Introduction to APAC Regional Guidance for Tailored MET Information and Services to Support ATM

Ad-hoc group (Australia, China, Hong Kong, China, Japan (rapporteur), Republic of Korea, Singapore, Thailand, Vietnam and IATA)

May 2021

ICAO APAC MET/ATM Webinar

Introduction - historical backgrounds -

- MET/R TF 4th meeting, held in 2015 in Tokyo, noted
  - **'ATM-tailored' MET information is required to** comply with the Annex 3.
  - However, the detailed technical specifications for the information are not to be specified in Annex 3.
  - The specific regional guidance material is necessary to assist States in developing and implementing MET support for ATM.
- The meeting agreed to develop the regional guidance material, and ad-hoc group was tasked to develop a draft regional guidance material for tailored MET information to support ATM operations.

Introduction - overview of the Guidance -

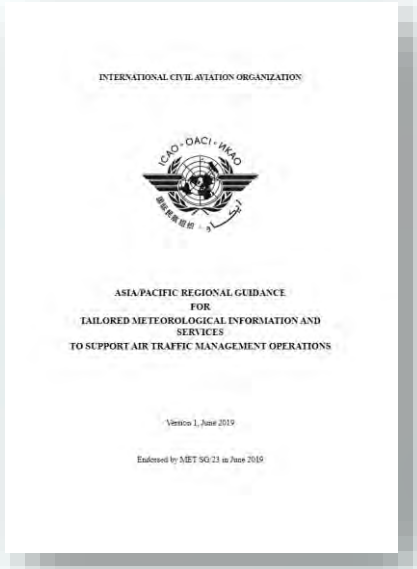
- Purpose:
  Fostering States' implementation/enhancement of MET information and services for ATM within APAC region
- Features:
  - Capturing most of the necessary processes from preparatory to operational phases with stepwise (process-wise) structure
  - Specific examples of MET information and services in some States (Appendix 1) and Operational scenarios (Appendix 2)

Regional Guidance for MET to Support ATM

Contents

1. Introduction
2. Implementation procedures
   - 2.1 Preparatory phase
   - 2.2 Operational phase
3. MET information and services in support of ATM
4. Future progress in MET/ATM services

Appendices


INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA/PACIFIC REGIONAL GUIDANCE
FOR
TAILORED METEOROLOGICAL INFORMATION AND SERVICES
TO SUPPORT AIR TRAFFIC MANAGEMENT OPERATIONS

Version 1, June 2019

Endorsed by MET SG/23 in June 2019

Regional Guidance for MET to Support ATM

Contents

Regional Guidance for MET to Support ATM

1. Introduction

- 1.1 Purpose and overview of the guidance
- 1.2 Development of the regional implementation guide
  - Short explanation of historical background of development of the guidance
- 1.3 Importance of ATM-tailored MET information and services
  - Why MET is required for ATM
- 1.4 Historical backgrounds
  - Details of historical backgrounds

Regional Guidance for MET to Support ATM

Contents

1. Introduction
2. Implementation procedures
   - 2.1 Preparatory phase
   - 2.2 Operational phase
3. MET information and services in support of ATM
4. Future progress in MET/ATM services

Appendices

Procedures described as stepwise manner

Regional Guidance for MET to Support ATM

2. Implementation procedures

2.1 Preparatory phase (processes toward implementation)

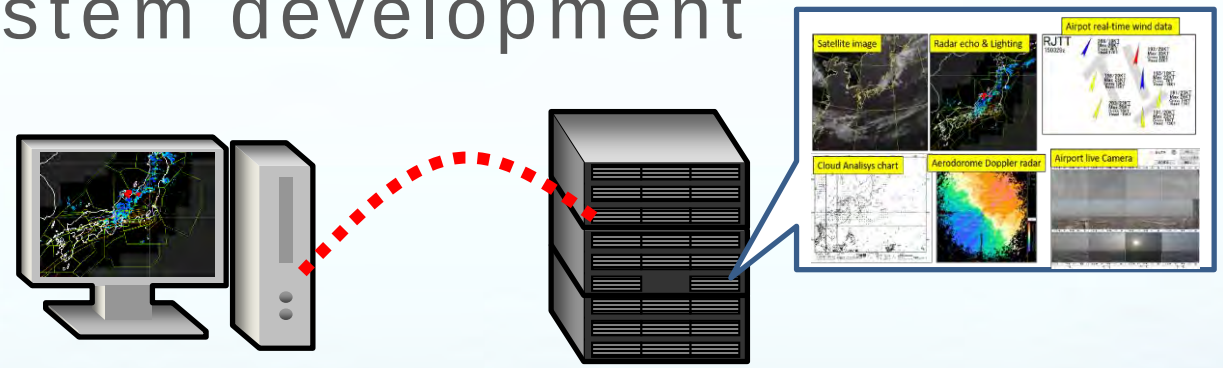
- 2.1.1 Communication channel establishment (between MET and ATM)
- 2.1.2 Service Identification
  - 2.1.2.1 Understanding ATM and aircraft operations
  - 2.1.2.2 Past Events and Case Studies
  - 2.1.2.3 Service proposal (Proposal from MET organization)
  - 2.1.2.4 Service development (Requirements from ATM organization)
  - 2.1.2.5 Service definition

