Republika e Kosovës

Republika Kosovo

Republic of Kosovo

ASHNA

Agjencia e Shërbimeve të Navigacionit Ajror

Agencija za Vazdušno Navigacijske Usluge

Air Navigation Services Agency

Implementation of the New Meteorological Systems at Kosovo ANSA

New Systems

- Forcasting System – Integrated sources (model data, Eumetsat, SADIS and distribution of products);
- New AWOS (ICAO CAT 3B);
- AWOS Back-up; and
- ATIS/VOLMET.

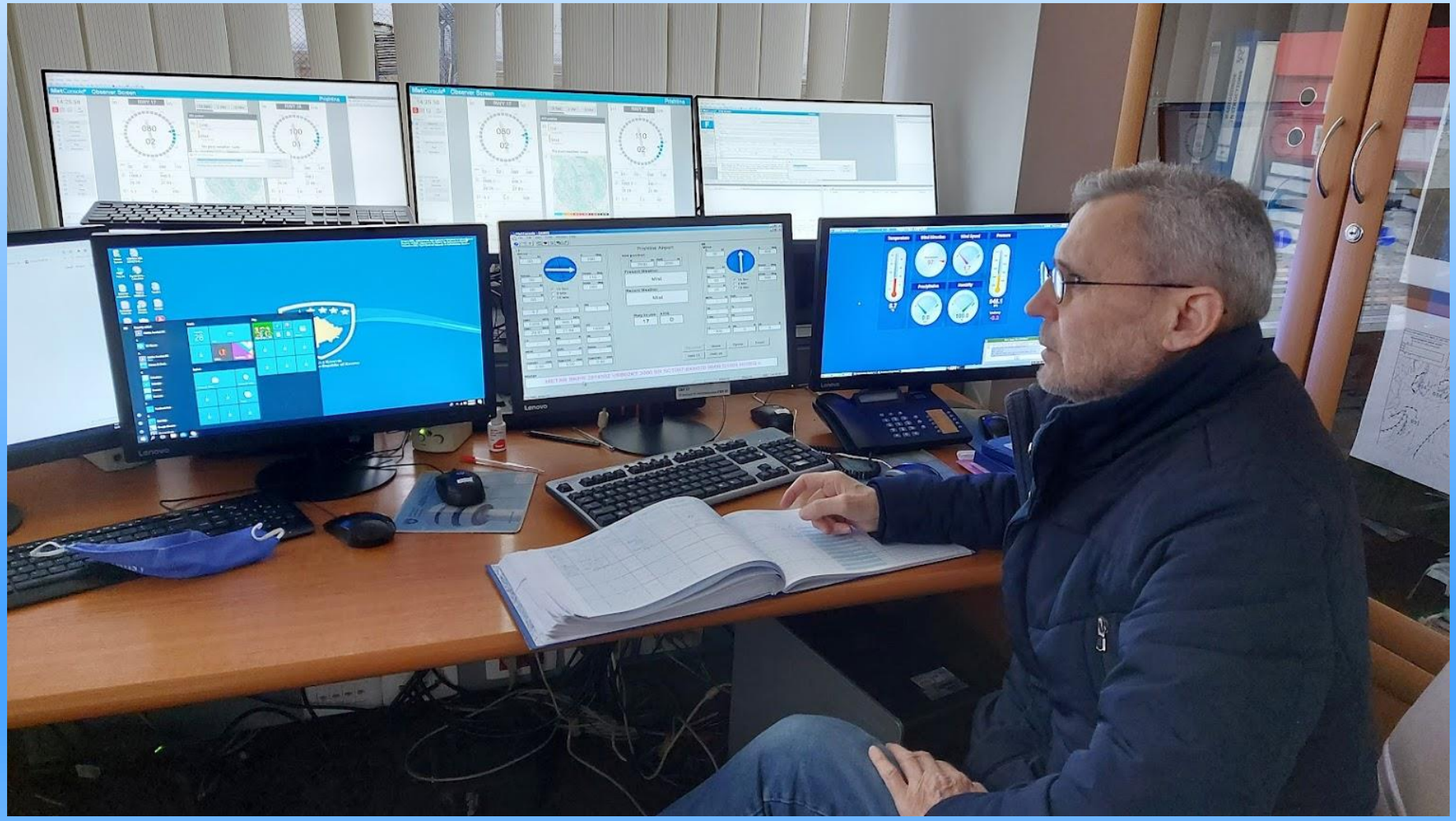
Purpose of the Change

No Forcasting System at all, except Eumetcast and SADIS data
Existing AWOS system too old
Calibration problems
Lack of spare sensors for replacement
Failures of existing sensors (may require to downgrade CAT2 -> CAT1)
Existing ATIS not able to automatically interface with both new AWOS-is

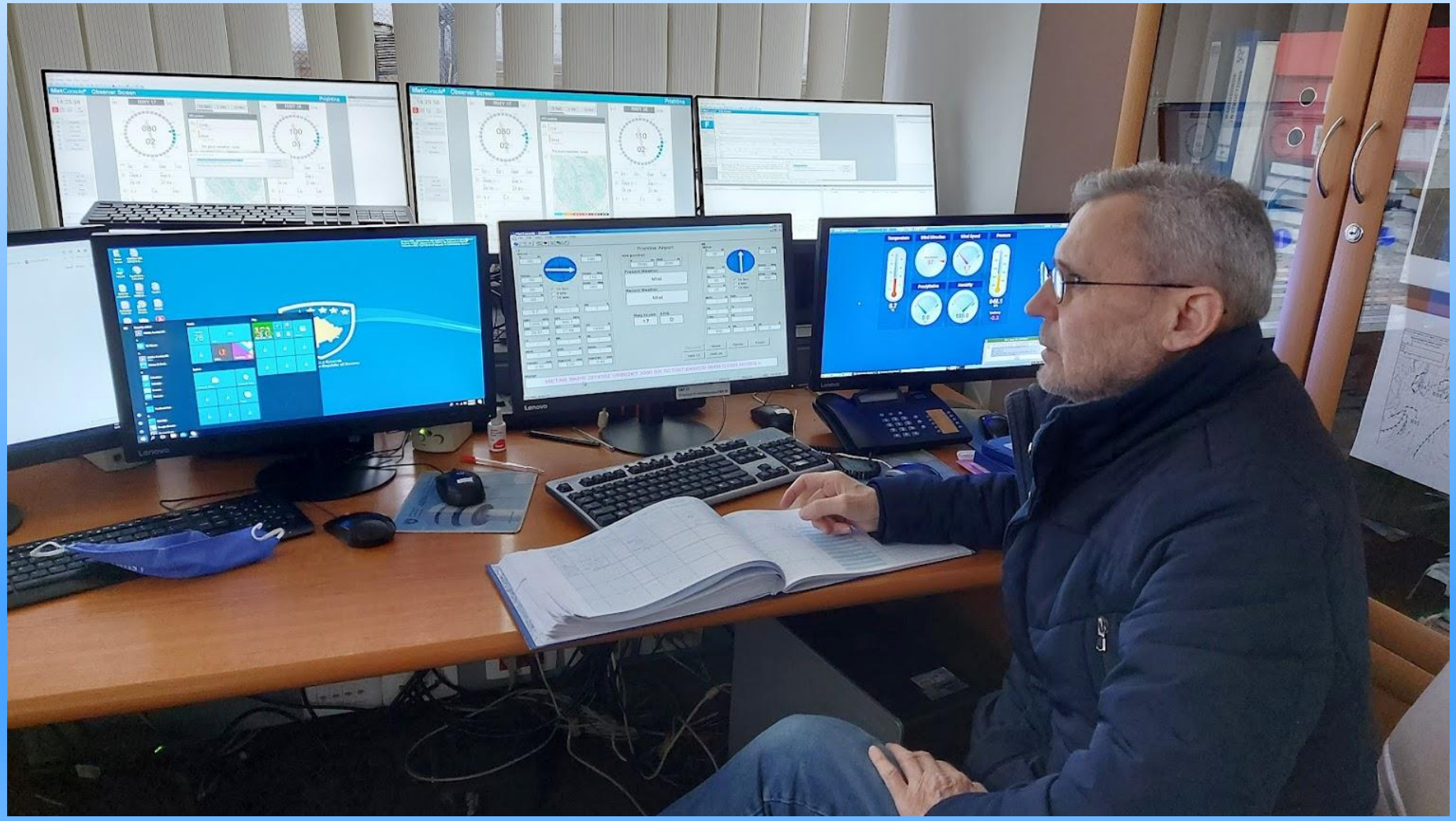
→ Expected benefits

- Better reliability & availability
- Increase of quality of the offered aeronautical meteorological services
- Capacity increase in low visibility conditions etc.

Existing Systems



Existing Systems



Requirements for Instrumented Observed Parameters

MET.TR.210 Observing meteorological elements
(c) Runway Visual Range (RVR)
(2) Instrumented systems

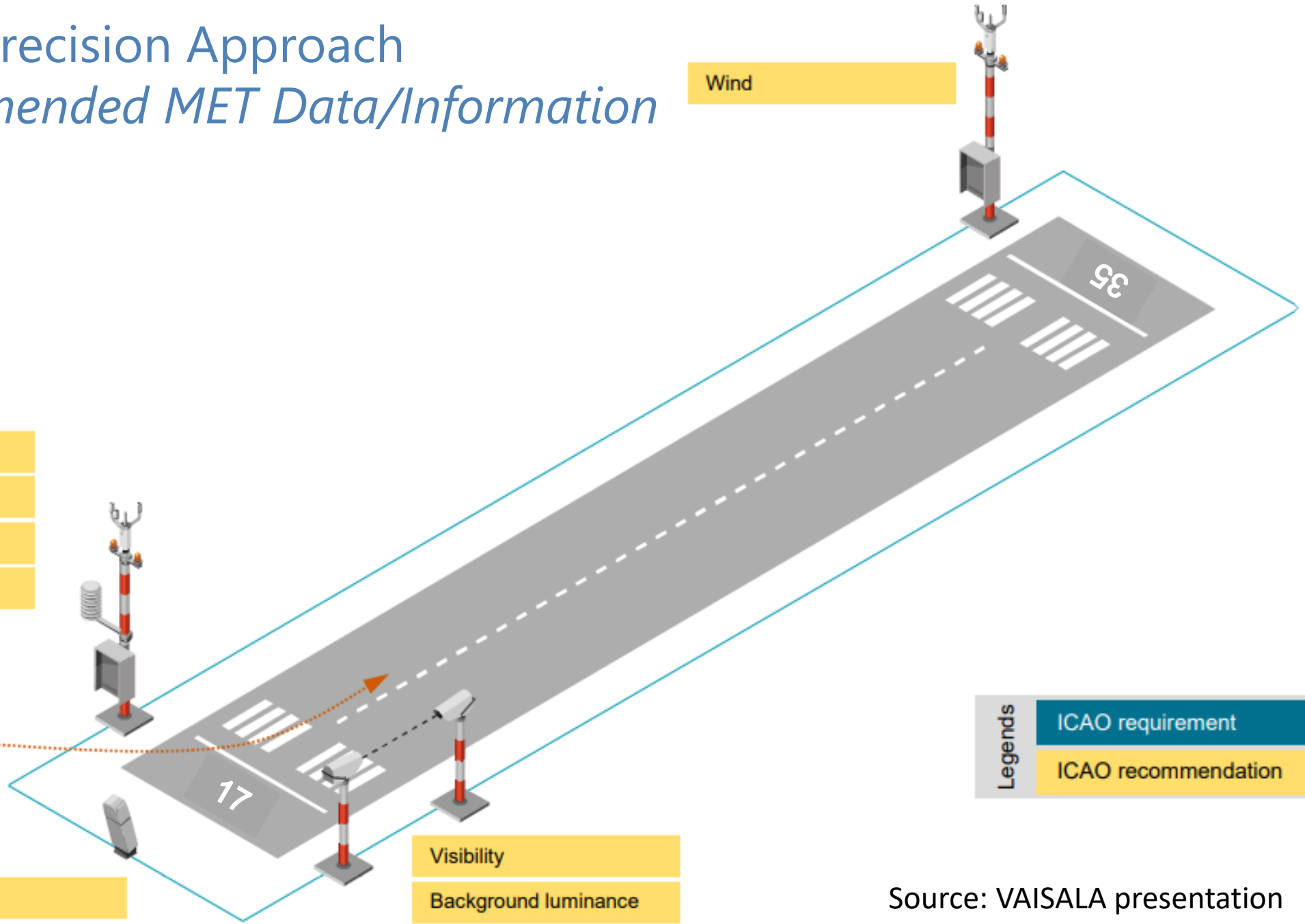
Parameter	No CAT	CAT I	CAT II	CAT III
Wind speed and direction	1 - 2	TDZ	TDZ	TDZ
Barometric pressure	1 - 2	1 - 2	2	2
Relative humidity and temperature	1	1 - 2	2	2
Cloud height	1	1 - 2	1 - 2	2
Meteorological Optical Range (for visibility and RVR)	1	TDZ	TDZ, MID	TDZ, MID, END
Background luminance (for visibility and RVR)		TDZ	2	2

ICAO requirement | ICAO recommendation | Additional if used as synoptic station | Vaisala recommendation

AMC1 MET.TR.205(c)(4)(iii)
Reporting of meteorological elements
RVR – Values representation

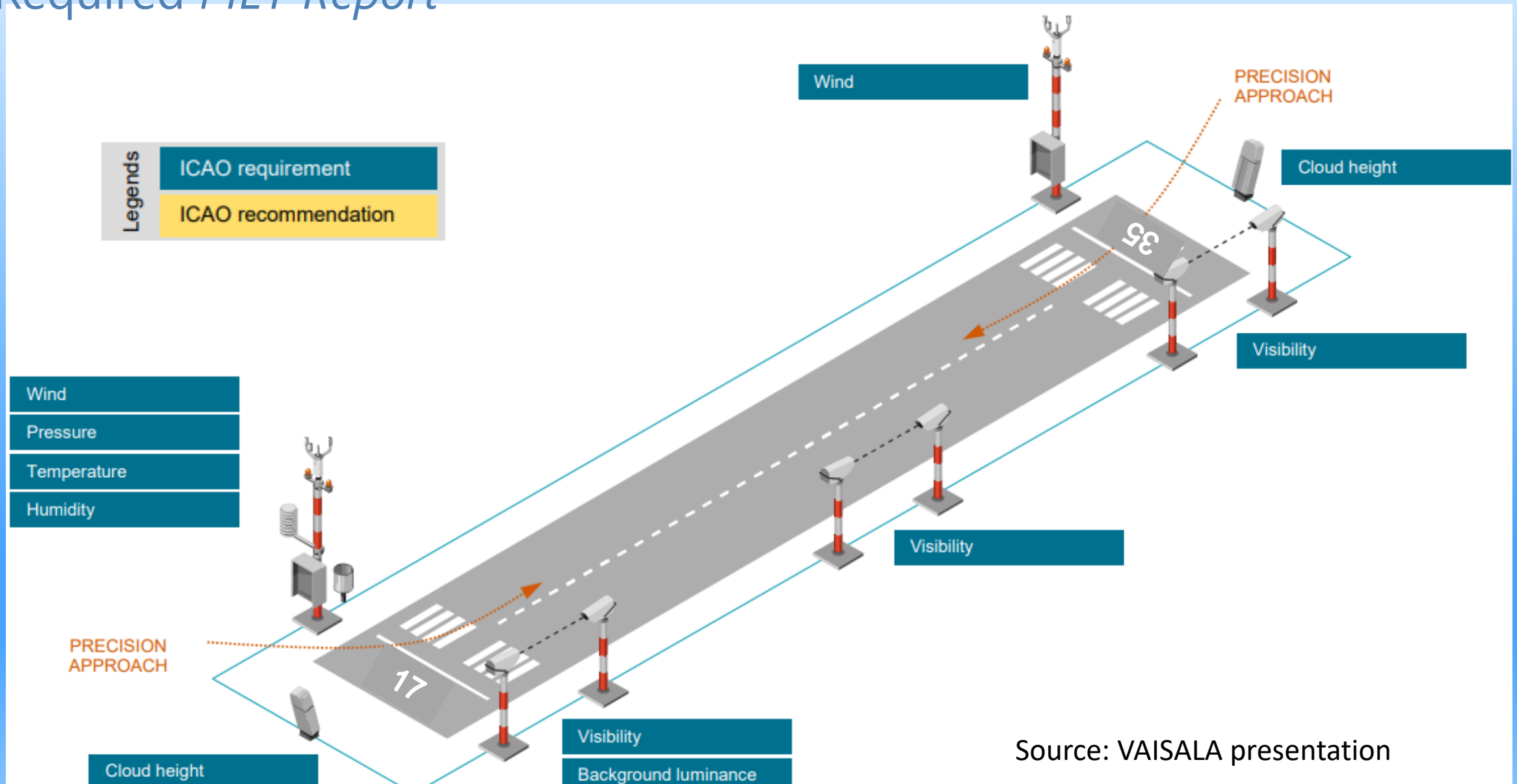
Source: adapted from VAISALA presentation

