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FUTURE.**

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# COLLABORATION BETWEEN AIR TRAFFIC MANAGEMENT AND AERONAUTICAL METEOROLOGY

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## Overview

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## Introduction

- Since 1954, WMO and ICAO have had working arrangements (Doc 7475)
- Article 28 and 37 of Chicago Convention (Doc 7300) emphasizes the place of MET service and collaboration.
- ATM – Management of Air traffic and airspace, in collaboration with all parties.
- Primary mission of Air Traffic management:
  - Ensuring high levels of safety;
  - Making efficient use of finite airspace;
  - Making efficient use of airport resources

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## Introduction

### Objectives of Air Traffic Services (:

- Prevent collisions between aircraft in the air or on the manoeuvring area of an aerodrome;
- Prevent collisions between aircraft on the manoeuvring area and obstructions on that area;
- Expedite and maintain an orderly flow of air traffic;
- Provide advice and information useful for the safe and efficient conduct of flights; and
- Notify appropriate organizations regarding aircraft in need of SAR and assist such organizations as required

## Air Traffic services and MET Services Organisation

### Units providing air traffic and Search and Rescue services

Aerodrome Control Tower (TWR)

Approach Control Unit (APP)

Area Control Centre (ACC)

Flight Information Centre (FIC)

ATS Reporting office (ARO)

Air-Ground Control Radio station

Rescue Coordination Centres (RCCs)

## Air Traffic services and MET Services Organisation

### Offices, stations, and Centres providing Meteorological service

Aerodrome Meteorological Office

Meteorological Watch Office (MWO)

Aeronautical MET station (AMS)

World Area Forecast Centres (WAFC)

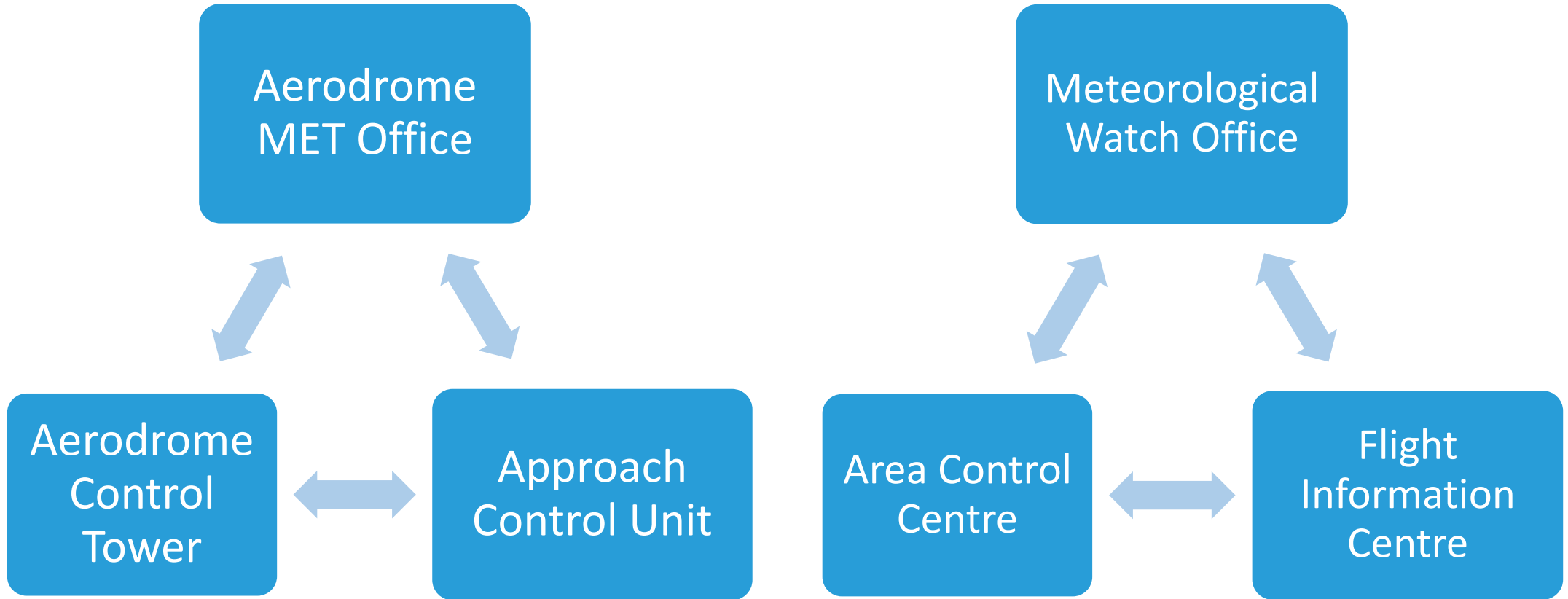
Tropical Cyclone Advisory Centres (TCAC)

Volcanic Ash Advisory Centres (VAAC)

Space Weather Advisory Centres (SWXC)

# Air Traffic services and MET Services Organisation

Linkages between ATS and MET

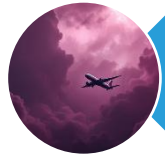


# MET information for ATS and SAR Units

## Information for Tower and Approach Units



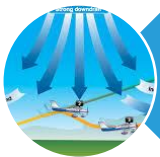
METAR, SPECI, local routine reports; trend forecast.



TAF, Aerodrome warnings.



SIGMET and AIRMET information.



Windshear warnings and alerts.



Information on volcanic eruption and volcanic ash.

