



Agenda Item 4: Analysis of objectives, metrics, and dates for the implementation of elements of B0-DAIM, B1-DAIM and B2-SWIM

Planning of Vol. III of the CAR/SAM e-ANP for AIM in the SAM Region

(Presented by the Secretariat)

SUMMARY	
This working paper proposes a work methodology for the development of Vol. III of the CAR/SAM e-ANP for the SAM Region in relation to AIM	
References:	
<ul style="list-style-type: none">• Doc 8733, CAR/SAM e-ANP• Doc 9750, Global Air Navigation Plan – GANP – Fourth and fifth edition• Report of the GREPECAS /17 meeting, Cochabamba, July 2014• Report of the CRPP/4 meeting, Lima, July 2017	
ICAO strategic objectives:	<i>A - Safety</i> <i>B – Air navigation capacity and efficiency</i> <i>E – Environmental protection</i>

1. Introduction

1.1 The fourth edition of the GANP introduced the concept of Aviation System Block Upgrades (ASBU). The ASBU methodology was updated in the fifth edition of that same document (2016).

1.2 The ICAO Council decided in June 2014 that regional air navigation plans (ANPs) should be published in three volumes.

1.3 The implementation of the CAR/SAM ANP in its new format was reported to the GREPECAS/17 meeting and to the directors of civil aviation (DCAs) at the different meetings of the CAR and SAM Regions, and also through the regional implementation groups (SAM/IG and ANI/WG), which have expressed their support to its development.

1.4 The GANP is under constant review and is updated every three years.

2. Discussion

2.1 The Meeting will recall that the process for the approval of Volume I and II of the CAR/SAM e-ANP, in their new format, was completed in 2016. At present, both documents are under constant review and are updated as needed.

2.2 The Meeting will also recall that the PPRC/4 meeting postponed the drafting and approval of Vol. III of the CAR/SAM e-ANP pending the approval of the GANP – Sixth edition.

2.3 It is important to recall that Vol. III of the CAR/SAM e-ANP must contain the dynamic/flexible elements of the plan, providing guidance for planning the implementation and modernisation of air navigation systems, taking into account emerging programmes, such as ASBU and the roadmap of associated technologies described in the GANP.

2.4 Taking into account that the GANP, in its fifth edition, introduced the basic building blocks (BBBs) in conjunction with the ASBUs, it is important to analyse their implementation before planning the ASBU elements. The AIM BBBs are contained in **Appendix A** to WP/6.

2.5 Furthermore, taking into account the BBBs and that the sixth edition of the GANP will be submitted to the consideration of the 40th ICAO Assembly (Montreal, 23 September to 4 October 2019), it is important to start planning the drafting of Vol. III of the e-ANP in each area in order to comply with Decision PPRC/ 4-3.

2.6 The Meeting could review the draft GANP – sixth edition available in the GANP website and work on the corresponding template. The Meeting could designate a task force to work on it and submit a report to the PPRC/5 meeting, to be held on 16-18 July of this year in Mexico. ICAO is currently working on a template for Vol. III, but **Appendix A** to this working paper contains a proposal.

3. **Suggested action**

3.1. The Meeting is invited to:

- a) take note of the information provided in this working paper;
- b) review the information contained in Appendix A;
- c) review the template in Appendix A for Vol. III of the e-ANP, Part AIM for the SAM Region, and consider the designation of a working group; and
- d) discuss any other issue it may deem appropriate.

APPENDIX A

B0- DATM: *Service Improvement through Digital Aeronautical Information Management*

Description and purpose

The initial introduction of digital processing and management of information, through aeronautical information service (AIS)/aeronautical information management (AIM) implementation, use of aeronautical information exchange model (AIXM), migration to electronic aeronautical information publication (AIP) and better quality and availability of data

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	N	Y	Y	Y

B0 – DATM: Status of AIM improvements through digital management of aeronautical information

ELEMENTS	SCOPE	INDICATORS/ METRICS	GOALS: %/ Date	STATUS
1 – National AIM plan / Action plan				
2 - AIXM				
3 – Electronic AIP				
4 - QMS				
5 - WGS-84				
6 – Electronic terrain and obstacle data (e-TOD)				
7 – Digital NOTAM				

<i>B0 – DATM: Status of AIM improvements through digital management of aeronautical information</i>				
ELEMENTS	SCOPE	INDICATORS/ METRICS	GOALS: %/ Date	STATUS
8 – Integrated aeronautical information databases (IAID)				
9- SLAs				

B0-DATM Enablers/Tables

In order to help States plan for a prompt AIS-to-AIM transition, use must be made of the following tables, which provide more details than the standard ANRF:

- 1- **Table B0-DATM 3-1** Table B0-DATM 3-1 sets forth the requirements for the provision of AIS/AIM products and services based on the integrated aeronautical information database (IAID). It reflects the transition from the current product-based AIS to the data-based AIM. For the future digital environment, it is important for authorised databases to be clearly designated, and for that designation to be published for the users. This is achieved through the integrated aeronautical information database (IAID) concept, a single point of access to one or more authorised databases (AIP, terrain, obstacles, AMDB, etc.) for which the State is responsible. This table will be used to monitor key performance indicators (KPIs) related to elements 1 and 2 of module B0-DATM.

