



International Civil Aviation Organization

**FOURTH MEETING OF ASIA/PACIFIC METEOROLOGICAL
REQUIREMENTS TASK FORCE (MET/R TF/4)**

Tokyo, Japan, 2 – 3 July 2015

Agenda Item 4: MET required to support end user system (CDM, AT/ATFM)

**DEVELOPMENT OF REGIONAL GUIDANCE FOR ATM-TAILORED
METEOROLOGICAL SERVICES**

(Presented by Japan)

SUMMARY

In the Asia/Pacific Region, there have been quite limited numbers of States which have implemented dedicated meteorological services in support of ATM. In response to continuously increasing air traffic demands in this Region, effective air traffic flow management and supporting specific MET services are keenly required. This paper presents the necessity of implementation and enhancement of MET information and services for effective ATM, including the development of regional guidance for implementation as a possible option.

1. Introduction

1.1 In Asia / Pacific (APAC) Region, air traffic volume is rapidly increasing and expected to continue to rise at a high rate. Therefore, effective air traffic flow management in the Region has become more important and ATM has been introduced in several States within the Region to ensure efficiency and safety of aircraft operation.

1.2 Weather phenomena that affect air traffic flow, such as thunderstorms, frequently occur in APAC Region. Therefore, not only accurate meteorological forecast or observation, but also appropriate information on possible impacts of significant weather on air traffic flow is highly important for effective ATM operation.

1.3 The revised Global Air Navigation Plan (GANP) with Aviation System Block Upgrade (ASBU) was approved at the ICAO Assembly in September 2013. And in July 2014, ICAO Meteorology Divisional (MET/DIV) Meeting agreed to develop meteorological services for the terminal area in support of ATM for the inclusion in ASBU Block1. The recommendation by the MET/DIV meeting is as follows:

Recommendation 2/10 – Development of meteorological service for the terminal area

That ICAO, in close coordination with WMO, be tasked to:

- a) include meteorological service for the terminal area and other relevant operational requirements in Block 1 and subsequent blocks of the aviation system upgrade methodology to highlight potential related impacts on air traffic flow in consideration of air traffic control and air traffic management (ATM);
- b) develop ATM-tailored meteorological service for the terminal area to meet future ATM requirements identified by the *Global Air Navigation Plan* (Doc 9750) and reflect the appropriate functional and performance requirements in the relevant provisions, noting outcomes from ICAO expert groups on meteorology, ATM and flight operations;
- c) develop guidance on verification methodology toward the continuous improvement of meteorological information to ATM; and
- d) integrate the information concerning meteorological service for the terminal area into the future system-wide information management environment underpinning the future globally interoperable ATM system.

1.4 Also, in APAC Region, the APAC Seamless ATM Plan was approved at APANPIRG/24 in September 2013. For the achievement of the goals of the plan, provision of ATM-tailored meteorological services should be considered as one of the important issues in the Region.

2. Discussion

2.1 As mentioned above, the needs for implementation and enhancement of ATM-tailored meteorological services become increasing in APAC Region, in accordance with recent high air traffic volume and progress on State's implementation of ATM.

2.2 JMA established the Air Traffic Meteorology Center (ATMetC) just ten years ago, in 2005. Since then, ATMetC has been providing dedicated meteorological information and services to the Air Traffic Management Center (ATMC) of the Japan Civil Aviation Bureau (JCAB). (See MET/ATM Seminar 2013 IP/3.)

2.3 ATMetC has developed and enhanced its services in consultation with ATMC by the followings;

- Study on the impact of weather condition on the air traffic flow
- Identification of demands from ATMC regarding meteorological information, such as lead time and temporal resolution
- Design of the contents and format of ATM-tailored meteorological information

2.4 For meteorological services in support of ATM, through long-years operational experience in ATMetC, the following type of meteorological information and services are considered helpful in the effective support for ATM.

- Provision of meteorological information developed in consultation with ATM service provider, which (if possible) can indicate possible impact on air traffic flow
- Sharing of relevant meteorological information among ATM stakeholders to obtain common situational awareness
- Precise briefings for ATM service provider on weather conditions which would possibly affect air traffic flow, in consideration of the actual air traffic.

2.5 Especially, ATMetC has found that the consulting services like the followings are very effective for efficient ATM in addition to provide accurate meteorological information.

- Regular briefings in consideration of daily schedule of ATMC operation
- Extra briefings provided whenever significant weather is expected to occur
- Briefing of weather impact at the CDM conference with ATM related parties

2.6 In addition, as the air traffic volume in the airspaces around the most congested airports in Japan, such as Tokyo International Airport and Narita International Airport, has been increased JCAB established the Traffic Management Units (TMUs) to manage increasing number of aircraft in the airspace over the Tokyo Metropolitan Area. In 2014, JMA also established the Tokyo Metropolitan Area Team (TMAT) as a branch of ATMetC in order to support TMUs to secure efficient and safe air traffic flow in the air space, by providing more temporally/spatially precise meteorological information and briefings than those of ATMetC. (See MET/ ATM Seminar 2015 IP/7.)

3. Recommendation

3.1 In consideration of the increasing requirement for the implementation and enhancement of ATM and supporting meteorological information in APAC Region, regional guidance for the implementation of ATM-tailored meteorological information and services may need to be developed in order to help States in the Region implement and operate effective ATM. The following knowledge that ATMetC has acquired through its long-years experience should be used as a reference for the development of regional guidance.

- Procedure to determine the contents and format of ATM-tailored meteorological information in close coordination with ATM service provider
- Technological background and systems/infrastructure necessary for providing such information
- How to estimate possible impacts of weather condition on air traffic flow
- Mutual operational collaboration with ATM service provider

4. Action by the Meeting

4.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss actions for the enhancement of implementation of MET services in support of ATM in the region, such as the development of regional guidance for ATM-tailored meteorological services.
