ICAO BANGKOK UNITING AVIATION

# Survey of State MET Information supporting ATM

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*(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.

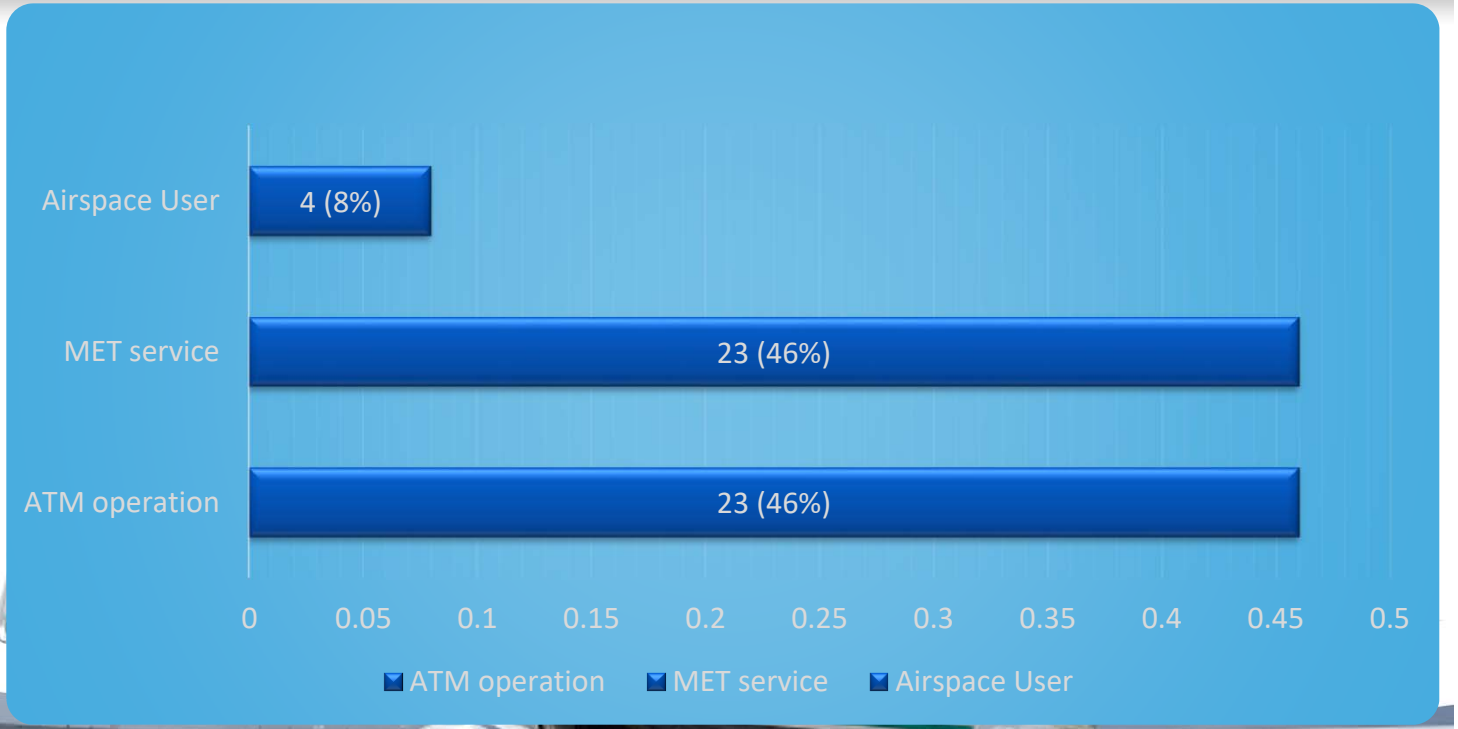
# Benefits and Expected results

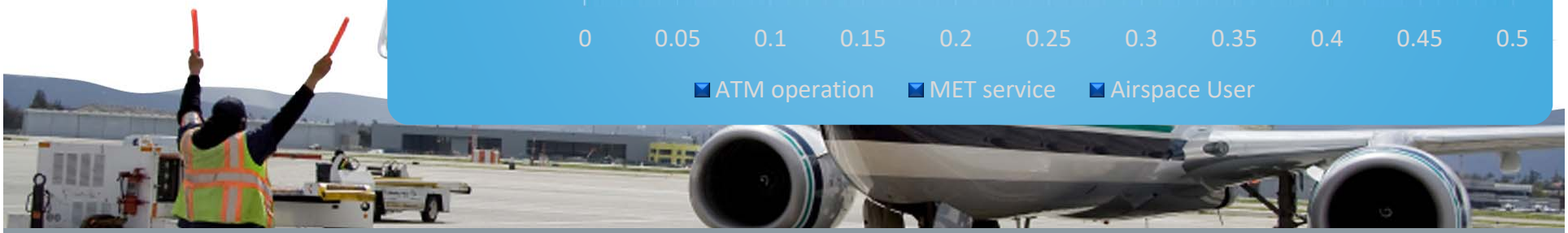
To assist MET/R WG with the following tasks:

- 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

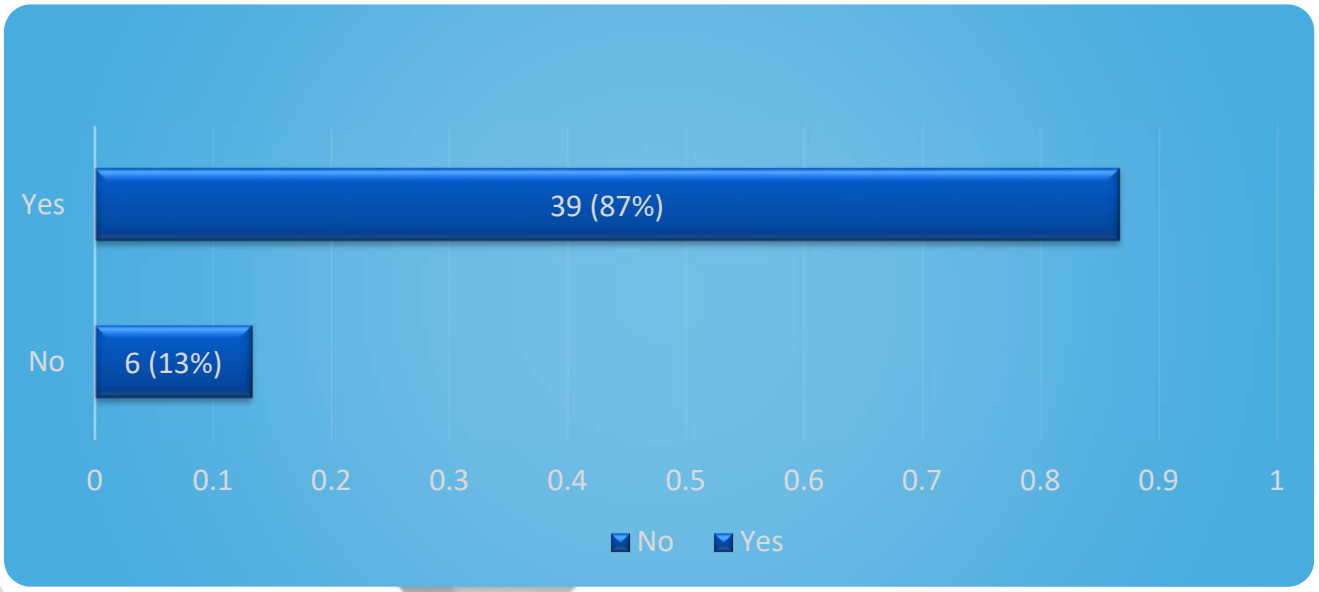
**Total number of responses: 50 (from 24 States/ Administration)**



**Part A – Governance and Legislation**

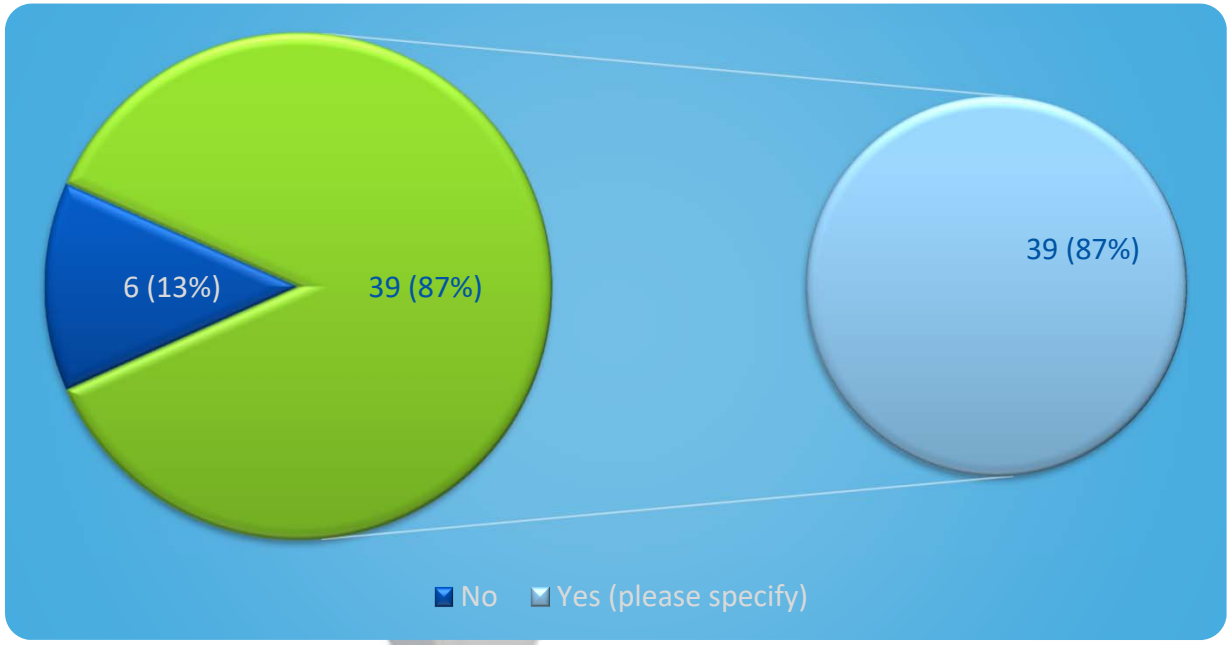
## States enacted primary legislation and/or has supporting regulations to ensure MET Service is implemented in accordance with ICAO Annex 3