- 2- **Table B0-DATM 3-2** sets forth aeronautical data quality requirements. It will be used for monitoring key performance indicators (KPIs) related to element 3 of module B0- DATM.

- 3- **Table B0-DATM 3-3** establishes the requirements for the implementation of the World Geodetic System 1984 (WGS-84). The requirement to use a common geodetic system is still essential to facilitate data exchange between different systems. The expression of all the coordinates in the AIP and the graphs that use WGS-84 are an important first step for the transition to AIM. This table will be used for monitoring key performance indicators (KPIs) related to element 4 of module B0- DATM.

- 4- **Table B0-DATM 3-4-1** establishes the requirements for the provision of terrain and obstacle datasets for Areas 1 and 4. It will be used for monitoring key performance indicators (KPIs) related to element 5 of module B0-DATM.

- 5- **Table B0-DATM 3-4-2** establishes the requirements for the provision of terrain and obstacle datasets for Area 2. It will be used for monitoring key performance indicators (KPIs) related to element 5 of module B0-DATM.

- 6- **Table B0-DATM 3-4-3** establishes the requirements for the provision of terrain and obstacle datasets for Area 3 and the implementation of aerodrome mapping databases (AMDB). It will be used for monitoring key performance indicators (KPIs) related to element 5 of module B0- DATM.

Table B0-DATM 3-1

Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)

EXPLANATION OF THE TABLE

Column:

- 1 Name of the State or territory for which the provision of AIS/AIM products and services based on the IAID is required.
- 2 Requirement for the implementation and designation of the authoritative IAID, shown by:
 - FI – Fully Implemented
 - NI – Not Implemented

Note 1 — The IAID of a State is a single access point for one or more databases (AIP, Terrain, Obstacles, AMDB, etc.). The minimum set of databases that should be integrated is defined in Annex 15.

Note 2 — The information related to the designation of the authoritative IAID should be published in the AIP (GEN 3.1)
- 3 Requirement for an IAID driven AIP production, shown by:
 - FI – Fully Implemented (eAIP: Text, Tables and Charts)
 - PI – Partially Implemented
 - NI – Not Implemented

Note 3 — AIP production includes, production of AIP, AIP Amendments and AIP Supplements

Note 4 — Charts' GIS-based database should be interoperable with AIP database
- 4 Requirement for an IAID driven NOTAM production, shown by:
 - FC – Fully Compliant
 - NC – Not Compliant
- 5 Requirement for an IAID driven SNOWTAM processing, shown by:
 - FI – Fully Implemented
 - NI – Not Implemented
- 6 Requirement for an IAID driven PIB production, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
- 7 Requirement for Procedure design systems to be interoperable with the IAID, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented
 - NI – Not Implemented

Note 5 — full implementation includes the use of the IAID for the design of the procedures and for the storage of the encoded procedures in the IAID
- 8 Requirement for ATS systems to be interoperable with the IAID, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented

NI- Not Implemented

- 9 Action **Plan**-short description of the State's Action Plan with regard to the provision of AIM products and services based on the IAID, especially for items with a "PC", "PI", "NC" or "**NI**" status, including planned date(s) of full compliance, as appropriate.
- 10 **Remarks**- additional information, including detail of "PC", "NC", "**PI**" and "**NI**", as appropriate.

TABLE B0-DATM-3-1

Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)

Table B0-DATM-3-2

Quality of Aeronautical Data

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory.

2 Compliance with the requirement for implementation of QMS for Aeronautical Information Services including safety and security objectives, shown by:

FC – Fully compliant

NC – Not compliant

3 Compliance with the requirement for the establishment of formal arrangements with approved data originators concerning aeronautical data quality, shown by:

FC – Fully compliant

PC – Partially compliant

NC – Not compliant

4 Implementation of digital data exchange with originators, shown by:

FI – Implemented

PI – Partially Implemented

NI – Not implemented

Note 1 — Information providing detail of “PI” and “NI” should be given in the Remarks column (percentage of implementation).

