---	---
Radiosonde stations (Monitoring of BUFR data)	Target: 95% 84.0% ↓	Target: 75% 88.6% ↑	Target: 95% 96.0% ↑	Target: 97% →	Target: 95% 95.8% ↑	---
E-AMDAR						
AMDAR aircraft	Annual target: 11 Mio. obs 4.0 Mio. obs (equals 36%) EUMETNET funded observations incl. humidity obs.	Target: 90% 93.4% ↑	Target: 95% 98.9% ↑	---	---	Profile distribution daily profiles Target: 718 1270 ↑ daily airports Target: 129 204 ↑
E-ASAP						
ASAP units (Monitoring of BUFR data)	Annual target: 4,300 obs 3277 obs (equals 76%)	Target: 75% 91.0% ↓	Target: 95% 87.8% ↓	Target: 90% 91.9% ↓	Target: 75% 83.5% ↓	---
E-GVAP		Timeliness HH+90				
at least one ZTD timely	Target: 85%	Target: 85%				
Super sites	82.0%	96.8%		-	-	-
All sites/Acs	76.5%	96.7%				
E-PROFILE		Timeliness HH+60				
Wind profilers (WP)	Target: 85%	Target: 85%				
Total WP network	80.1% ↑	99.1% →				
23 operational WP	90.7% ↑	99.9% →		---	---	---
8 non-operational WP **	45.6% →	94.5% ↓				
Weather radars (WRWP)	No target defined*	Target: 85%				
Total WRWP network	75.9% ↑	100.0% →				
59 operational WRWP	79.7% ↑	100.0% →		---	---	---
60 non-operational WRWP	71.6% ↑	100.0% →				
Only E-SURFMAR observations in the EUCOS area are taken into account.						
E-SURFMAR						
Moored buoys (Monitoring of BUFR data)	Target: 90% 95.5% ↑	Target: 90% 92.2% ↓	Target: 95% 97.9% ↓	---	---	---
Drifting buoys (Monitoring of BUFR data)	Target: 88% 98.2% ↑	Target: 90% 97.1% ↑	Target: 95% 99.4% ↑	---	---	---
Automated VOS ships (Monitoring of BUFR data)	Daily avg target: 2,000 obs 2,126 obs (equals 106%)	Target: 90% 92.7% →	Target: 95% 97.0% ↑	---	---	---
Conventional VOS ships (Monitoring of BUFR data)	Daily avg target: 250 obs 182 obs (equals 73%)	Target: 90% 80.5% →	Target: 95% 92.6% ↑	---	---	---
OPERA						
Incoming data (ICD)	Target: 95% 93.4% ↓	Timeliness HH+08 Target: 90% 95.7% →	Timeliness HH+10 Target: 95% 97.6% →	---	---	---
Pre-processed data (PPD)	Target: 95% 92.5% ↓	---	---	---	---	---
Composite products	Target: 95% 99.9% →	Timeliness HH+20 Target: 95% 99.8% →		---	---	---

*: Several WRWP systems only provide data if hydrometeors are detected. Therefore no target on data availability is defined.

** : Only 4 out of 8 non-operational WP provided data within the period.

performance in
comparison to
previous
quarter:

up ↑
down ↓
stable (<1% range) →

target achieved
<10% below target
=>10% below target

Quarterly
monitoring
reports

Quarterly monitoring reports

E-GVAP GNSS sites and super sites performed slightly below the target providing at least on ZTD per hour within the required time period HH+90 but achieved the target transmitting GNSS ZTD data in 90 min in 85%.

The next slide shows comparison of observations against NWP model output of ECMWF