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## MET information for ATS and SAR Units

### Area Control Centre and Flight Information Centre

- METAR, SPECI, local routine reports plus trend forecast
- TAF, SIGMET info, AIRMET info
- Upper wind and temperature forecasts
- Significant enroute weather forecast
- Tropical Cyclone and Volcanic Ash advisories
- Information on release of radioactive material

## MET information for ATS and SAR Units

### Information for Communication stations

METAR, SPECI, local  
routine reports;  
trend forecasts

TAF, Aerodrome  
warnings, SIGMET,  
AIRMET info

### Information for Rescue Coordination Centres

Meteorological conditions  
that existed at position of  
missing aircraft

## MET information for ATS and SAR Units

### Communication between ATS units and MET

- Suitable telecommunication facilities to be used;
- communication by direct speech (speed 15 seconds)
- Transit time < 5 minutes for printed communication
- Other forms of communication (data, visual, audio etc)

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## MET information for ATS from sources other than MET

- Control Tower
- Observations from Aircraft in flight – PIREPs/Air reports
  - Through Voice communication,
  - Through datalink communication
- Observations through AMDAR (Aircraft Meteorological Data Relay)

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## Coordination between ATS and MET

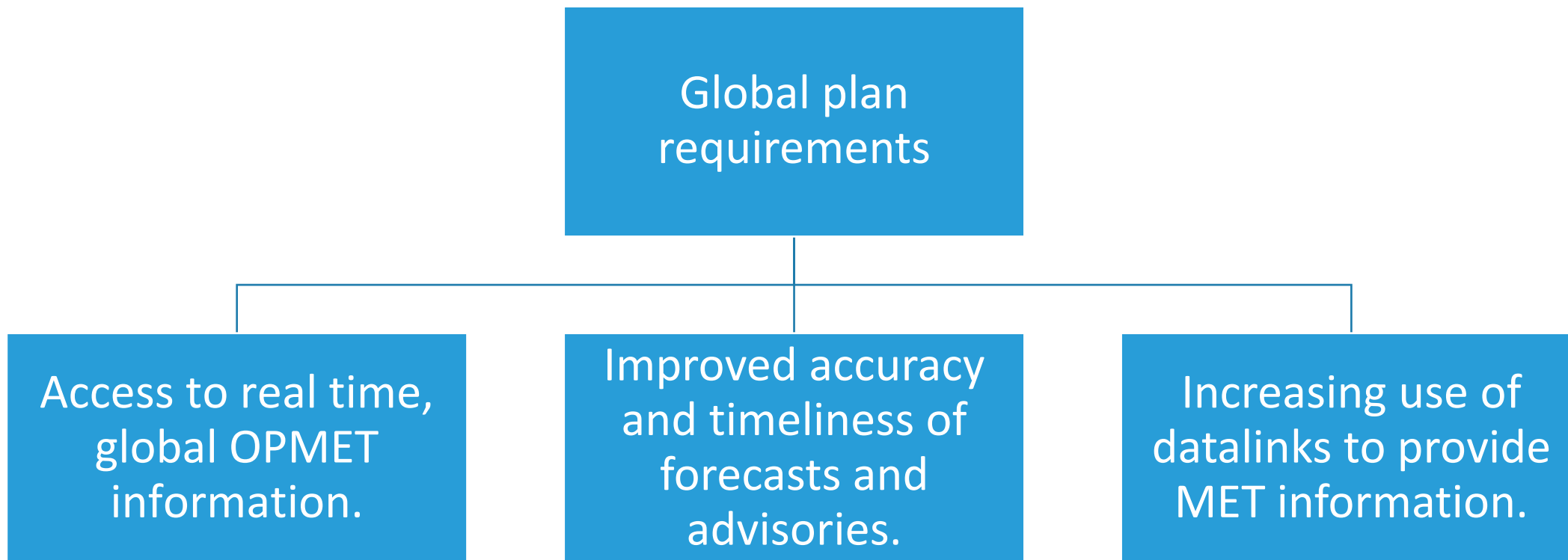
- Administrative – LOAs necessary
  - Provides systematic listing of services and responsibilities for each party;
  - Better understanding of the needs and capabilities of the parties
  - Cater for legal aspects
- Operational;
  - Between ATS and MET personnel

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## Meteorological Support for the ATM system

- Global Air Navigation Plan – Strategy to achieve ATM benefits.
- Objective of Global Plan Initiative for Meteorology – Improve availability of MET information in support of the ATM system.
- Initiative related to;
  - Airspace organization and management
  - Demand and capacity planning
  - Aerodrome operations
  - Airspace user operations

## Meteorological Support for the ATM system



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## Meteorological Support for the ATM system

### Benefits of MET information for the ATM System

- Improved accuracy and timeliness of MET information – Optimize flight trajectory planning and prediction increasing safety.
- Increased availability of shared MET information onboard aircraft allows preferred trajectory to be refined in real time.
- Better identification, prediction and presentation of adverse weather allows more efficient management of its effects.

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## Meteorological Support for the ATM system

### Benefits of MET information for the ATM System

- Improved MET reports and forecasts facilitates optimum use of aerodrome capacity.
- Increased availability of air reports will contribute to improved MET forecasts.
- Minimizes environmental impacts of air traffic.



## Conclusion

- Collaboration between ATM and MET is key in achieving a safer, more efficient, and environmentally sustainable aviation system.
- This collaboration can mitigate the impact of weather events, optimize flight operations, and improve the overall air traffic management system.

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## References

- ICAO Doc. 7300
- ICAO Doc 7475
- ICAO Doc 9377
- Annex 3
- Annex 11

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# Thank You