5 Compliance with the requirement for metadata, shown by:

FC – Fully compliant

PC – Partially compliant

NC – Not compliant

6 Compliance with the requirements related to aeronautical data quality monitoring (accuracy, resolution, timeliness, completeness), shown by:

FC – Fully compliant

PC – Partially compliant

NC – Not compliant

7 Compliance with the requirements related to aeronautical data integrity monitoring, shown by:

FC – Fully compliant

PC – Partially compliant

NC – Not compliant

8 Compliance with the requirements related to the AIRAC adherence, shown by:

FC – Fully compliant

NC – Not compliant

9 Action Plan — short description of the State’s Action Plan with regard to aeronautical data quality requirements implementation, especially for items with a “PC”, “PI”, “NC” or “NI” status, including planned date(s) of full compliance, as appropriate.

10 Remarks — additional information, including detail of “PC”, “NC”, “PI” and “NI”, as appropriate.

Table B0-DATM-3-3

World Geodetic System-1984 (WGS-84)

EXPLANATION OF THE TABLE

Column:

- 1 Name of the State or territory for which implementation of WGS-84 is required.
- 2 Compliance with the requirements for implementation of WGS-84 for FIR and Enroute points, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
- 3 Compliance with the requirements for implementation of WGS-84 for Terminal Areas (arrival, departure and instrument approach procedures), shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
- 4 Compliance with the requirements for implementation of WGS-84 for Aerodrome, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
- 5 Compliance with the requirements for implementation of Geoid Undulation, shown by: FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
- 6 Action Plan — short description of the State’s Action Plan with regard to WGS-84 implementation, especially for items with a “PC”, “PI”, “NC” or “NI” status, including planned date(s) of full compliance, as appropriate.
- 7 Remarks — additional information, including detail of “PC” and “NC”, as appropriate.

Table B0-DATM-3-4-1

Provision de e-TOD datasets for Areas 1 and 4

EXPLANATION OF THE TABLE

Column

- 1 Name of the State or territory for which Terrain and Obstacle data sets for Areas 1 and 4 are required.
- 2 Compliance with requirement for the provision of Terrain data sets for Area 1, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
- 3 Compliance with requirement for the provision of Terrain data sets for Area 4, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
 - N/A – Not Applicable
- 4 Compliance with requirement for the provision of Obstacle data sets for Area 1, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
- 5 Compliance with requirement for the provision of Obstacle data sets for Area 4, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
 - N/A – Not Applicable
- 6 Action plan — short description of the State’s Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Areas 1 and 4, especially for items with a “PC” or “NC” status, including planned date(s) of full compliance, as appropriate.
- 7 Remarks— additional information, including detail of “PC” and “NC”, as appropriate.

Table B0-DATM-3-4-2

Provision of e-TOD datasets for Area 2

EXPLANATION OF THE TABLE

Column

- 1 Name of the State or territory for which Terrain and Obstacle data sets for Area 2 are required.
- 2 Compliance with requirement for the provision of Terrain data sets for Area 2a, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
- 3 Compliance with requirement for the provision of Terrain data sets for Area 2b, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented
 - NI – Not implemented
 - N/A – Not Applicable
- 4 Compliance with requirement for the provision of Terrain data sets for Area 2c, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented
 - NI – Not Implemented
 - N/A – Not Applicable
- 5 Compliance with requirement for the provision of Terrain data sets for Area 2d, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented
 - NI – Not Implemented
 - N/A – Not Applicable
- 6 Compliance with requirement for the provision of Obstacle data sets for Area 2a, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
- 7 Compliance with requirement for the provision of Obstacle data sets for Area 2b, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented
 - NI – Not implemented
 - N/A – Not Applicable
- 8 Compliance with requirement for the provision of Obstacle data sets for Area 2c, shown by:
 - FI – Fully Implemented

PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

- 9 Compliance with requirement for the provision of Obstacle data sets for Area 2d, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable
- 10 Action plan — short description of the State’s Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Area 2, especially for items with a “PC”, “PI”, “NC” or “NI” status.
- 11 Remarks— additional information, including detail of “PC”, “PI” and “NC”, “NI”, as appropriate.

Table B0-DATM-3-4-3
Provision of e-TOD datasets for Area 3 and Aerodrome Mapping
Databases (AMDB)

EXPLANATION OF THE TABLE

Column

- | | |
|---|---|
| 1 | Name of the State or territory for which Terrain and Obstacle data sets for Area 3 and AMDB are required. |
| 2 | Compliance with requirement for the provision of Terrain data sets for Area 3, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable |
| 3 | Compliance with requirement for the provision of Obstacle data sets for Area 3, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable |
| 4 | Implementation of AMDB, shown by: FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable |
| 5 | Action plan — short description of the State’s Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Area 3 and AMDB implementation, especially for items with a “PC”, “PI”, “NC” or “NI” status. |
| 6 | Remarks— additional information, including detail of “PI” and “NI”, as appropriate. |