Regional Guidance for MET to Support ATM

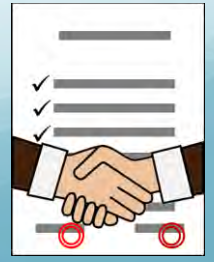
2. Implementation procedures

2.1 Preparatory phase (processes toward implementation)**(Cont'd)**

- 2.1.3 System development



- 2.1.4 Trial run of the system and service
- 2.1.5 Service provision agreement



Regional Guidance for MET to Support ATM

Contents

Regional Guidance for MET to Support ATM

2. Implementation procedures

2.2 Operational phase (processes for continuous improvement)

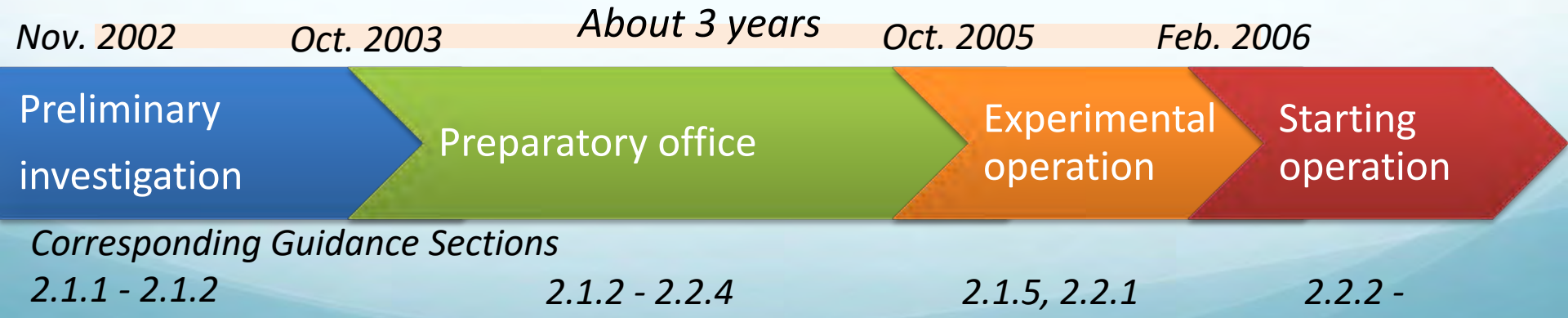
- 2.2.1 Operational trial
- 2.2.2 Provision of MET information and services
- 2.2.3 Verification and evaluation
  - **It is required…**
    - to regularly verify and evaluate its quality to ensure that it practically supports ATM
    - to improve MET information and services
- 2.2.4 Continuous improvement
  - Regular evaluation meetings among relevant parties such as airlines, ATM and MET organizations is one of the basic approaches to continuously improve the implemented information and services.

Times taken from preparatory to starting operation *The case of ATMetC, JMA*

- Oct. 2003
  ATMetC ***"preparatory office"*** was established within the JMA HQ.

- Oct. 2005
  ATMetC was founded within the Office of Aviation Weather Forecasting, JMA HQ, and begun partial operation (briefing and other work) at the Air Traffic Management Center (ATMC).

- Feb. 2006
  All *ATMetC* operations in connection with initiation of full operation begun.



Ref. Establishment of MET Services in Support of ATM (IP/3 MET/ATM Seminar 2013)

Regional Guidance for MET to Support ATM

Contents

Regional Guidance for MET to Support ATM

3. MET information and services in support of ATM

- 3.1 Participation of MET organizations in CDM
  - As CDM is essential component of ATM operations concept, participation in CDM is one of effective ways to support efficient ATM.
- 3.2 Weather briefing in support of ATM
  - Direct weather briefing for ATM officers is rapid and efficient way to inform current and expected weather conditions.