Quarterly monitoring reports

Q3 2016 Network	Temperature RMSE	Wind Mean Vector Difference RMSE	Specific Humidity Error dq/q*	O-B- Geopotential Height Difference	Pressure RMSE	Sea Surface Temperature	Individual targets subprogrammes
Territorial networks							
Surface stations	Target: 1 K 1.79 K →	Target: 5.0 m/s 2.49 m/s →	Target: 10% 8.39% ↓	---	Target: 1 hPa 0.58 hPa →	---	---
Radiosonde stations	Target: 1 K 0.94 K →	Target: 5.0 m/s 3.23 m/s ↑	Target: 10% 6.01% ↑ 10.28% ↑ RH RMSE	Target: 65 m currently not available	---	---	---
E-AMDAR							
AMDAR aircraft	Target: 1.5 K 1.00 K →	Target: 5.0 m/s 3.20 m/s ↑	(dq/q* Target: 10%) 13.60% ↑ RH RMSE	---	---	---	---
E-ASAP							
ASAP units	Target: 1 K 1.35 K →	Target: 5.0 m/s 3.68 m/s ↑	Target: 10% 7.96% ↑ 12.50% ↑ RH RMSE	Target: 65 m currently not available	---	---	---
E-GVAP							
GNSS sites-AC	---	---	---	---	---	---	NRT ZTD accuracy [avg OmB in mm] Target: 15 mm 11.25 mm 12.58 mm ↓
212 super sites in Q3 2016 7166 sites in Q3 2016							
E-PROFILE							
Wind profilers (WP)		Target: 5.0 m/s					
Total WP network	---	3.55 m/s	---	---	---	---	---
23 operational WP		3.44 m/s ↑					
6 non-operational WP *		4.25 m/s ↓					
Weather radars (WRWP)		Target: 5.0 m/s					
Total WRWP network	---	5.86 m/s	---	---	---	---	---
59 operational WRWP		4.20 m/s ↓					
60 non-operational WRWP		7.24 m/s ↓					
E-SURFMAR							
Moored buoys (only 62095, 64045)	Target: 1 K 0.47 K ↑	Target: 5.0 m/s 2.27 m/s ↓	Target: 10% 4.87% ↑	---	Target: 1 hPa 1.00 hPa ↓	Target: 1 K not provided yet	Wave direction Target: 20°
Drifting buoys	---	---	---	---	Target: 1 hPa 0.60 hPa →	Target: 1 K not provided yet	---
VOS ships	Target: 2 K	Target: 5.0 m/s	Target: 15%	---	Target: 1 hPa	Target: 1 K	---
Automated	1.14 K →	3.10 m/s ↑	5.23% ↑	---	0.63 hPa →	not provided yet	---
Conventional	1.47 K ↑	3.80 m/s ↑	7.76% ↑	---	1.07 hPa →	---	---

EUCOS target achieved
within WMO target
below WMO target

performance in comparison to previous quarter:

up ↑
down ↓
stable (< 0.1 range) →

*: Only 2 out of 6 non-operational WPs provided data within the period.

Quarterly Monitoring reports

Requirement: *data availability hourly ZTD observations, at least one ZTS timely with a timeliness of maximum HH+90 – delay of decoding date in DWDs database compared to nominated observation time.*

NWP comparison results of ZTD observations against DMI HIRLAM model on a daily averaged basis are shown as near real time (NRT) ZTD accuracies ‘avg RMS O-B’ in mm.

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Quarterly Monitoring reports

Overview E-GVAP ACs - Q3 2016	Obs. totals	Timeliness HH+50	Timeliness HH+90	ZTD accuracy
ASL_	410,554	75.9%	99.3%	9.7mm
BKG_	141,869	63.4%	74.3%	9.5mm
GFZ_	481,435	76.6%	96.9%	13.7mm
GOPG	161,513	66.2%	84.3%	10.3mm
IGE2	554,914	78.2%	92.4%	11.7mm
KNM3	55,083	84.7%	100.0%	12.2mm
KNM4	32,230	77.8%	100.0%	15.8mm
LPT_	418,390	92.3%	99.7%	10.2mm
LPTR	88,296	90.9%	100.0%	15.2mm
METG	242,595	79.6%	100.0%	10.5mm
METO	489,507	86.6%	100.0%	10.0mm
NOAA	184,272	31.1%	73.7%	-
ROBH	644,015	82.0%	96.2%	11.4mm
SGN_	686,948	85.6%	100.0%	10.5mm
SGN1	838,380	82.8%	94.2%	10.8mm
SGNC	43,981	67.9%	99.8%	-

