



ICAO BANGKOK | UNITING AVIATION

Survey of State MET Information supporting ATM

*Ashwin Naidu
(on behalf of the Ad-hoc Group: Australia (Rapporteur),
China, Japan, Hong Kong China, New Zealand, Singapore,
and Thailand)*

MET/ATM Seminar– May 30, 2022





Background:

- The MET/R WG/10 made a decision to circulate a survey questionnaire to APAC States to inform ICAO (and States) of the provision of current and future MET information services by States specifically to support ATM, in particular ATFM.
- As a follow up, a survey was conducted by the Asia/Pacific Regional Office in October/December 2021. The States were urged to complete the online survey questionnaire at: <https://www.surveymonkey.com/r/5XLX97H>.
For ease of reference, a copy of the survey questionnaire was attached to the State letter. (State letter Ref.: T 4/3.2.7 – AP170/21 (MET) refers).



Purpose and Terms of Reference

- To identify MET information and communication methods, to support ATM.
- To identify the gaps between the existing MET information services and the requirements of ATM community and Airspace Users.
- To identify challenges faced by States/Administrations regarding the provision of MET information to support ATM, in particular ATFM.
- To identify other guidance and education material required to support States/Administrations in implementing MET information to support ATFM.
- To remind States/Administrations of the existence of Asia Pacific Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations document.





Benefits and Expected results

To assist MET/R WG with the following tasks:

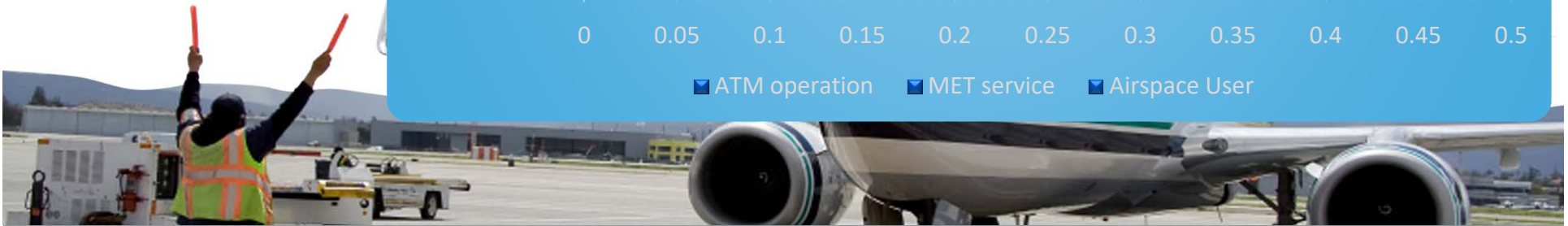
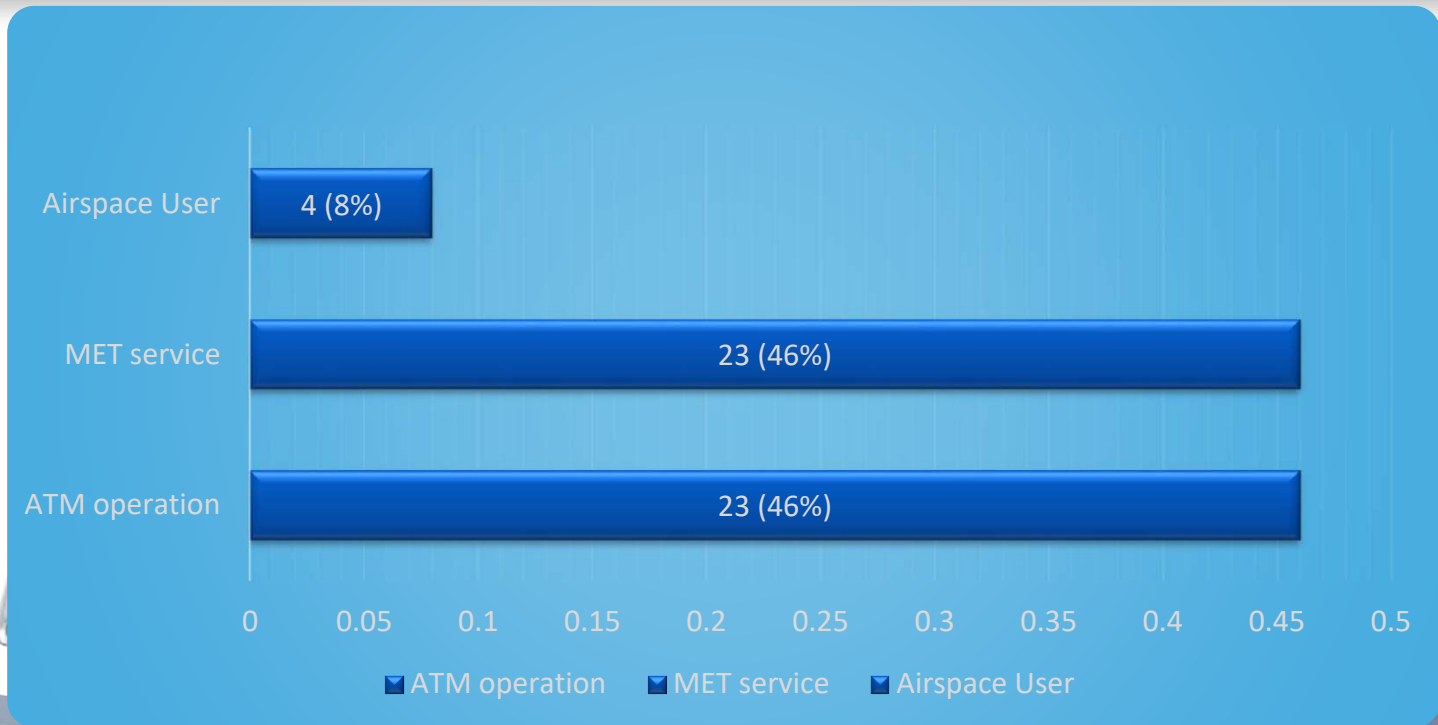
- Understand States/Administration current status and requirements of MET information to support ATM, in particular ATFM.
- Explore opportunities and enhance MET-ATM integration in APAC States/Administrations.
- Facilitate a coordinated approach for further improvement of MET services in support of ATM, especially ATFM in the APAC Region.
- Seek further input from States/Administrations on other guidance or education material required to assist the implementation of MET information service to support ATFM.





Survey Results

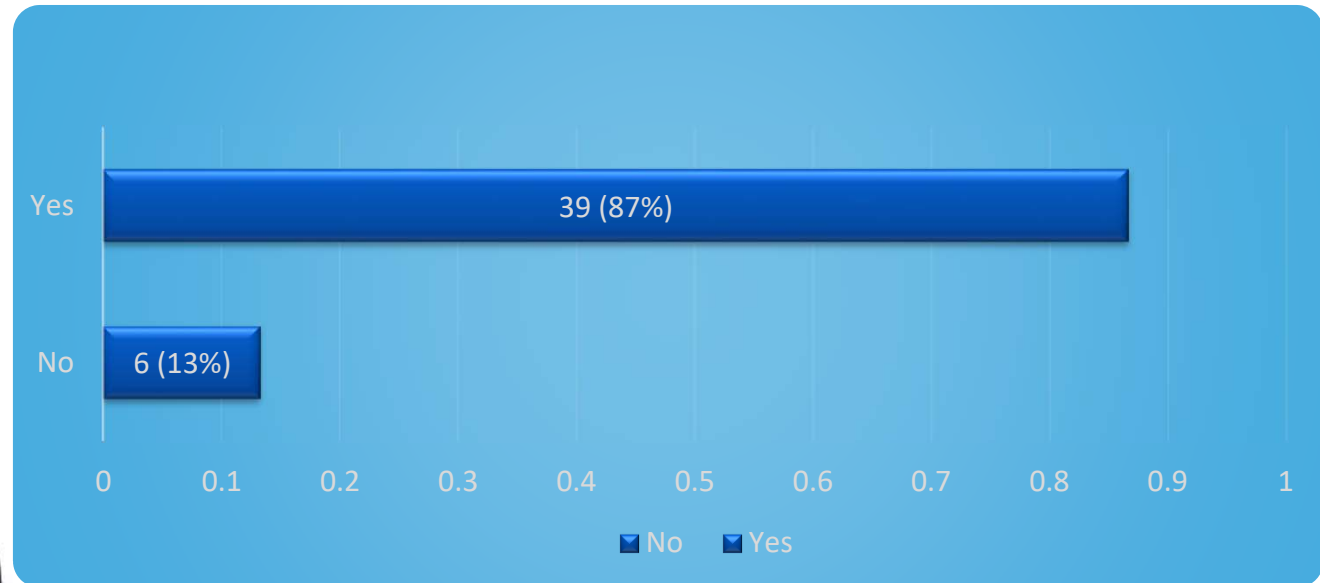
Total number of responses: 50 (from 24 States/ Administration)