Regional Guidance for MET to Support ATM

3. MET information and services in support of **ATM (Cont'd)**

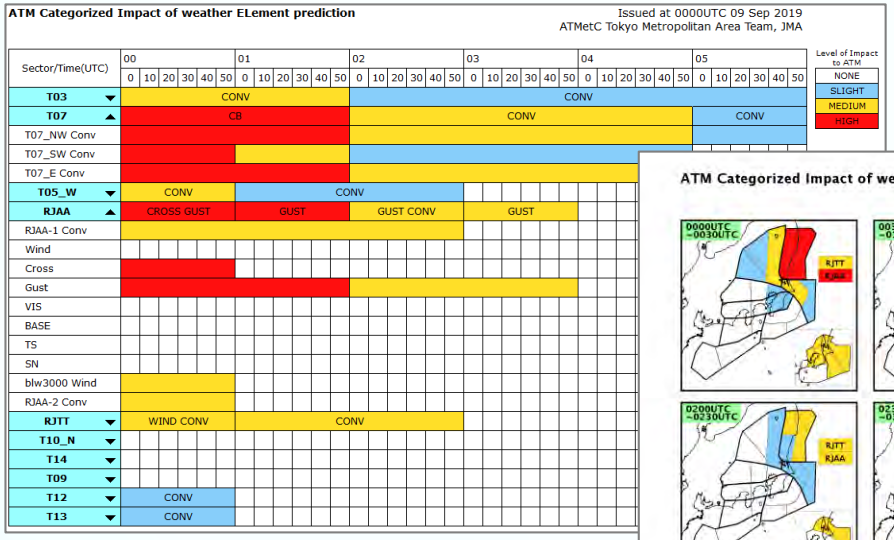
3.3 ATM-tailored meteorological information

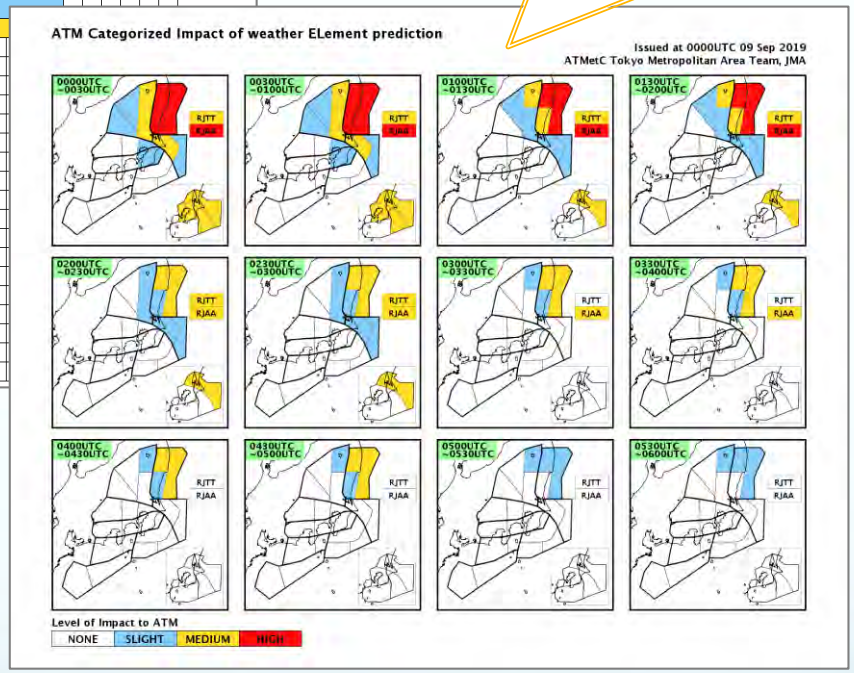
- 3.3.1 Impact-based weather information
- 3.3.2 Information for common situational awareness
  - graphical information for explaining weather phenomena effectively

