



Agenda Item 3: AIR Navigation Matters
3.3 Specific Developments in Air Navigation
• AIM

GUIDE FOR AN ACTION PLAN FOR THE e-TOD IMPLEMENTATION

(Presented by the Secretariat)

SUMMARY This working paper focuses on the requirement to States for the provision of electronic terrain and obstacle data in different areas [1, 2 (a, b, c and d), 3 and 4] taking into account the GREPECAS G1 Project e-TOD AIM, proposes a guide for the preparation of an e-TOD Action Plan for the CAR Region.	
References: • ICAO Annex 15 • ICAO Doc 9881 • Report of the AIMS/SG/13, Mexico, 19-21 July 2011 • ICAO Roadmap for the transition from AIS to AIM	
<i>Strategic Objectives</i>	<i>This working paper is related to Strategic Objectives A and C.</i>

1. Introduction

1.1 Chapter 10 of Annex 15 refers to the determination and implementation of electronic terrain and obstacle data which has a background in the work carried out by ICAO with RTCA SC 193 and EUROCAE WG44 industry groups, as well as in comments received from the FAA of the United States during the process of amendment to Annex 15.

1.2 The mentioned Chapter presents the requirement of the determination of electronic terrain and obstacle data, coverage per Areas: 1, 2 (a, b, c and d), 3 and 4 (see **Appendix** for area description), the requirements of data numerical precision, the content and structure of terrain and obstacle databases (defined as two or more relational databases), as well as the specifications and availability for users of products for terrain and obstacle data.

1.3 Likewise, Annex 15, in support of the new ATM operational concept, indicates the use and exchange of electronic terrain and obstacle data sets between providers and users, specifying the ISO 19110 series of geographical information standards that shall be used as a general framework for models.

2. Discussion

2.1 In the CAR Region, several States still need to finish the first **Consolidation** stage of the ICAO roadmap from AIS transition to AIM, which requires the compliance of the Action Plan by States for deficiencies and differences solution regarding Annexes 4 and 15, AIRAC system, complete WGS-84 implementation, quality management system and aeronautical charts, among others.

2.2 Important technologies of Ground Proximity Warning System (GPWS) with predictive capacities provides the flight crew with information on terrain and obstacle data and imminent hazards, in proximity areas or terminal flight instruments procedures (IFR) published in aeronautical charts of the Aeronautical Information Publication (AIP). The importance of the availability of these data is based on the provision of earlier provision of warnings and its implications, giving pilots and air traffic controllers more time for taking appropriate decisions and possible corrective actions.

2.3 In addition, it is important to mention that since several States are missing to provide e-TOD data collection, several ground and terrain warning systems are not able to use the electronic terrain data and they are only considered as a secondary reference, since they do not have strict quality and integrity requirements and they are used for advising purposes. These data sets are not available and/or officially certified for its use in air navigation and for the air traffic control. Consequently, the Aeronautical Authorities of the States should consider the priority for the development of data sets on terrain and obstacle data that will give significant benefits en terms of safety.

2.4 A Guide for an Action Plan for the e-TOD implementation was recently designed during the first Multilateral Meeting SAM/AIM/1. The Guide took into account the activities and tasks in a harmonized manner with the use of the Geographical Information System (GIS) and the definition of Metadata to design the GREPECAS G1 e-TOD AIM Project according to the proposal of CAR/SAM AIM Subgroup. This Guide is also available at www.mexico.icao.int/AIM.html for consideration of the Meeting in support of the development of an Action Plan for the e-TOD implementation by the CAR States, similar action was taken with the CA and C/CAR States.

