ICAO PARIS UNITING AVIATION

B0-AMET Implementation

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RO-MET ICAO Paris

ACAO-ICAO EUR/NAT and MID ASBU Symposium

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B0-AMET Implementation

- ***Status***
  - *Implementation statistics*
- ***Challenges***
  - *What are the biggest obstacles in implementation*
- ***Lessons learned***
  - *How to best facilitate States in future implementation*

B0-AMET Implementation - status

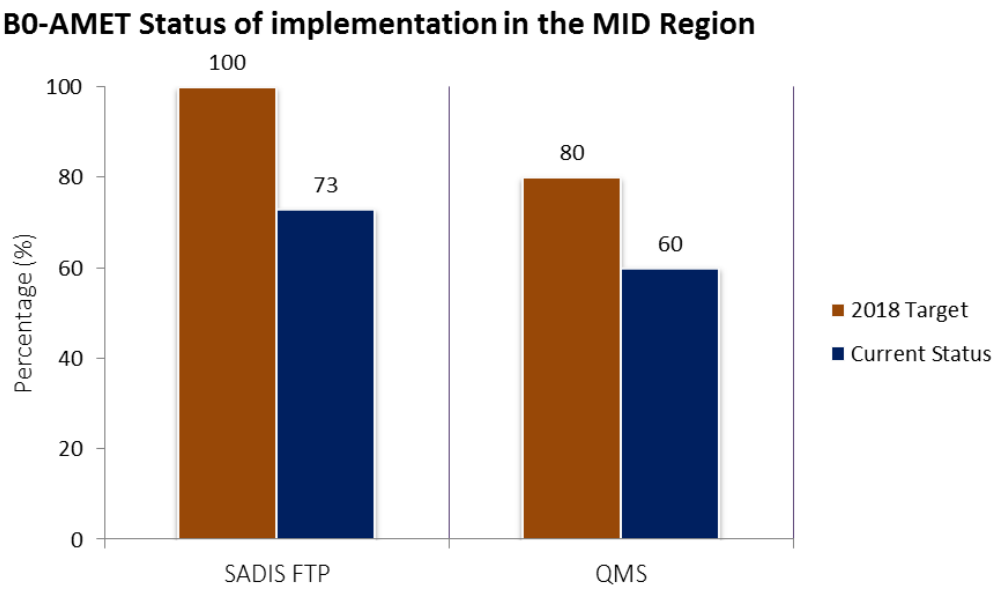
Global, regional and local meteorological information:

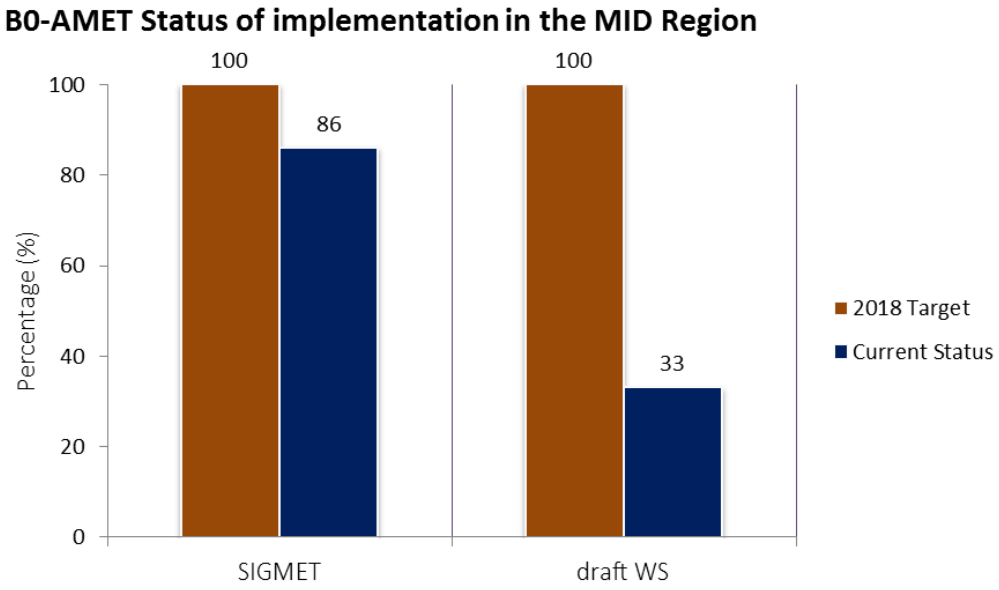
a) forecasts provided by world area forecast centres (WAFC), volcanic ash advisory centres (VAAC) and tropical cyclone advisory centres (TCAC);