Impact-based weather information

ATM CIEL

“When” and **“where”** the WX phenomenon affects air traffic flow

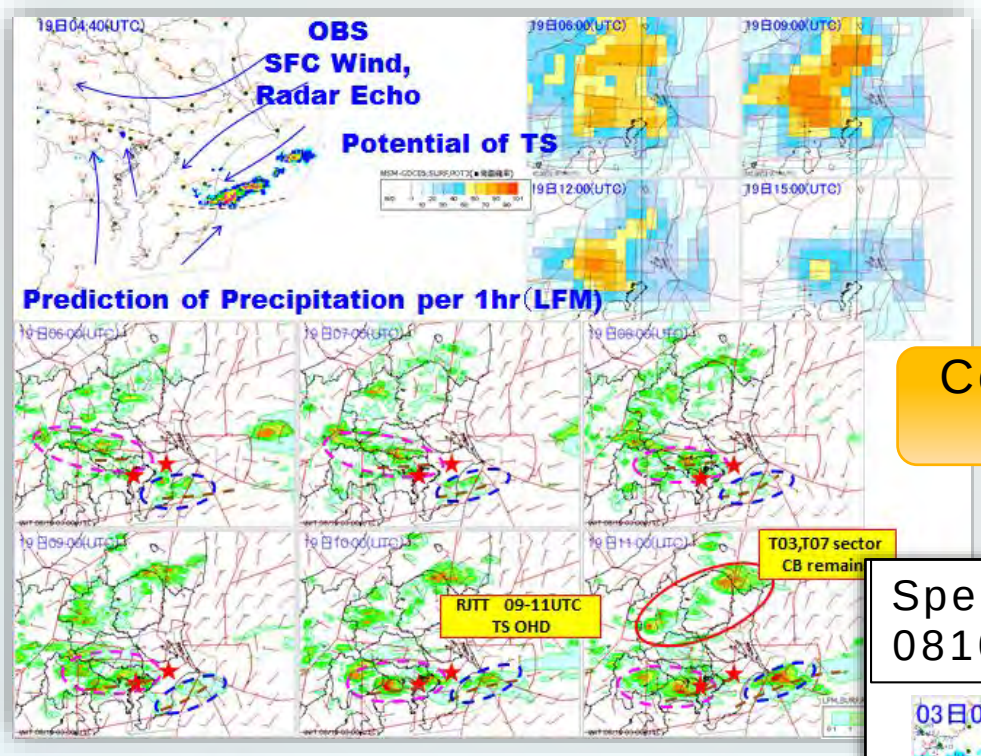




Contents:
Expected impacts of meteorological phenomena on air traffic flow

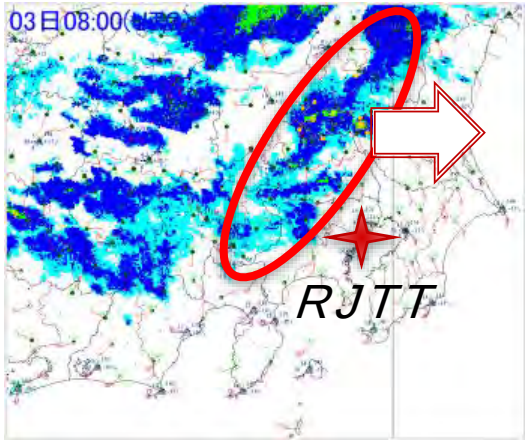
High	Medium	Slight	None

Information for common situational awareness



Comments for current situation and forecast

Special BF TMAT
0810UTC 3th Aug.



TS will get to RJTT 30 min later.

Before then wind is possible to change to S-ly.

Regional Guidance for MET to Support ATM

3. MET information and services in support of ATM (**Cont'd)**

3.4 Information and products developed for other use

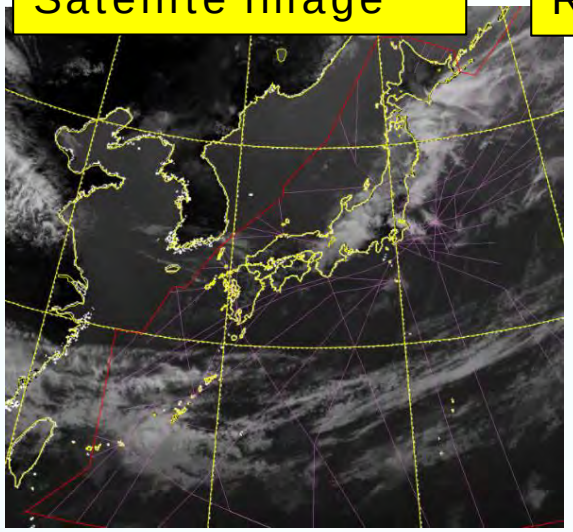
- OPMET information, advisory information (TCA, VAA), WAFC products, etc.