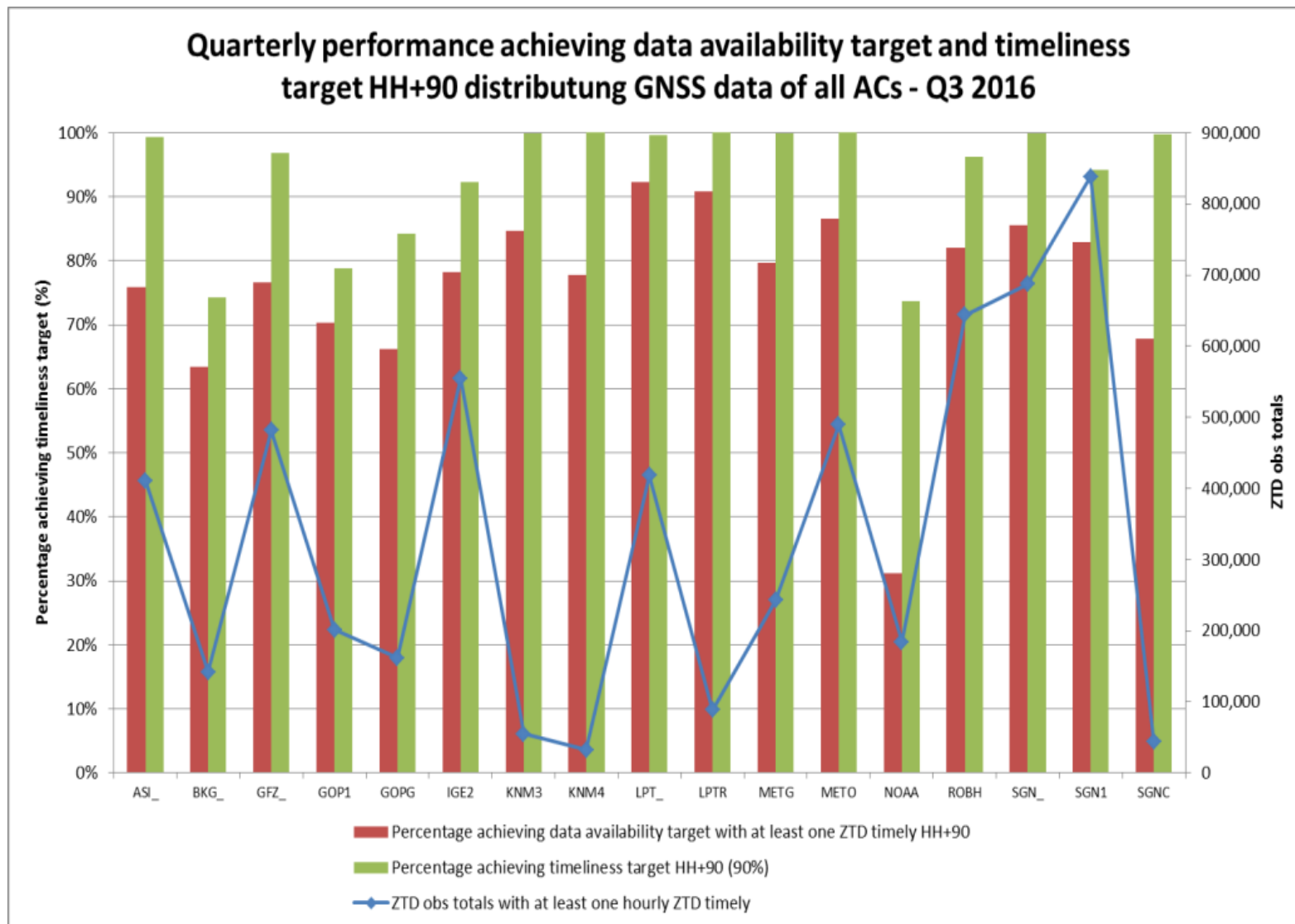
Quarterly Monitoring reports

E-GVAP (GNSS sites and Analysing Centers operated by geodetic institutes)

The EUCOS QMP provides daily and monthly statistics regarding data availability and timeliness of E-GVAP ZTD observations being received at DWD. The first performance statistics of these results are shown below. Analysing Centres provide 1-12 ZTD observations on an hourly basis. The results below consider only those bulletins which contained at least “one ZTD timely” (within HH+90).

E-GVAP provided 5,674,963 ZTD observations being timely in Q3 2016 from all site-ACs (Analysing Centres). This reflects a percentage of 76.5% data availability. The timeliness target transmitting at least 85% of ZTD data within 90 minutes was achieved within the period (96.7%).