***5 respondent didn't answer***

**Part A – Governance and Legislation**

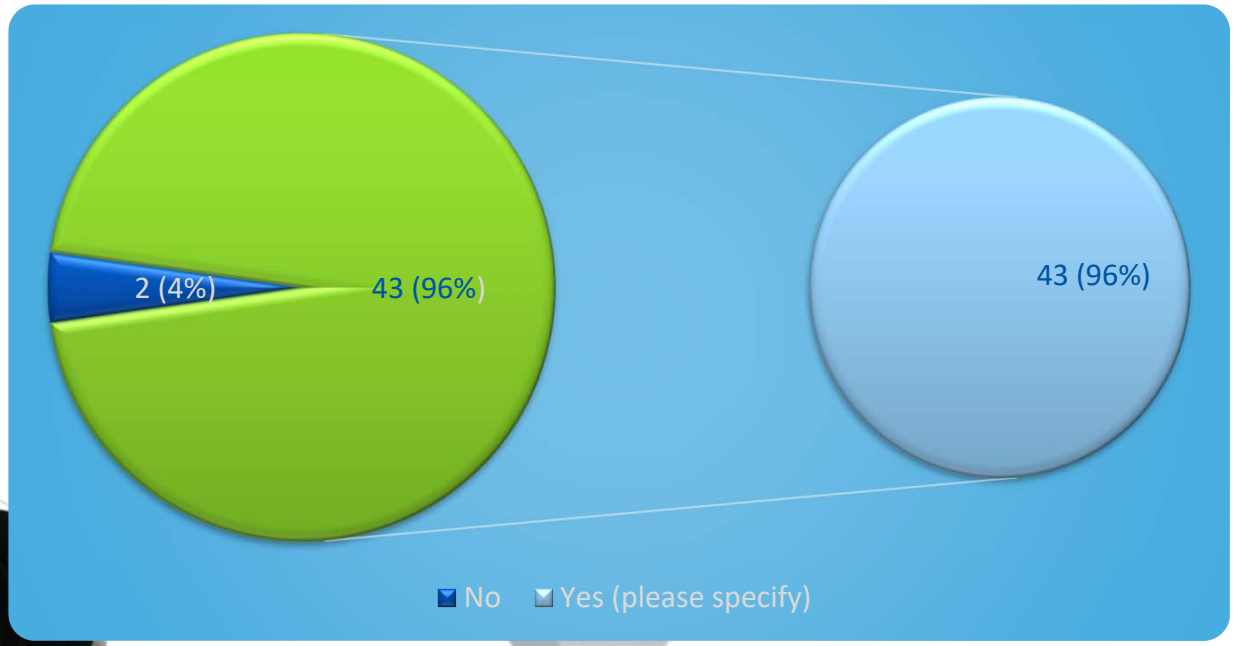
## States with primary legislation to implement MET service in accordance with ICAO Annex 3