3.5 Means of provision

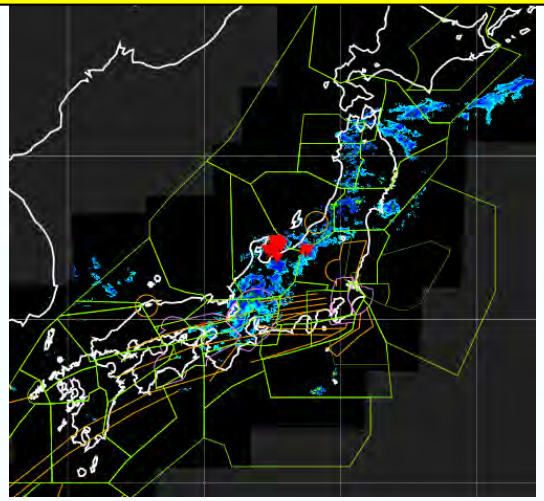
- 3.5.1 Dedicated information sharing system
- 3.5.2 Means of communication

Information and products developed for other use

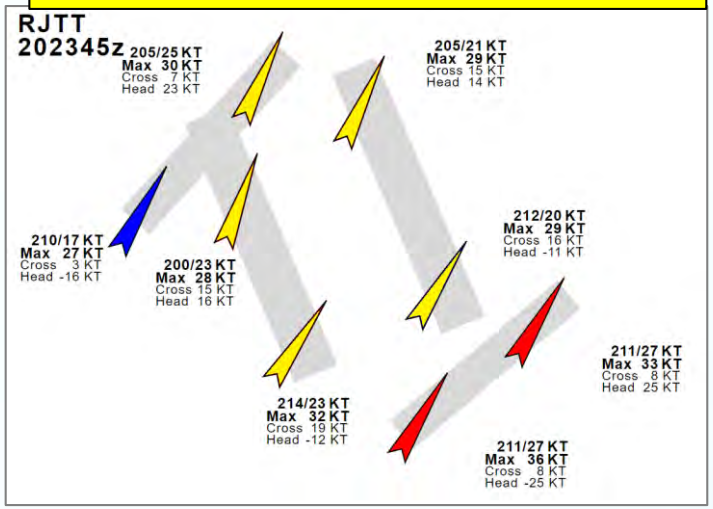
Satellite image



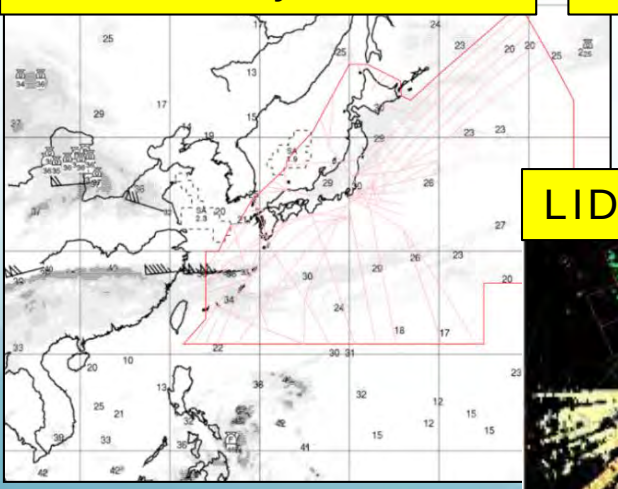
Radar echo & Lightning



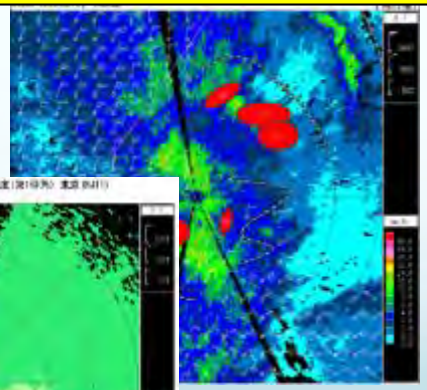
Airport real-time wind data



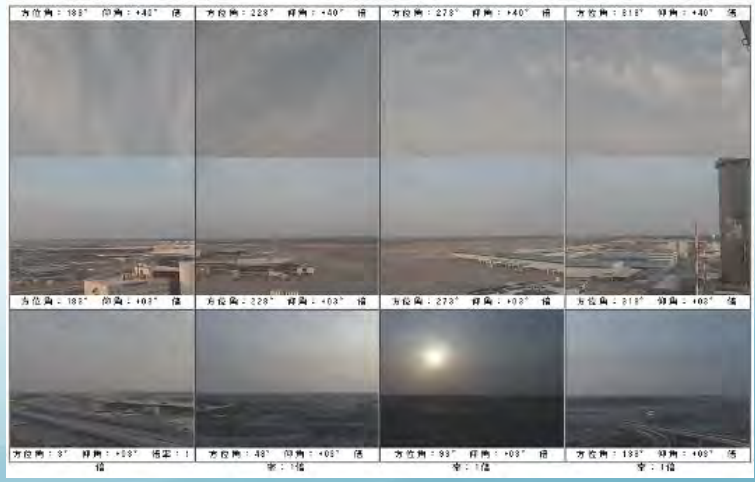
Cloud Analysis chart



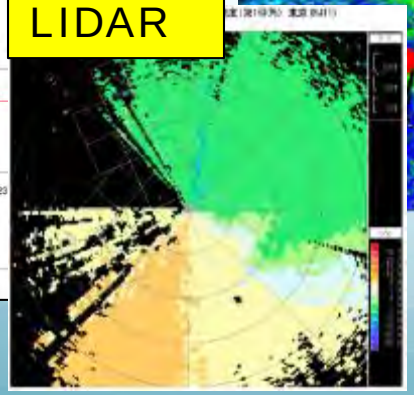
Aerodrome Doppler radar



Airport live Camera

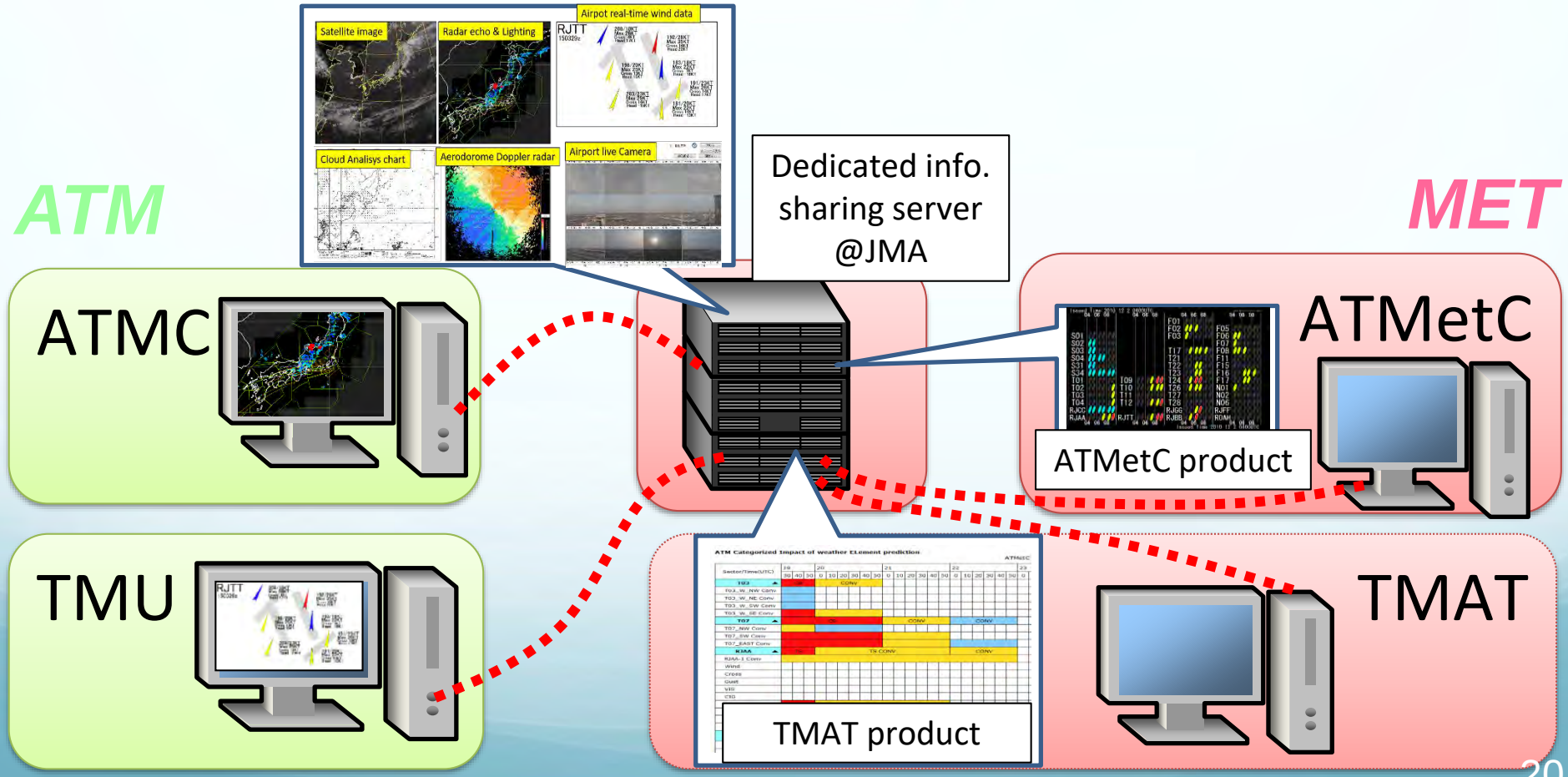


LIDAR



Dedicated information sharing system in ATMetC, JMA