CAT 1 Precision Approach
Recommended MET Data/Information



Source: VAISALA presentation

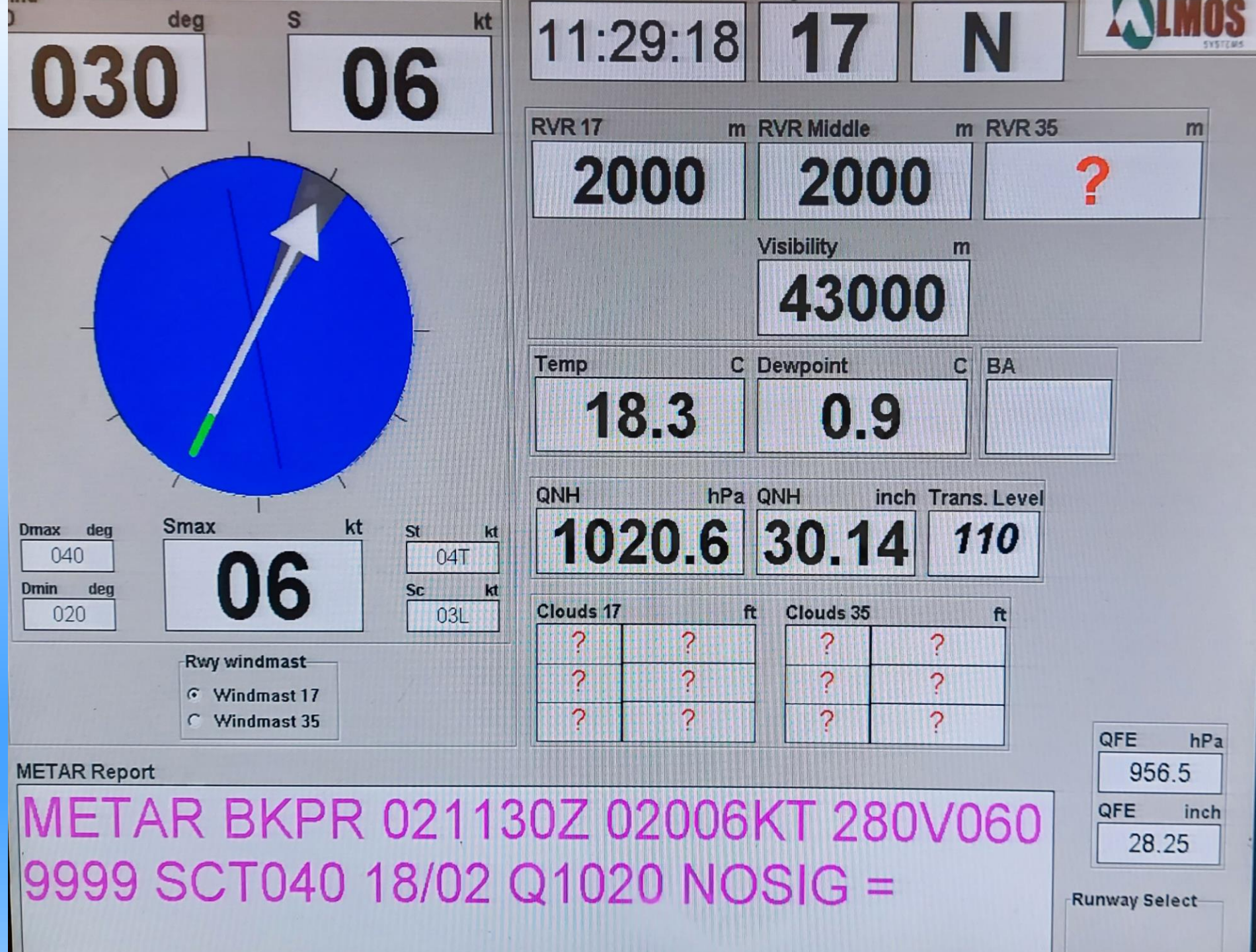
Both Ends CAT 2 – 3b Precision Approach Required *MET Report*



Source: VAISALA presentation

Impact on ATS – Old HMI

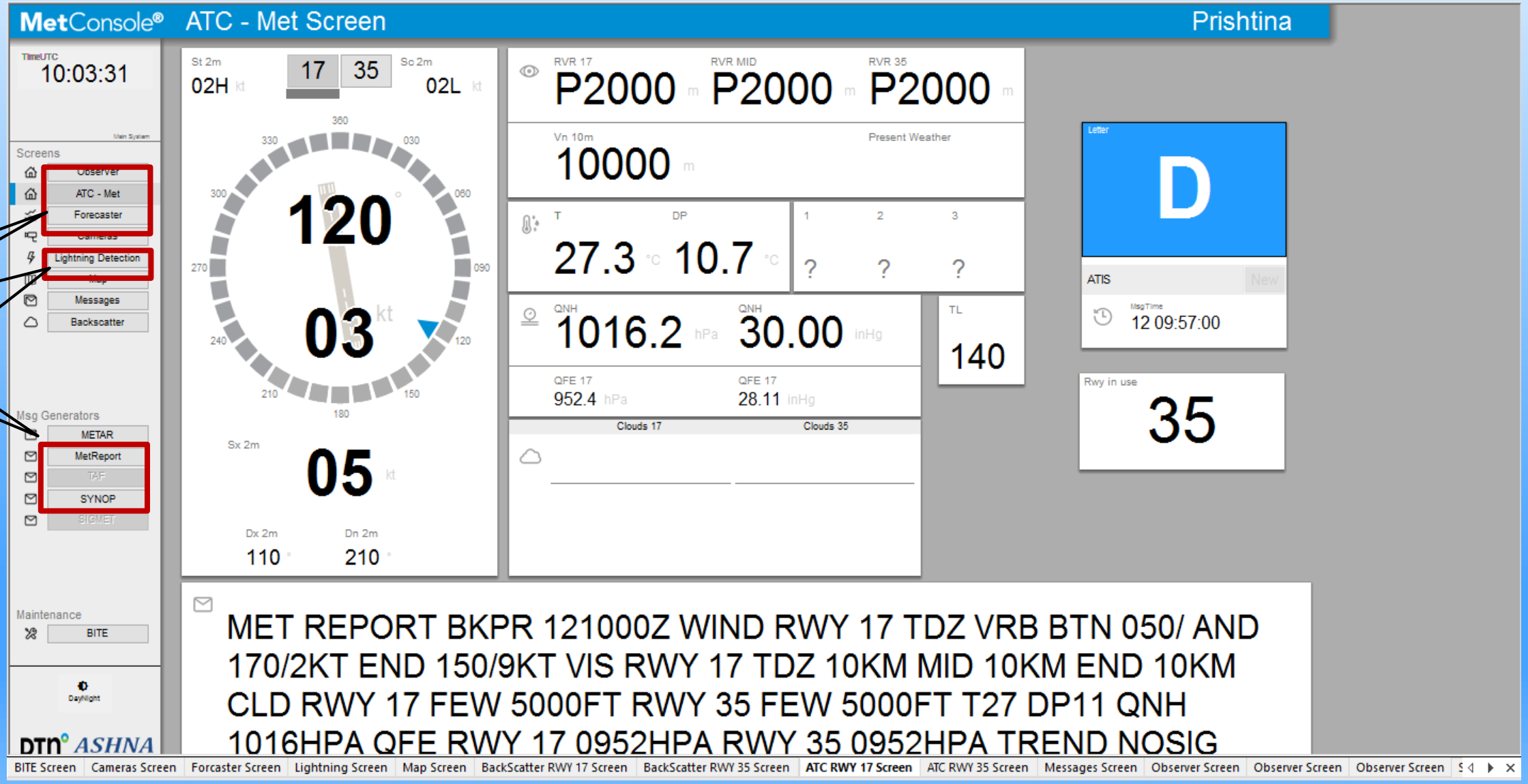
Available on each CWP on specific screen



Old MET HMI on CWP

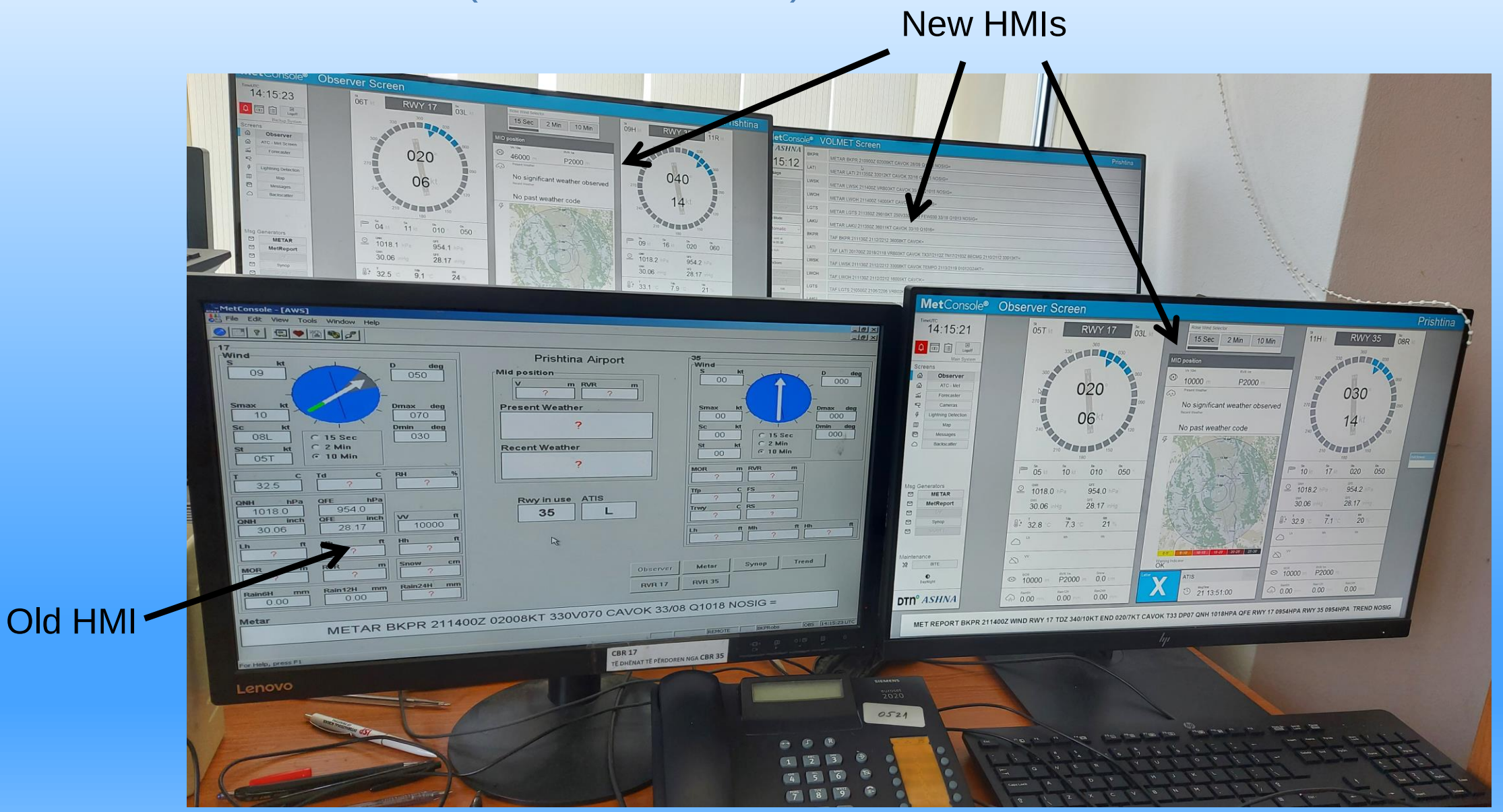
Impact on ATS – New HMI

NEW data (not available with current HMI)

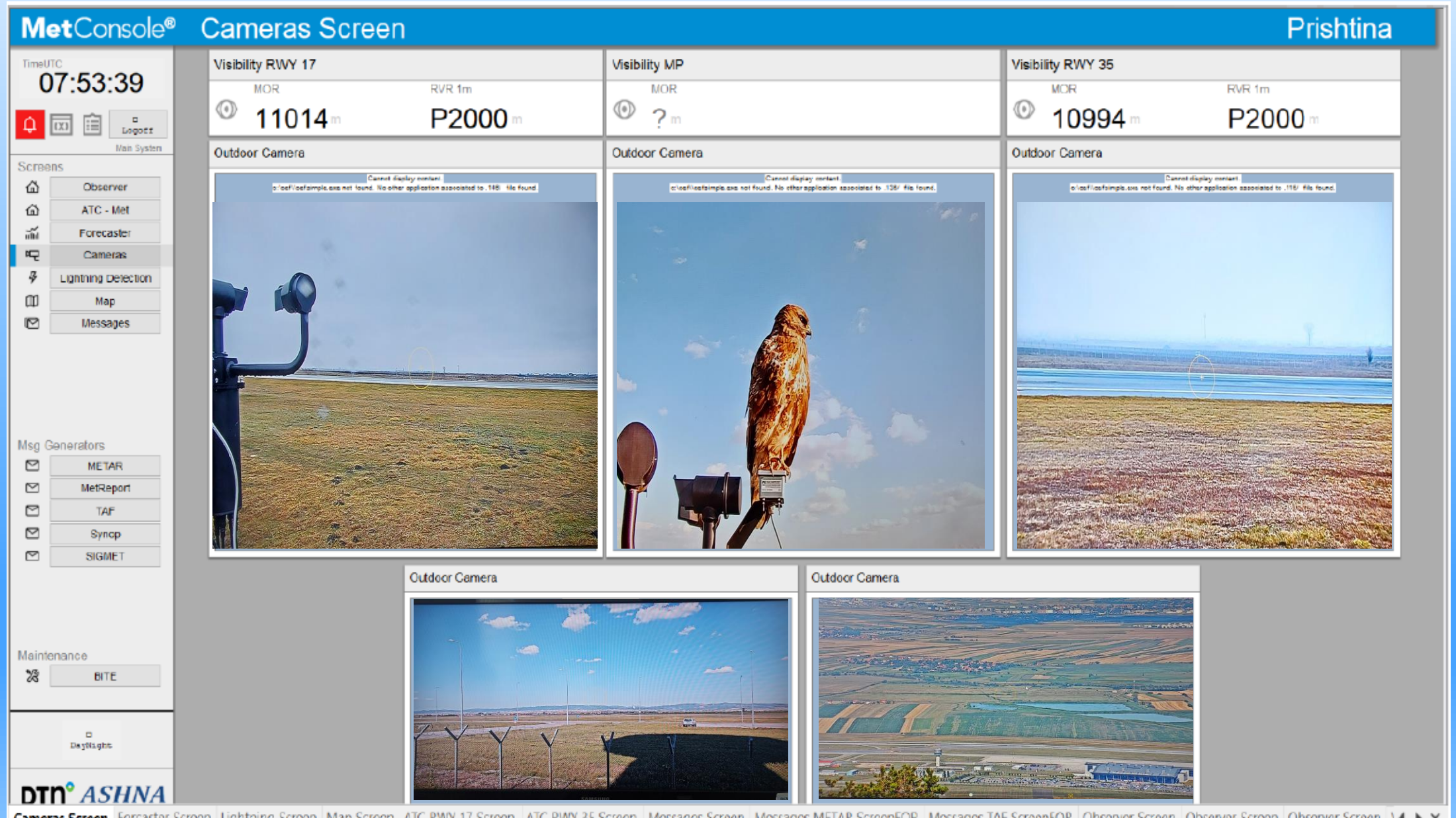


Source: DTN

Old Vs. New HMIs (MET Observer)

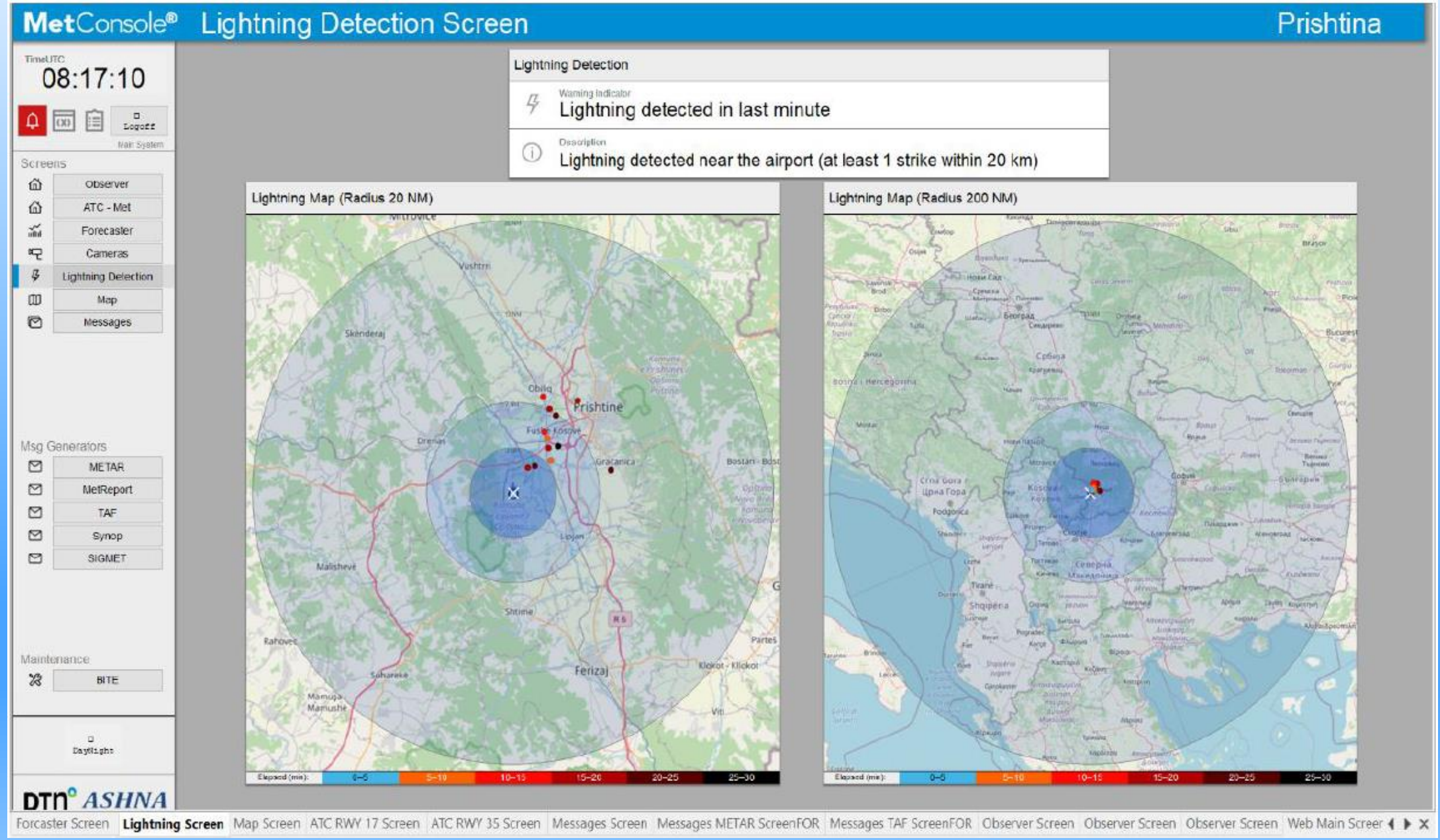


New HMI – Cameras Screen (advisory information)