***5 respondents 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

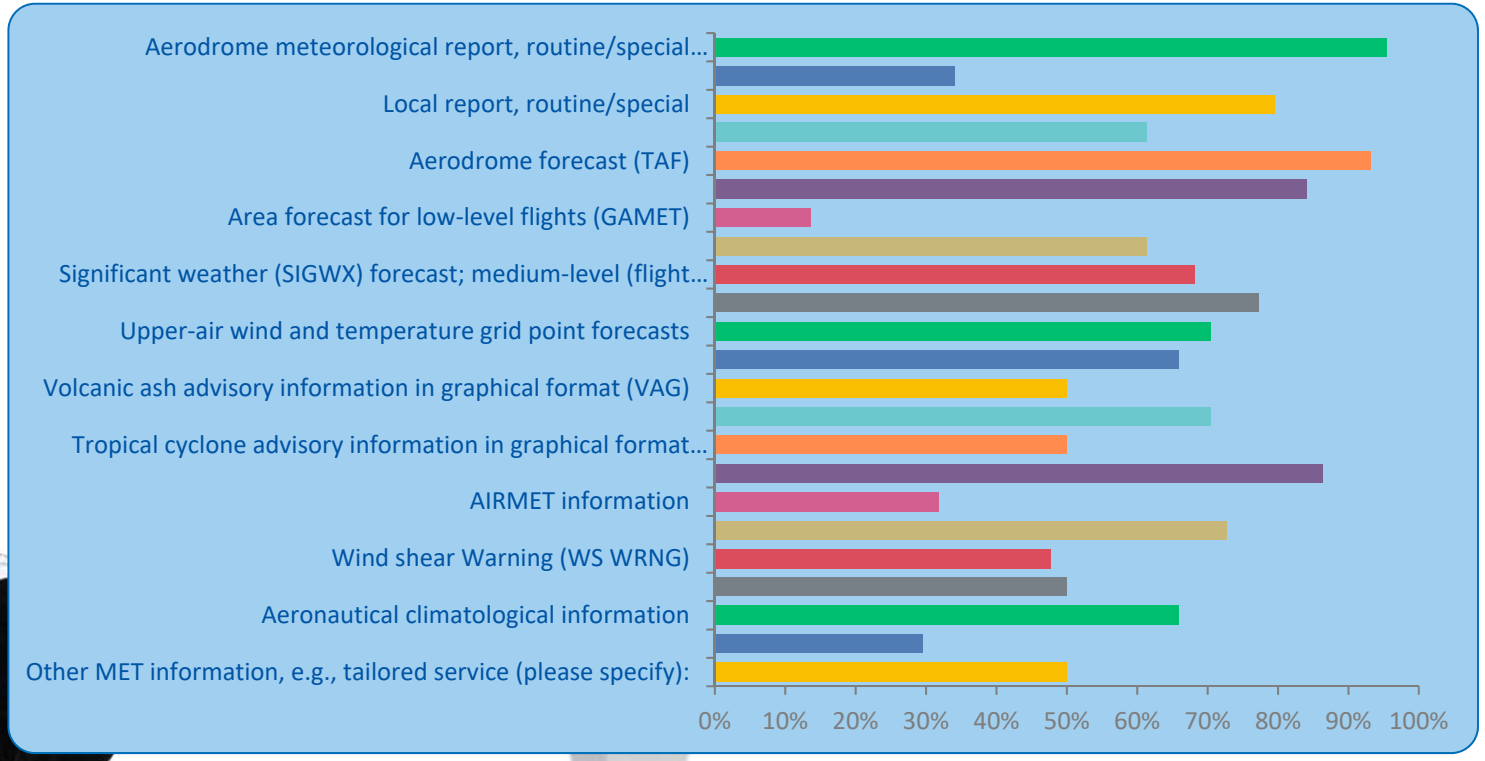

**Part B – Implementation of ATFM** ***(Specific questions for ATM community)***

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)***

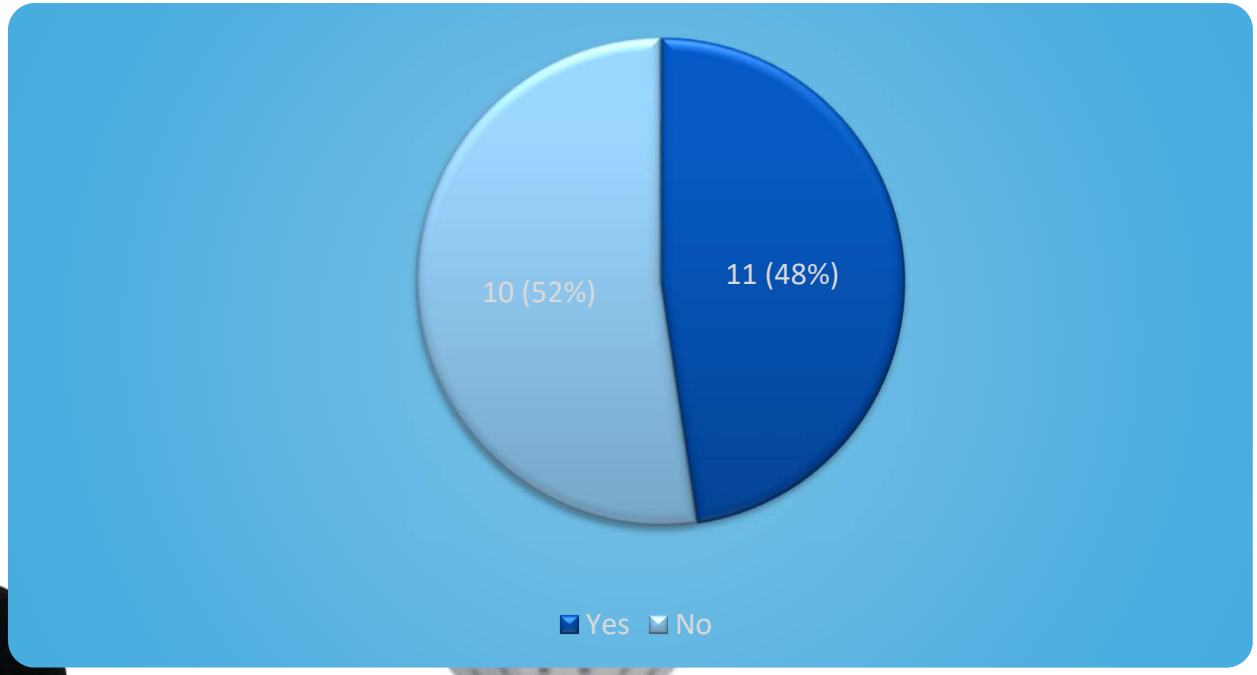
Some of the other MET INFO – Tailored Services

- 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

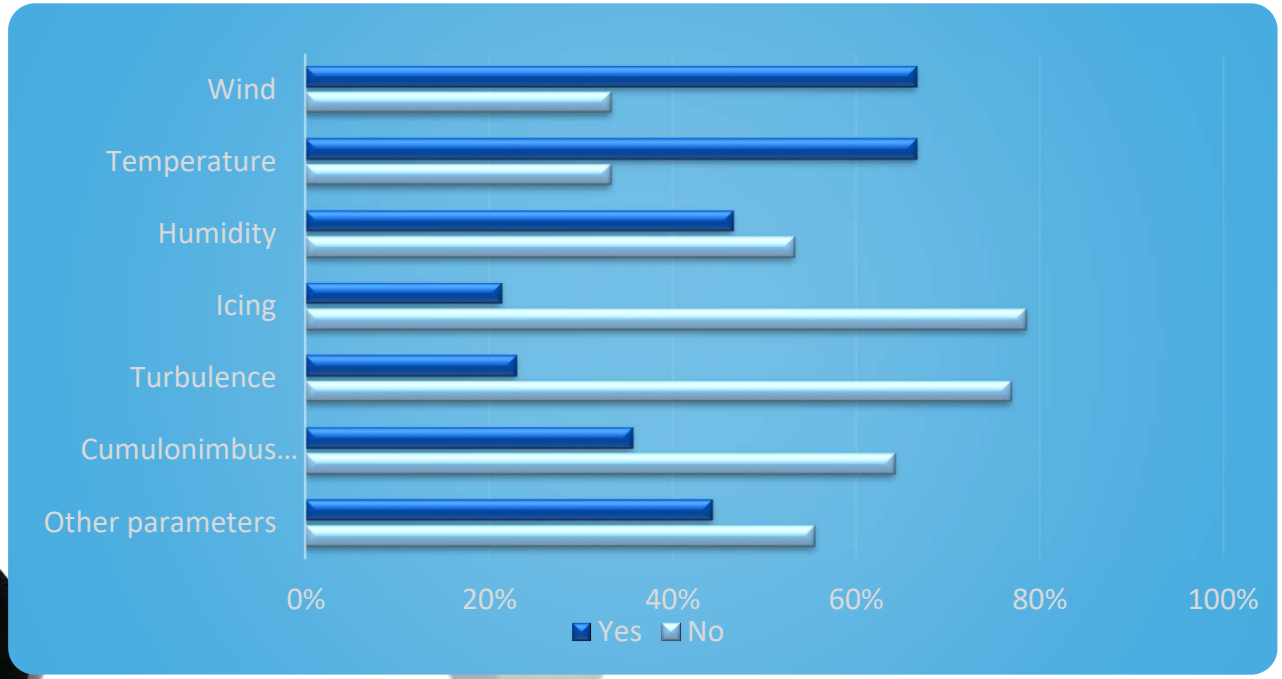



***21 ATM respondents***

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

***Met Question***

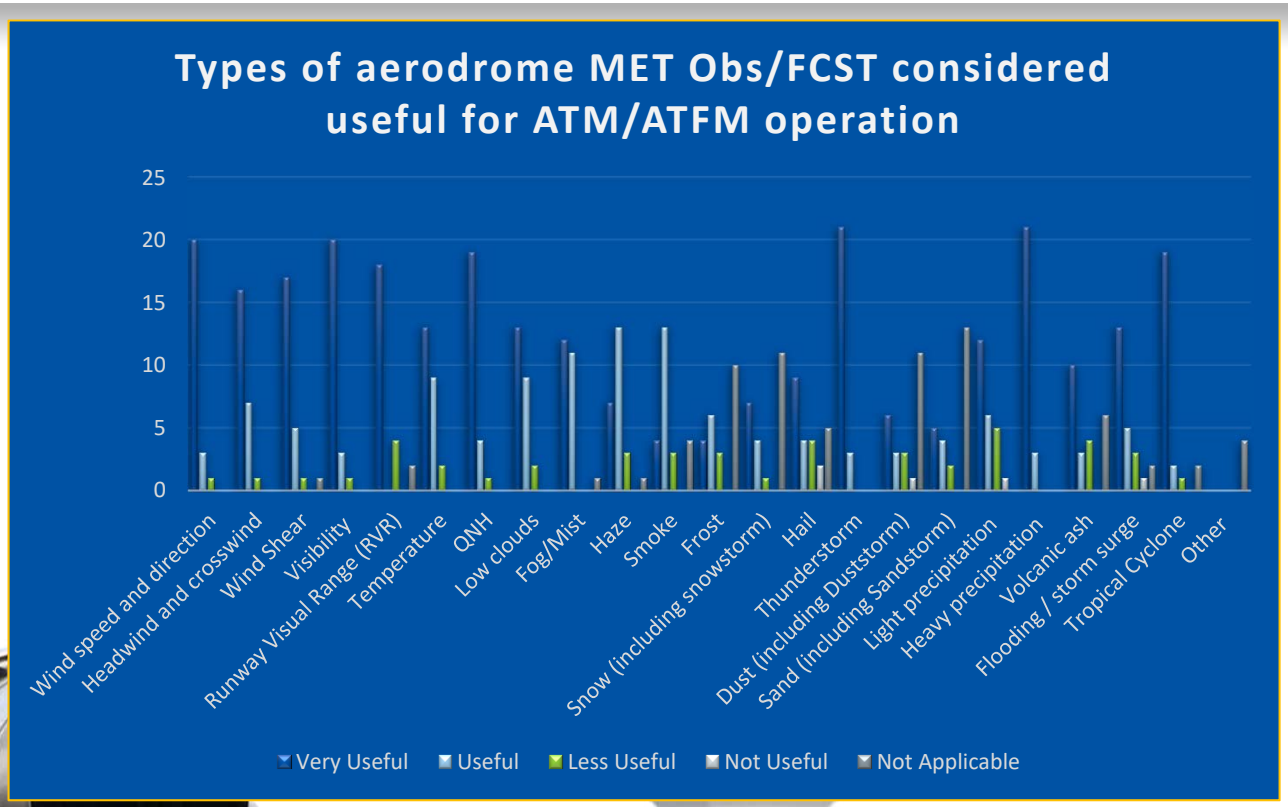
## What gridded Met INFO is provided to the States/Administration to ATM to support flight planning