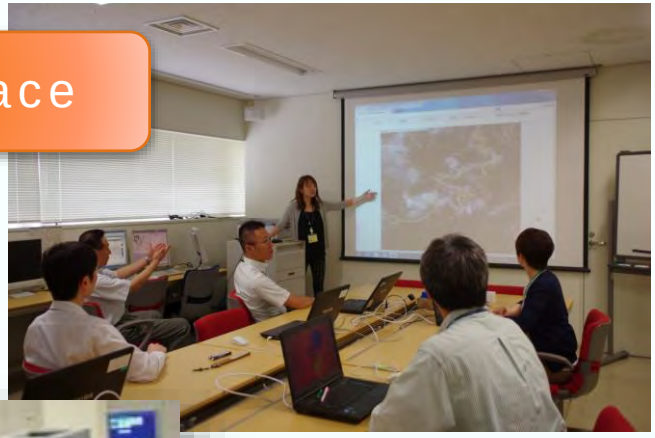
- **ATM officers' desks are equipped with terminals** to access dedicated information sharing systems whenever they need to see weather information.



Means of communication

- Which is suitable and available?

Face to Face



Conference room

Video Conference

MET operation room

ATM operation desk

Online Chat

Telephone

Regional Guidance for MET to Support ATM

Contents

1. Introduction
2. Implementation procedures
   - 2.1 Preparatory phase
   - 2.2 Operational phase
3. MET information and services in support of ATM
4. Future progress in MET/ATM services

Appendices

Regional Guidance for MET to Support ATM