Quarterly Monitoring reports

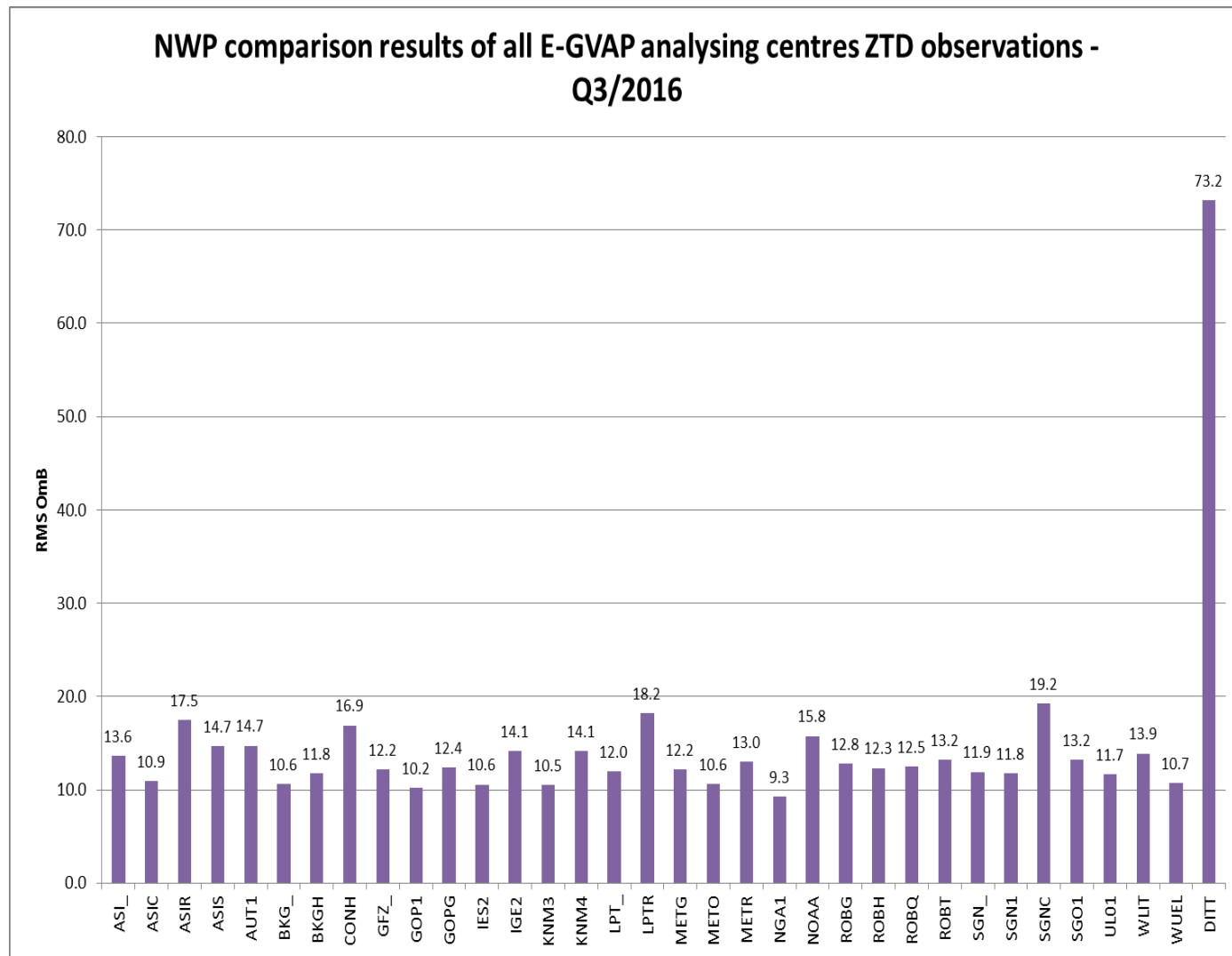


Quarterly Monitoring reports

E-GVAP provides NWP comparison results of ZTD observations against DMI HIRLAM model on a daily averaged basis which are displayed in the EUCOS QMP. The results are shown as near real time (NRT) ZTD accuracies 'avg RMS OmB' in mm. According to the latest revision of the EUCOS Performance Standards document (see STAC12/Doc14, EMN-STAC12_Doc14_EUCOS_Performance_Standards_Agenda_Item_7.6_Rev1.pdf available on the EUMETNET Portal) the proposed target for NRT ZTD accuracy is 15 mm. The diagram below shows the quarterly averaged results NRT ZTD accuracies 'avg RMS OmB' in mm per E-GVAP analysing centre. 