***21 MET respondents***

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

***(For ATM and Airspace Users)***

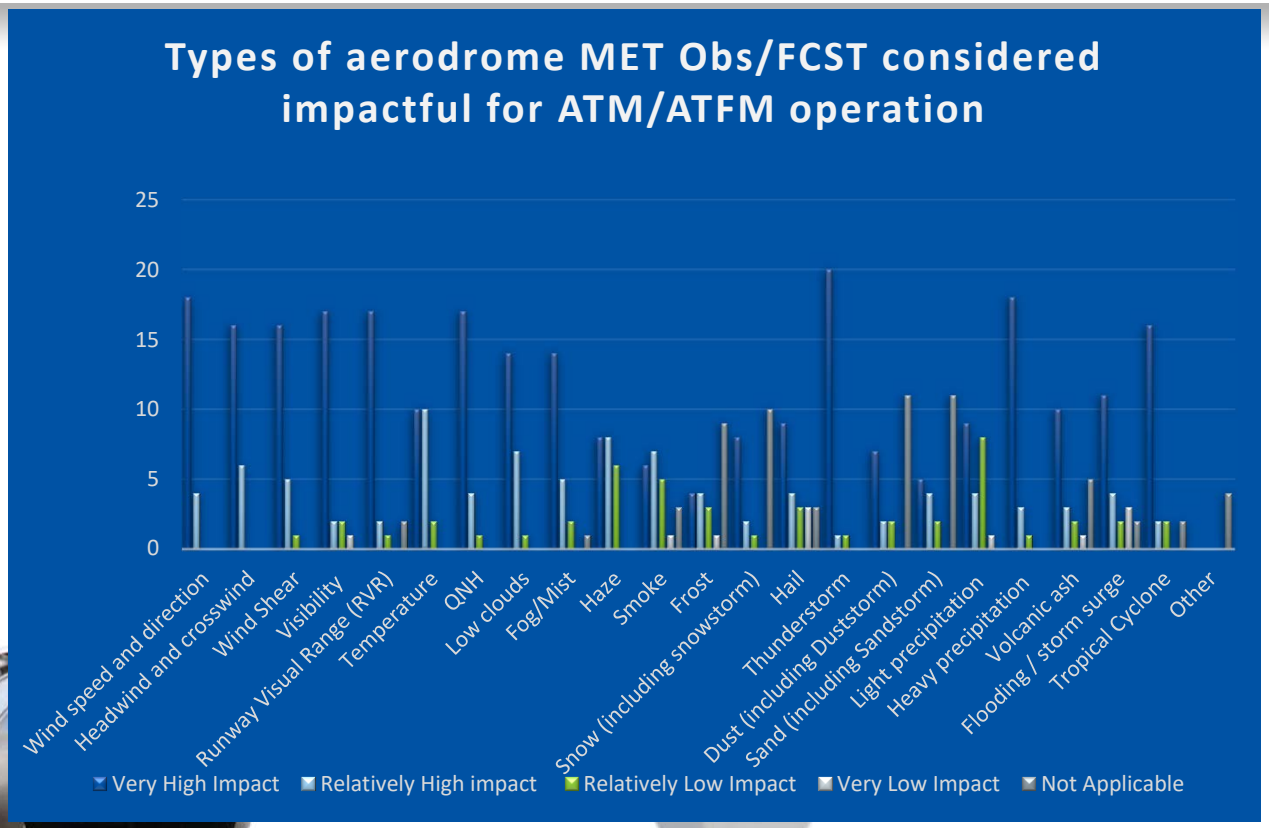



***24 respondents***

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

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

***(For ATM and Airspace Users)***




***22 respondents***

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

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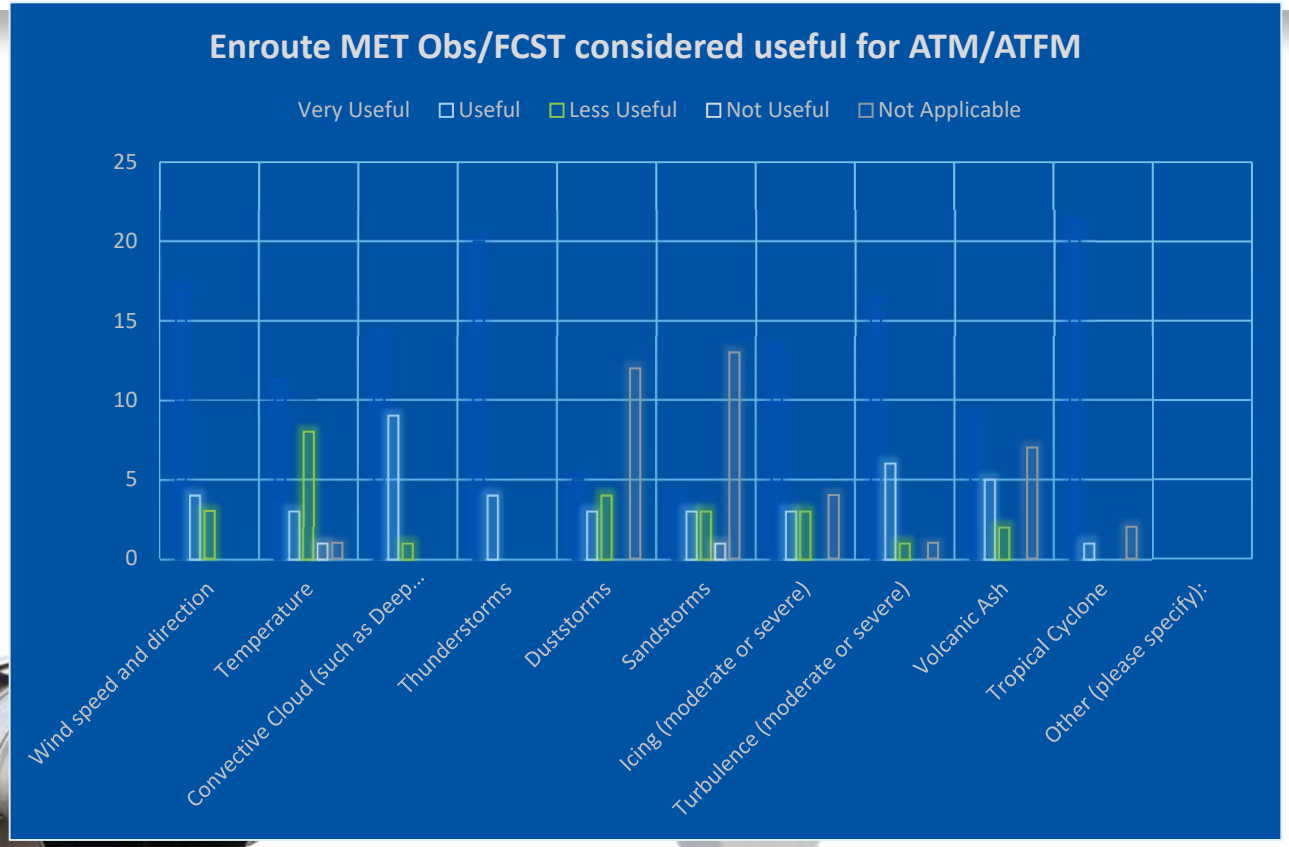
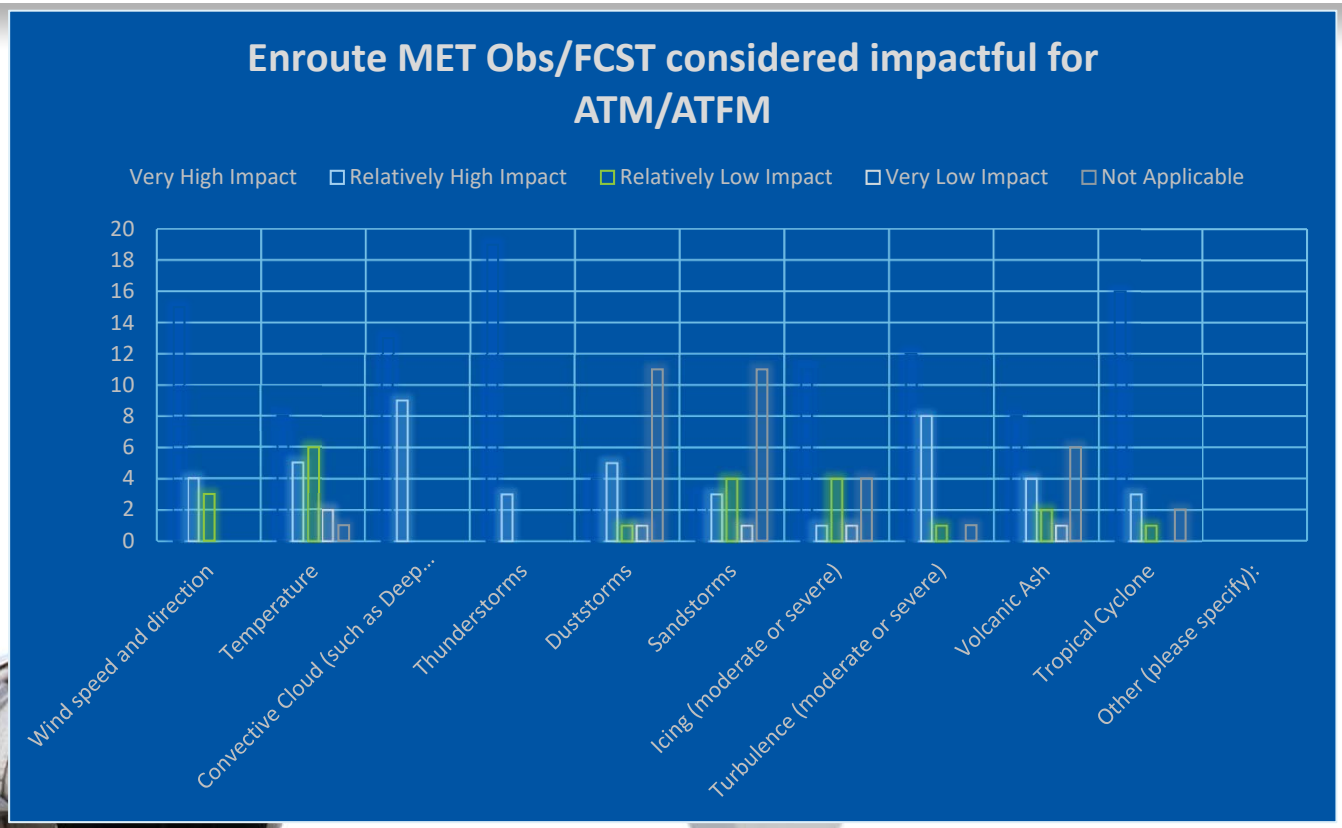



