



*International Civil Aviation Organization*

**NINETEENTH MEETING OF THE METEOROLOGY SUB-GROUP  
(MET SG/19) OF APANPIRG**

Bangkok, Thailand, 3 – 6 August 2015

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**Agenda Item 4:           Planning and monitoring**

**AIR NAVIGATION REPORTING FORM (ANRF)**

(Presented by the Secretariat)

**SUMMARY**

This paper presents an update on the MET-related Air Navigation Reporting Form (ANRF).

Ref: MET SG/18 –WP/07

**1.       Introduction**

1.1           In order to facilitate States in the implementation of APANPIRG regional air navigation priorities, which take into account APAC Seamless ATM Plan elements and alignment with the Global Air Navigation Plan and Aviation System Block Upgrade (ASBU) methodology, a system of Air Navigation Reporting Forms (ANRF) has replaced the former Performance Framework Forms (PFF) as a means of setting milestones, targets and metrics for each of the key planning elements identified in the APANPIRG regional priorities.

1.2           This paper presents an update on the draft ANRF for the ASBU module B0-AMET, which was last reviewed by APANPIRG/25 in Kuala Lumpur, Malaysia, 8 to 11 September 2014.

**2.       Discussion**

2.1           A total of 18 ANRF corresponding to the 18 ASBU modules have been developed at the regional level. The ANRF are high-level regional planning documents and are intended for APANPIRG Sub-Groups to complete, not States; however they are a practical solution for planning the air navigation system improvements at the national level.

2.2           MET SG/18 reviewed two draft ANRFs for the ASBU module B0-AMET based on reporting on elements in close alignment with the structure of the ASBU module B0-AMET and on elements in close alignment with the structure of the APAC Seamless ATM Plan. Along with other ANRF corresponding to the other ASBU modules under the relevant Sub-Groups of APANPIRG, it is envisaged that the ANRF for the ASBU module B0-AMET will be developed under the auspices of the MET SG for further consideration and possible endorsement by APANPIRG.

2.3 Based on further revisions provided by Australia and Hong Kong, China, with the assistance from the Secretariat and the United States, MET SG/18 agreed to submit a draft ANRF for the ASBU module B0-AMET for further consideration by APANPIRG/25, but noted that further information concerning the intent of, and level of detail required in, the ANRF was required and therefore the ANRF was not mature enough to be considered a final draft.

2.4 APANPIRG/25 noted that ANRF corresponding to the 18 ASBU elements were developed at the regional level and presented to APANPIRG and its Sub-Groups as appropriate for review. Furthermore, APANPIRG/25 noted that the draft ANRF for ASBU Module B0-AMET forwarded by MET SG/18 (in Attachment B to APANPIRG/25 – WP/10) was not yet mature and should be discussed further within the ICAO. A copy of the draft ANRF for ASBU Module B0-AMET submitted to APANPIRG/25 is provided at **the Attachment 1** to this paper.

2.5 APANPIRG/25 also adopted a matrix of responsibilities for the 18 Block Zero ASBU Modules, which places ASBU Block B0-AMET with the MET SG (APANPIRG/25 Conclusion APANPIRG 25/3 refers). A copy of the responsibility matrix for ASBU modules adopted by APANPIRG/25 is provided at **the Attachment 2** to this paper.

### **3. Action by the Meeting**

3.1 The meeting is invited to note the information contained in this paper.

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**1. AIR NAVIGATION REPORT FORM (ANRF)****APAC Regional planning for ASBU Modules**

<b>2. REGIONAL PERFORMANCE OBJECTIVE – ASBU B0-AMET:</b> <b>Meteorological Information Supporting Enhanced Operational Efficiency and Safety</b>					
<b>Performance Improvement Area 2: Globally Interoperable Systems and Data</b>					
<b>3. ASBU B0-AMET: Impact on Main Key Performance Areas</b>					
	<b>Access &amp; Equity</b>	<b>Capacity</b>	<b>Efficiency</b>	<b>Environment</b>	<b>Safety</b>
<b>Applicable</b>	Y	Y	Y	Y	Y

<b>4. ASBU B0-AMET: Planning Targets and Implementation Progress</b>	
<b>5. Elements</b>	<b>6. Targets and implementation progress (Ground and Air)</b>
1. WAFS	Systems implemented to receive WAFS information and to make this available to users to support flight planning, dynamic and flexible management of airspace, improved situational awareness, collaborative decision making and flight trajectory planning.
2. IAVW	Implementation of VAACs to support IAVW. Agreements in place between Volcano Observatories and VAACs.
3. Tropical cyclone watch	Implementation of TCACs to support tropical cyclone watch.
4. Aerodrome warnings	Aerodromes identified that require Aerodrome Warnings.
5. Wind shear warnings and alerts	Aerodromes identified that require wind shear warnings and/or alerts.
6. OPMET	OPMET data available as per the requirements in the Regional Air Navigation Plan.