6 out of 34 analysing centres (AC) didn't achieve the target $\text{RMS O-B} \leq 15 \text{ mm}$ in Q3 2016: ASIR 17.5 mm, CONH 16.9 mm, LPTR 18.0 mm, NOAA 15.8 mm, SGNC 19.2 mm, **DITT 73.2 mm**.

Quarterly Monitoring reports

Within Q3 2016 DMI monitored 7,166 site-ACs providing ZTD GNSS data to E-GVAP. Out of these 1230 site-ACs didn't achieve the target RMS O-B ≤ 15 mm on quarterly average (17.2% of the entire network).



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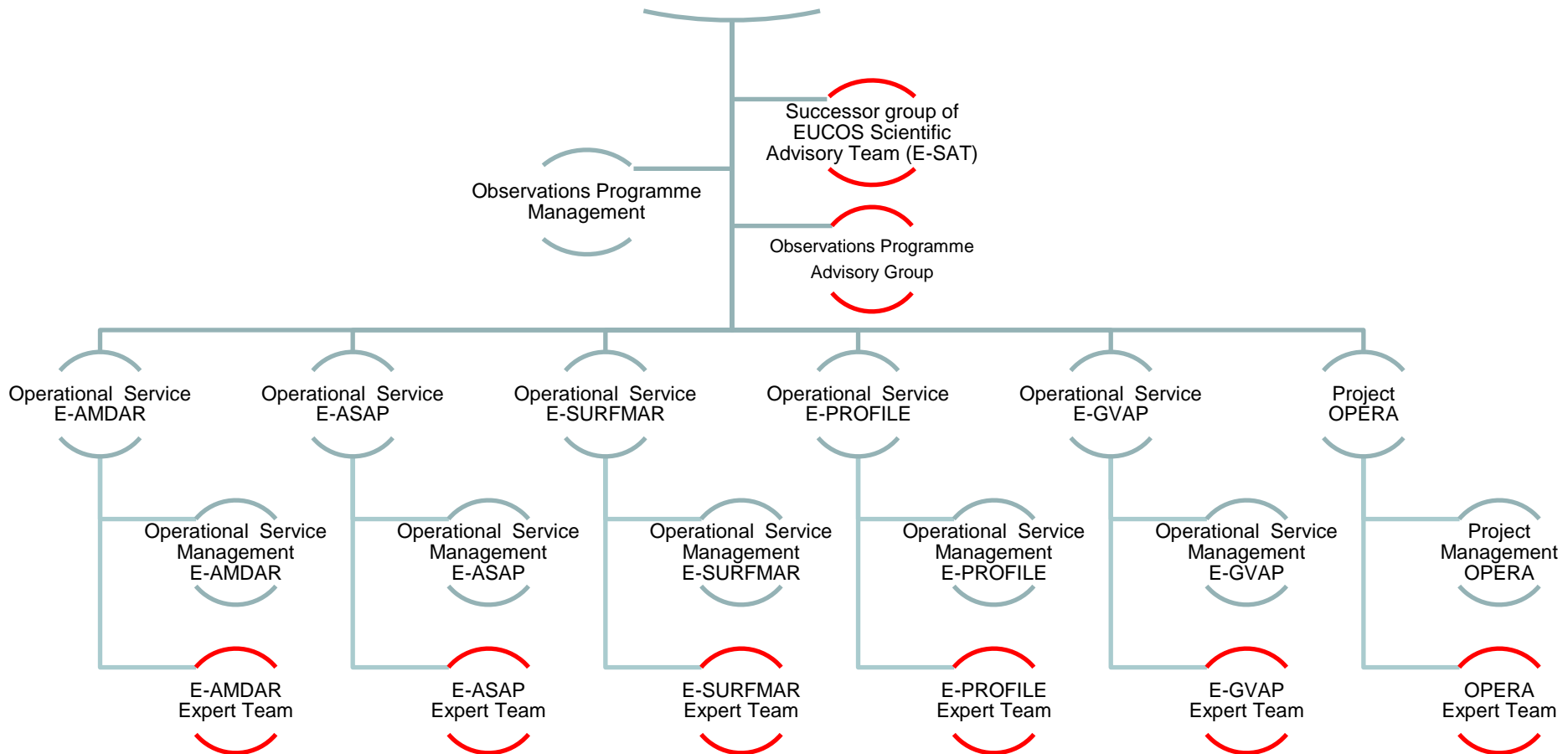
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Observations Programme structure