Part A –
Governance
and
Legislation

States enacted primary legislation and/or has supporting regulations to ensure MET Service is implemented in accordance with ICAO Annex 3



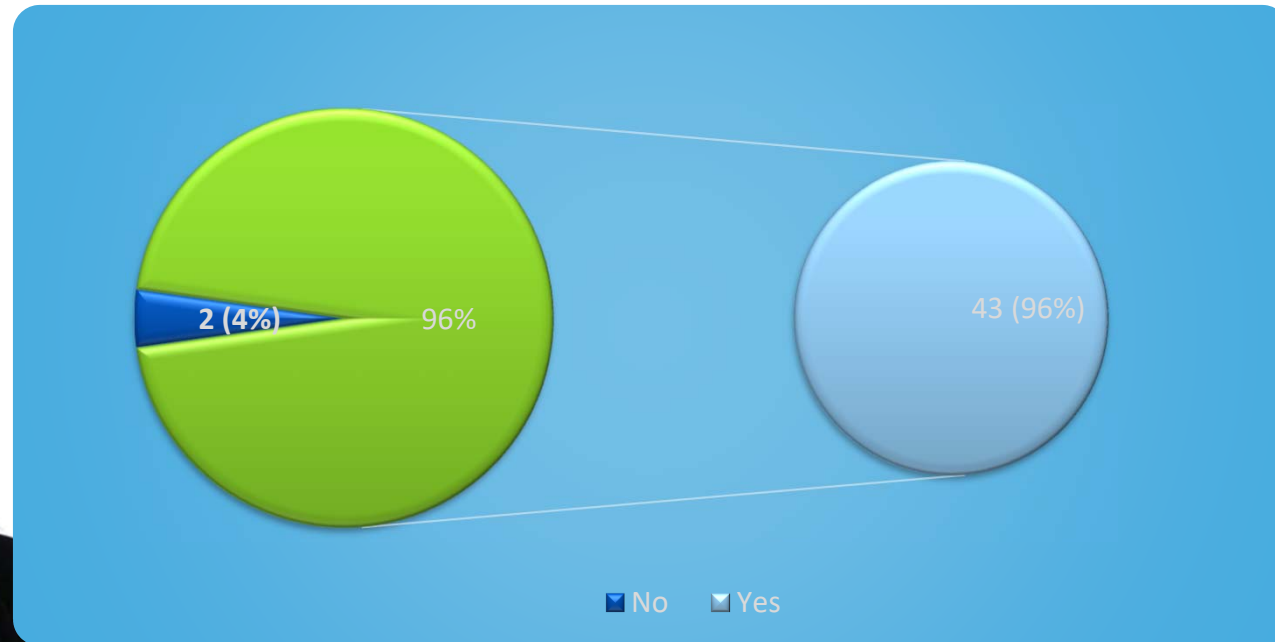
5 respondent didn't answer





Part A –
Governance
and
Legislation

States with written agreement in place between the Air
Traffic Authority and Met Authority

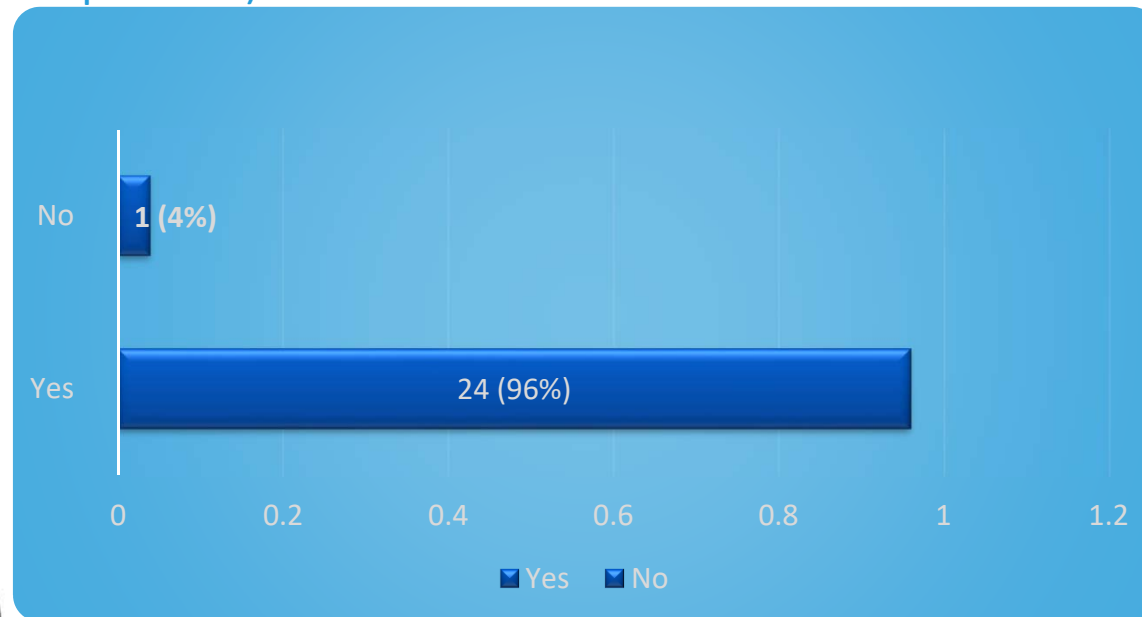


5 respondents didn't answer



**Part B –
Implementation
of ATFM**
*(Specific questions
for ATM
community)*

States/Administration implemented (or expected to implement) ATFM





**Part B –
Implementation
of ATFM**
*(Specific questions
for ATM
community)*

States level of implementation of ATFM

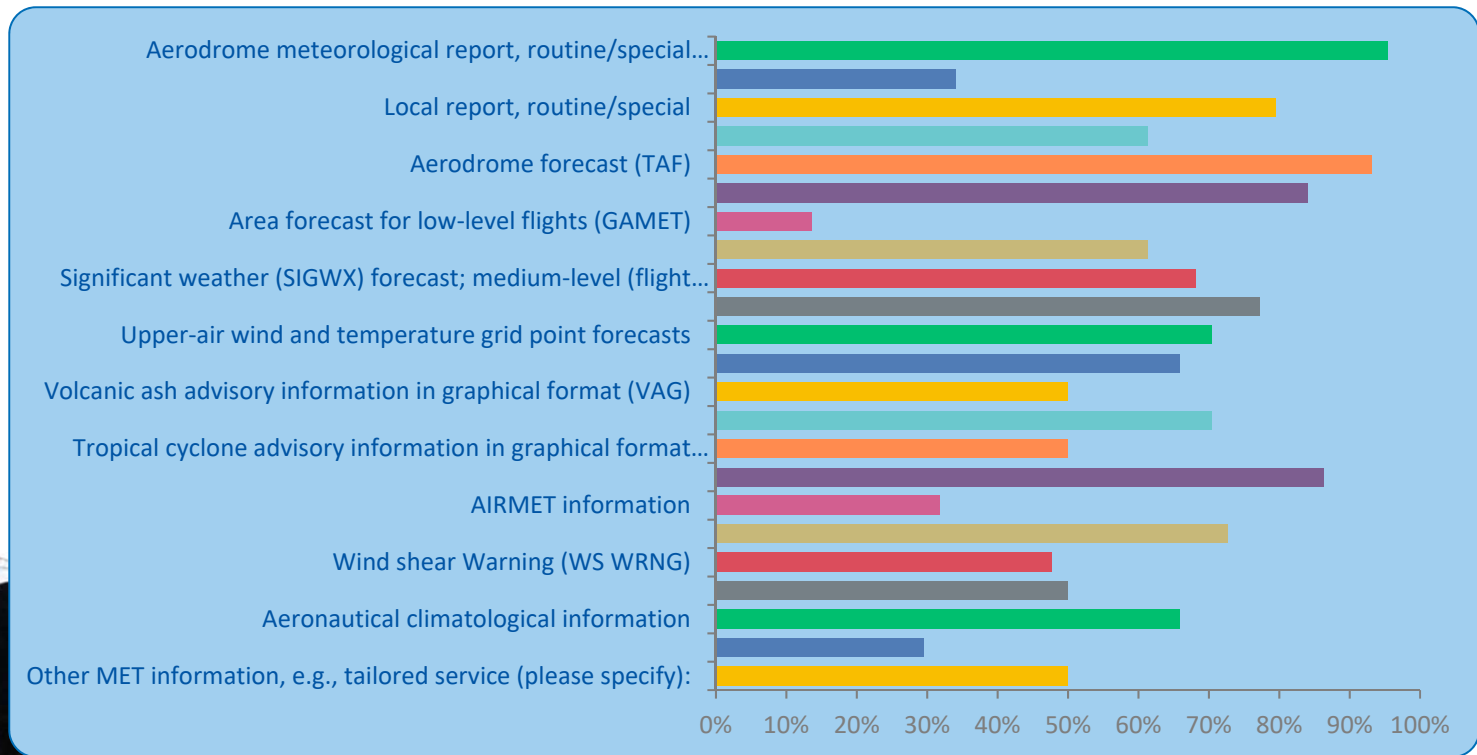
- Some States are on Level 3
- A few on Level 1 and 2, and preparatory stage