***24 respondents***

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

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

***(For ATM and Airspace Users)***



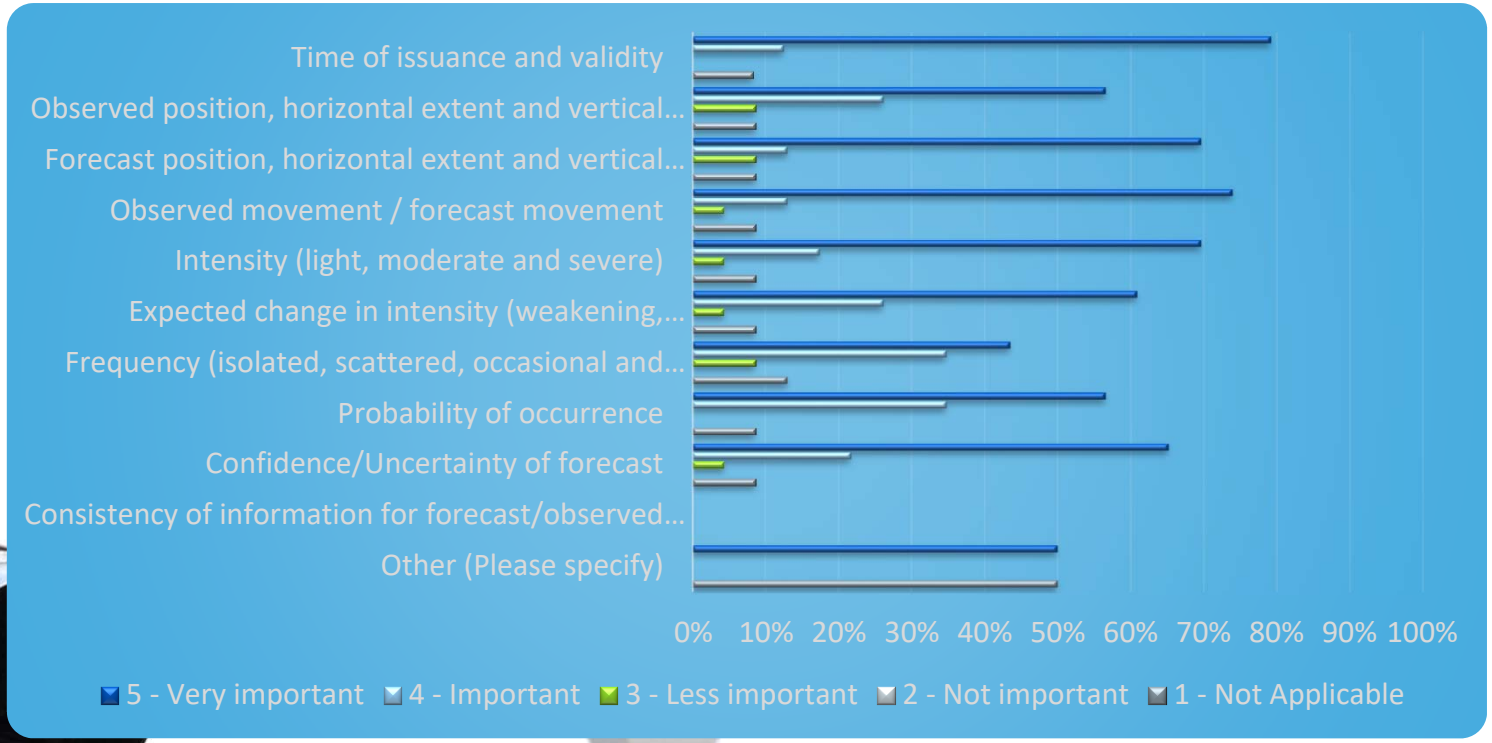

***22 respondents***

Types of Airspace MET Information considered 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 phenomena 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

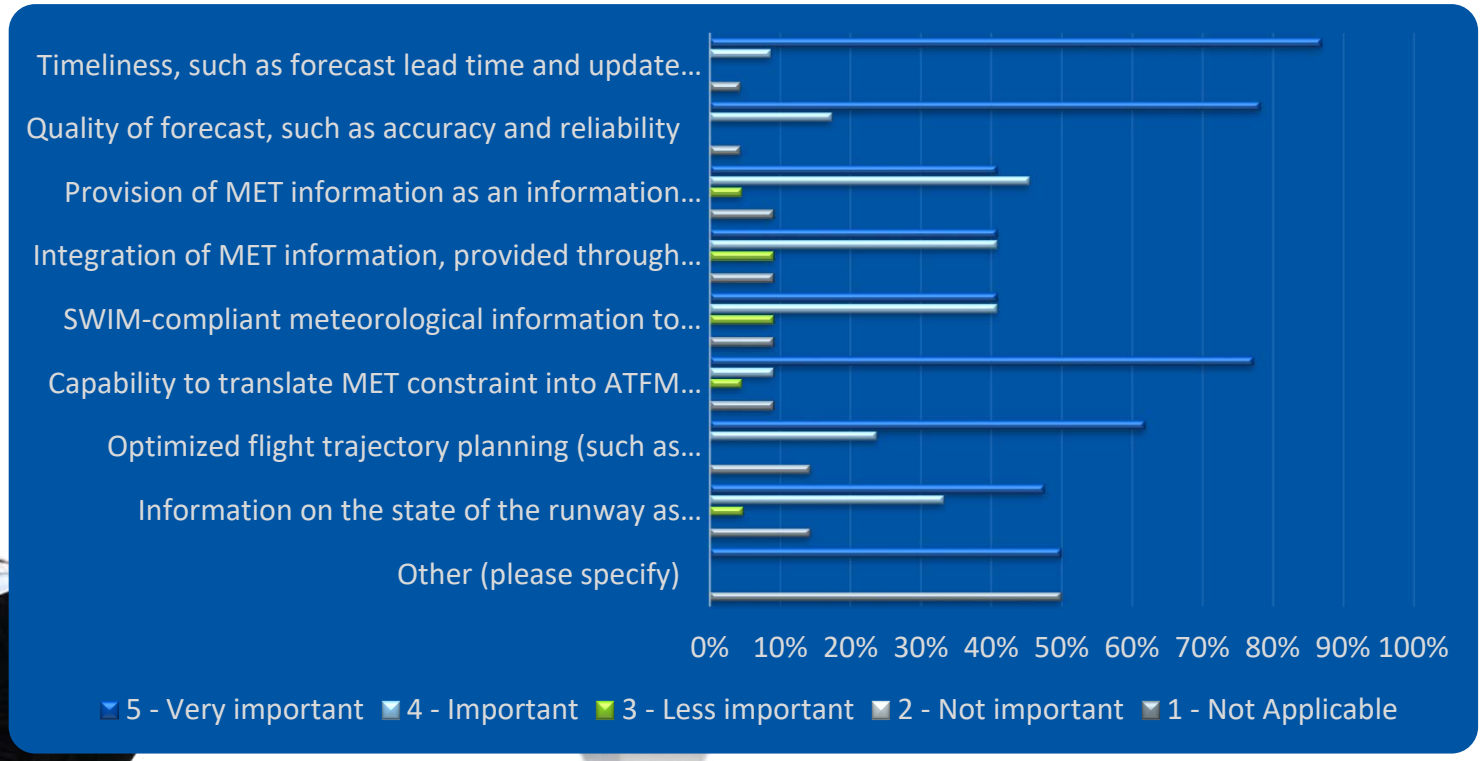
Some of the key reasons:

- Timely and details description on the weather cells lead to the successful of ATFM operation
- 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
- Affect the Airport Arrival Rate, Airport Departure, Sector capacity..
- If the forecast is not reliable then it is useless
- Consistency of information for forecast/observed phenomena across different jurisdiction
- Trusting the forecast and issuing flow management in the area

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

***(For ATM and Airspace Users)***

## 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 additional details on each aspect

- Timeliness:
  - ✓ More timely information leading to better advanced planning, improve reliability and accuracy and to plan/activate appropriate ATFM measures.
  - ✓ Earlier lead time with greater resolution
  - ✓ Aids in timely runway selection

- Quality:
  - ✓ Updates are needed to improve reliability and accuracy;
  - ✓ High quality and accurate forecasts critical for decision making of ATFM initiatives;
  - ✓ Important to have accurate and reliable weather forecasting as basis for activation of ATFM measures resulting from inclement weather forecasts, especially for weather in the vicinity of the aerodrome (TAF). Good quality forecasts also allow airlines to utilize the info effectively for flight planning purposes

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

***(For ATM and Airspace Users)***

## Some additional details on each aspect

Aviation Met products should be in IWXXM format

Important and useful if system has the capability to translate the MET constraint into ATFM impact as this will allow FMPs to act appropriately, especially if the ATFM impact can be quantified