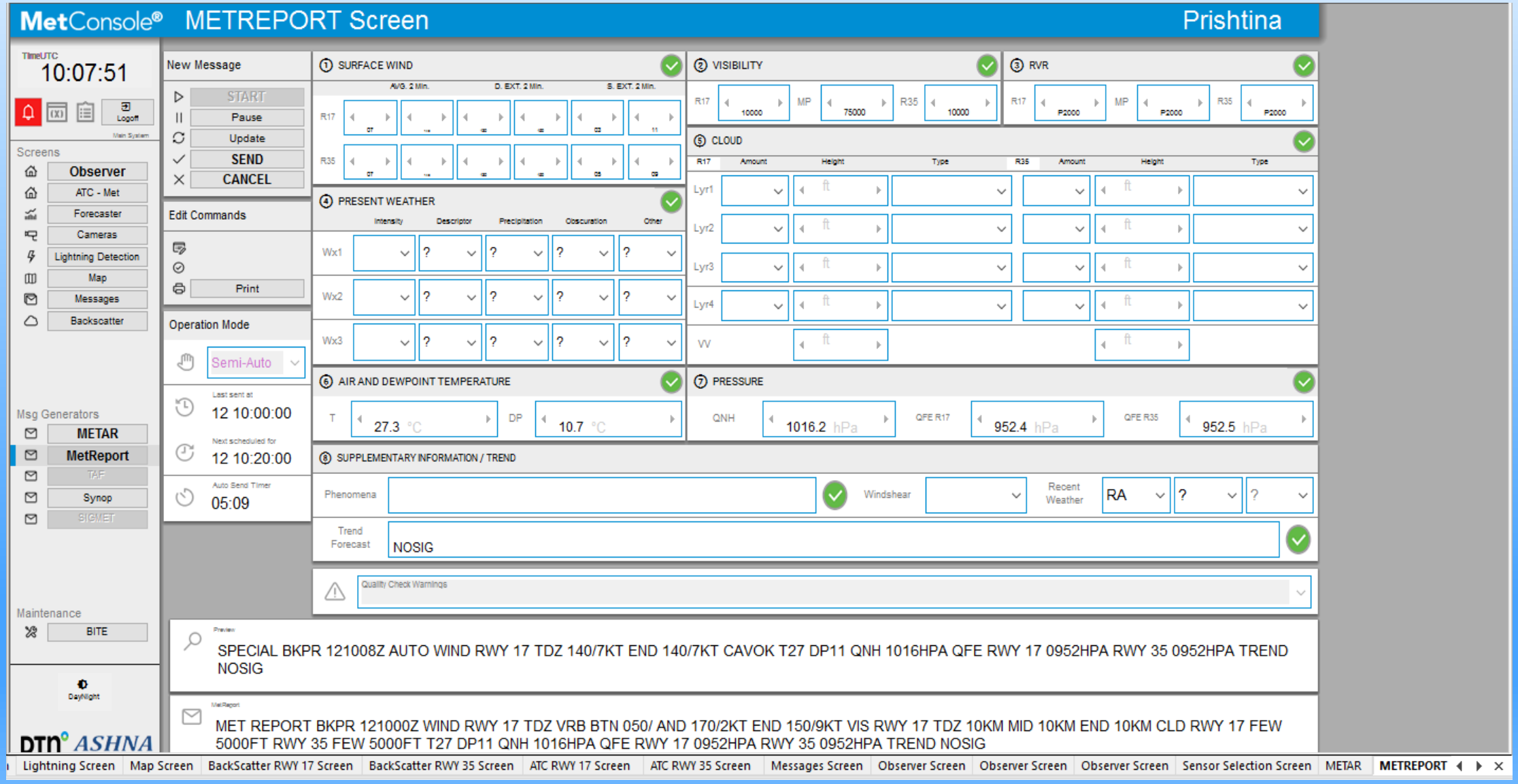
Source: DTN

New HMI – Lightning Detection Screen (advisory information)



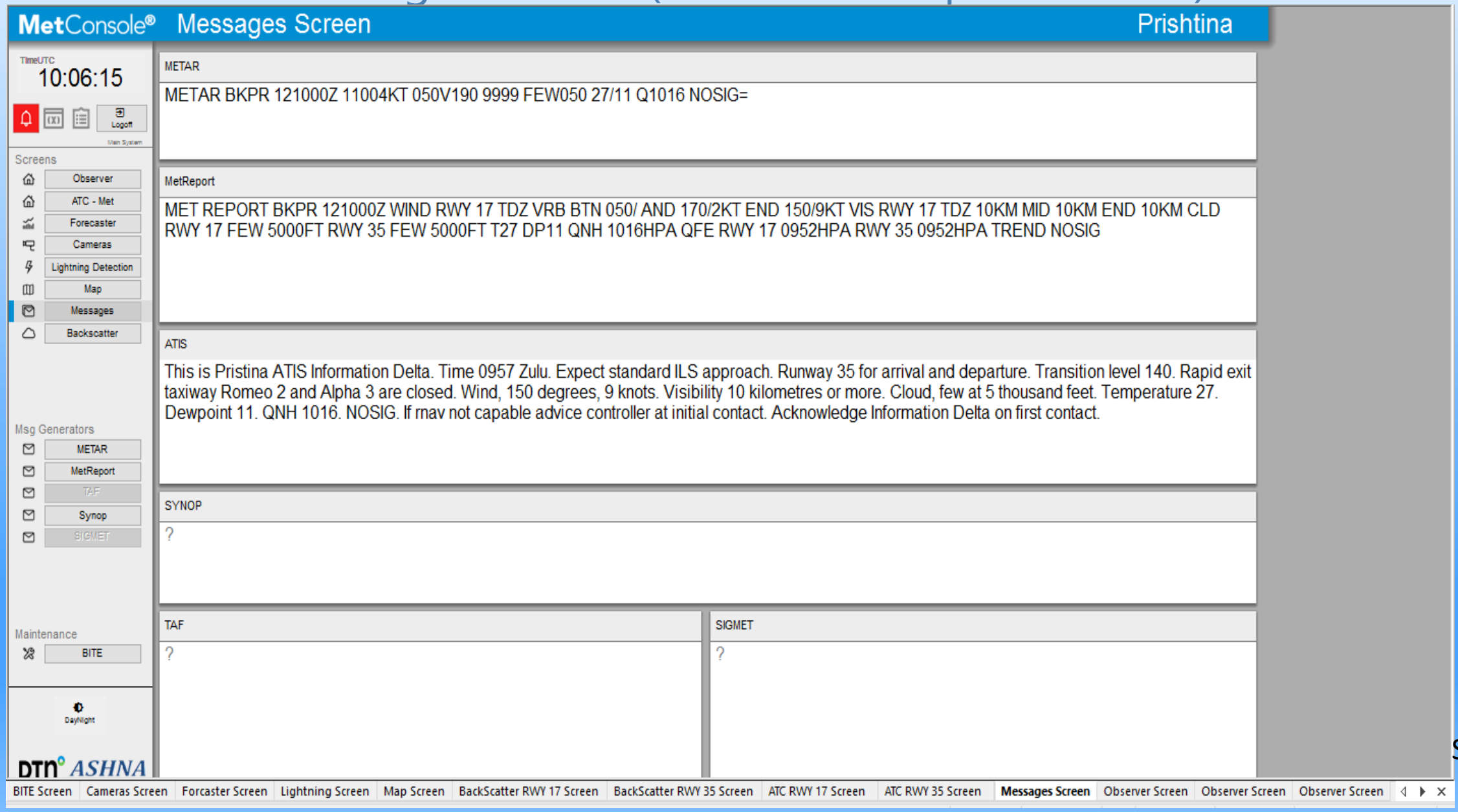
Source: DTN

New HMI – MET Report Screen



Source: DTN

New HMI – Messages Screen (Local MET Report in ATIS)



Source: DTN

Summary of Main Changes

New AWOS

- Better reliability, incl. connection between sensors
- State of the art technology
- Compliance with EASA/ICAO rules, in particular Part-MET of Regulation 2017/373
- New HMIs on new screens for ATCOs, more data provided (e.g. MET reports)
- Set of spare parts available
- Fully redundant system
- ICAO CAT 3b with other relevant capabilities

Old system

- MET reports cannot be issued
- End of lifecycle (18 years old)
- Lack of spare parts
- Many sensor failures
- Decreasing capability vs CAT (from CAT 2 to CAT 1 or no CAT)

Use Cases

ATC (tower & approach)

Terminal ops room

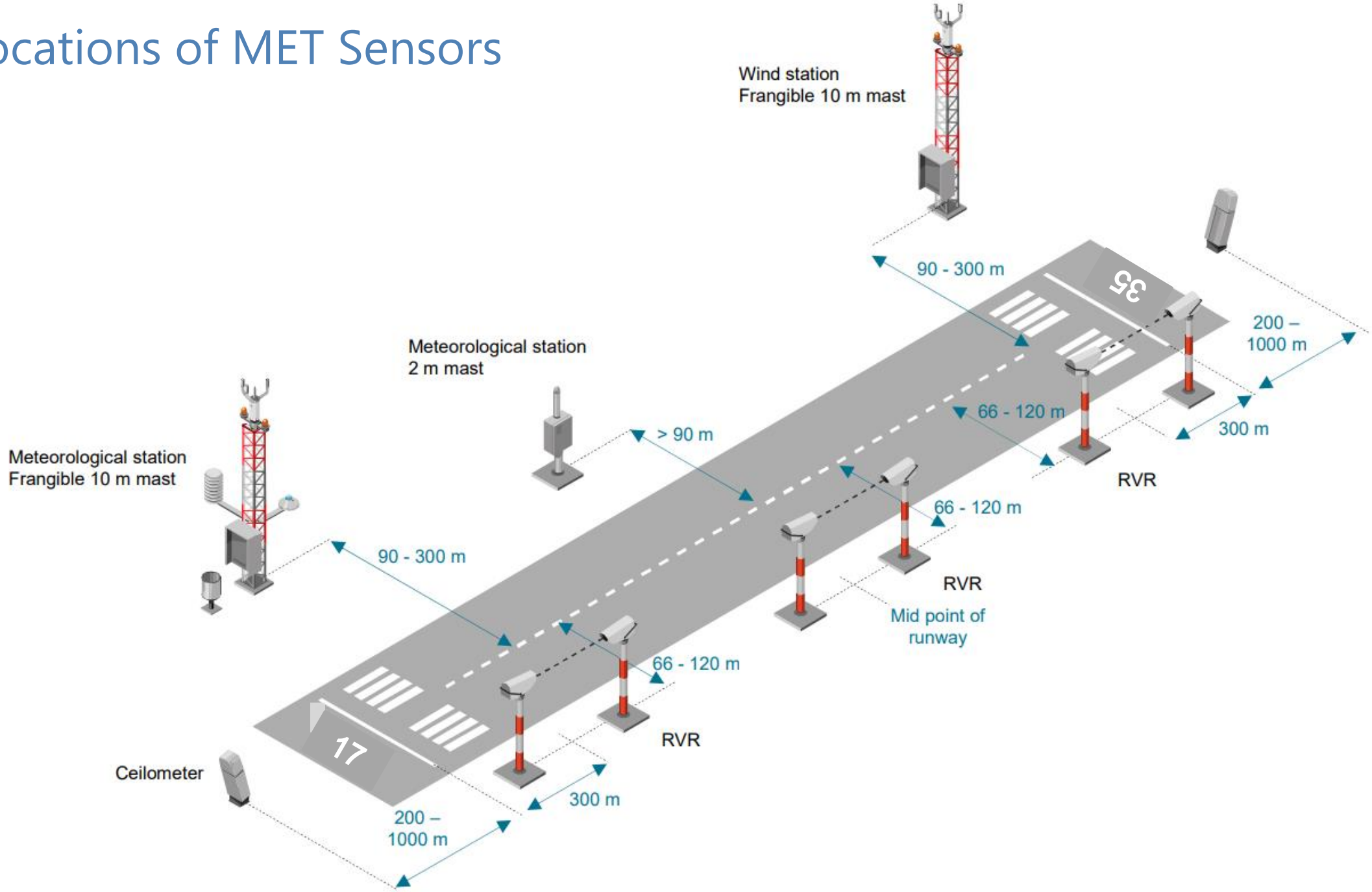
Technical department (maintenance)

MET department (observers & forecasters)

Airspace users (via ATIS & ATC, and VOLMET in the future)