**Part C1 –
Provision of Met
Information
(Current provision)**

Provision of specific MET INFO to support ATFM





**Part C1 –
Provision of Met
Information
(Current provision)**

Some of the other MET INFO – Tailored Services

- Lightning Advisories;
- Weather Radar and Satellite Images
- Significant convection monitoring and forecast;
- Categorical forecasts of TS over critical watch area;
- Windshear prediction information;
- ATM tailored information and services based on States requirements.

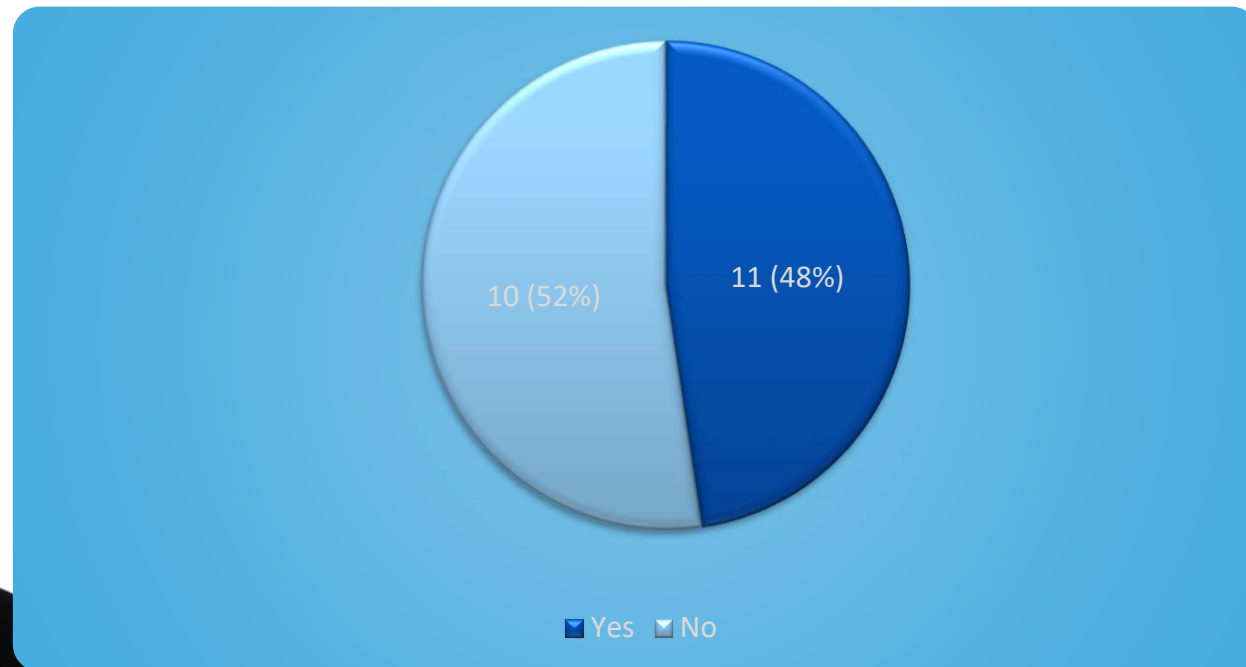




**Part C1 –
Provision of Met
Information
(Current provision)**

ATM question

States/Administration utilising gridded MET INFO, such as WAFS



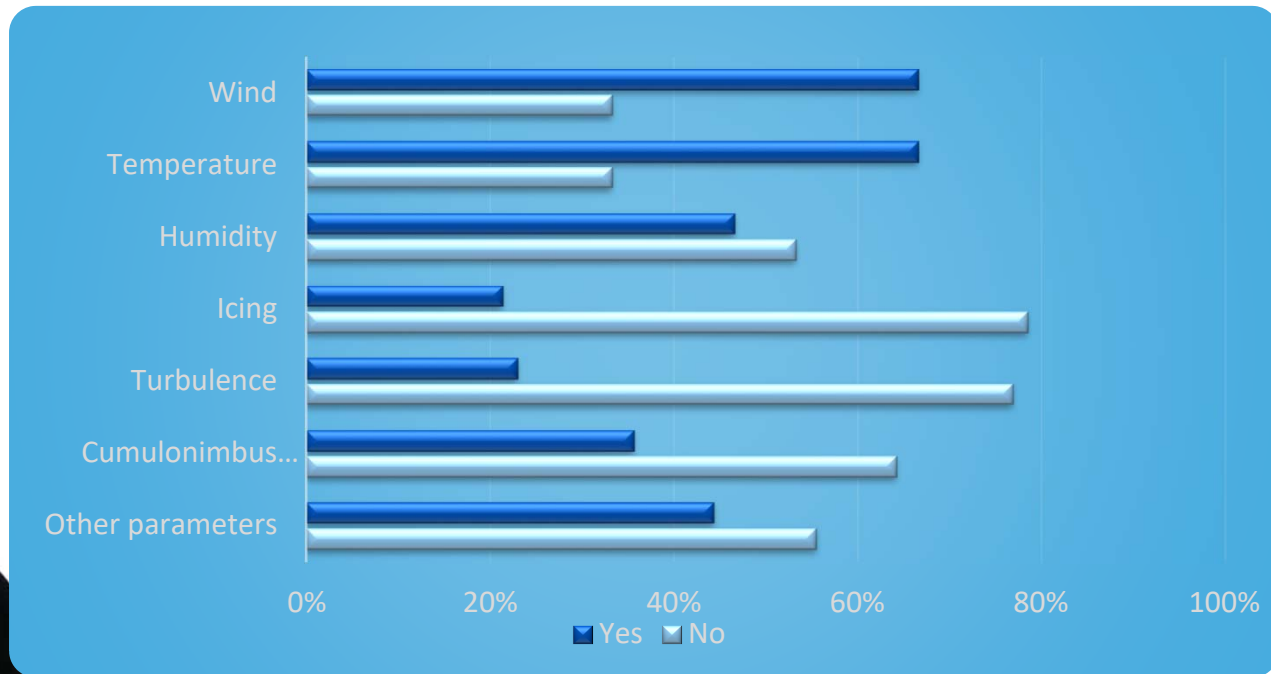
21 ATM respondents



**Part C1 –
Provision of Met
Information
(Current provision)**

Met Question

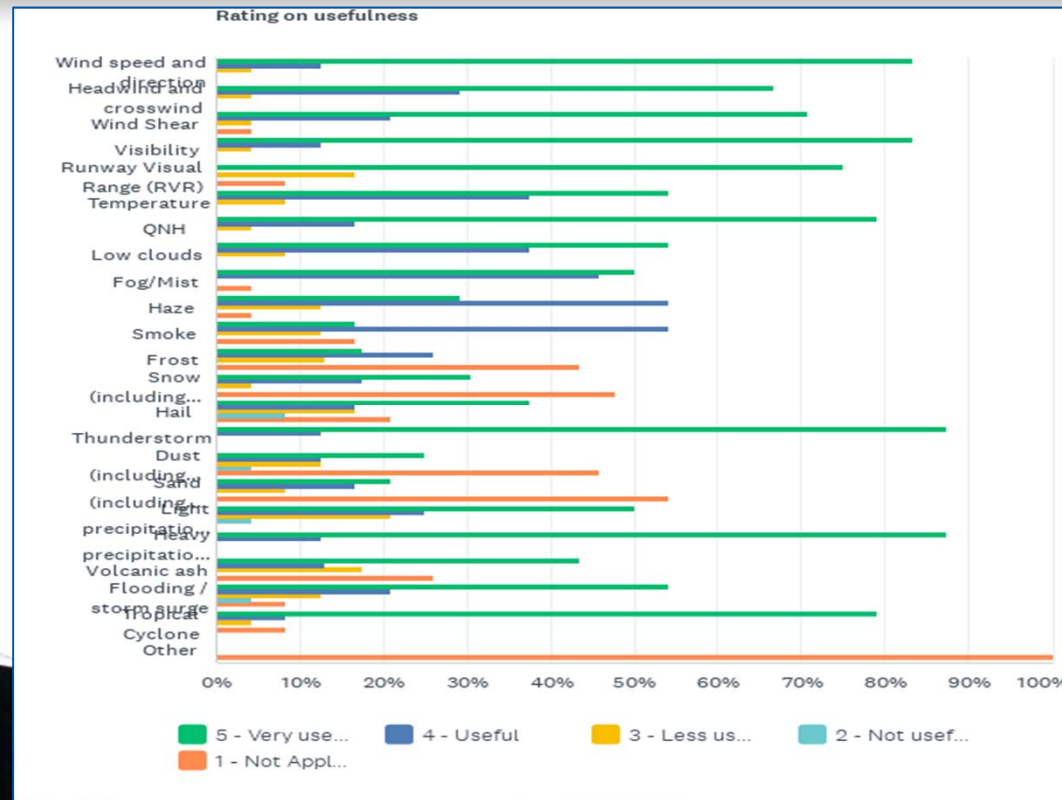