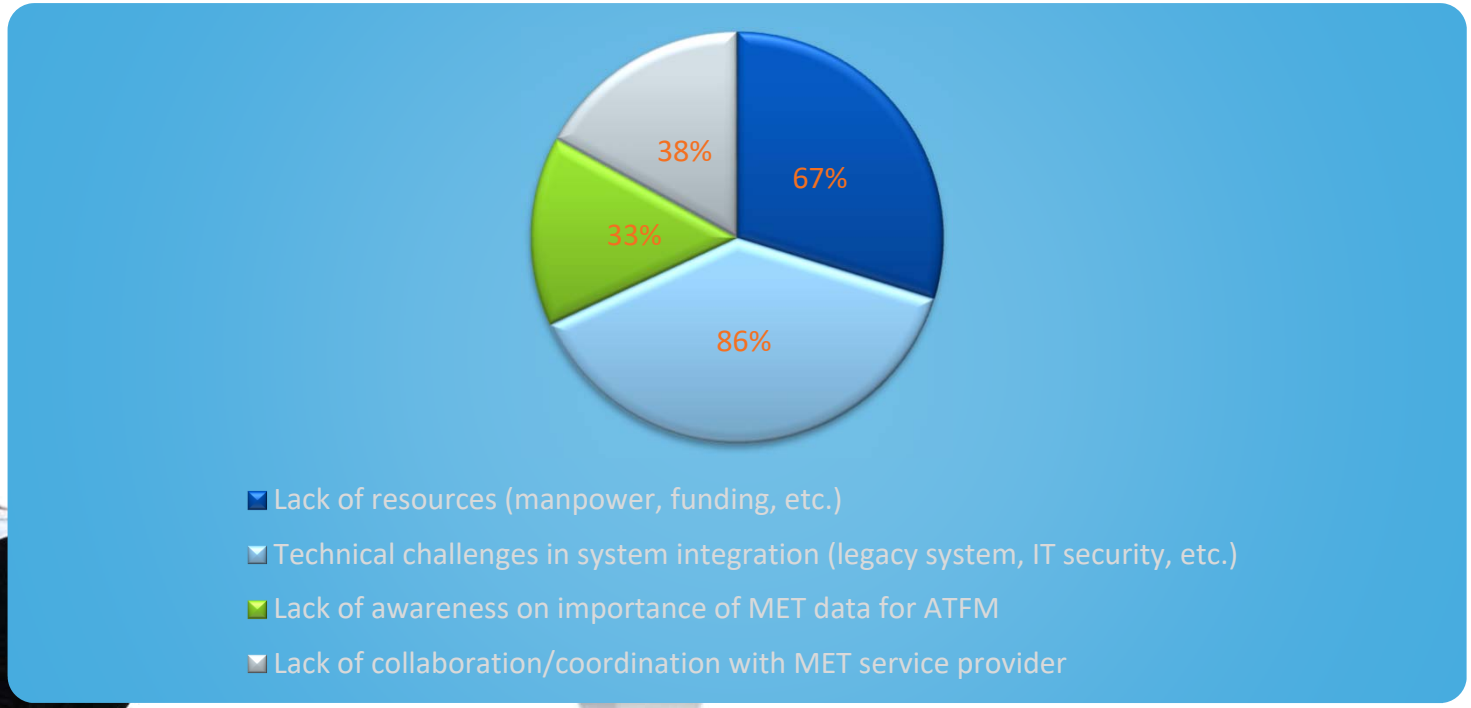
Good to exchange information based on a common info exchange model

Met service Provider should be aware of translation of MET constraints

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

***(For ATM and Airspace Users)***

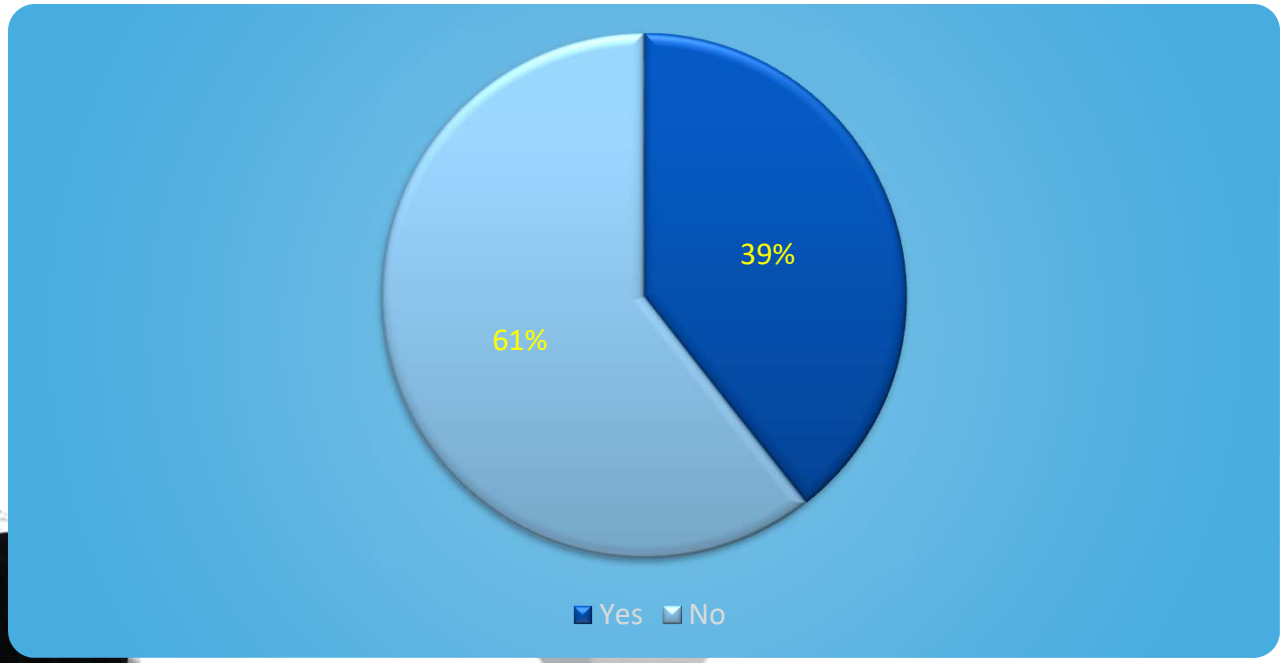
## Challenges in developing, implementing and/or utilising enhanced MET services to better support ATFM operation



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

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

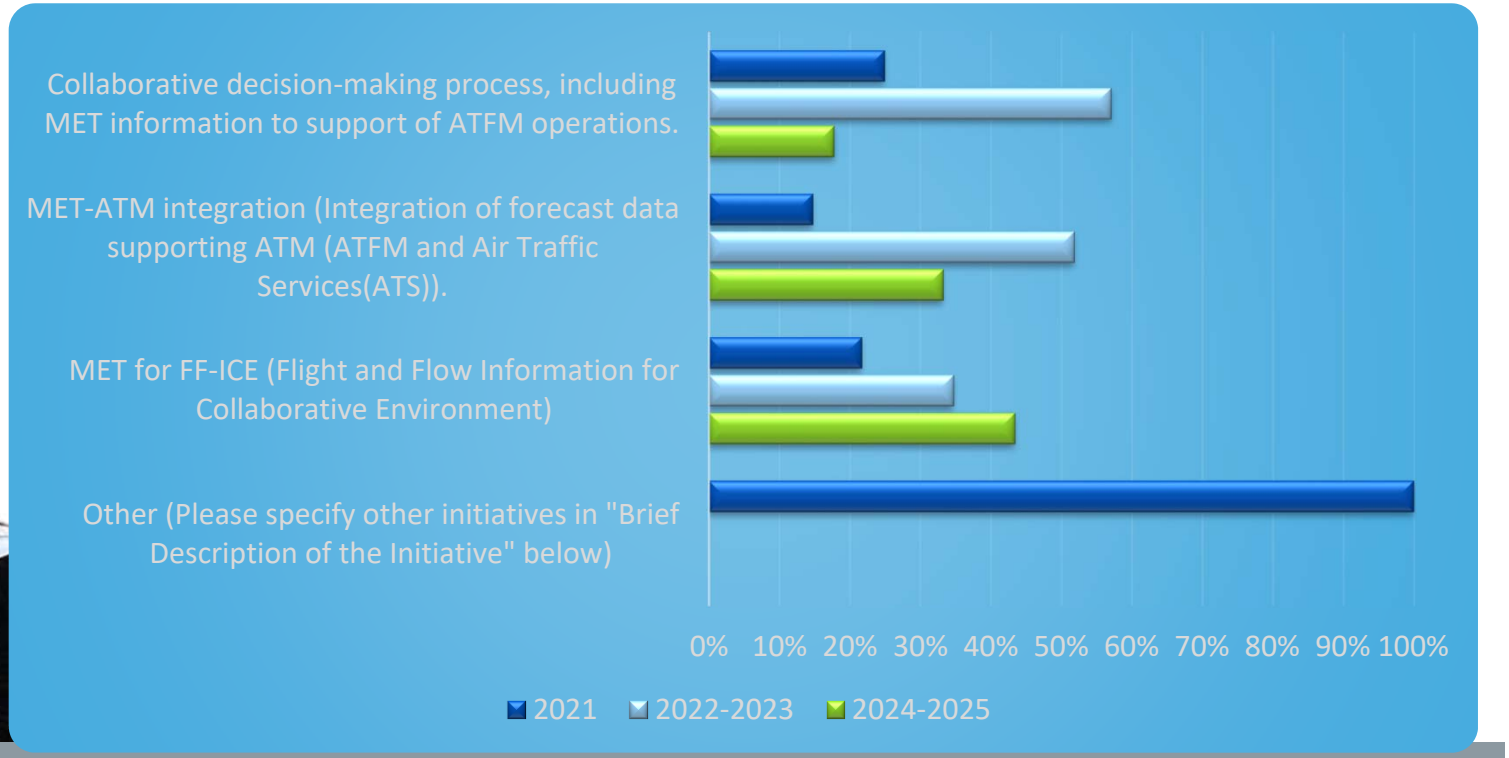
## Are there any established objective rules for automatic quantitative translation from MET constraints to ATFM impact