<b>7. ASBU B0-AMET: Implementation Challenges</b>				
<b>Elements</b>	<b>Implementation Area</b>			
	<b>Ground System Implementation</b>	<b>Avionics Implementation</b>	<b>Procedures Availability</b>	<b>Operational Approvals</b>
1. WAFS	WAFS data reception system, either via satellite or internet	Nil	Operations manuals. Contingency plans.	N/A
2. IAVW	AFTN/AMHS AFS	Nil	Operations manuals. Contingency plans.	N/A
3. Tropical cyclone watch	AFTN/AMHS AFS	Nil	Operations manuals. Contingency plans.	N/A
4. Aerodrome warnings	AFTN/AMHS AFS	Nil	Operations manuals. Contingency plans.	N/A
5. Wind shear warnings and alerts	AFTN/AMHS AFS ATIS Local networks	Nil	Operations manuals. Contingency plans.	N/A

<b>7. ASBU B0-AMET: Implementation Challenges</b>				
<b>Elements</b>	<b>Implementation Area</b>			
	<b>Ground System Implementation</b>	<b>Avionics Implementation</b>	<b>Procedures Availability</b>	<b>Operational Approvals</b>
6. OPMET	AFTN/AMHS AFS	Nil	Operations manuals. Contingency plans.	N/A

<b>8. ASBU B0-AMET Performance Monitoring and Measurement</b>	
<b>8A. ASBU B0-AMET: Implementation Monitoring</b>	
<b>Elements</b>	<b>Performance Indicators/Supporting Metrics</b>
1. WAFS	% of required States receiving WAFS and making this available to users.
2. IAVW	% of designated VAACs implemented. % of designated volcano observatories implemented.
3. Tropical cyclone watch	% of designated TCACs implemented.
4. Aerodrome warnings	% of the required aerodromes providing Aerodrome Warnings.
5. Wind shear warnings and alerts	% of the required aerodromes providing Wind Shear Warnings and/or Alerts.
6. OPMET	% availability, reliability and compliance of METAR/SPECI and TAF. Number of FIRs covered by SIGMET.

<b>8. ASBU B0-AMET. Performance Monitoring and Measurement</b>	
<b>8 B. ASBU B0-AMET: Performance Monitoring</b>	
<b>Key Performance Areas</b>	<b>Metrics ( if not indicate qualitative Benefits)</b>
Access & Equity	Not applicable
Capacity	Optimized usage of airspace and aerodrome capacity due to MET support
Efficiency	Reduced arrival/departure holding time, thus reduced fuel burn due to MET support
Environment	Reduced emissions due to reduced fuel burn due to MET support
Safety	Reduced incidents/accidents in-flight and at aerodromes due to MET support.

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**Responsibility matrix for ASBU modules and corresponding Seamless items**

<b>Seamless ATM Specification title</b>	<b>Seamless Reference</b>	<b>Regional Priority</b>	<b>ASBU Module</b>	<b>ASBU - Module title</b>	<b>Endorsing body</b>
Airport Collaborative Decision-Making (ACDM)	70	2	B0-ACDM	Improved Airport Operations through Airport-CDM	<b>ATM SG</b>
Air Traffic Flow Management/Collaborative Decision-Making (ATFM/CDM)	80	1	B0-NOPS	Improved Flow Performance through Planning based on a Network-Wide view	<b>ATM SG</b>
Arrival Manager/Departure Management (AMAN/DMAN)	50	2	B0-RSEQ	Improve Traffic flow through Sequencing (AMAN/DMAN)	<b>ATM SG</b>
Aeronautical Information Management	300	1	B0-DATM	Service Improvement through Digital Aeronautical Information Management	<b>ATM SG</b>
Civil Military use of SUA	360	1	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	<b>ATM SG</b>
Continuous Descent Operations (CDO)	90	2	B0-CDO	Improved Flexibility and Efficiency in Descent Profiles using Continuous Descent Operations (CDOs)	<b>CNS SG</b>
Continuous Climb Operations (CCO)	100	2	B0-CCO	Improved Flexibility and Efficiency Departure Profiles – Continuous Climb Operations (CCO)	<b>CNS SG</b>
Performance-based Navigation (PBN) Routes	140	2	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	<b>CNS SG</b>
ATM systems enabling optimal PBN/ATC operations	250	2	B0-APTA	Optimization of Approach Procedures including vertical guidance	<b>CNS SG</b>
UPR and DARP	290	3	B0-FRTO	Improved Safety and Efficiency through the initial application of Data Link En-Route	<b>ATM SG</b>
Nil	440	3	B0-WAKE	Improved Access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B	<b>ATM SG</b>
Nil	450	3	B0-OPFL	Increased Runway Throughput through Optimized Wake Turbulence Separation	<b>ATM SG</b>
Performance-based Navigation (PBN) Approach	110	1	B0-APTA	Optimization of Approach Procedures including vertical guidance	<b>CNS SG</b>
ATS Surveillance	180	1	B0-ASUR	Initial Capability for Ground Surveillance	<b>CNS SG</b>
ATS Inter-facility Data-link Communications (AIDC)	220	1	B0-FICE	Increased Interoperability Efficiency & Capacity through Ground-Ground Integration	<b>CNS SG</b>

ATS surveillance with data integrated	270	1	B0-ASUR	Initial Capability for Ground Surveillance	<b>CNS SG</b>
ADS-C and CPDLC	280	1	B0-TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	<b>CNS SG</b>
Standard Instrument Departures/Standard Terminal Arrivals (SID/STAR)	120	2	B0-CCO B0-CDO	Optimization of Approach Procedures including vertical guidance	<b>CNS SG</b>
Safety Nets	160	2	B0-SNET	Increased effectiveness of ground-based safety nets	<b>CNS SG</b>
Airborne Safety Systems	170	2	B0-ACAS	Airborne Collision Avoidance Systems (ACAS) Improvements	<b>CNS SG</b>
Nil	430	2	B0-ASEP	Air Traffic Situational Awareness (ATSA)	<b>CNS SG</b>
Safety and Efficiency of Surface Operations	40	3	B0-SURF	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	<b>CNS SG</b>
Meteorological Information	310	2	B0-AMET	Meteorological information supporting enhanced operational efficiency and safety	<b>MET SG</b>