What gridded Met INFO is provided to the States/Administration to ATM to support flight planning



21 MET respondents



Part C2 – Provision of Met Information (Future provision) (For ATM and Airspace Users)

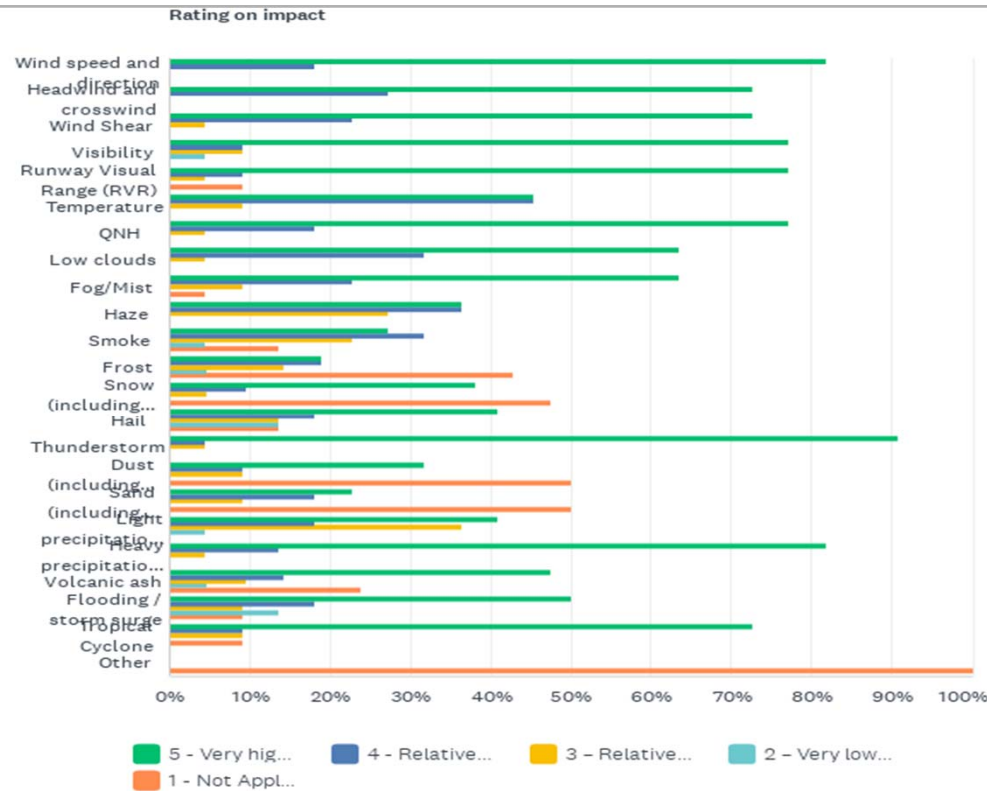


Types of aerodrome MET observation and forecast parameters considered useful and impactful to support ATM/ATFM operation

24 respondents



Part C2 – Provision of Met Information (Future provision) (For ATM and Airspace Users)



Types of aerodrome MET observation and forecast parameters considered useful and impactful to support ATM/ATFM operation

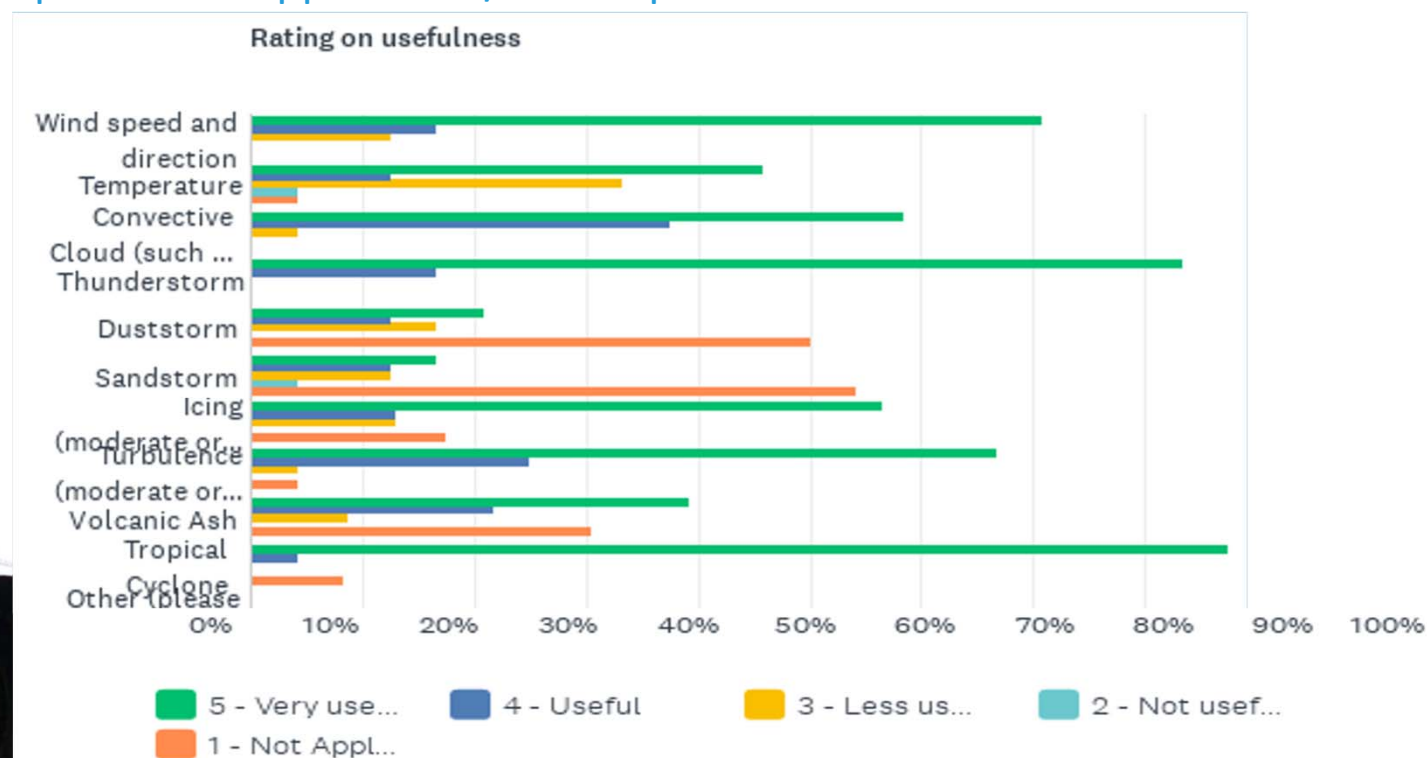
24 respondents



**Part C2 –
Provision of Met
Information
(Future
provision)

(For ATM and
Airspace Users)**

Types of Airspace MET Information considered useful and impactful to support ATM/ATFM operation