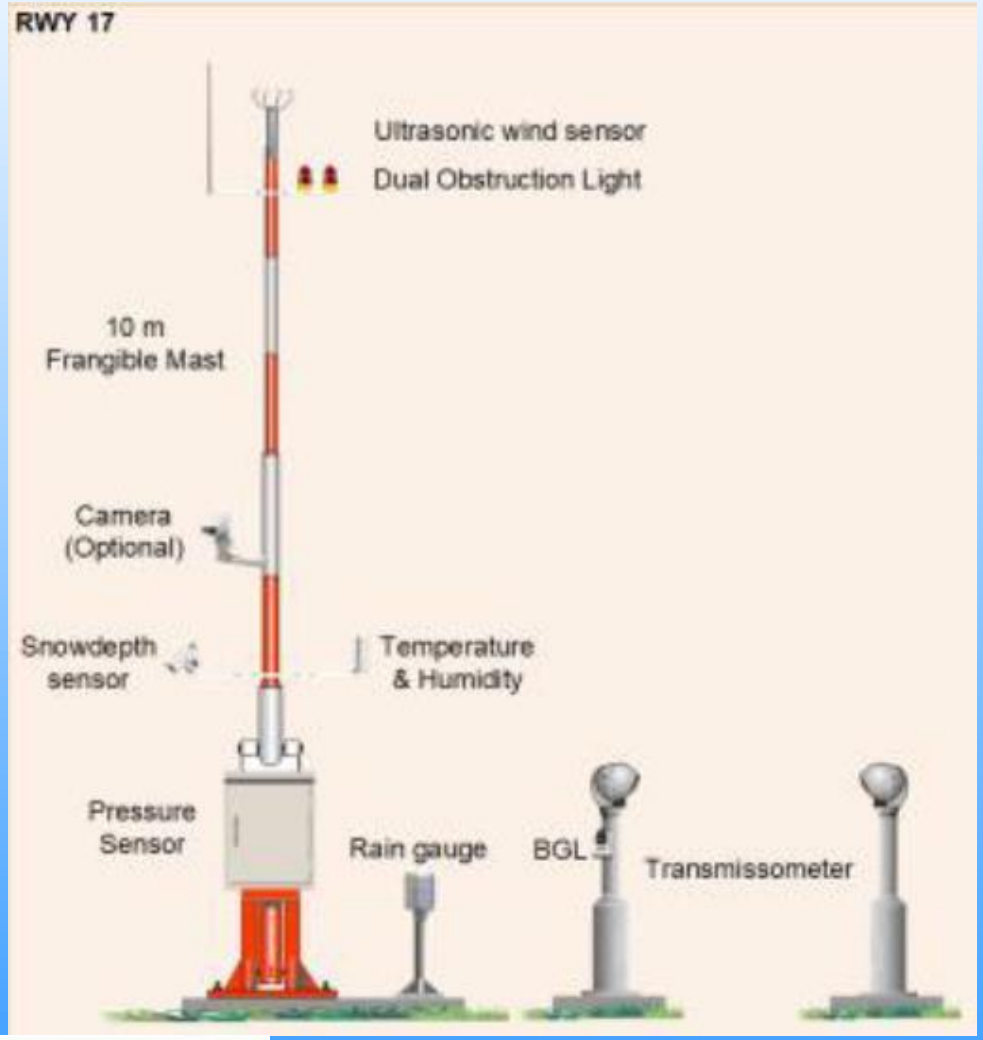
Any other if requested

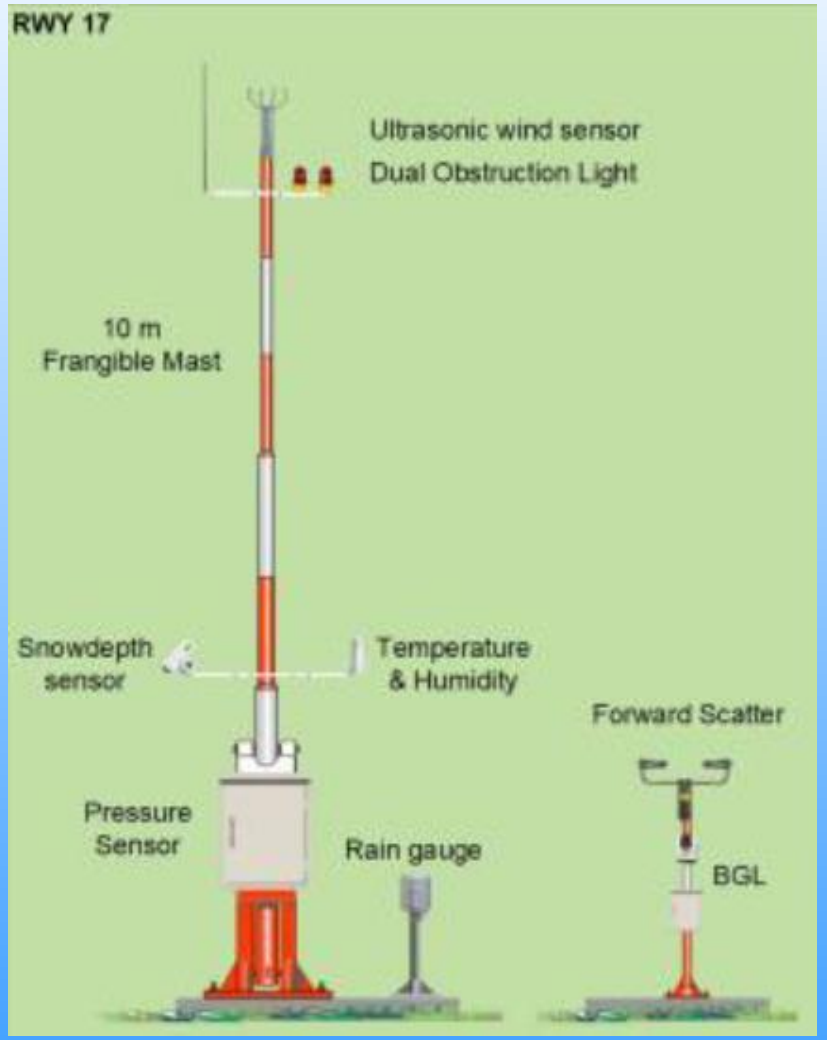
Locations of MET Sensors



Main & Backup AWOS Sensors

Runway 17



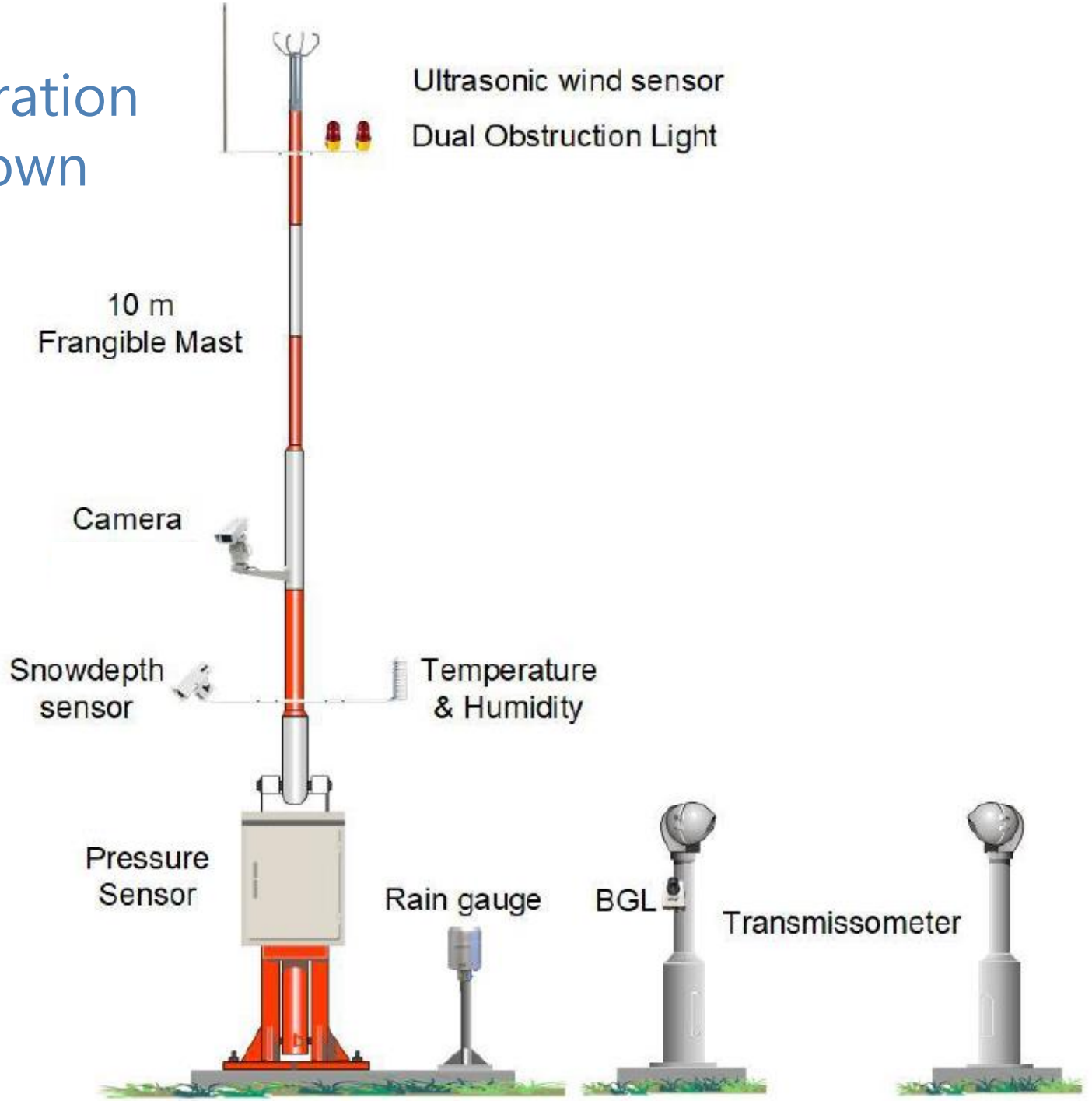


Source: DTN

Ceilometers (Main & Backup)

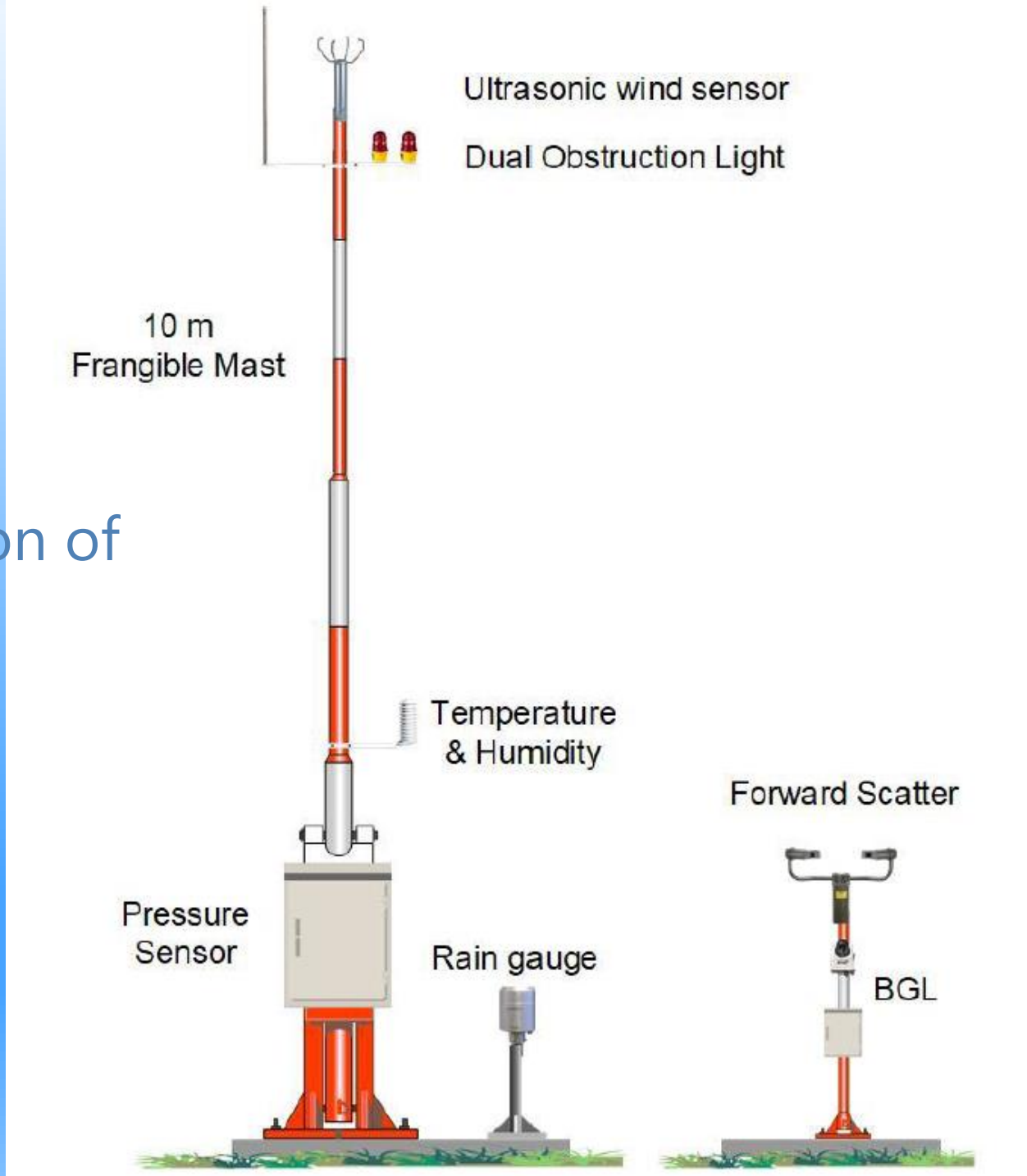
Mast & Sensor Configuration of Main AWOS Touchdown Zones

Runway 17

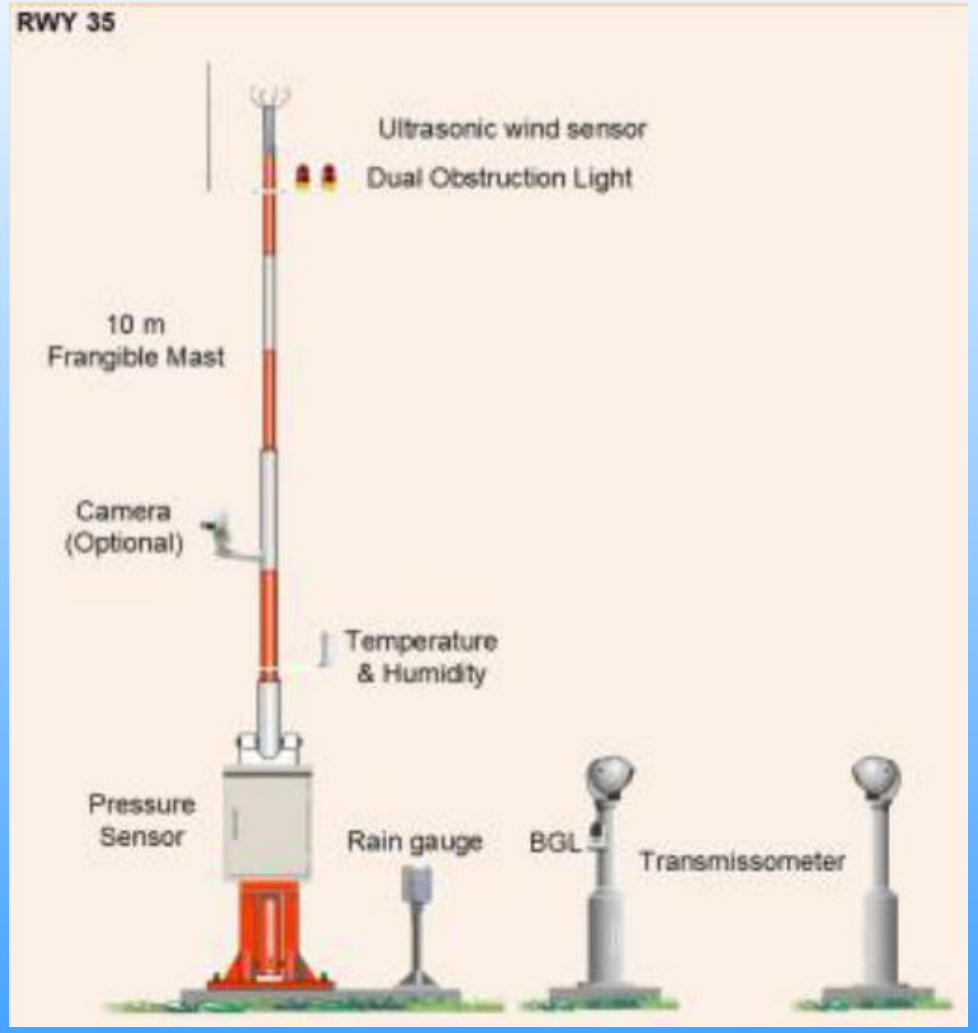


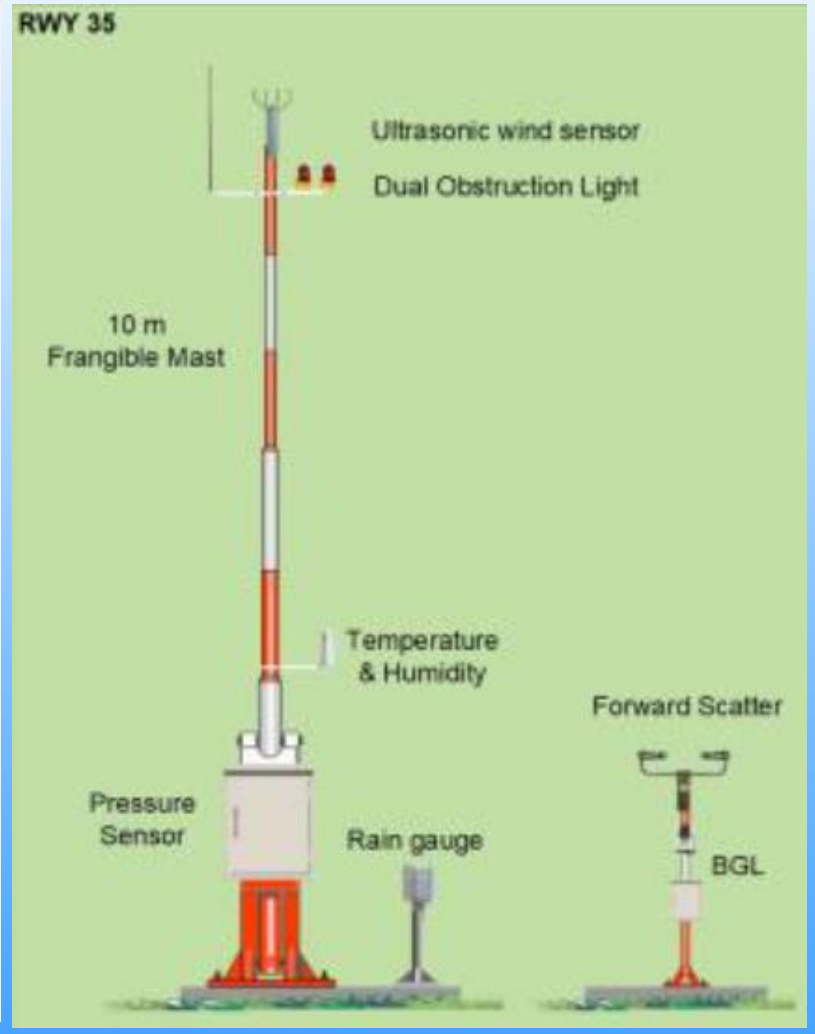
Source: DTN

Mast & Sensor Configuration of Backup AWOS Touchdown Zones



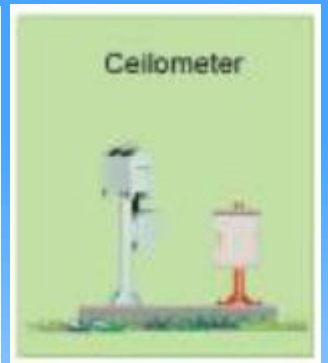
Source: DTN





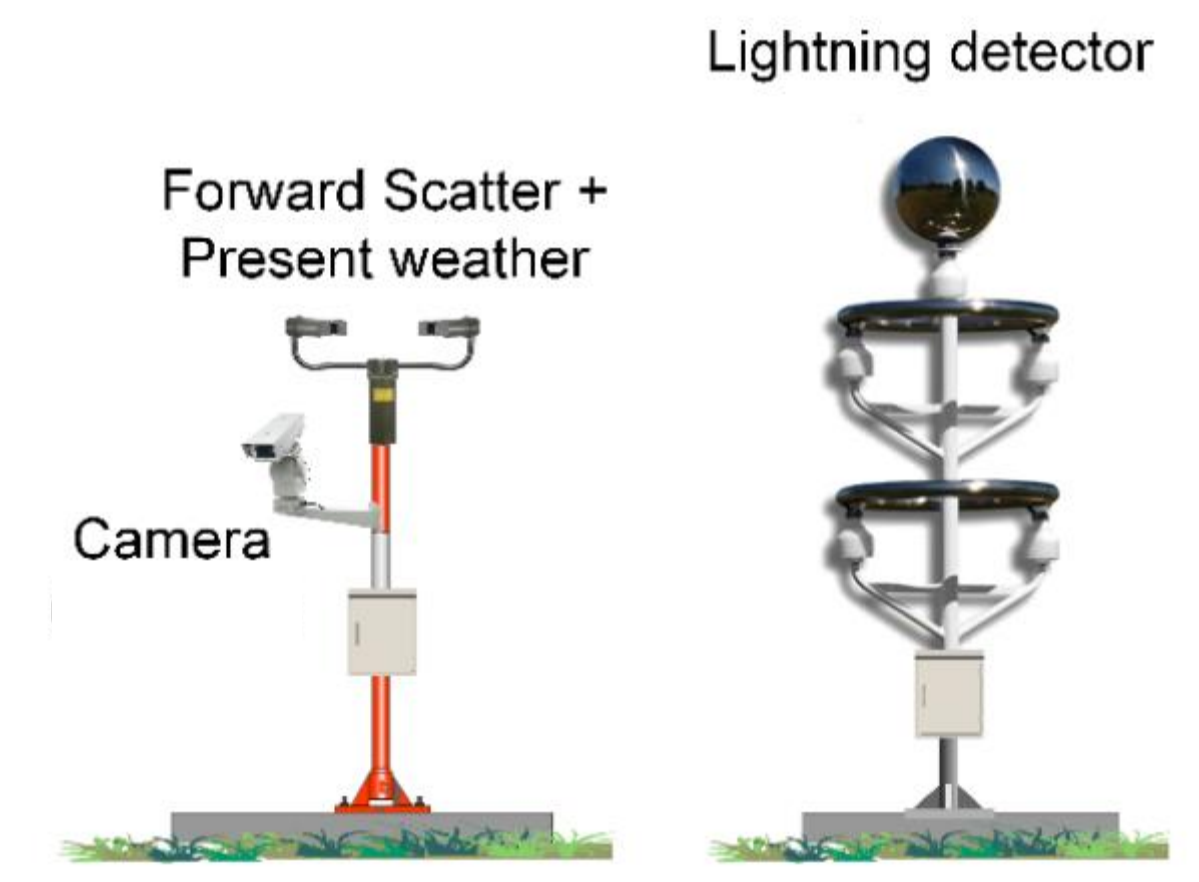
Main & Backup AWOS Sensors

Runway 35



Source: DTN

Mid-Position



Source: DTN

Forward Scatters & Present Weather / Lightning detectors Main & Backup

Main Documentation / Information Sources / References

Project plan
Call for tender (with list of specifications)
Technical specifications for Forecasting System
Technical specifications for AWOS
AWOS Upgrade technical specifications
Technical specifications for ATIS/VOLMET

