



International Civil Aviation Organization

**The Third Meeting of the APANPIRG ATM Sub-Group
(ATM /SG/3)**

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Agenda Item 6: AOP, MET, AIM, SAR

MET-ATM COLLABORATION: DEVELOPING AND HARMONISING REQUIREMENTS

(Presented by Hong Kong China, Japan and Singapore)

SUMMARY

This paper encourages the ATM community, including Air Navigation Service Providers (ANSPs) and Civil Aviation Authorities (CAAs), to engage the aeronautical meteorology (MET) community to develop and harmonise requirements for ATM-tailored MET products. The platform for ATM to engage MET is not only limited those facilitated by ICAO. ANSPs and CAAs can engage MET at national and sub-regional level. The engagement of MET could be guided by a collaboration framework that provides a comprehensive scope to enhance MET support for ATM. Beyond this, ANSPs and CAAs could also push for greater coordination and collaboration between MET service providers which contributes to safety and efficiency of air navigation in the region.

1. INTRODUCTION

1.1 As air traffic movements in the Asia Pacific region continue to grow in the years to come, the need for ATM and Aeronautical Meteorology (MET) communities to work together becomes an important factor to support a safe and efficient environment for airspace users to operate in.

1.2 Air Traffic Service (ATS) and Air Traffic Flow Management (ATFM) are two of the three elements of ATM that rely heavily on MET. Timely and accurate dissemination of weather information is critical to support the ATS operations to ensure air traffic controllers and pilots can make effective decisions when the airport or portions of airspace are affected by adverse weather conditions. Air Traffic Flow Management (ATFM) to balance demand and capacity would entail proactive planning that is supported by accurate MET forecast within the planning horizon for ATFM.

1.3 ICAO recognised that the advancement of MET is one of the key elements to enable the aviation industry to face the future challenge. This can be seen with the incorporation of MET elements in the latest edition of the ICAO Global Air Navigation Plan (GANP, Doc 9750) and the Aviation System Block Upgrade (ASBU) methodology. In this regard, it is essential for the ATM community, which includes Air Navigation Service Providers (ANSPs) and Civil Aviation Authorities (CAAs), to engage the MET community in developing and harmonising requirements for MET to support ATM.

2. DISCUSSION

Platforms for ATM to Collaborate with MET

2.1 The various contributory bodies under the MET Sub Group of APANPIRG, such as the MET Requirement Task Force (MET/R TF) and the MET Hazard Task Force (MET/H TF), provide an excellent platform for ANSPs and CAAs to engage the MET community. Good participation of ATM experts at these events helps to enrich discussions and make requirements clearer to the MET community. In addition, following APANPIRG Conclusion 25/48, ICAO, in coordination with World Meteorological Organisation (WMO), conducted the MET/ATM Seminar and, successively, the fourth Meeting of the MET/R TF were held in Tokyo, Japan, from 29 June to 3 July. At the Seminar, experts from both ATM and MET had a good opportunity to share ideas and experience on the developments in MET to support ATM operations. The MET/R TF reviewed the outcomes of the Seminar and discuss future actions for the implementation and enhancement of MET services supporting ATM, including the development of regional guidance material on the implementation of MET support to ATM.

2.2 Beyond these existing platforms which allow ATM to engage MET, ANSPs and CAAs could also explore engaging the MET community at a national and sub-regional level. Engagement of MET services at the national level could form as part of a larger effort for the ANSPs and CAAs to progress with ASBU through a joint development of roadmap to enhance ATM. At the sub-regional level, engagement of MET could be achieved through focus of discussing MET related matters at bilateral and multilateral ATM Coordination forums. Participation of MET service providers at these forums would then help to create awareness on the challenges related to delivering ATM.

MET-ATM Collaboration Framework

2.3 In pursuing collaboration with MET service providers, it would be worthwhile for ANSPs and CAAs to develop a Collaboration Framework. Such a framework provides for a more comprehensive collaboration which is not limited to basic provision of MET services, but also establish a commitment for both parties to continuously engage one another and also plan for future requirements. An example of a Collaboration Framework for the future ASBU environment is shown in Figure 1 below.

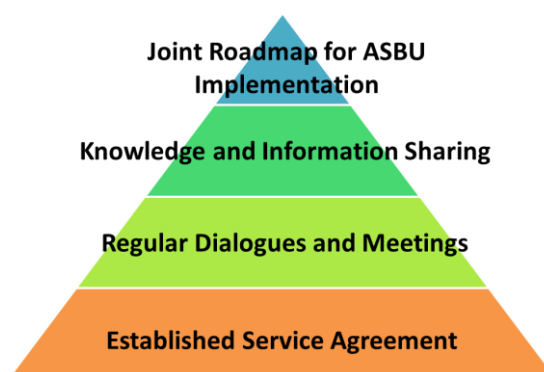


Figure 1. An example of a Collaboration Framework between an ANSP and MET Service Provider

2.4 The foundation of the collaboration is the service agreements for the various types of MET products that are required to support ATM. Beyond the MET products to comply with ICAO Annex 3 requirements, such agreement could also define other ATM-tailored MET products such as graphical SIGMET, regular MET brief to air traffic controllers, etc.

2.5 Regular dialogues and meetings with the MET service provider is an integral process of collaboration. Such engagements provide an opportunity for ANSP to provide feedback and inputs on MET products with a view to develop enhancements. It also allows both parties to understand the challenges and limitations that each organisation face. These could then help to galvanise both parties to work towards a reasonable solution.

2.6 At the operational level of ATS and MET forecasting, knowledge and information sharing between air traffic controllers and meteorologist could take place through seminars and exchange of technical briefs. This encourages close working relations between the two professions which could also spur innovations and development of solutions from a ground up approach.

2.7 At the apex of this framework; a common vision for the two organisations to work towards. The ICAO GANP and the ASBU methodology serve as a good guide for both parties development of joint roadmap to progress with the MET elements in ASBU. The joint roadmap enables both parties to make the necessary preparation in committing resources to implement the various modules in the block-upgrades.

MET-MET Coordination and Data Sharing

2.8 The cross-boundary nature of ATM would mean that close coordination between ANSPs ensures that flights traverse across boundaries in a safe and efficient manner. Close coordination between MET service providers would also contribute to enhancing safety and efficiency. Such coordination will help to align the output of graphical SIGMET for weather phenomenon that straddles across boundaries.

2.9 The future SWIM environment under ASBU presents an opportunity for MET service providers to collaborate and share real-time observation data to support ATFM and future ATM initiatives such as Trajectory Based Operations. Data sharing through collaboration is not a foreign concept in the ATM community. For instance, ANSPs in the recent years have been sharing real-time Automatic Dependent Surveillance-Broadcast (ADS-B) data to enhance safety and efficiency. MET service providers could similarly endeavour to do the same in sharing real-time MET data to enhance the accuracy of forecast.

2.10 The sharing of real-time MET data can eventually form a composite picture for the region and serve as an important tool for ATM applications such as ATFM. Such product will have widespread benefit that is not only limited to ATM but also enhance the situational awareness of aircraft operators, pilots and airspace users.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the importance for the ATM community to engage in collaborations with MET;
- b) take advantage of existing platforms to develop closer collaboration between ATM and MET to enhance the identification of ATM requirements for MET community;
- c) explore other means to engage and collaborate with MET at national and sub-regional level;
- d) encourage States to engage their relevant MET agencies to develop ATM-tailored MET product to enhance ATM service;
- e) encourage coordination between MET Services and expand the scope of MET data sharing to enhance support for ATM; and
- f) discuss any relevant matters as appropriate.

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