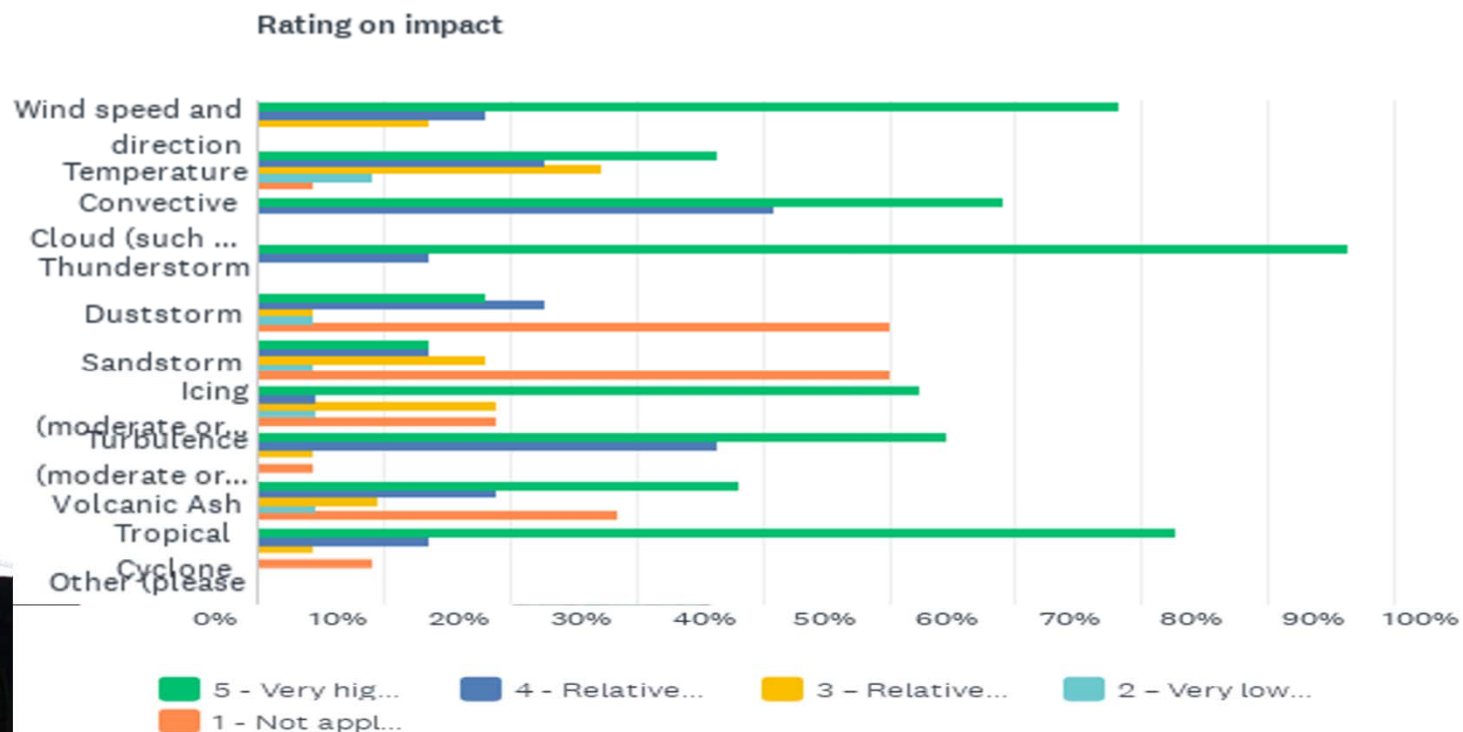




**Part C2 –
Provision of Met
Information
(Future
provision)

(For ATM and
Airspace Users)**

Types of Airspace MET Information considered useful and impactful to support ATM/ATFM operation

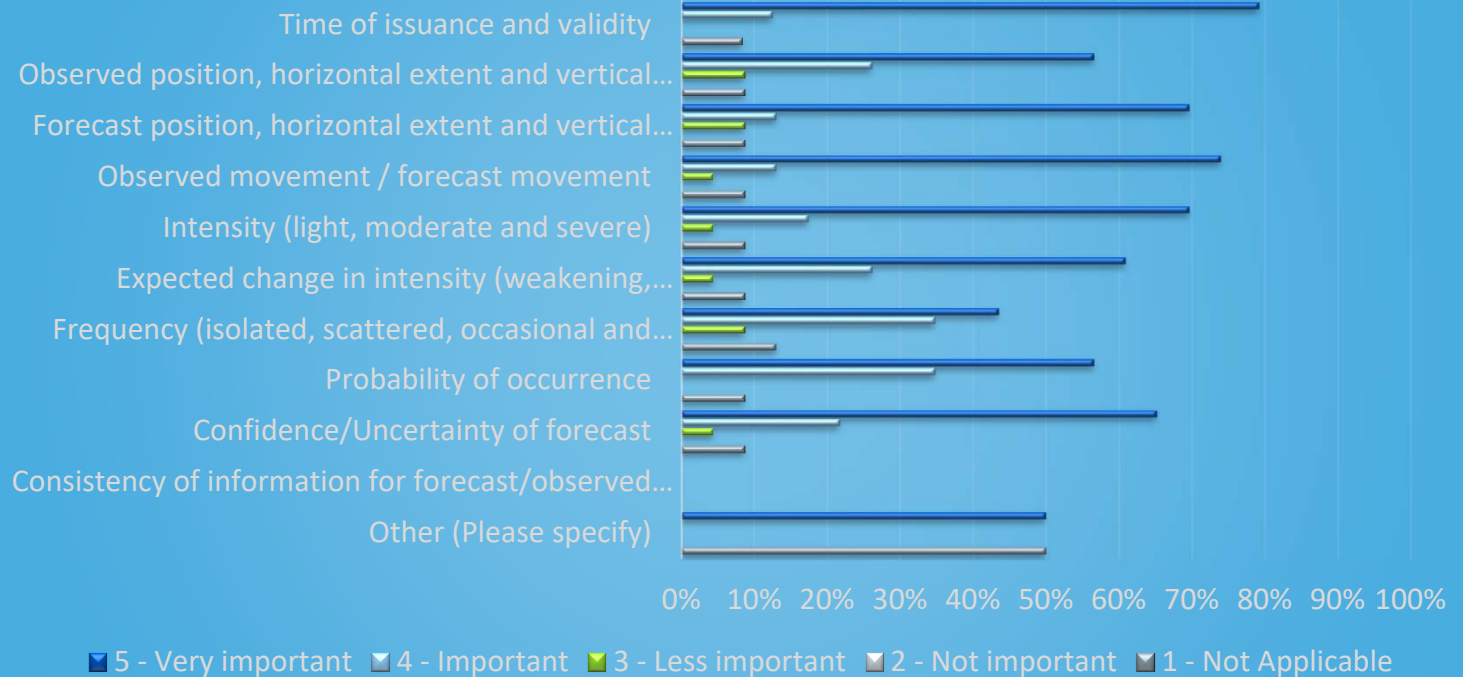




**Part C2 –
Provision of Met
Information
(Future
provision)

(For ATM and
Airspace Users)**

Importance of characteristic descriptions of MET phenomenon for an effective and efficient ATFM





**Part C2 –
Provision of Met
Information
(Future
provision)**

**(For ATM and
Airspace Users)**

Importance of characteristic descriptions of MET phenomenon for an effective and efficient ATFM

Some of the key reasons (Quotes):

- "Timely and detailed description on the weather cells lead to the successful of ATFM operation to manage the demand and capacity situation that caused from weather phenomenon."
- "Affect the Airport Arrival Rate, Airport Departure Rate, Sector capacity, etc."
- "Trusting the forecast and issuing flow management in the area."
- "Flight planning and Flight safety"
- "It is important to have high confidence in forecasting as this will lead to lesser last-minute changes to planned operations and lesser unnecessary delay"
- "If the forecast is not reliable then it is useless"
- "Consistency of information for forecast/observed phenomena across different jurisdiction"