Safety considerations
Safety assessment argumentation
Safety assessment

Regulation 2017/373 & AMC/GM
ICAO documents

+
ICAO Doc 9837: Manual on Automatic Meteorological Observing Systems at Aerodromes

ICAO Annex 3: for data processing and reporting practices
ICAO Annex 5: for units of measurements
ICAO Annex 10: Aeronautical Telecommunications
ICAO Doc 8896: Manual of Aeronautical Meteorological Practice
ICAO Doc 9328: Manual of Runway Visual Range Observing and Reporting Practices
WMO Manual 2: Meteorological Services of the World
WMO Manual 8: Guide to Meteorological Instruments and Methods of Observation
WMO Manual 9: Weather Reporting (Volumes A and C)
WMO Manual 49: Technical Regulations (Volumes I, II and III)
WMO Manual 306: Manual on Codes (Volume I, parts A and B, Volume II)
WMO Manual 386: Manual on the Global Telecommunication System (Volumes I and II)

Source: VAISALA presentation

Airport Layout

2 runways, elevation 545m above mean sea level

Runway 17 (CAT 2) mostly used (70%)
Runway 35 with no CAT

Hill close by (top 1079m AMSL)

Environment Around Airport (1/2)

Airport elevation 545m AMSL
Hill close by (top 1079m AMSL)
Mainly northern wind

Environment Around Airport (2/2)

River close to runway

- Soil underneath very moist

Artificial lakes

… and Resulting Weather Conditions

Convective precipitation goes towards aerodrome territory

- Regional high pressure conditions (1030 or 1040 hPa) usually late autumn & winter
- After day of sun, usually bad weather conditions (fog or freezing fog)

45 days with fog or freezing fog per year

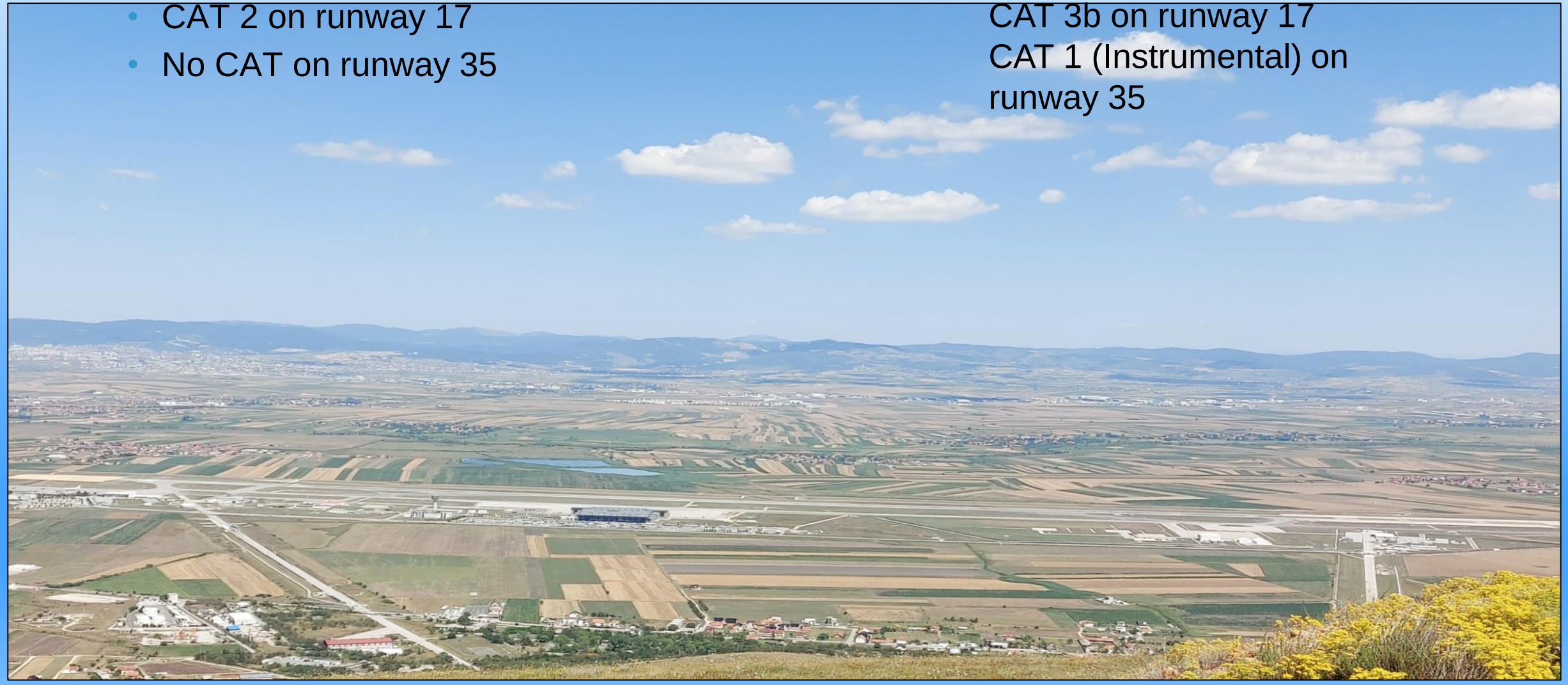
Operational Context

With old system:

- CAT 2 on runway 17
- No CAT on runway 35

With new systems:

CAT 3b on runway 17
CAT 1 (Instrumental) on runway 35

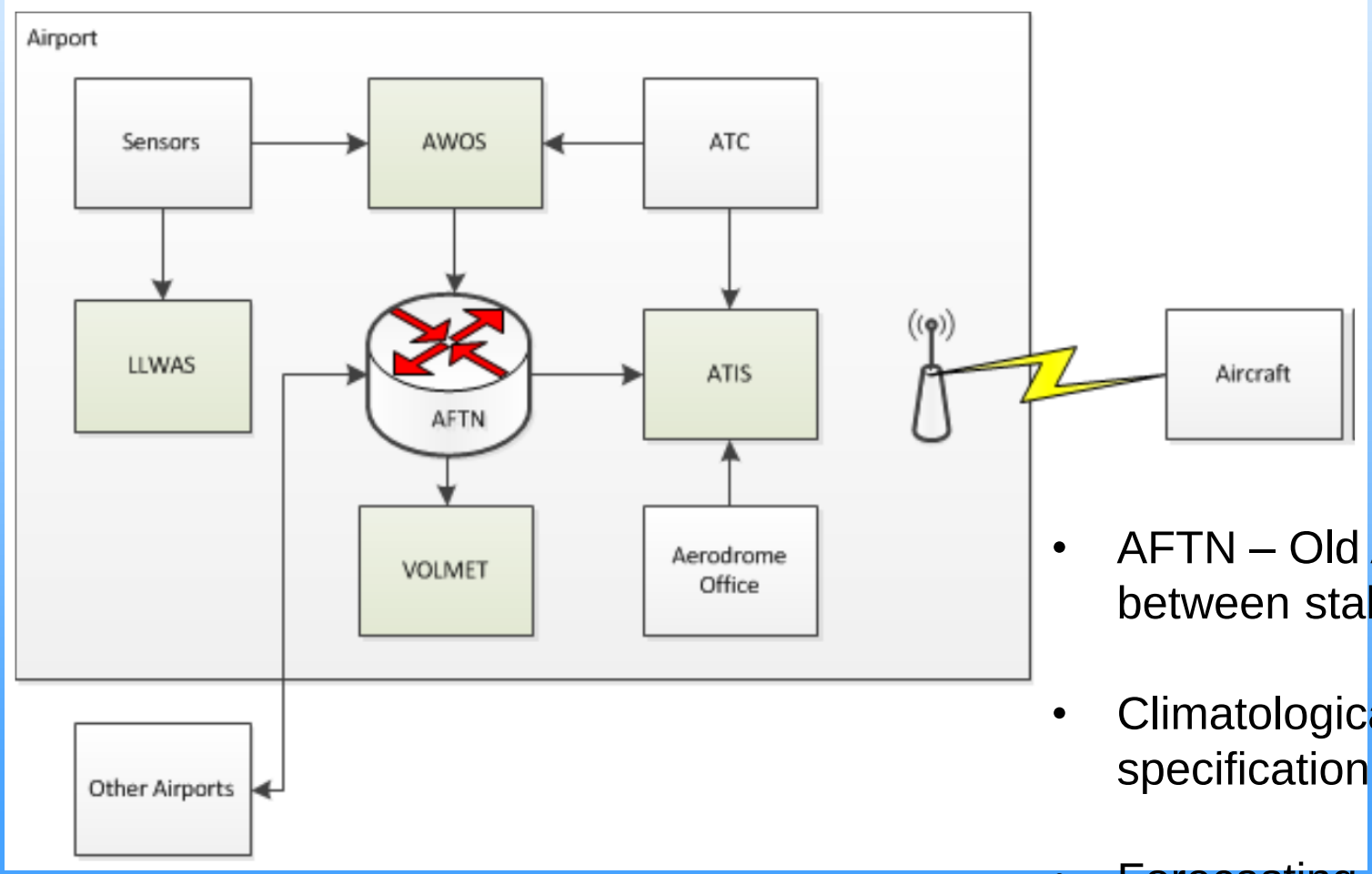


Unpredicted Delays

Integration and interface:

- With existing AFTN
- Climatological software
- Forecasting System (new)

Integration and Interface



- AFTN – Old AFTN system, no SLA, hard communication between stakeholders, delays in SAT due to this interface
- Climatological software – Rejection to fulfill technical specification requirements for interface and integration
- Forecasting System (new) – Difficulties in stakeholder communication due to time difference in implementation

Interface with AFTN

Carsten Petersen <Carsten.Petersen@isavia.is> Sherif Gosaki

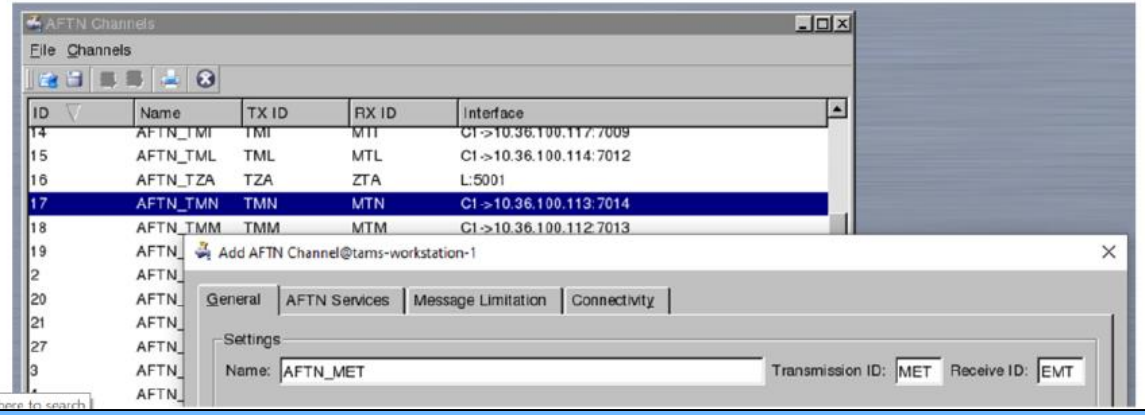
RE: Configuring AFTN

Retention Policy DelFiveYOldEm (5 years) Expires 4/21/2027

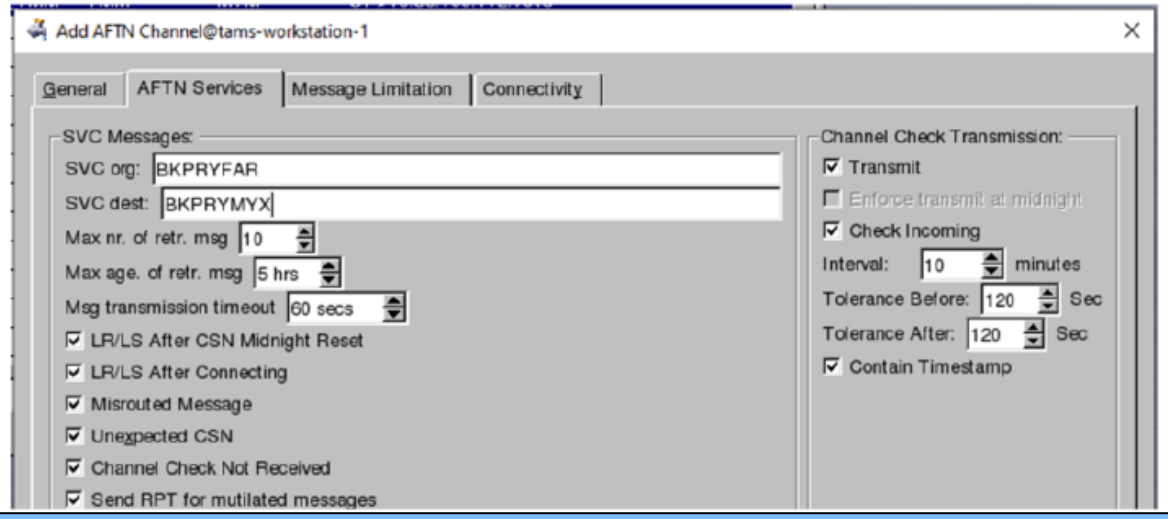
You forwarded this message on 4/22/2022 11:54 AM.

Now to do this, you first need to configure a new channel „Settings → Protocols AFTN" and Add channel.

1. Create a channel name „AFTN_MET"



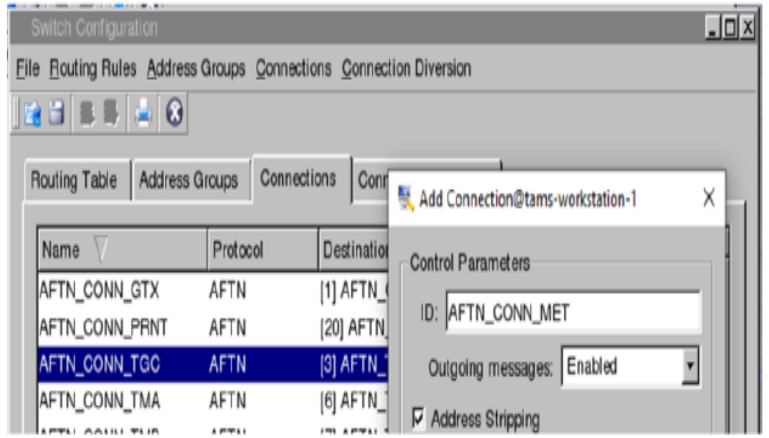
2. Insert AFTN Services: SVC org BKPRYFAR (for the AFTN switch service address), SVC dest BKPRYMYX (for the VOLMET address)



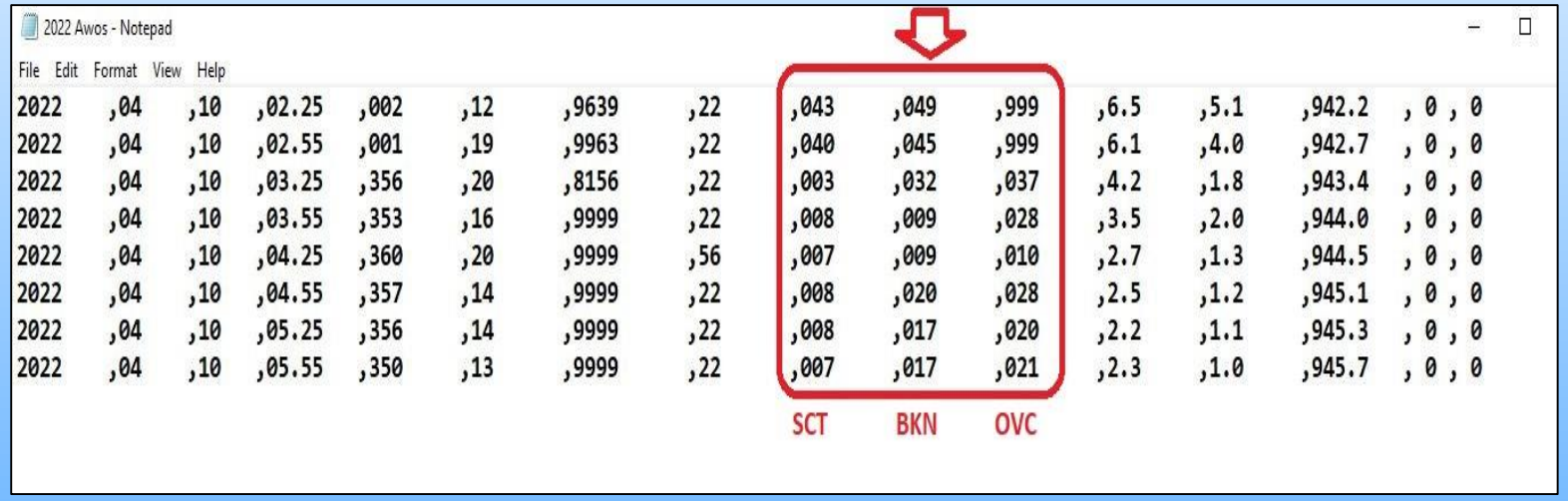
3. Keep Message Limitation unchanged and then configure the Connectivity tab.
   Here you would most likely configure it as TCP Client where you create the connection to the VOLMET system
   Select TCP client then enter the IP address for the VOLMET system and port number.

4. After configuring the AFTN channel you need to configure the AFTN connection, this is done in „Settings → Switch"

5. In the „Connections" tab select „Add" in ID you would use same parameters as in the AFTN config. In this example AFTN_CONN_MET. Enable „Outgoing messages", else messages going to VOLMET will stop in „Outgoing queue", in „Connection Parameters" the new AFTN channel should be visible. Select the AFTN_MET and then „OK".

