



ICAO

*International Civil Aviation Organization***WORKING PAPER****Asia and Pacific (APAC)****Thirteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/13)**

Bangkok, Thailand, 22 to 26 April 2024

Agenda Item 3: Collaboration between MET and ATM stakeholders**MET INFORMATION NEEDED TO SUPPORT THE ELEMENTS OF THE APAC SEAMLESS ANS PLAN**

(Presented by MET/R WG Ad-hoc Group)

SUMMARY

This paper presents the approach in identifying the MET requirements to support the elements of APAC Seamless ANS Plan for discussion and invites the meeting to consider the proposal to integrate the information into existing regional guidance material for better information management.

1. INTRODUCTION

1.1 Meteorological (MET) information continues to be one of the key enablers to support a safe and efficient air traffic. With the expected growth in the air traffic, the integration of MET and Air Traffic Management (ATM) has therefore become increasingly important to ensure operational efficiency and to develop optimised decision support tools.

1.2 An ad-hoc group comprising of Australia, China, Hong Kong China, Japan, Singapore (rapporteur), and Thailand was formed to analyse the MET information/services required to support the APAC Seamless ANS Plan (ASAP) under the Deliverable 2¹ of the MET/R WG work plan. The ad-hoc group presented the analysis to ATM SG/5 after seeking feedback and comments from MET/R WG/6. Subsequently, MET/R WG/7 noted that the analysis has completed and any further work required (pending advice from ATM/SG and MET SG) on this Deliverable would be updated in the MET/R WG workplan.

1.3 Following the discussion in MET/R WG/11, the MET/R Chair and ICAO Secretariat updated the MET/R WG workplan to further develop the analysis in consideration of the outcomes of the ICAO review of the Global Air Navigation Plan (GANP) 2019. It was consequently agreed to delay the analysis to MET/R WG/13 as there are updates² to the ASAP, which would be endorsed by APANPIRG/35 after seeking further consultation with States and relevant subgroups.

1.4 This paper presents the approach, as well as the results, in analysing the MET

¹ Deliverable 2: Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ANS Plan

² Updates includes new alignment of timeline to several of GANP elements

information/services required to support the elements of ASAP for review and in preparation to draft regional guidance material for MET service provision.

2. DISCUSSION

2.1 The ASAP was developed with references to the Global Air Navigation Plan (GANP), Global ATM Operational Concept and Global Aviation Safety Plan (GASP). Together with other regional materials, it provides a reference to regional planning to facilitate APAC Seamless ANS operations. The ASAP is expected to be implemented in several phases with recommended timeline.

2.2 The ASAP included the Aviation System Block Upgrade (ASBU) and regional elements as part of its foundation. These elements are prioritised in accordance with the definition in the Appendix A. The MET information/services required to support the ASAP could then naturally be identified from these elements. With the focus on requirements to bring most benefit to the regional and to achieve ANS required globally, the ad-hoc group has mapped³ the ASBU AMET elements required to support the Priority 1 elements of ASAP as shown in the Appendix B. The mapping showed that implementation of AMET-B0/1-4⁴ within ASBU is sufficient to support and fulfil the requirements from the Priority 1 elements of the ASAP.

2.3 The ad-hoc group proposed to integrate the above information into appropriate regional guidance material that is currently available, for example the *APAC Regional Guidance for tailored MET information and services to support ATM*. This helps to limit the number of regional guidance material, leading to better information management as well as less confusing and tedious for the users to keep abreast of the development in the region.

3. CONCLUSION

3.1 Future work could include similar analysis to identify the MET requirements to support Priority 2 elements of the ASAP to reap potential benefits from implementing the recommended advanced technologies as well as to update the MET requirements to support elements of ASAP when there are revisions to ASBU and/or ASAP.

4. ACTION BY THE MEETING

4.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss and adopt the proposed approach in paragraph 2.2 to identify the MET requirements to support the elements of ASAP; and
- c) consider the proposal in paragraph 2.3 to integrate the information on MET requirements to support ASAP elements into appropriate regional guidance material that is currently available for better information management; and
- d) discuss any relevant matters as appropriate.