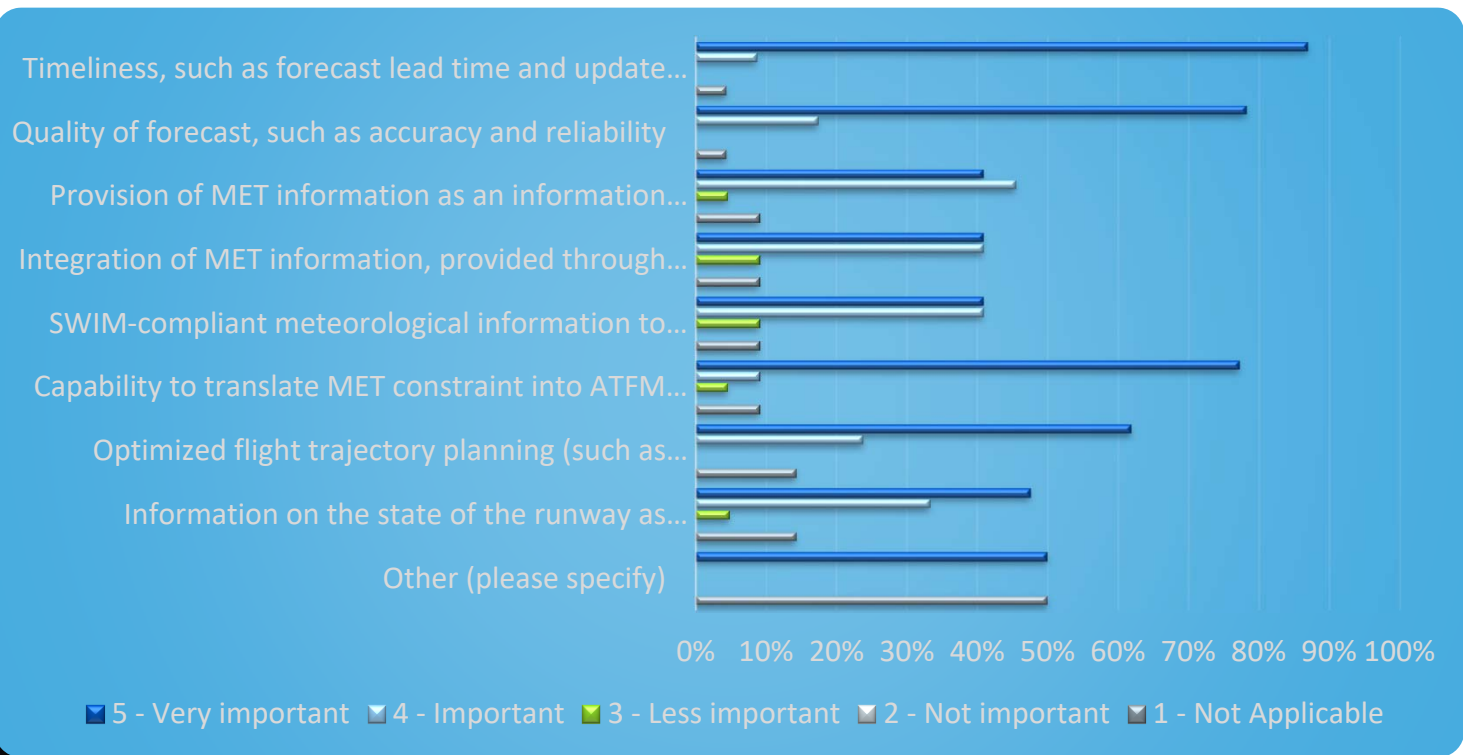




**Part C2 –
Provision of Met
Information
(Future
provision)

(For ATM and
Airspace Users)**

Importance of the Met components for an effective and efficient ATFM





Importance of the Met components for an effective and efficient ATFM

Part C2 – Provision of Met Information (*Future provision*)

(*For ATM and
Airspace Users*)

Some Quotes:

- "Need sufficient lead time, accurate and reliable forecast to to plan/activate appropriate ATFM measures"
- "Aids in timely runway selection"
- "Excessive number of amended MET products in extremely short time periods can be an issue"
- "Enables the crew to make more informed decisions with better and more recent and updated MET info"
- " By providing information in a SWIM environment, information can be provided not only to ATFM but also to ATC."
- "Data centric information that can easily be accessible is important for airspace user"
- "Aircraft performance and decision making"

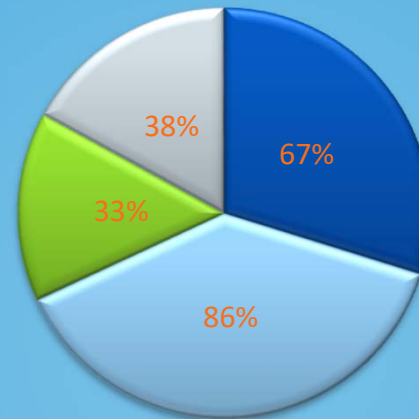




**Part C2 –
Provision of Met
Information
(Future
provision)**

**(For ATM and
Airspace Users)**

Challenges in developing, implementing and/or utilising enhanced MET services to better support ATFM operation



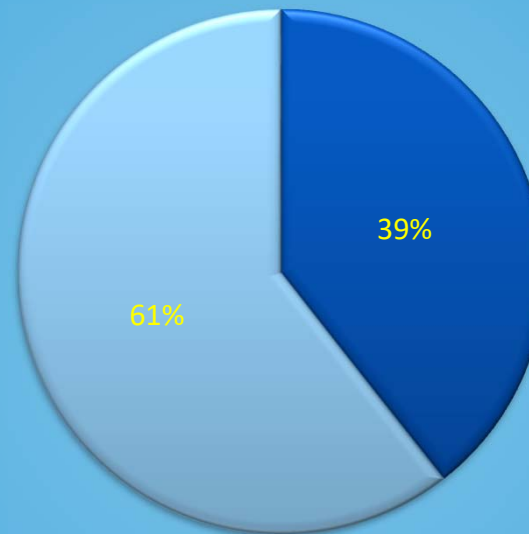
- Lack of resources (manpower, funding, etc.)
- Technical challenges in system integration (legacy system, IT security, etc.)
- Lack of awareness on importance of MET data for ATFM
- Lack of collaboration/coordination with MET service provider



**Part C2 –
Provision of Met
Information
(Future
provision)**

**(For ATM and
MET)**

Are there any established objective rules for automatic quantitative translation from MET constraints to ATFM impact