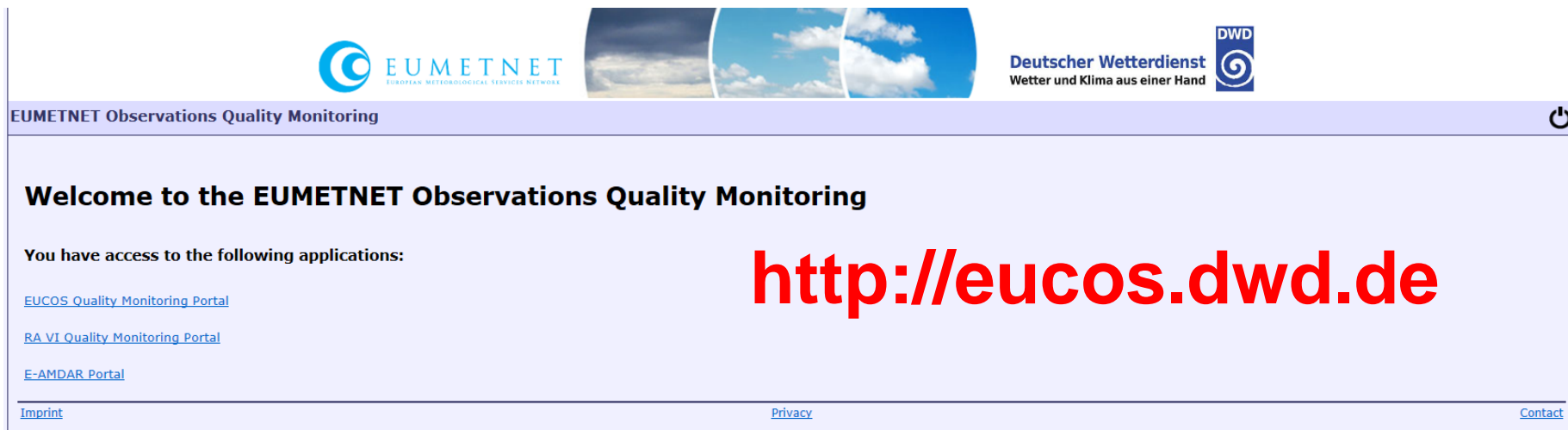
Observations Programme



QM Portal access for E-GVAP members

Changing of the EUCOS and RA VI Quality Monitoring Portal (QMP):

- Access for users outside NMSs in spring 2015 possible, but only for the E-GVAP folder



The screenshot shows the EUMETNET Observations Quality Monitoring portal. At the top, there is a header with the EUMETNET logo, a decorative image of clouds, and the logo of the Deutscher Wetterdienst (DWD) with the text "Deutscher Wetterdienst" and "Wetter und Klima aus einer Hand". Below the header, the main content area has a light blue background. It starts with the text "Welcome to the EUMETNET Observations Quality Monitoring". Below this, it says "You have access to the following applications:" followed by three links: "EUCOS Quality Monitoring Portal", "RA VI Quality Monitoring Portal", and "E-AMDAR Portal". To the right of these links, the URL "http://eucos.dwd.de" is displayed in large red text. At the bottom of the page, there are links for "Imprint", "Privacy", and "Contact".

EUMETNET Observations Quality Monitoring

Welcome to the EUMETNET Observations Quality Monitoring

You have access to the following applications:

- [EUCOS Quality Monitoring Portal](#)
- [RA VI Quality Monitoring Portal](#)
- [E-AMDAR Portal](#)

http://eucos.dwd.de

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