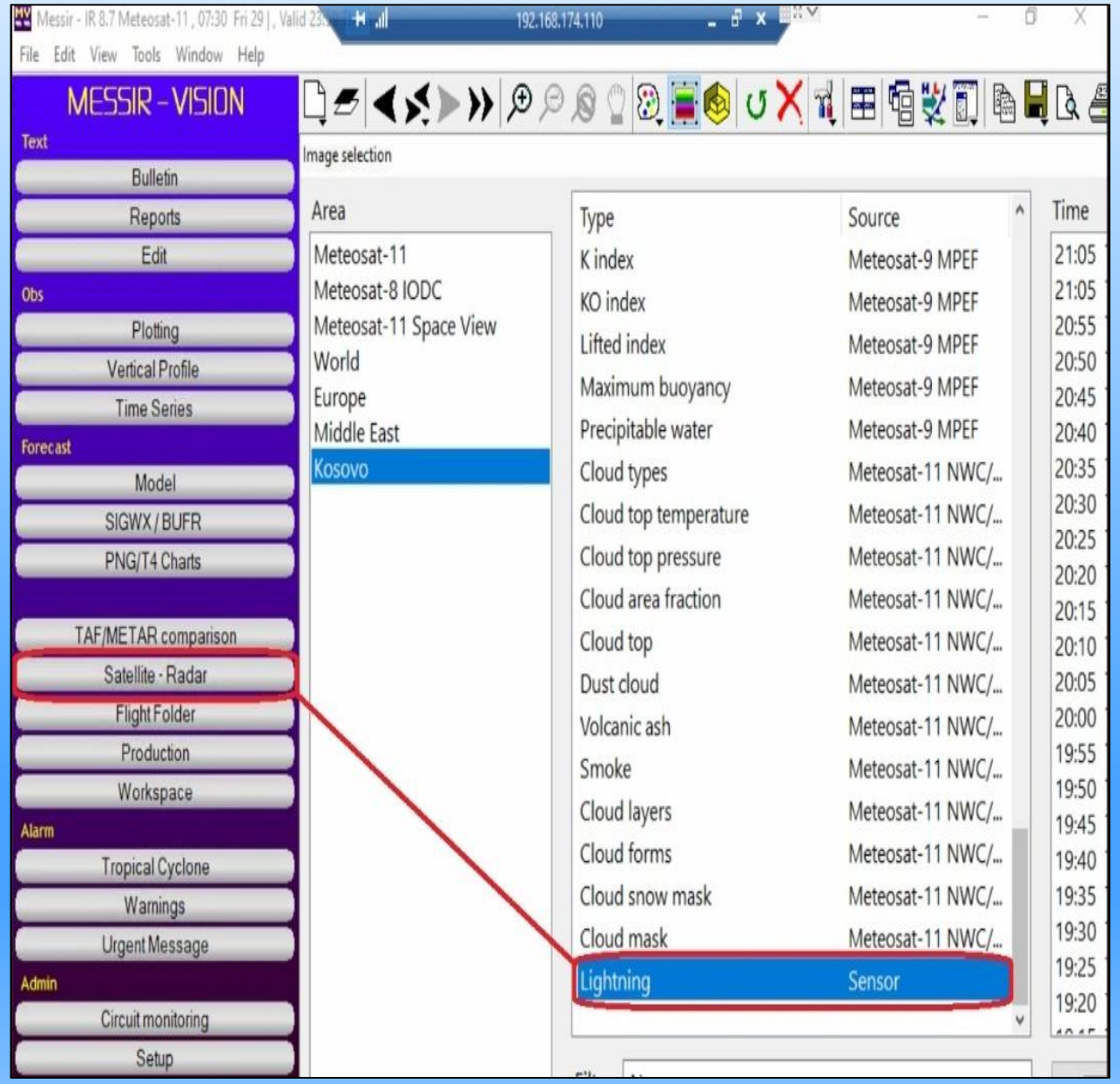


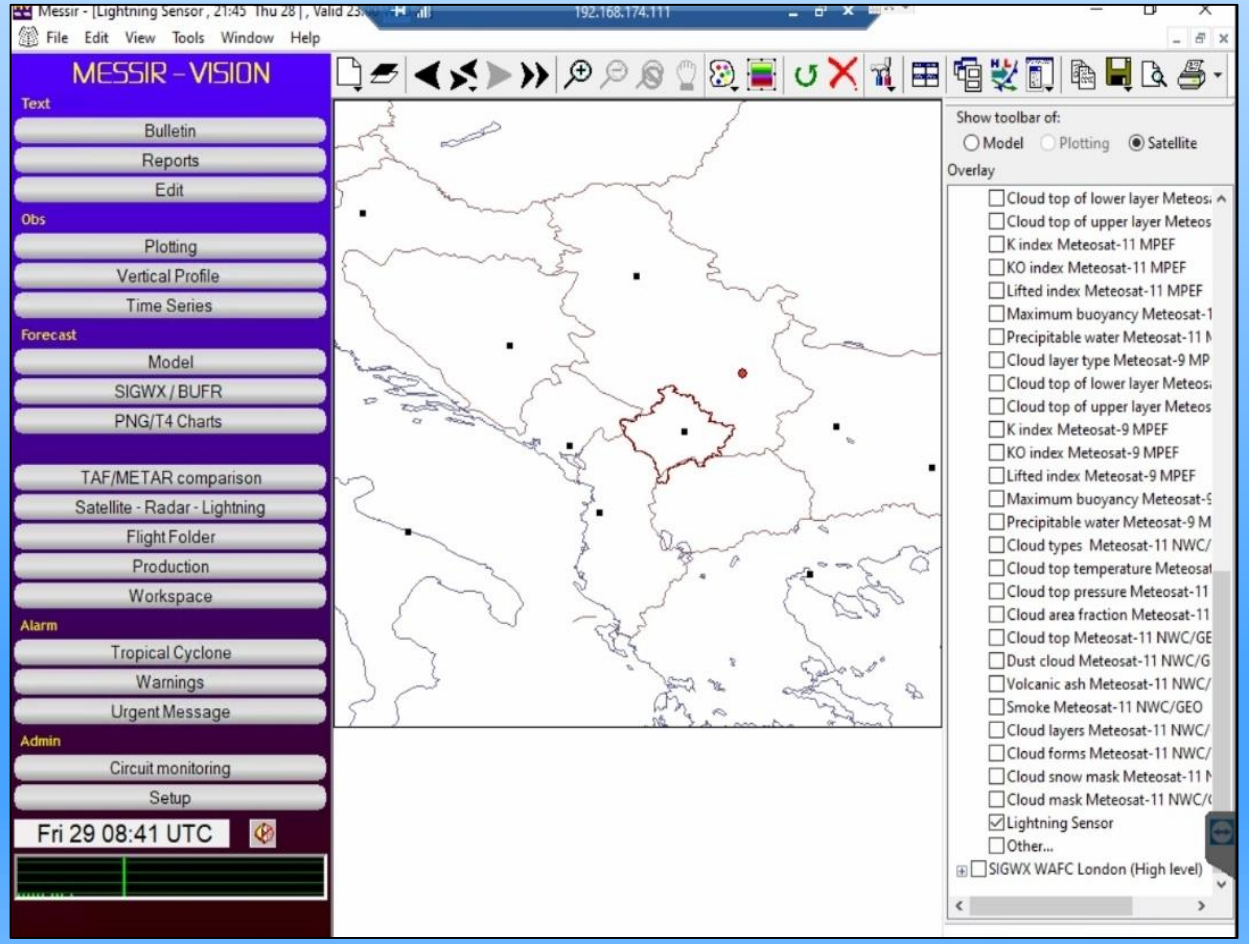
Interface with (Existing) Climatological Software



		Lartesia e SCT	Lartesia e BKN	Lartesia e OVC
1	SKC	999	999	999
2	FEWx1	999	999	999
3	FEWx1 SCTx2	x2	999	999
4	FEWx1 SCTx2 BKNx3	x2	x3	999
5	FEWx1 SCTx2 BKNx3 OVCx4	x2	X3	X4
6	FEWx1 SCTx2 BKNx3 OVCx4	X2	X3	X4
7	FEWx1 BKNx2	999	X2	999
8	FEWx1 BKNx2 BKNx3	999	X2	999
9	FEWx1 BKNx2 OVCx3	999	X2	X3
10	FEWx1 OVCx3	999	999	X3
11	SCTx1	X1	999	999
12	SCTx1 SCTx2	X1	999	999
13	SCTx1 SCTx2 BKNx3	X1	X3	999
14	SCTx1 SCTx2 BKNx3 OVCx4	X1	X3	X4
15	SCTx1 SCTx2 OVCx3	X1	999	X3
16	SCTx1 BKNx2 BKNx3	X1	X2	999
17	SCTx1 BKNx2 OVCx3	X1	X 2	X3
18	SCTx1 BKNx2 BKNx3 OVCx4	X1	X2	X4
19	SCTx1 BKNx2 OVCx3	X1	X2	X3
20	SCTx1 BKNx2	X1	X2	999
21	BKNx1	999	X1	999
22	BKNx1 BKNx2	999	X1	999
23	BKNx1 OVCx2	999	X1	X2
24	BKNx1 BKNx2 OVCx3	999	X1	X3
25	OVCx1	999	999	X1
26	VVx1	999	999	X1
	p.sh			
	FEW015 SCT020 BKN040	020	040	999
	SCT020 BKN030 BKN035	020	030	999
	SCT025 BKN050	020	050	999
	FEW015 BKN025 OVC040	999	025	040
	VV001	999	999	001
	SCT020 SCT025 BKN030 OVC060	020	030	060
	FEW010 SCT020 BKN030 OVC040	020	030	040

Interface with Forecasting System (New)





Validation of New Systems (1/3)

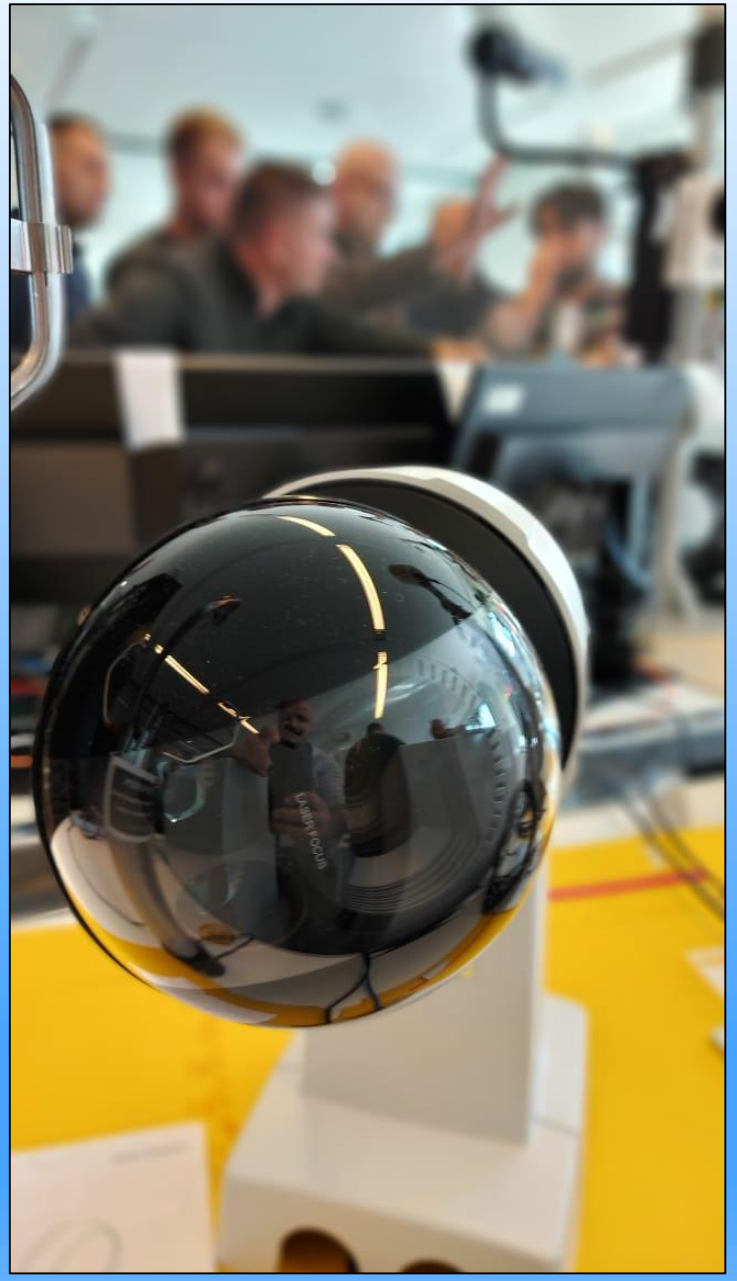
Validation of New Systems (2/3)

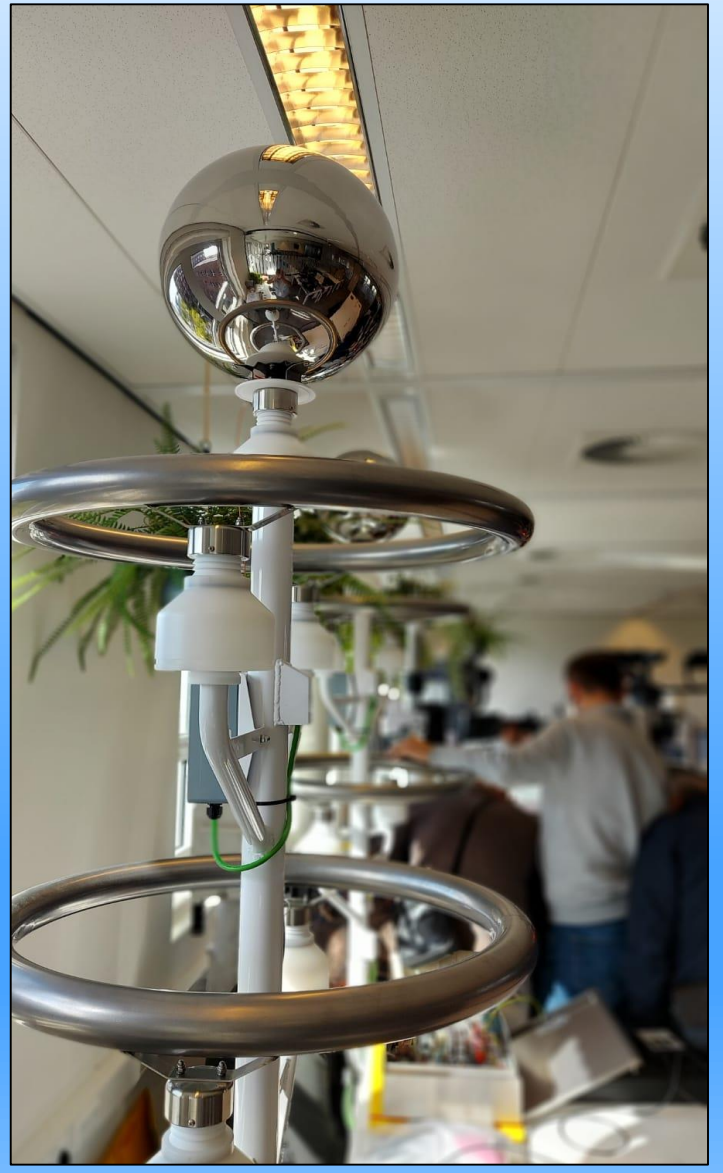
Validation of New Systems (3/3)

Training (1/6)

Training (2/6)

Training (3/6)

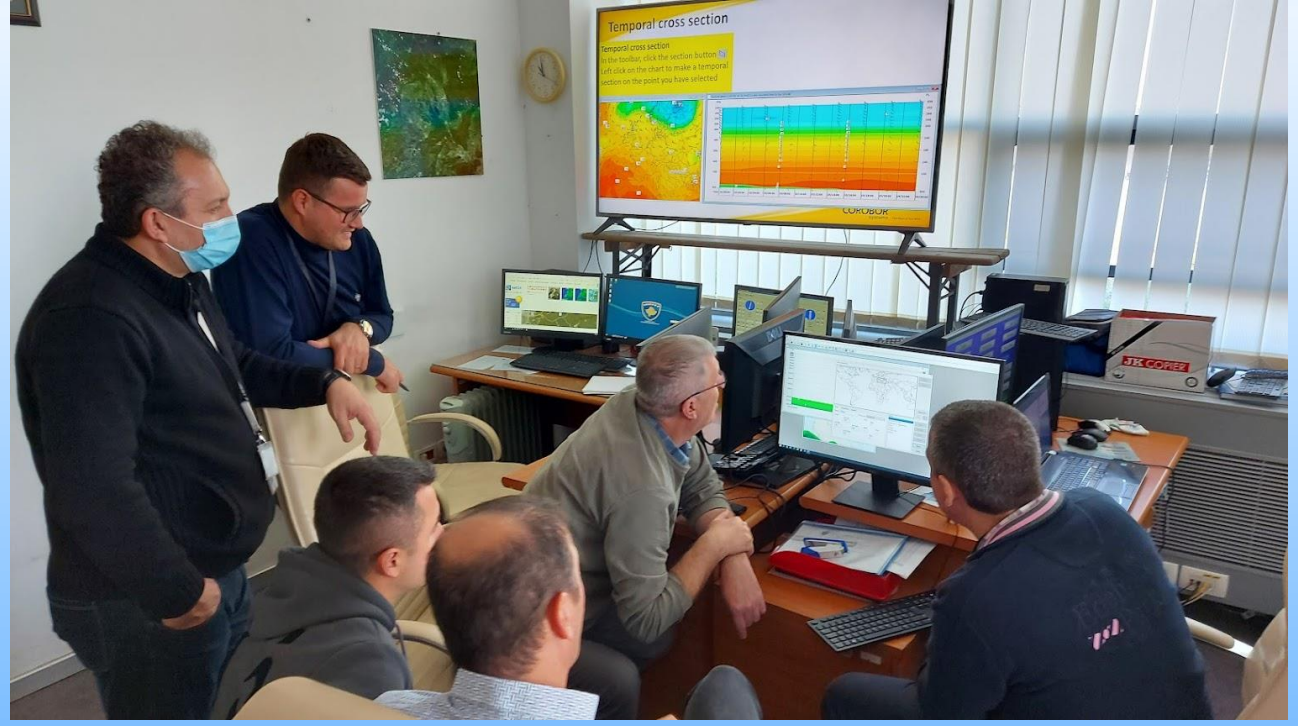




Training (4/6)

Training (5/6)

Training (6/6)


Temporal cross section
Temporal cross section
To the toolbar, click the section button
Left click on the chart to make a temporal section on the point you have selected

Certificate of Completion

Reassessment?