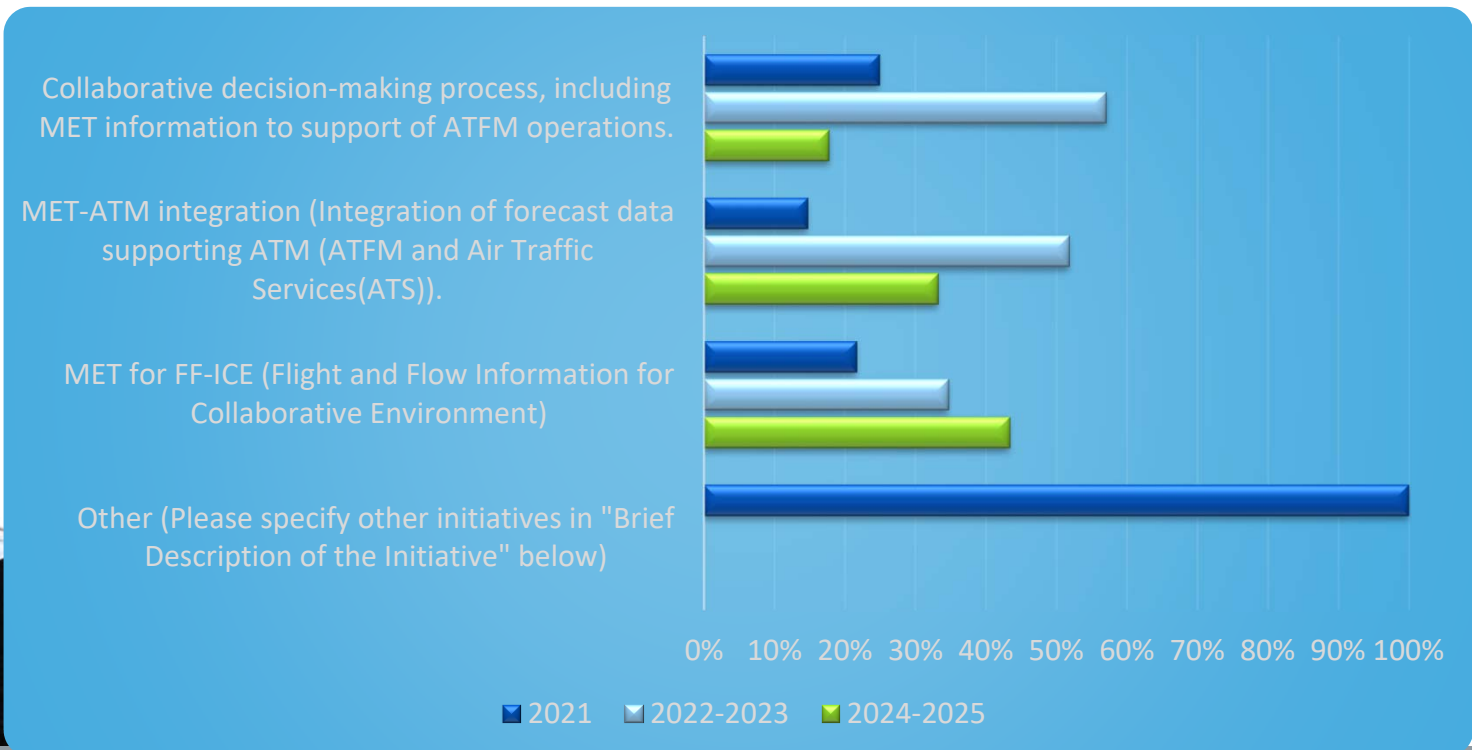
■ Yes ■ No



**Part C2 –
Provision of Met
Information
(Future
provision)

(For ATM and
MET)**

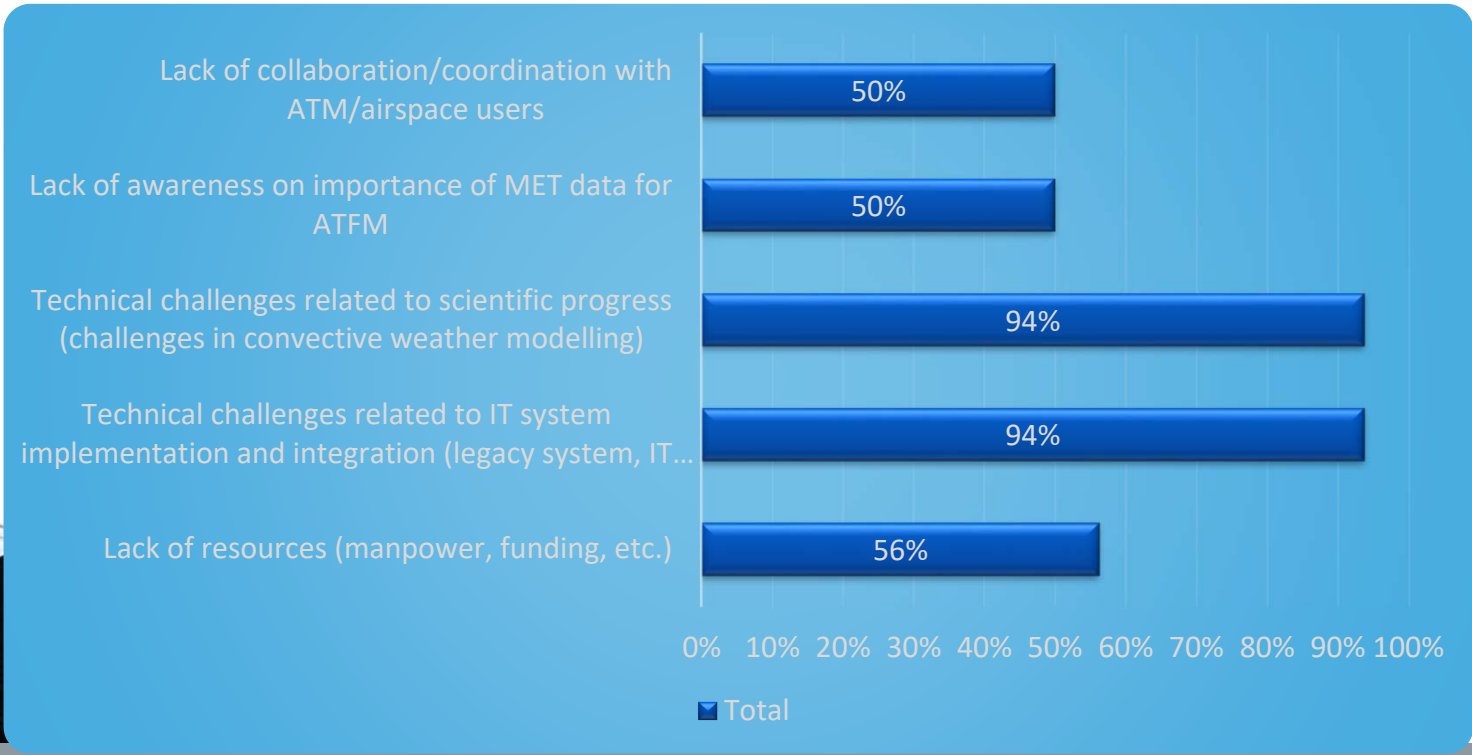
Initiatives State/Administrative undertake (or will undertake) to enhance MET service provision to support ATFM operations





**Part C2 –
Provision of Met
Information
(Future
provision)
(For MET)**

Challenges Met organization encounter(ed) when developing and implementing enhanced MET services to better support ATFM operation