4. Future progress in MET/ATM services

- 4.1 Global Air Navigation Plan (GANP)
- 4.2 Future integration of MET information into ATM decision-making
  - The **“Concept for the integration of Meteorological information for ATM”,** developed by ICAO ATMRPP in coordination with METP, is mentioned.
- 4.3 Next generation air transportation system developments

Regional Guidance for MET to Support ATM

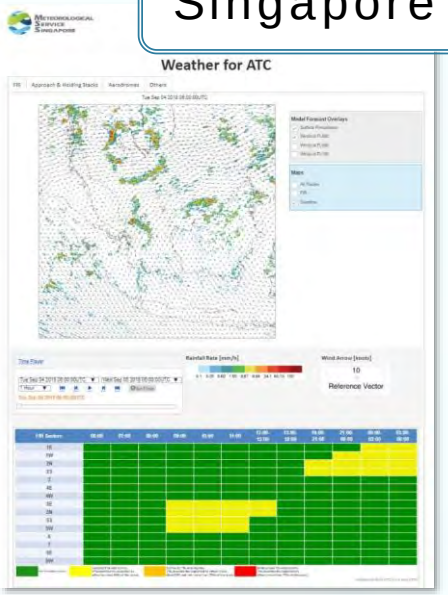
Contents

1. Introduction
2. Implementation procedures
   - 2.1 Preparatory phase
   - 2.2 Operational phase
3. MET information and services in support of ATM
4. Future progress in MET/ATM services