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

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

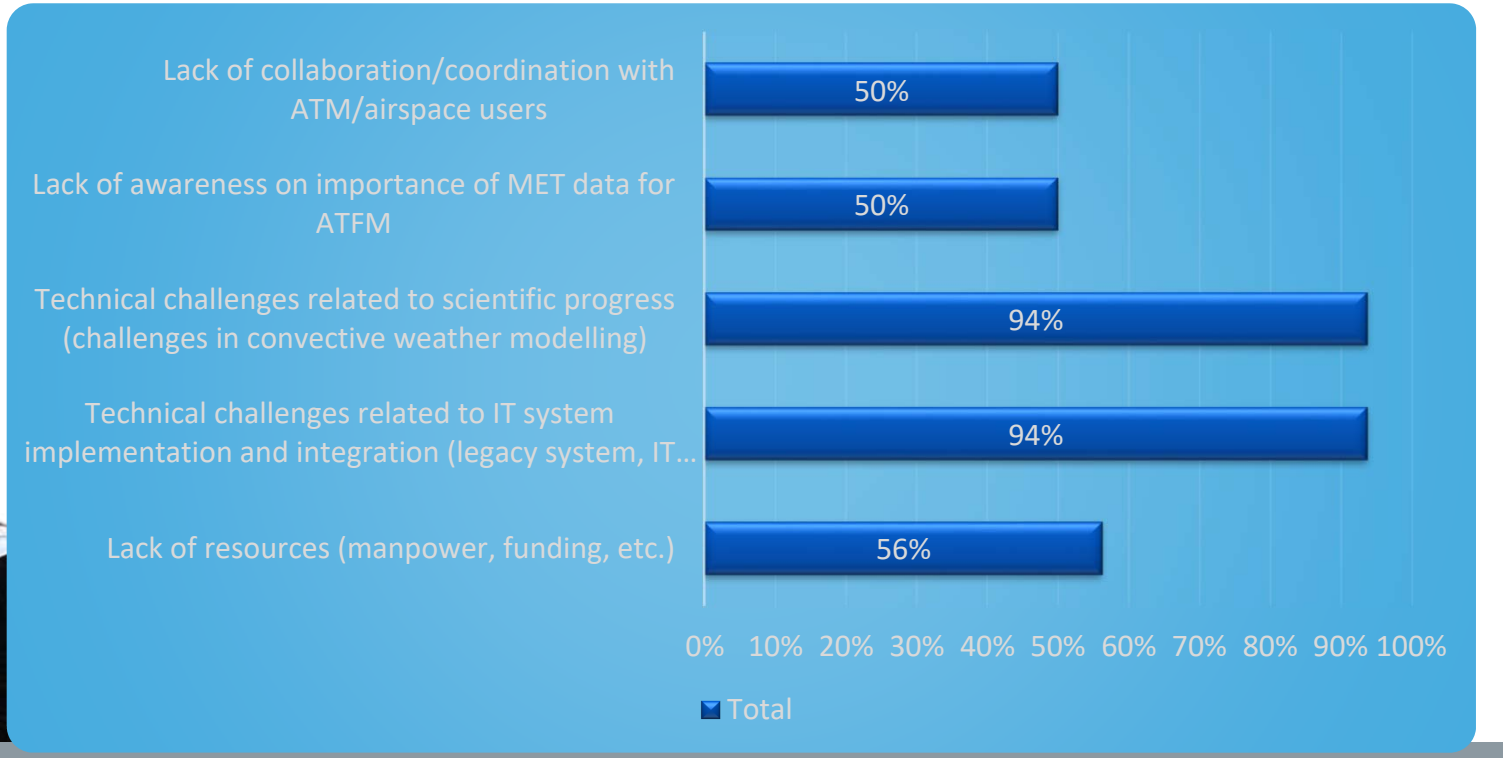
## Initiatives State/Administrative undertake (or will undertake) to enhance MET service provision to support ATFM operations



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

***(For MET)***

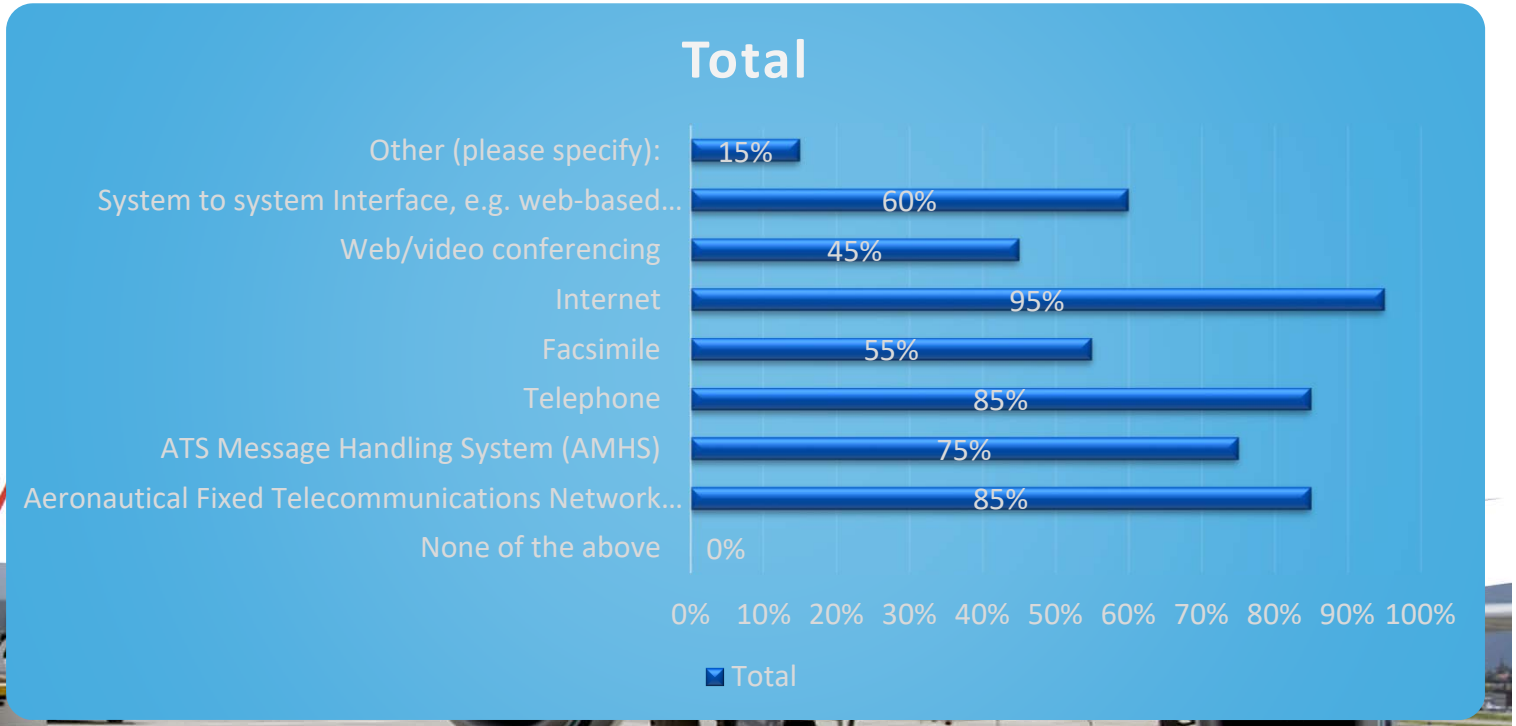
## Challenges Met organization encounter(ed) when developing and implementing enhanced MET services to better support ATFM operation