b) aerodrome warnings to give concise information of meteorological conditions that could adversely affect all aircraft at an aerodrome including wind shear; and

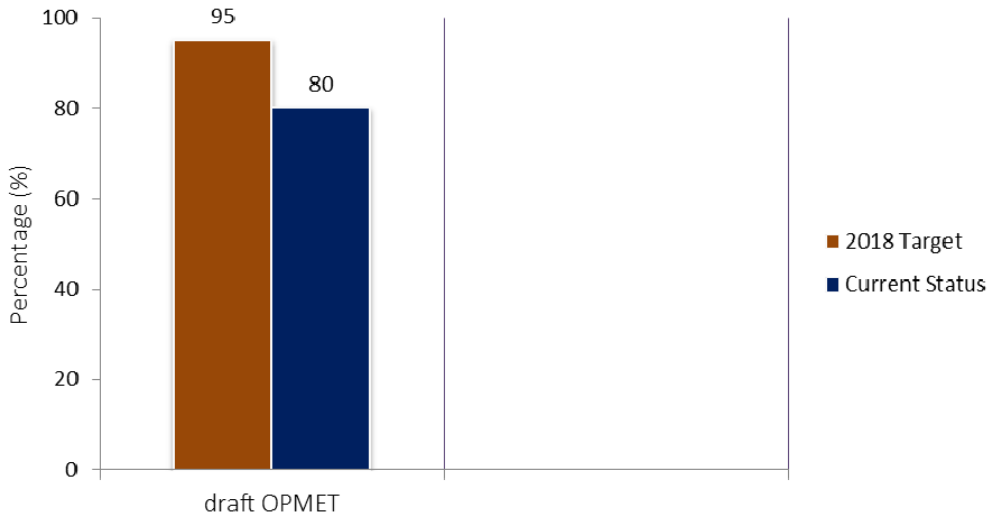
c) SIGMETs to provide information on occurrence or expected occurrence of specific en-route weather phenomena which may affect the safety of aircraft operations and other operational meteorological (OPMET) information, including METAR/SPECI and TAF, to provide routine and special observations and forecasts of meteorological conditions occurring or expected to occur at the aerodrome.

B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety (MID)			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
SADIS FTP	All States	Indicator: % of States having implemented SADIS FTP service Supporting metric: number of States having implemented SADIS FTP service	100% by Dec. 2018
QMS	All States	Indicator: % of States having implemented QMS for MET Supporting metric: number of States having implemented QMS for MET	80% by Dec. 2018
SIGMET	All States with MWO	Indicator: % of States having implemented QMS for MET Supporting metric: number of States having implemented SIGMET	100% by Dec. 2018
Draft WIND SHEAR	All States	Indicator: % of States having implemented WS – where deemed warranted Supporting metric: number of States having implemented WS	100% by Dec. 2018
Draft OPMET	All States	Indicator: % of States having implemented METAR and TAF Supporting metric: number of States having implemented METAR and TAF	95% by Dec. 2018


B0-AMET Status of implementation in the MID Region
Percentage (%)
100
80
60
40
20
0
100
73
80
60
SADIS FTP
QMS
2018 Target
Current Status