³ The mapping is done based on the current version of ASBU (1st version) and ASAP (3rd version)

⁴ Refer to ASBU AMET elements and GANP for more information.

APPENDIX A

Based on Paragraph 5.6. of ASAP, the elements are prioritised according to the following definition:

- Priority 1: critical upgrade assignment based on whether the implementation of an element could bring most benefit to the region or regional upgrade by States and is essential to achieve the service level required globally;
- Priority 2: recommended upgrade for those elements which would bring benefits to the region and generally to be implemented from 2022, but States are encouraged to implement earlier if beneficial; and
- Priority 3: assigned to those elements which may not be universally implemented in the Asia/Pacific Region.

APPENDIX B

Mapping of Priority 1 Elements of ASAP to ASBU elements under AMET:

| ASAP Elements (Priority 1) | Description (paragraph on PERFORMANCE IMPROVEMENT PLAN, ASAP) | ASBU Element | Required ASBU AMET Element |
|---|--|---------------------|---------------------------------------|
| Aeronautical Meteorology | Meteorological observations, forecast, warning, climatological and historical products, and dissemination (PASL ⁵ 7.41) | AMET | AMET-B0/1 – 4 |
| Aeronautical Information Management | Provision of quality-assured digital aeronautical data and information, including AIP, terrain and obstacle, aerodrome and instrument flight procedure data sets (PASL 7.40) | DAIM-B1/1 – 6 | N.A |
| Airport CDM | Airport Collaborative Information Sharing, ACIS (PARS ⁶ 7.3) | ACDM-B0/1 – 2 | AMET-B0/1 – 2 |
| ANSP human and simulator performance (Regional) | (PASL 7.43) | Nil | N.A |
| ATS Inter-facility Datalink Communication | Automated basic AIDC (PASL 7.26) | FICE-B0/1 | N.A |
| Ballistic launches/space re-entry management (Regional) | (PASL 7.45) | Nil | N.A |
| Civil-Military Special Use Airspace (SUA) management (Regional) | (PARS 7.16) | Nil | N.A |
| Civil-Military strategic and tactical coordination (Regional) | (PASL 7.44) | Nil | N.A |
| Core data communication | VDL Mode O/A, AMHS (PASL 7.25) | COMI-B0/3, 7 | N.A |
| Direct and Free Route Operations | Direct routing, Airspace Planning and FUA, Flexible Routings, and basic conflict detection and conformance monitoring (PASL 7.29, 7.31, 7.36) | FRTO-B0/1 – 4 | AMET-B0/1, 2 and 4 |

⁵ PASL: Preferred ANS Service Levels

⁶ PARS: Preferred Aerodrome/Airspace and Route Specifications

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| Enhanced SAR systems (Regional) | (PASL 7.42) | GADS-B1/1 – 2 | N.A |
| Ground-based Surveillance | ADS-B, MLAT, SSR-DAPS (PARS 7.8, 7.11, PASL 7.26, 7.28, 7.30) | ASUR-B0/1 – 4 | N.A |
| Network Operations | Initial integration of ASM with ATFM, Collaborative Network Flight Updates, Basic Network Operation Planning and Initial Airport/ATFM slots, A-CDM Network Interface and Dynamic Slot Allocation (PASL 7.38) | NOPS-B0/1 – 5 | AMET-B0/1 – 3 |
| Performance-based Navigation Approach Procedures | Basic PBN SID and STAR procedures, PBN non-precision approaches (PARS 7.4, 7.5, 7.10, 7.13, 7.14, 7.21) | APTA-B0/1 – 2 | AMET-B0/1 – 2 |
| Runway Sequencing | Arrival and Departure Management (PASL 7.32) | RSEQ-B0/1 – 2; | AMET-B0/1 – 2 |
| Safety Nets | STCA, MSAW, APW, APM (PASL 7.31) | SNET-B0/1 – 4. | N.A |