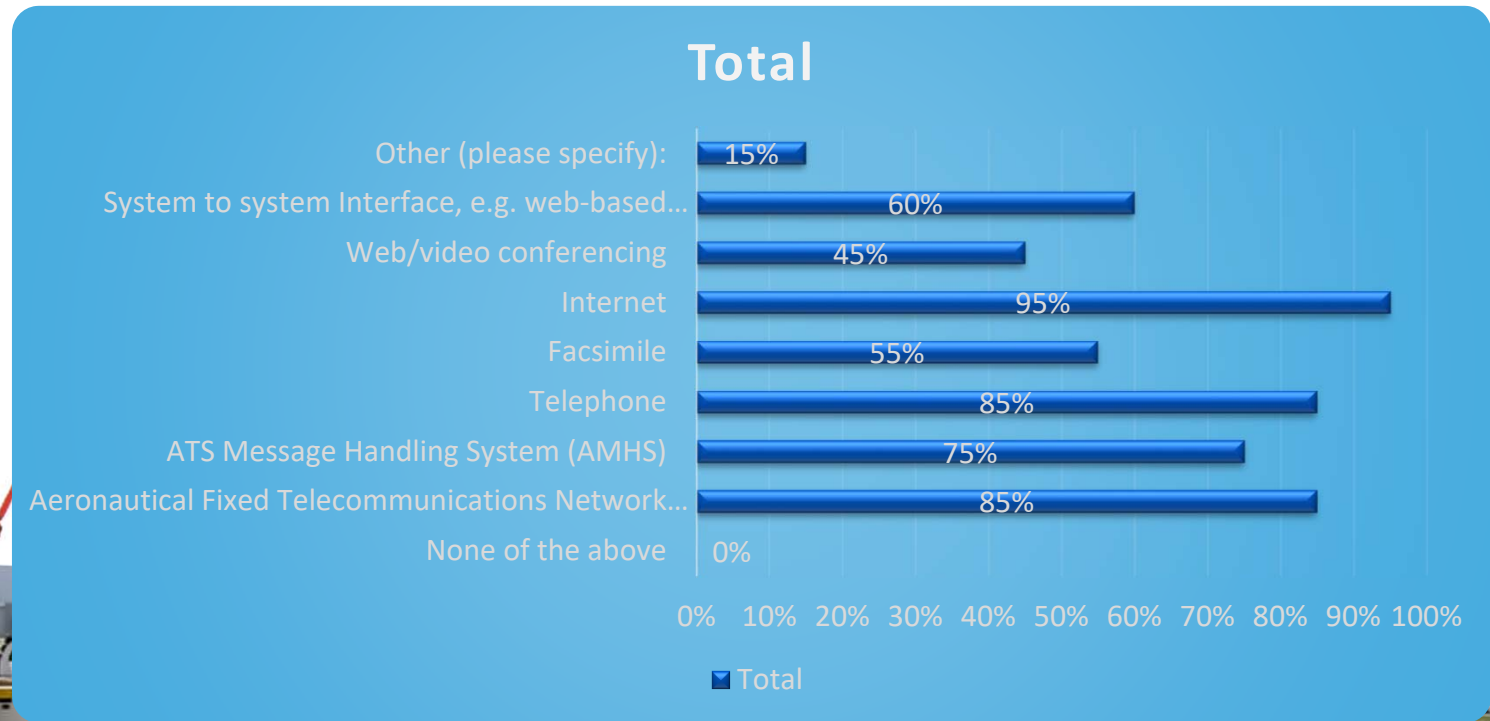




**Part D –
Communication
Methods**

***(For ATM and
MET)***

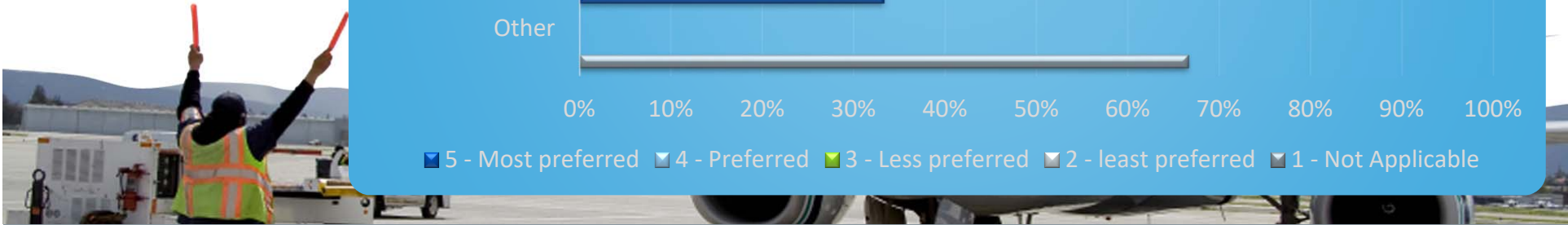
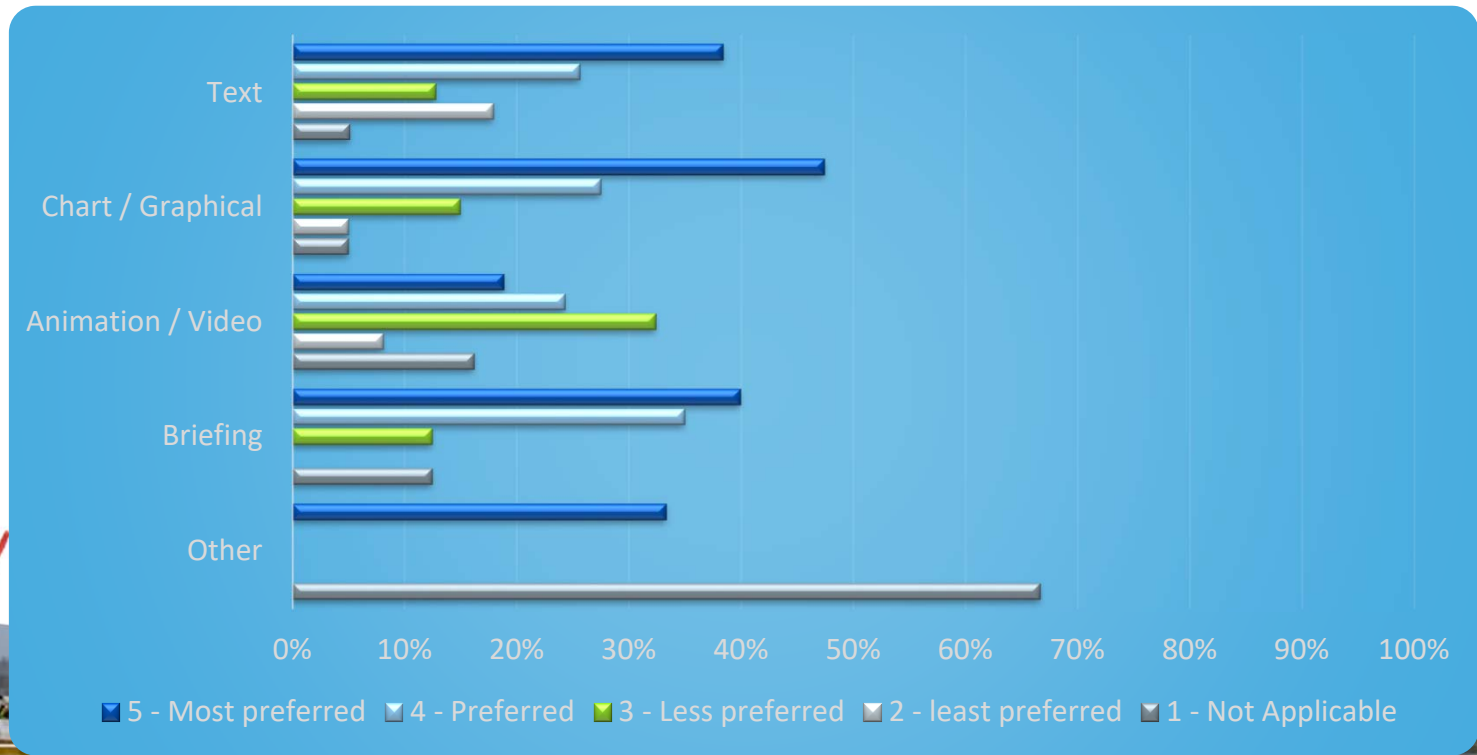
Mode State/Administration disseminate aeronautical MET information to
ATS units, Airspace Users and other stakeholders





**Part D –
Communication
Methods**
*(For ATM and
MET)*

Most effective means of presenting MET information to support AFTM



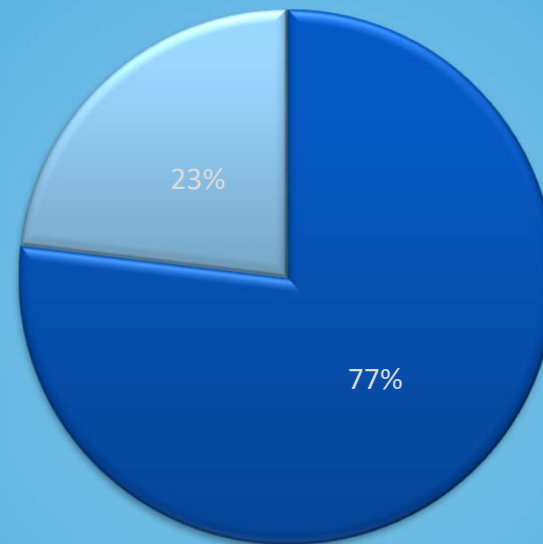


**Part E –
Education**

*(For Airspace
Users, ATM and
MET)*

39 respondents

Awareness of APAC Regional Guidance for Tailored Met Services to support ATM Operations



■ Yes ■ No



**Part E –
Education**

*(For Airspace
Users, ATM and
MET)*

39 respondents

**APAC Regional Guidance for Tailored Met Services to support ATM
Operations**

Some Quotes:

- "Haven't thoroughly read the document yet but pretty sure it will be rich in ideas on the enhancement of MET services for ATM."
- "We are of the opinion that this guidance can assist from design to operational phase of MET information service to support ATM...utilizing this guidance as the guideline...demand/capacity management, can be highly improved."
- "It serves a checklist for continuous improvement of MET information and services for ATM."
- "Focus on specific aspects of implementing enhanced MET information and services can be achieved from the stepwise structure of the guidance."
- "A good effort to understand the guidance material and keeping close coordination between MET and ATM"





Part E – Education

*(For Airspace
Users, ATM and
MET)*

39 respondents

Other guidance or education material required to support ATM Operations

Some Quotes:

- "Guidance to develop MET data catalogue to better support ATFM, including sample scenarios on which MET data would be useful and should be considered during the Demand/Capacity Balancing (DCB) process."
- "Best practices or education material on using MET information for ATFM in future SWIM environment."
- "Any other supporting documents of WMO/ICAO that can contribute plus in-depth guidance from subject matter expert."
- "Guidance material on the translation of MET constraints into objective, quantifiable impact on ATM operations, e.g. reduction in air traffic capacity. Guidance material on how MET information is used in ATM/ATFM. "
- " More example of MET-ATM integrated system"



Decision MET/R/11/X: Further analysis of ICAO APAC Regional Survey on the provision of MET services to support ATM and ATFM and Follow-up Actions

What: That, the established ad-hoc group with subject matter experts from MET/R WG undertake further analysis of the *ICAO APAC Regional Survey on the provision of MET services to support ATM and ATFM* and prepare a report identifying follow-up actions for further consideration by MET SG and ATM SG.

Expected impact:
 Political / Global
 Inter-regional
 Economic
 Environmental
 Ops/Technical

Why: To facilitate a coordinated approach to the further development of MET services in the Asia/Pacific Region and promote the results among other related Working Groups.

Follow-up: Required from States

When: As soon as practicable.

Status: to be adopted by the MET/R WG

Who: Sub groups APAC States ICAO APAC RO ICAO HQ Other: ATFM/SG



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THANK YOU