B0-AMET Status of implementation in the MID Region
100
100
100
86
33
Percentage (%)
0
20
40
60
80
SIGMET
draft WS
2018 Target
Current Status

B0-AMET Status of implementation in the MID Region

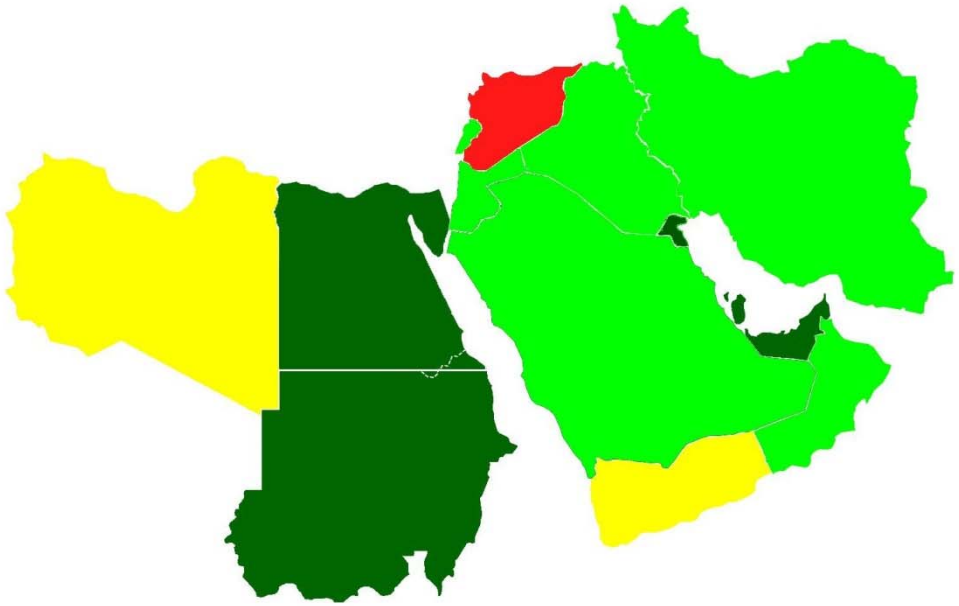


B0-AMET Implementation - status

Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-AMET	SADIS FTP															
	QMS															
	SIGMET															
	Draft WIND SHEAR															
	Draft OPMET (METAR & TAF)															

The progress for B0-AMET is less than expectations (with approximately 66% implementation).

