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WORKING PAPER

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Second NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/2)
Puntarenas, Costa Rica, 1 to 4 June 2015

Agenda Item 4 **Follow-up on the NAM/CAR Regional Performance Based Air Navigation Implementation Plan (NAM/CAR RPBANIP)**
4.1 Progress reports of the Task Forces and the ANI/WG

IMPLEMENTATION OF ANNEX 15, CHAPTER 11 AERODROME MAPPING DATA

(Presented by the Secretariat)

EXECUTIVE SUMMARY

This working paper presents the requirements of aerodrome mapping data which should be included by States regarding aerodromes data and geographic information directed to the applications that improve user situational awareness and/or complement surface navigation, increasing the safety margins and operational efficiency with the eTOD Area 3 inclusion.

The Aerodrome Mapping Data sets with the appropriate accuracy from the data processes in a Geographical Information System (GIS) and under ISO Standards for geographical data as part of a Quality Management System (QMS) provide support to the requirements for decision-making in collaboration, common situational awareness and airport guide applications.

This data collection and their respective publication should be closely coordinated between the States Aeronautical Information Management (AIM), Air Traffic management (ATM) and Aerodromes and ground aids (AGA) fields.

Action:	States will implement the necessary software tools and the AIM personnel training in order to implement the Aerodrome Mapping Database (Annex 15, Chapter 11)
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Environmental Protection
References:	• Annex 15 – *Aeronautical Information Services* • Annex 14 – *Aerodromes (Vol. I)*

1. Introduction

1.1 As a result of the work of the ICAO Study Group on Aeronautical Information Services – Aeronautical Information Management (AIS-AIMSG) and the Aerodromes Panel (AP), the aerodrome (AD) mapping data that is organized and available in Aerodromes mapping databases (AMDB) in order to facilitate the electronic storage and use in various applications was incorporated into Annex 15. AD cartographic data is directed to be used in the following applications of air navigation, among others:

- awareness about the position and en-route, including moving maps that indicate the position of the aircraft, guide and navigation in surface (such as the A-SMGCS)
- awareness of traffic, including surveillance and detection and warning of runway incursions
- facilitation of aeronautical information related to aerodromes, including notice to airmen (NOTAM)
- management of aerodromes resources and facilities
- production of aeronautical charts
- flight simulators
- training devices
- synthetic vision systems

1.2 The aerodrome mapping data of should be complemented by electronic terrain data obstacle (eTOD) for Area 3, in order to ensure uniformity and quality of all geographic data related to aerodrome (see fig. 1).

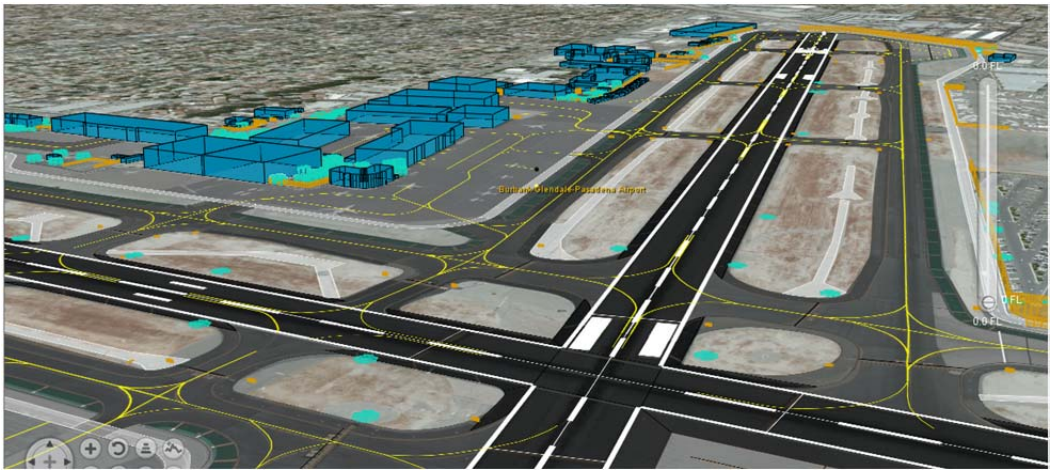

Fig. 1 Aerodrome Data to be included in the databases

2. Discussion

2.1 Standards and Recommendations Practices of the new Annex 15 Chapter 11 enter into force on 14 November 2013, and include the definition of aerodrome mapping data in the context of aeronautical information management. The use of the terms "information" and "data" aerodrome mapping were originated in document DO-200A of the Radio Technical Commission for Aeronautics (RTCA) and Document ED-76 - *Standards for Processing Aeronautical Data* of the European Organization for Civil Aviation Equipment (EUROCAE).

2.2 The States, in order to facilitate and support the use and exchange of aerodrome mapping data between providers and users of these data should use as a framework the International Standards Organization (ISO) 19100 series of standards for geographic information. This includes scope requirements, identification, metadata, content, reference system, quality, and information capture and maintenance.

2.3 These requirements set a base that can be used to implement an exchange format that supports the data flow required by data originators, data integrators and system designers.

2.4 On the other hand, the standard ISO 19109 focuses on application schemes and the standard ISO 19110 describes the method of cataloguing attributes for geographic information, such as:

- the spatial disposition of an airport
- the geometry of features (e.g. runways, taxiways, buildings) described as points, lines and polygons
- representation of features and functions that are stored as attributes (e.g. types of surface, name/object identifier, slope of the runway) in order to obtain more elaborated information

3. Conclusion

3.1 States should observe and monitor the standardization and quality assured AMDB data, which is already used to enhance situational awareness and to support a wide range of systems that allow more safe and efficient surface movements.

3.2 New applications, involving collaboration between users and Air traffic control (ATC), as the exchange of taxiways assigned by ATC, assume the interoperability of databases and the uniform application of global comprehensive and coherent standards. These systems are applying principles of System Wide Information Management (SWIM). It is necessary that States recognize that ICAO confirms its active leadership within this standardization framework.

4. Action by the Meeting

4.1 States are invited to:

a) take into account the applications based on the aerodromes data publication, including the new air-ground collaborative systems applying SWIM principles;

b) accelerate the adoption of aerodrome mapping databases provision;

c) maintain close coordination with other Aeronautical Authorities related with the implementation of the AMDB; and

d) participate in the CAR/SAM Electronic Aeronautical Charts of Performance Based Navigation (PBN), Terminal Procedures and Aerodrome Mapping Seminar to be held at the ICAO NACC Regional Office, Mexico City, Mexico, 24 to 28 August 2015.

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