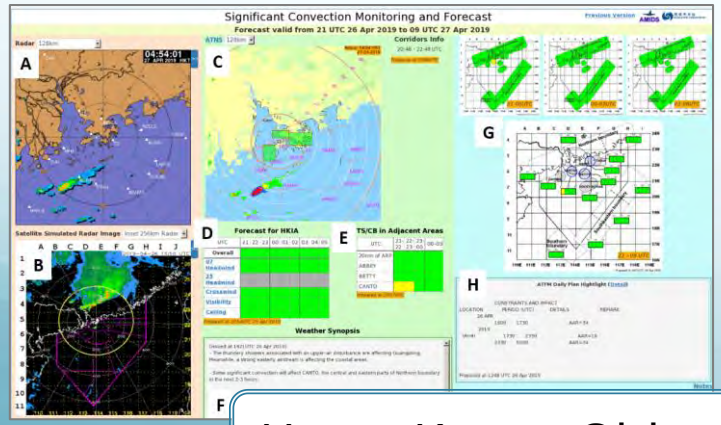
Appendices

Appendices

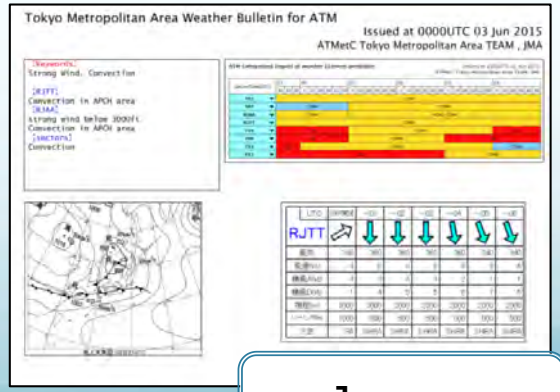
- Appendix 1: Specific Implementation Examples
  - States' **examples** helps States know what kind of information should be provided to ATM
  - Unified format to easily grasp all the contents and compare each example



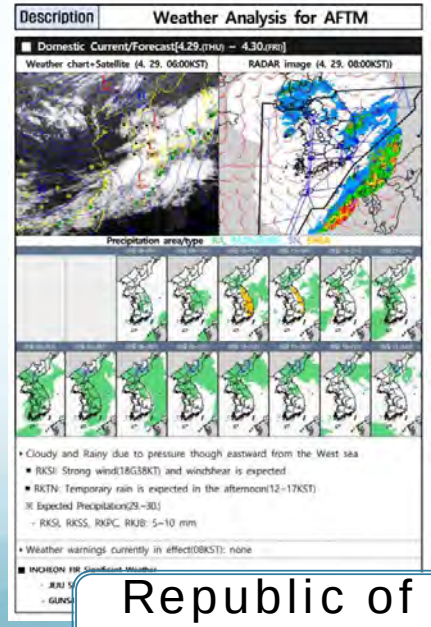
Singapore



Hong Kong, China



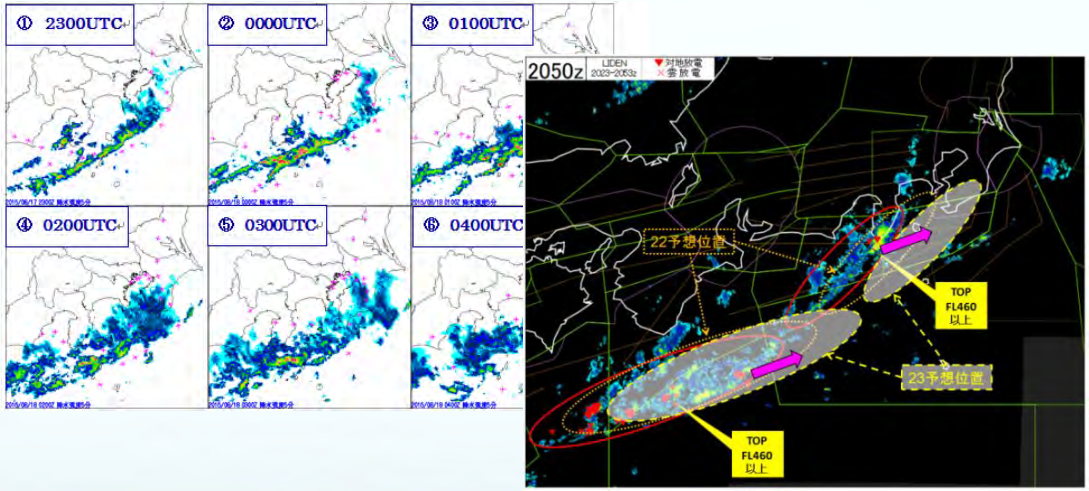
Japan



Republic of Korea

Appendices

- Appendix 2: Operational Scenario – Case of MET/ATM Collaboration
  - Helps States understand how MET information is used for ATM



  - Inputs from WG members to appendices are always welcomed!

Summary

- **The regional guidance aims to foster States'** implementation and enhancement of MET information and services for ATM within APAC region.
- The guidance has concise and readable structure such as;
  - Described in a stepwise manner from preparatory phase to operational phase
  - Specific examples are attached.
- The guidance is available on the ICAO APAC eDocuments site.

https://www.icao.int/APAC/Pages/edocs.aspx