B0-AMET Status of implementation in the MID Region



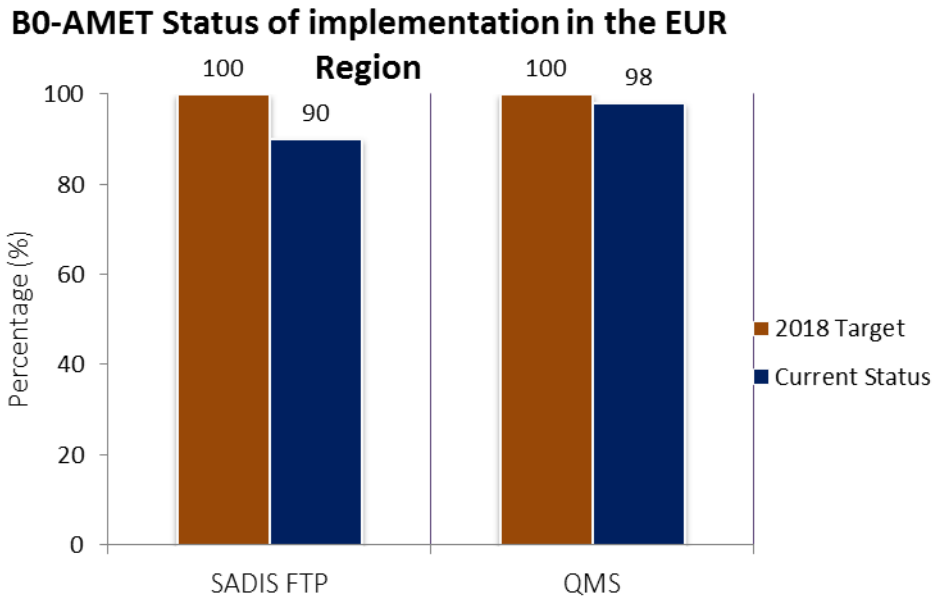
Legend

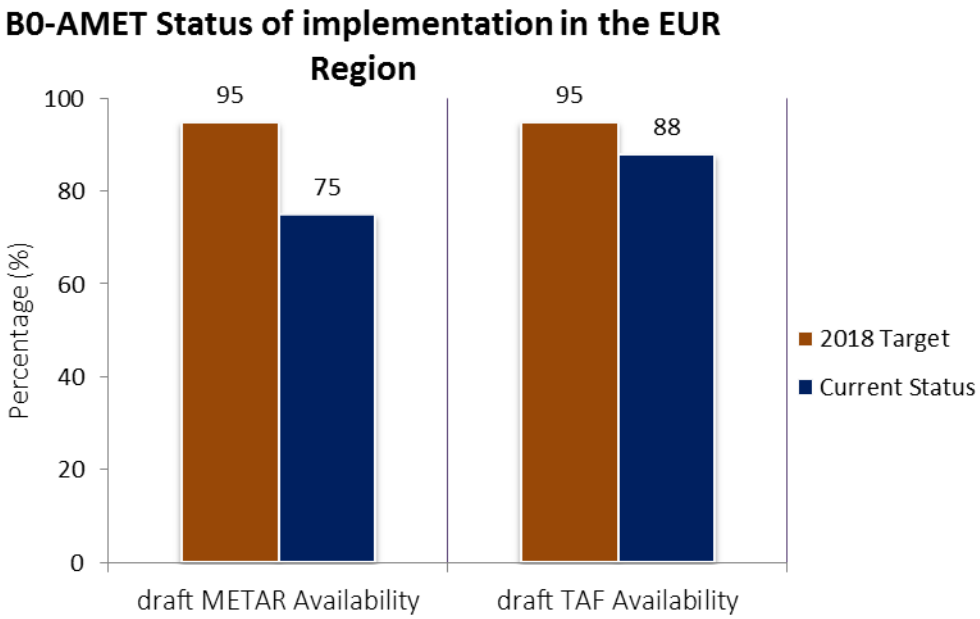
- Completed
- Partially Completed (50%+)
- Partially Completed/Late (50%-)
- Not Started/Not Implemented
- Not Applicable
- Missing Data