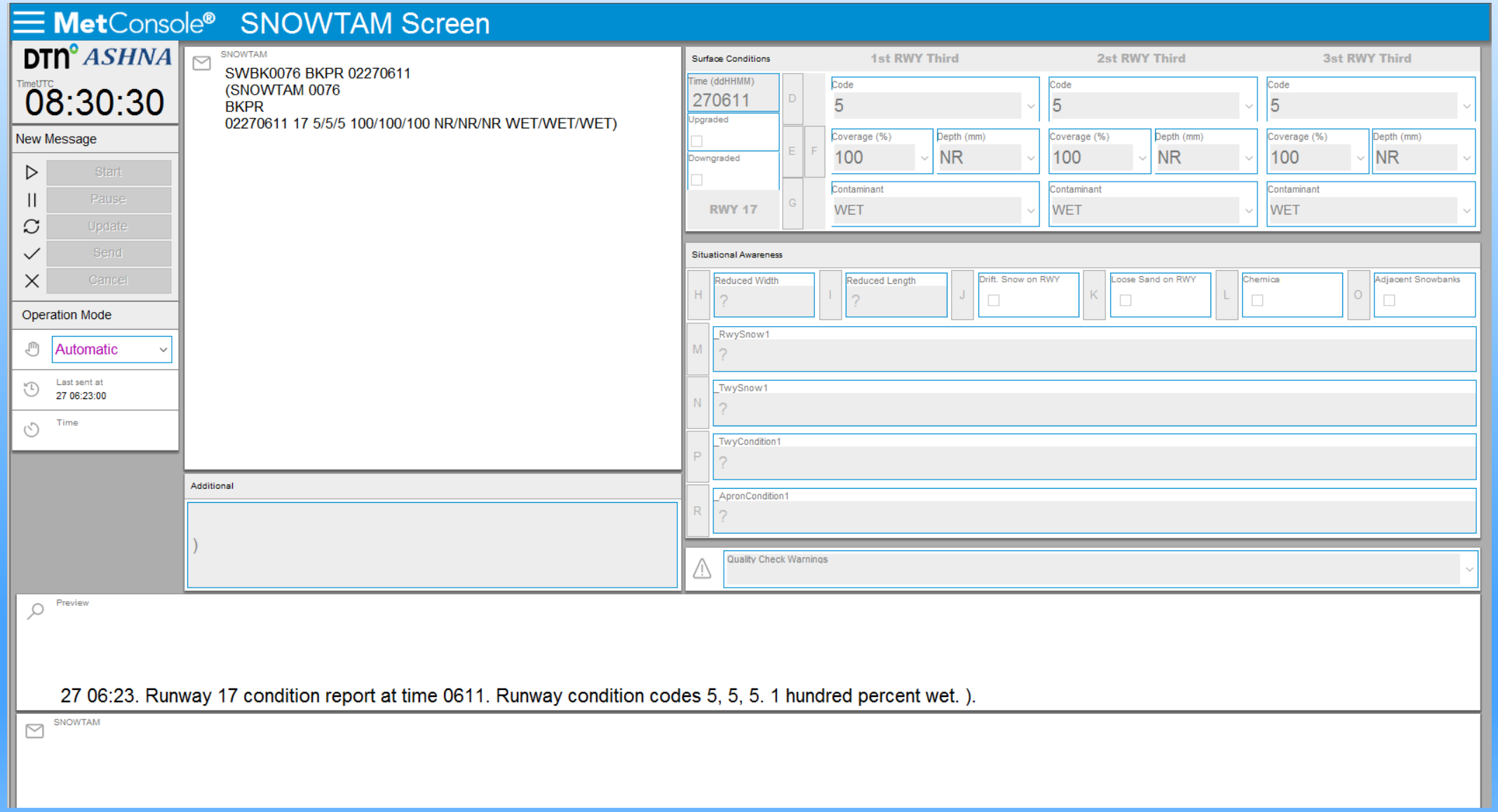
During implementation GRF project has been developed as well

GRF (Global Reporting Format)

A globally harmonized methodology for assessing and reporting runway surface conditions.

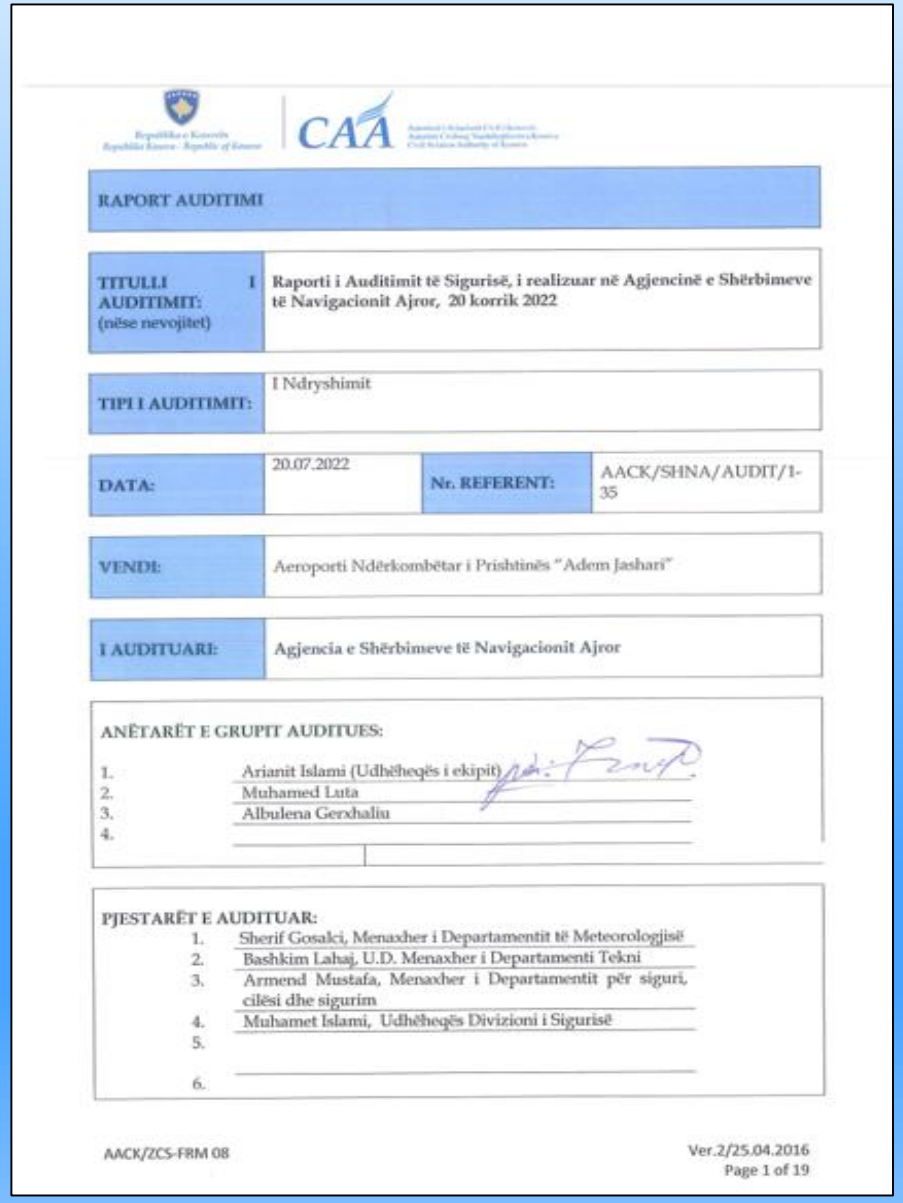
SNOWTAM Screen includes SNOWTAM message generator & SNOWTAM fields disseminated from message received through AFTN

SNOWTAM


MetConsole® SNOWTAM Screen
DTN ASHNA
TimeUTC
08:30:30
New Message
Start
Pause
Update
Send
Cancel
Operation Mode
Automatic
Last sent at
27 06:23:00
Time
SNOWTAM
SWBK0076 BKPR 02270611
(SNOWTAM 0076
BKPR
02270611 17 5/5/5 100/100/100 NR/NR/NR WET/WET/WET)
Additional
)
Surface Conditions
1st RWY Third
2st RWY Third
3st RWY Third
Time (ddHHMM)
270611
Upgraded
Downgraded
RWY 17
D
E
F
G
Code
5
Coverage (%)
100
Depth (mm)
NR
Contaminant
WET
Situational Awareness
H
Reduced Width
I
Reduced Length
J
Drift. Snow on RWY
K
Loose Sand on RWY
L
Chemica
O
Adjacent Snowbanks
M
_RwySnow1
N
_TwySnow1
P
_TwyCondition1
R
_ApronCondition1
Quality Check Warnings
Preview
27 06:23. Runway 17 condition report at time 0611. Runway condition codes 5, 5, 5. 1 hundred percent wet.).
SNOWTAM

Some Milestones in Project Lifecycle

CAA Audit report



Republika e Kosovës
Republika Kosovo - Republic of Kosovo

CAA

Autoriteti i Aviacionit Civil të Kosovës
Aviation Civil Authority of Kosovo

RAPORT AUDITIMI

TITULLI I AUDITIMIT: (nëse nevojitet)	**Raporti i Auditimit të Sigurisë, i realizuar në Agjencinë e Shërbimeve të Navigacionit Ajror, 20 korrik 2022**
TIPI I AUDITIMIT:	I Ndryshimit
DATA:	20.07.2022
Nr. REFERENT:	AACK/SHNA/AUDIT/1-35
VENDI:	Aeroporti Ndërkombëtar i Prishtinës "Adem Jashari"
I AUDITUARI:	Agjencia e Shërbimeve të Navigacionit Ajror

ANËTARËT E GRUPIT AUDITUES:

1. Arianit Islami (Udhëheqës i ekipit)
2. Muhamed Luta
3. Albulena Gerxhaliu
4.

PJESTARËT E AUDITUAR:

1. Sherif Gosalci, Menaxher i Departamentit të Meteorologjisë
2. Bashkim Lahaj, U.D. Menaxher i Departamenti Tekni
3. Armend Mustafa, Menaxher i Departamentit për siguri, cilësi dhe sigurim
4. Muhamet Islami, Udhëheqës Divizioni i Sigurisë
5.
6.

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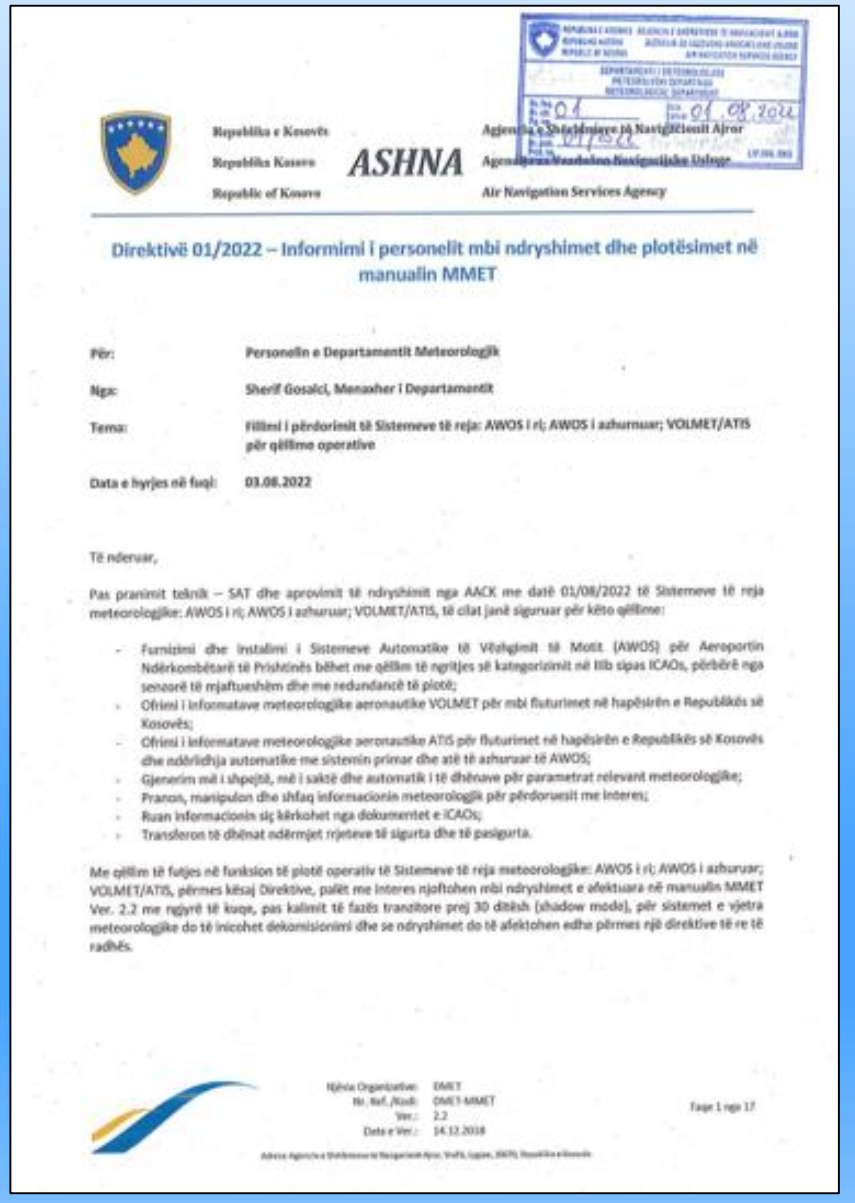
Directive 01/2022



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ASHNA

Agjencia e Shërbimeve të Navigacionit Ajror
Agencija za Pružanje Navigacijske Usluge
Air Navigation Services Agency

Direktivë 01/2022 – Informimi i personelit mbi ndryshimet dhe plotësimet në manualin MMET

Për: Personelin e Departamentit Meteorologjik

Nga: Sherif Gosalci, Menaxher i Departamentit

Tema: Fillimi i përdorimit të Sistemeve të reja: AWOS i ri; AWOS i azhurnuar; VOLMET/ATIS për qëllime operative

Data e hyrjes në fuqi: 03.08.2022

Të nderuar,

Pas pranimit teknik – SAT dhe aprovimit të ndryshimit nga AACK me datë 01/08/2022 të Sistemeve të reja meteorologjike: AWOS i ri; AWOS i azhuruar; VOLMET/ATIS, të cilat janë siguruar për këto qëllime:

- Furnizimi dhe instalimi i Sisteneve Automatike të Vëzhgimit të Motit (AWOS) për Aeroportin Ndërkombëtarë të Prishtinës bëhet me qëllim të ngritjes së kategorizimit në IIIb sipas ICAOs, përbërë nga senzorë të njaftueshëm dhe me redundancë të plotë;
- Ofrimi i informatave meteorologjike aeronautike VOLMET për mbi fluturimet në hapësirën e Republikës së Kosovës;
- Ofrimi i informatave meteorologjike aeronautike ATIS për fluturimet në hapësirën e Republikës së Kosovës dhe ndërlidhja automatike me sistemin primar dhe atë të azhuruar të AWOS;
- Gjenerim më i shpejtë, më i saktë dhe automatik i të dhënave për parametrat relevant meteorologjike;
- Pranon, manipulon dhe shfaq informacionin meteorologjik për përdoruesit me interes;
- Ruan informacionin siç kërkohet nga dokumentet e ICAOs;
- Transferon të dhënat ndërmjet rrjeteve të sigurta dhe të pasigurta.

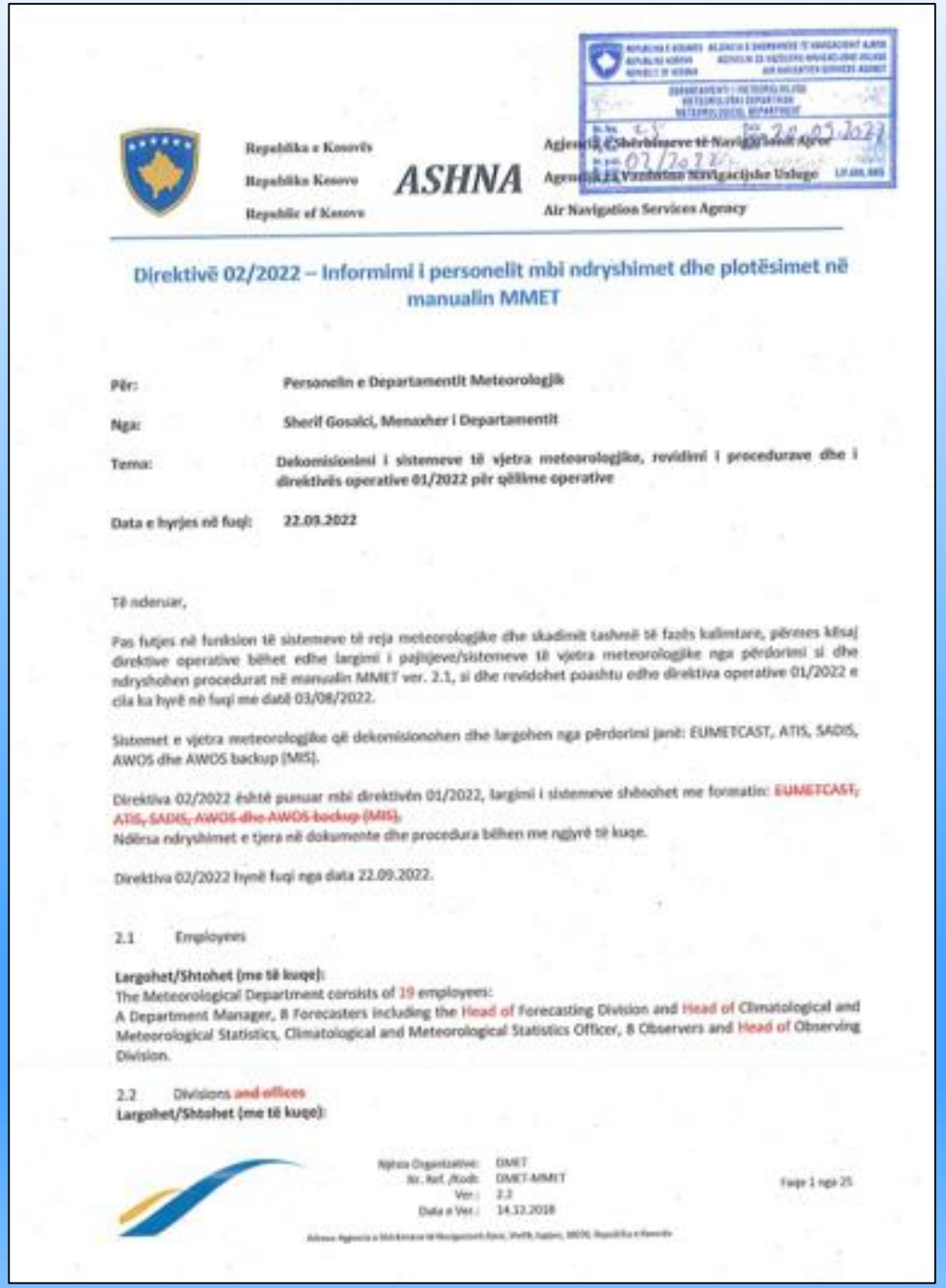
Me qëllim të futjes në funksion të plotë operativ të Sistemeve të reja meteorologjike: AWOS i ri; AWOS i azhuruar; VOLMET/ATIS, përmes kësaj Direktive, palët me interes njoftohen mbi ndryshimet e afektuara në manualin MMET Ver. 2.2 me ngjyrë të kuqe, pas kalimit të fazës tranzitore prej 30 ditësh (shadow mode), për sistemet e vjetra meteorologjike do të inicohet dekomisionimi dhe se ndryshimet do të afektohen edhe përmes një direktive të re të radhës.