**Part D – Communication Methods**

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

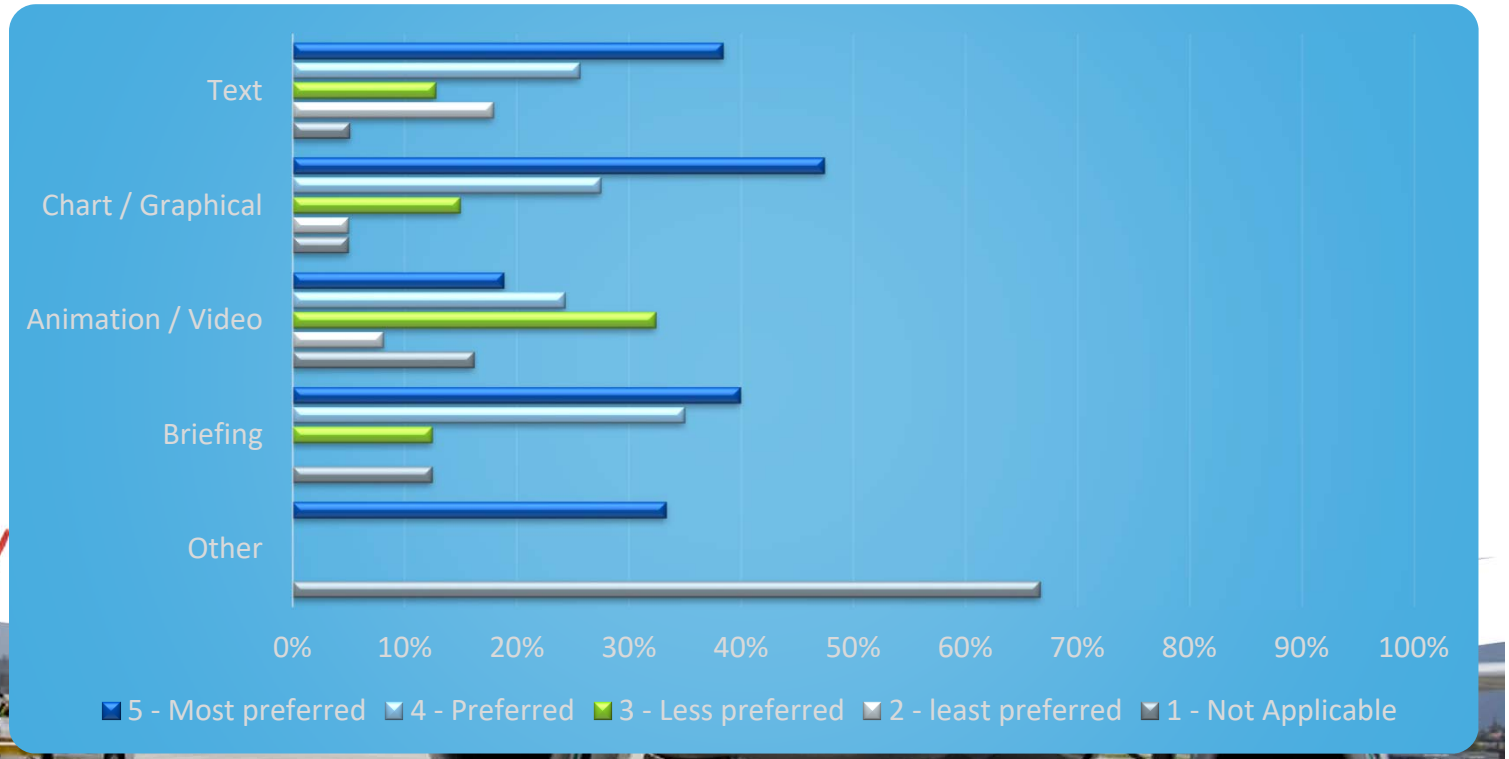
## Mode State/Administration disseminate aeronautical MET information to ATS units, Airspace Users and other stakeholders

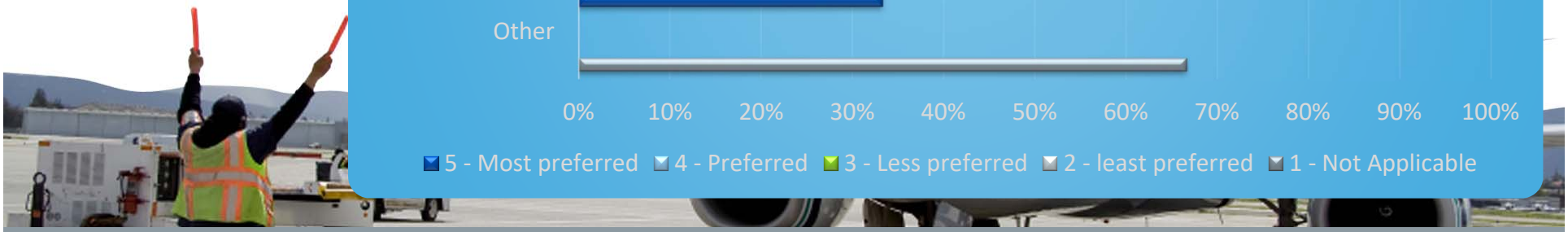


**Part D – Communication Methods**

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

## Most effective means of presenting MET information to support AFTM



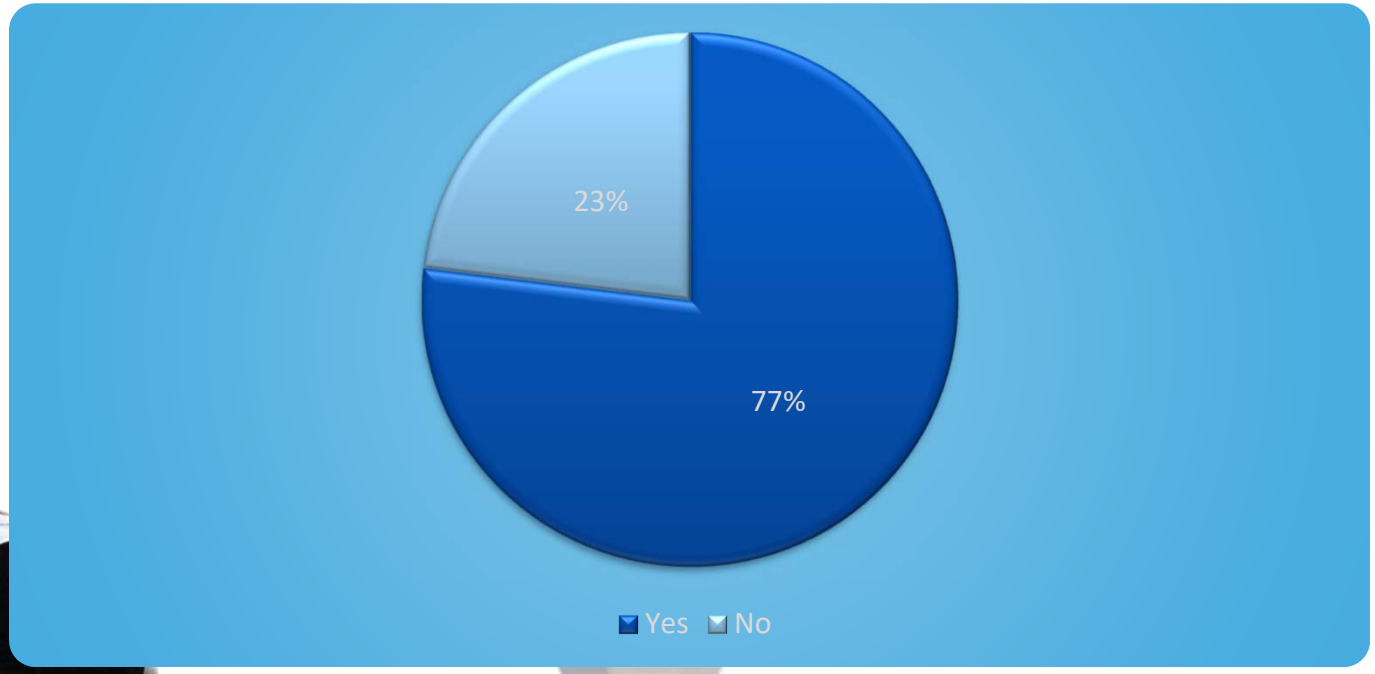



**Part E – Education**

***(For Airspace Users, ATM and MET)***

***39 respondents***

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



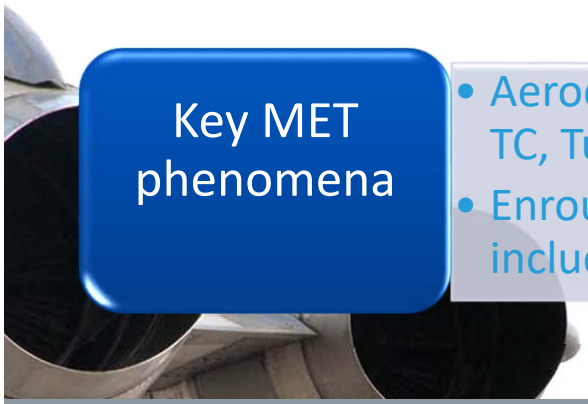
## Key Takeaways

**Legislations/ regulations**

- A few States don't have legislations
- Many States are considering MET INFO as essential part of ATFM
- Many States have implemented ATFM with written agreements

**Key MET phenomena**

- Aerodrome: wind, visibility, QNH and sig phenomena such as TS, TC, Turbulence.
- Enroute - TS, including convective cloud, TC and wind factors, including turbulence



## Key Takeaways

**MET Info and exchange**

- OPMET data still considered very important, some States providing tailored info, in addition.
- Gridded Met Info, such as WAFS, are very important.
- Timeliness and forecast quality - extremely important for effective ATFM
- Some States still not using standard exchange model.

**Challenge and Opportunities**

- Many States have mutual understanding among ATM, MET and airlines.
- Many States face technical and resources challenges.
- Require more guidance.

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THANK YOU