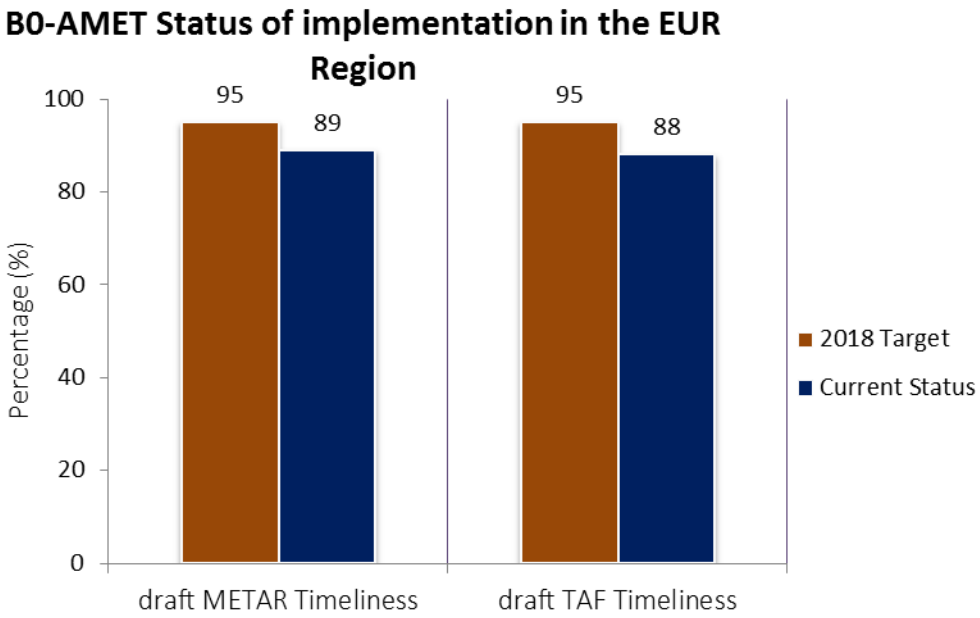
B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety (EUR)			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
SADIS FTP	All States	Indicator: % of States having implemented SADIS FTP service Supporting metric: number of States having implemented SADIS FTP service	100% by Dec. 2018
QMS	All States	Indicator: % of States having implemented QMS for MET Supporting metric: number of States having implemented QMS for MET	100% by Dec. 2018
Draft METAR Availability	***All** States*	Indicator: % of States providing METAR as per requirements in the eANP, Volume II Table MET II-2 Supporting metric: number of States providing METAR as per requirements in the eANP Volume II Table MET II-2	95% by Dec 2018
Draft TAF Availability	***All** States*	Indicator: % of States providing TAF as per requirements in the eANP, Volume II Table MET II-2 Supporting metric: number of States providing TAF as per requirements in the eANP Volume II Table MET II-2	95% by Dec 2018

B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety (EUR)			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
Draft METAR Timeliness	***All** States*	Indicator: % of States providing METAR in the time required as defined in Annex 3 Supporting metric: number of States providing METAR in the time required as defined in Annex 3	95% by Dec 2018
Draft TAF Timeliness	***All** States*	Indicator: % of States providing TAF in the time required as defined in Annex 3 Supporting metric: number of States providing TAF in the time required as defined in Annex 3	95% by Dec 2018
Draft SIGMET Availability	***All** with a FIR*	Indicator: % of States providing SIGMET Supporting metric: number of States providing SIGMET	95% by Dec 2018
Draft SIGMET Format	***All** with a FIR*	Indicator: % of States providing SIGMET format in accordance with WMO AHL in EUR Doc 014 Supporting metric: number of States providing SIGMET format in accordance with WMO AHL in EUR Doc 014	95% by Dec 2018

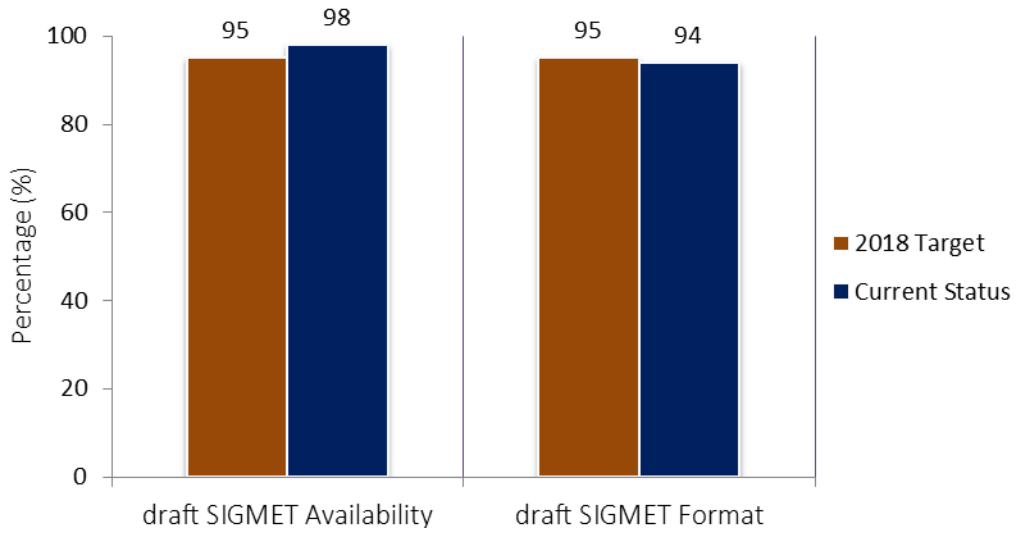
B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety (EUR)			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
VAAC	***France, United Kingdom***	Indicator: % of VAACs in or serving the EUR Region that provide Annex 3 volcanic ash products (Volcanic Ash Advisories (VAA) and Volcanic Ash Advisories in Graphic Form (VAG)) Supporting metric: number of States hosting a VAAC having implemented VAA/VAG	100% by Dec 2016
VONA	***Italy, Russian Federation, Spain***	Indicator: % of Volcano Observatories in the EUR Region that provide volcano observatory notice for aviation (VONA) as per the Handbook on the International Airways Watch (IAVW) (Doc 9766) Supporting metric: number of States with Volcano Observatory having implemented VONA	100% by Dec 2016