Njësia Organizative: DMET
Nr. Ref./Kodi: DMET-MMET
Ver.: 2.2
Data e Ver.: 14.12.2018

Faqe 1 nga 17

Decommissioning of Old Systems

Directive 02/2022



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Agjencia Shtetërore e Navigacionit Ajror
Agencija za Državnu Navigacijsku Uslugu
Air Navigation Services Agency

Direktivë 02/2022 – Informimi i personelit mbi ndryshimet dhe plotësimet në manualin MMET

Për: Personelin e Departamentit Meteorologjik

Nga: Sherif Gosalci, Menaxher i Departamentit

Tema: Dekonisionimi i sistemeve të vjetra meteorologjike, rovidhni i procedurave dhe i direktivës operative 01/2022 për qëllime operative

Data e hyrjes në fuqi: 22.09.2022

Të nderuar,

Pas futjes në funksion të sistemeve të reja meteorologjike dhe skadimit tashmë të fazës kalimtare, përmes kësaj direktive operative bëhet edhe largimi i pajisjeve/sistemeve të vjetra meteorologjike nga përdorimi si dhe ndryshohen procedurat në manualin MMET ver. 2.1, si dhe revidohet poashtu edhe direktiva operative 01/2022 e cila ka hyrë në fuqi me datë 03/08/2022.

Sistemet e vjetra meteorologjike që dekonisionohen dhe largohen nga përdorimi janë: EUMETCAST, ATIS, SADIS, AWOS dhe AWOS backup (MIS).

Direktiva 02/2022 është punuar mbi direktivën 01/2022, largimi i sistemeve shfaqet me formatin: ~~EUMETCAST, ATIS, SADIS, AWOS dhe AWOS backup (MIS).~~
Ndërsa ndryshimet e tjera në dokumente dhe procedura bëhen me ngjyrë të kuqe.

Direktiva 02/2022 hynë fuqi nga data 22.09.2022.

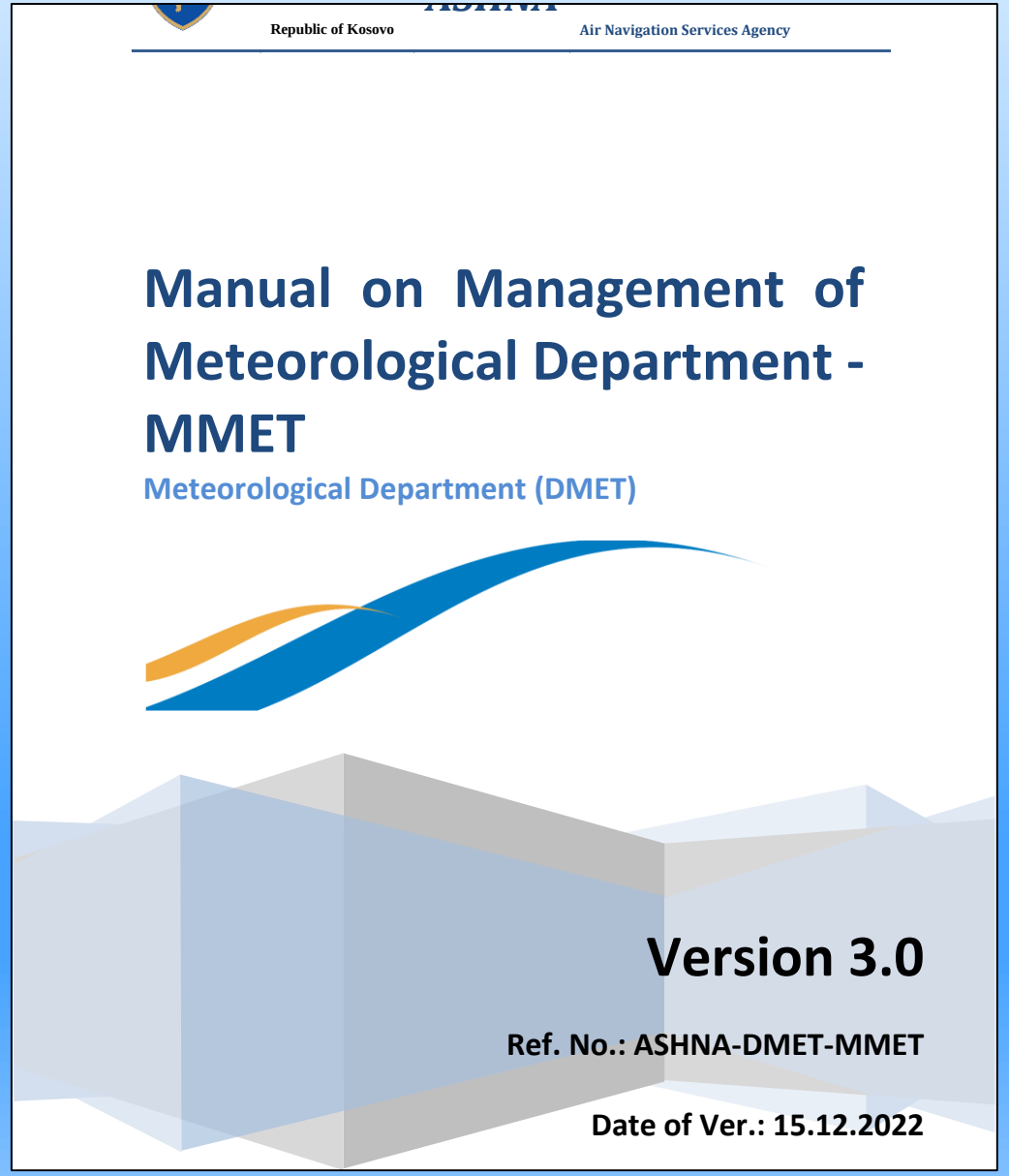
2.1 Employees

Largohet/Shtohet (me të kuqe):
The Meteorological Department consists of ~~19~~ employees:
A Department Manager, 8 Forecasters including the ~~Head of~~ Forecasting Division and ~~Head of~~ Climatological and Meteorological Statistics, Climatological and Meteorological Statistics Officer, 8 Observers and ~~Head of~~ Observing Division.

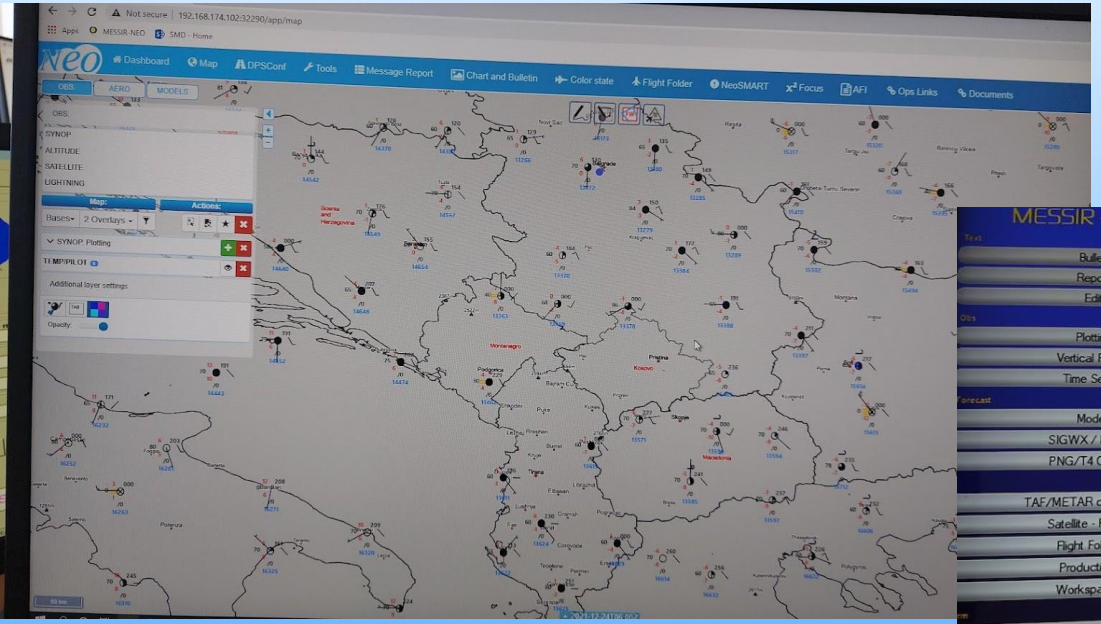
2.2 Divisions ~~and offices~~
Largohet/Shtohet (me të kuqe):

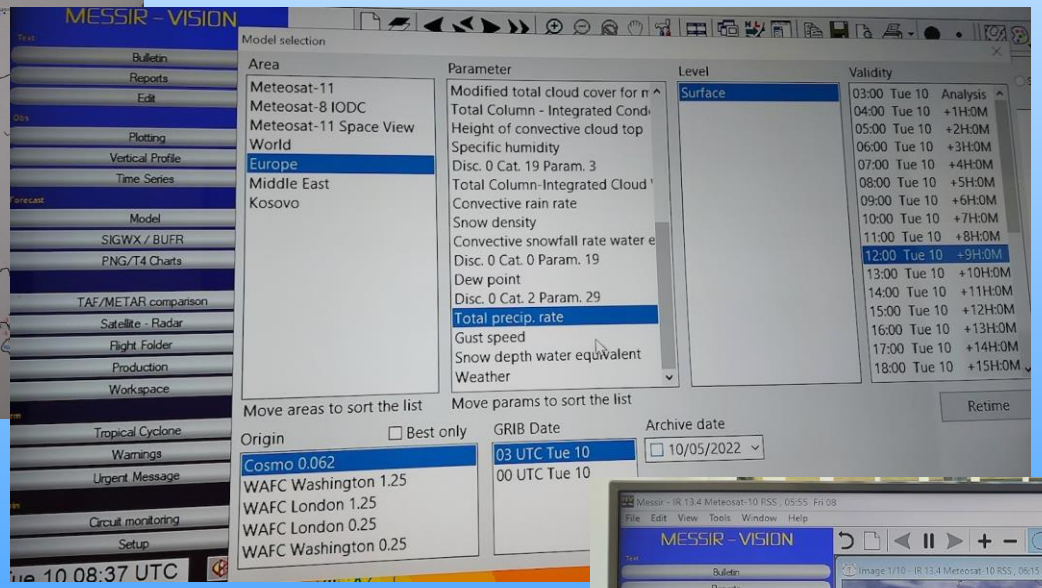
Implement changes in MMET (Meteorological Department Manual)

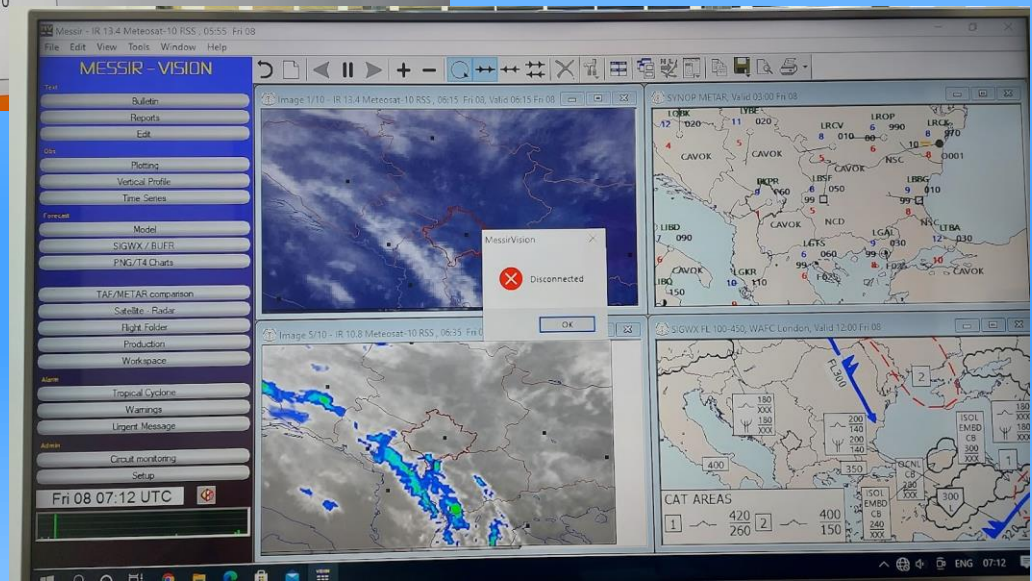
MMET Ver 3.0

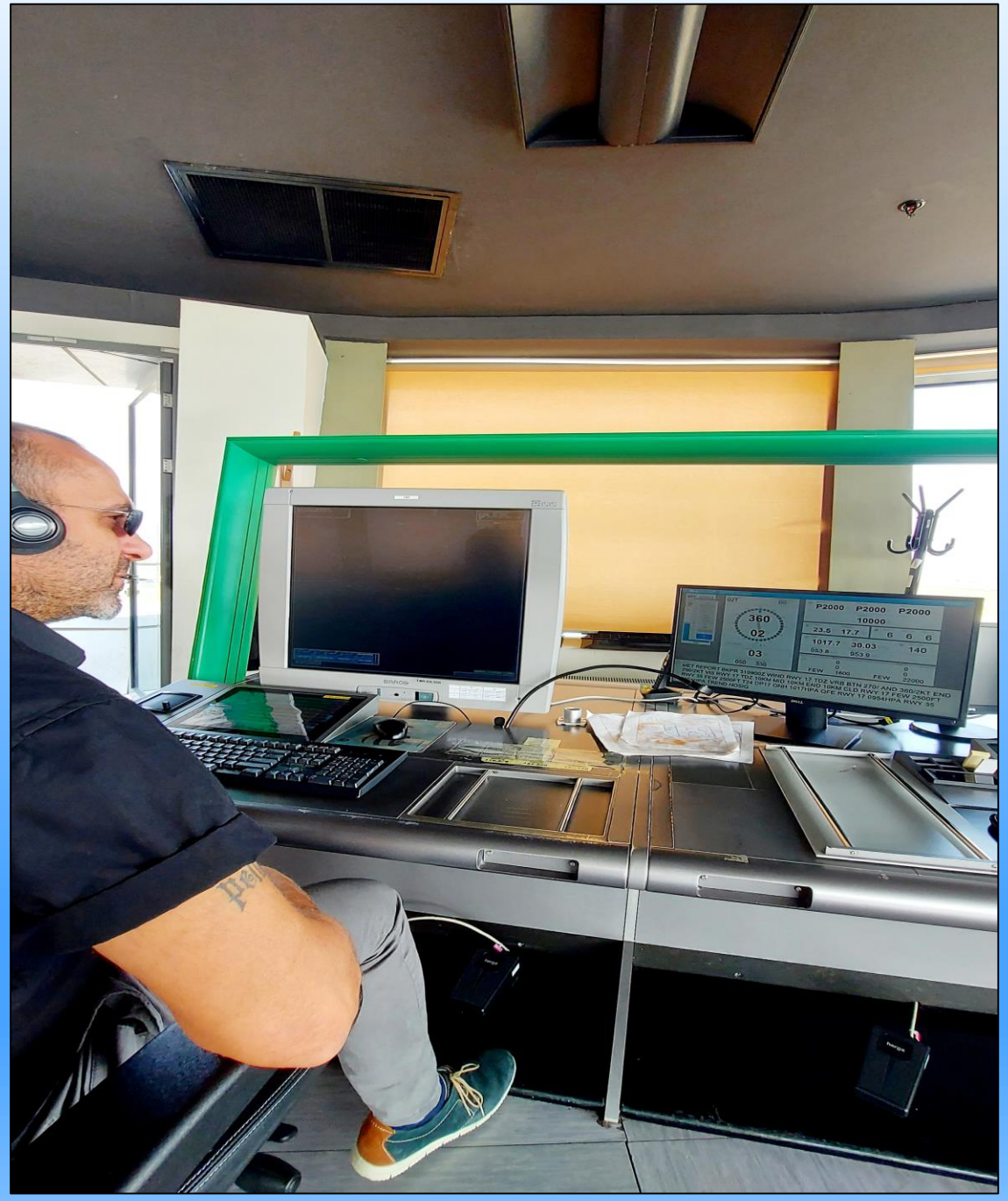


Final Product – New HMI in Forecasting Division







Final Product – New HMI in ATC Tower

Final Product – New HMI in ATC APP