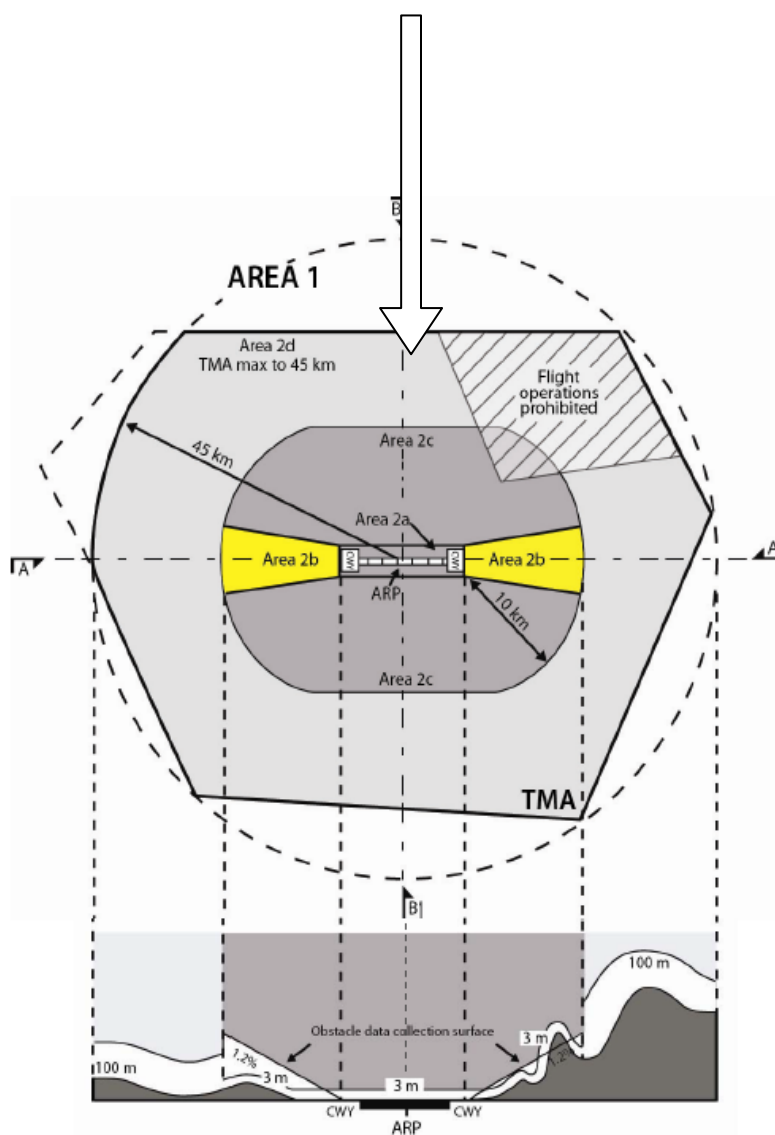
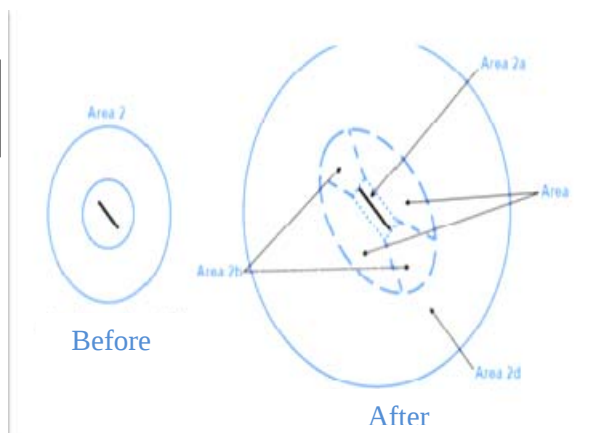
3. Suggested action

3.1 Taking into account the above, the Meeting is invited to:

- 1) use the guide for the development of an e-TOD Action Plan, attached as Appendix B of this working paper; and integrate the e-TOD activities with those related with the use of an aeronautical information exchange model, the use of Geographical Information System (GIS) and the Metadata definition; and
- 2) send to ICAO NACC Office the action plans for the e-TOD implementation no later than **30 November 2012**.

APPENDIX

Detail of Area 2 before and after
Amendment 36 to Annex 15



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