B0-AMET Status of implementation in the EUR Region
100
90
100
98
100
80
60
40
20
0
Percentage (%)
SADIS FTP
QMS
2018 Target
Current Status

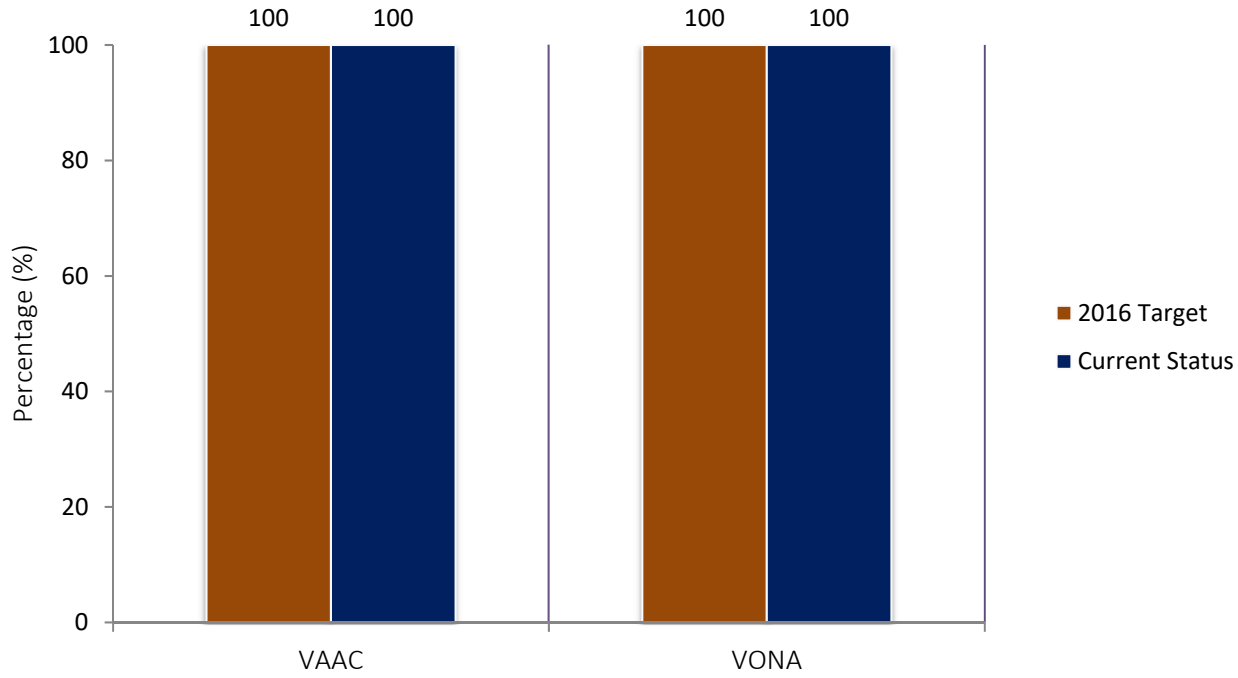

B0-AMET Status of implementation in the EUR Region
100
80
60
40
20
0
Percentage (%)
95
75
95
88
draft METAR Availability
draft TAF Availability
2018 Target
Current Status


B0-AMET Status of implementation in the EUR Region
100
80
60
40
20
0
Percentage (%)
95
89
95
88
draft METAR Timeliness
draft TAF Timeliness
2018 Target
Current Status

B0-AMET Status of implementation in the EUR Region



B0-AMET Status of implementation in the EUR Region



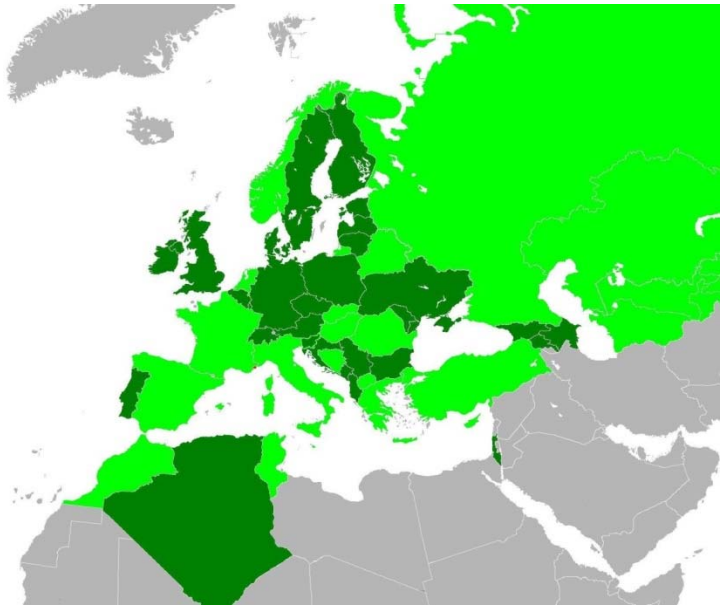
Module	Elements	Albania	Algeria	Armenia	Austria	Azerbaijan	Belarus	Belgium	Bosnia and Herzegovina	Bulgaria	Croatia	Cyprus	Czech Republic	Denmark	Estonia	Finland
B0-AMET	SADIS FTP															
	QMS															
	Draft METAR availability															
	Draft TAF availability															
	Draft METAR timeliness															
	Draft TAF timeliness															
	Draft SIGMET availability															
	Draft SIGMET format															
	VAAC															
	VONA															

Module	Elements	France	Georgia	Germany	Greece	Hungary	Ireland	Israel	Italy	Kazakhstan	Kyrgyzstan	Latvia	Lithuania	Luxembourg	Malta	Monaco
B0-AMET	SADIS FTP															
	QMS															
	Draft METAR availability															
	Draft TAF availability															
	Draft METAR timeliness															
	Draft TAF timeliness															
	Draft SIGMET availability															
	Draft SIGMET format															
	VAAC															
	VONA															

Module	Elements	Montenegro	Morocco	Netherlands	Norway	Poland	Portugal	Republic of Moldova	Romania	Russian Federation	Serbia	Slovakia	Slovenia	Spain	Sweden	Switzerland
B0-AMET	SADIS FTP															
	QMS															
	Draft METAR availability															
	Draft TAF availability															
	Draft METAR timeliness															
	Draft TAF timeliness															
	Draft SIGMET availability															
	Draft SIGMET format															
	VAAC															
	VONA															

Module	Elements	Tajikistan	FYROM	Tunisia	Turkey	Turkmenistan	Ukraine	United Kingdom	Uzbekistan
B0-AMET	SADIS FTP								
	QMS								
	Draft METAR availability								
	Draft TAF availability								
	Draft METAR timeliness								
	Draft TAF timeliness								
	Draft SIGMET availability								
	Draft SIGMET format								
	VAAC								
	VONA								

B0-AMET Status of implementation in the EUR Region



Legend

- Completed
- Partially Completed (50%+)
- Partially Completed/Late (50%-)
- Not Started/Not Implemented
- Not Applicable
- Missing Data

The progress for B0-AMET is acceptable (with approximately 90% implementation).

Note: These high-level implementation elements are not applicable to Andorra, Monaco and San Marino.

B0-AMET Implementation – challenges/lessons learned

- ***Guidance material***
  - *Regional differences in some guidance (e.g. SIGMET Guide)*
    - » *Guidance templates maintained by global group for consideration at regional level*
      - *This is also true for IWXXM implementation guide*
  - *English Language Proficiency for MET in EUR Region not available until recently*
    - » *Global solution preferred – however, if impasse exists; regional solutions may assist in global ones*

B0-AMET Implementation – challenges/lessons learned

- ***Implementation time***
  - *Lead time for some Annex changes challenging – publication July / applicability date November (software upgrades if TAF code changes, etc…)*
    - » *Increase lead time from publication to applicability (IWXXM related provisions at least 18 months)*

B0-AMET Implementation – challenges/lessons learned

- ***Information management***
  - *Information overload – volcanic ash information via SIGMET and NOTAM redundant as per previous ICAO EUR/NAT Volcanic Ash Contingency Plan (VACP)*
    - » *Updated VACP: NOTAM points to existing information (VAA/VAG and SIGMET) and is in accordance with Annex 15*
  - *Basic functions involving multiple disciplines, States and Regions may not easily be performed (e.g. coordination on use of airspace in volcanic ash event)*
    - » *Conduct routine exercises; identify gaps and recommendations; practice again*
      - *operations have changed approach in real-time volcanic ash events based on exercises conducted*

B0-AMET Implementation – challenges/lessons learned

- ***Design***
  - *Ambiguity in interpreting some standards (use of APRX)*
    - » *Avoid ambiguities (best practices not to use APRX)*
  - *Interpretation issues*
    - » *Make effort that provisions are clear in all 6 ICAO languages*
  - *Cost recovery for regional MET services not sufficient*
    - » *Being considered by MET Panel in light of future regional services (space weather centres, regional hazardous weather advisory centres)*

B0-AMET Implementation – challenges/lessons learned

- ***Performance Management***
  - *Monitoring requirements is a challenge in that the elements needed in monitoring are not available (e.g. machine readable eANP Table MET II-2)*
    - » *METG of EANPG requested ICAO to provide machine readable eANP Table MET II-2 to monitor implementation and populate eANP Volume III*

B0-AMET Implementation – challenges/lessons learned

- ***Training***
  - *Smaller States may have issues in resources (time and money) needed for training*
    - » *Consider consolidated services*

B0-AMET Implementation – challenges/lessons learned

- ***Safety***
  - *Conflicting information such as SIGMET discontinuities at FIR boundaries can have negative impact on tactical decision making and flight planning*
    - » *Coordination with border States on issuance of SIGMET well underway in EUR and will be recommended in Annex 3*
    - » *Consider consolidated services (RHWAC)*

B1-AMET Implementation

- ***Future implementation should consider***
  - ***Guidance material – timely; harmonized globally***
  - ***Technical infrastructure – coordination between MET and COM***
  - ***Information management – required information provided in a concise manner & practice information flow***
  - ***Design – avoid ambiguous provisions; language compatible; cost recovery for regional MET services needed***

B1-AMET Implementation

- ***Future implementation should consider***
  - ***Performance management – provide necessary documents in machine readable format so monitoring can succeed***
  - ***Monitoring of requirements developed by group under METG – significant resources needed to routinely monitor***
  - ***Training – consider consolidated services to reach critical mass needed to foster environment of training***
  - ***Safety – strive for harmonization and avoid conflicting information that could jeopardize safety***

ICAO

THANK YOU