*International Civil Aviation Organization*
South American Regional Office
**Second SAM Multilateral AIM Meeting**
**for AIS-to-AIM Transition (SAM/AIM/2)**
Lima, Peru, 26 to 30 September 2011



**Agenda Item 3: AIS-to-AIM transition planning**

3.4 Status of the provision of electronic terrain and obstacle data (e-TOD) for the different areas defined in Annex 15

# e-TOD Action Plan

(Presented by the Secretariat)

**Summary**

This working paper focuses on Annex 15 SARPs related to the provision of electronic terrain and obstacle data in the different areas, taking into account that the AIM Project proposes a revision, updating and integration with other tasks of the current SAM e-TOD Action Plan.

**References:**

- Annex 15 to the ICAO Convention
- SAM/AIM/1 multilateral meeting, Lima, Peru, 24-28 May 2010
- AIM/SG/13 meeting, Mexico, 19-21 July 201

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| **ICAO strategic objectives:** | *A – Safety*<br>*C – Environmental protection* |

## 1 Background

1.1 Annex 15 provisions on electronic terrain and obstacle data are based on the work conducted by ICAO with the RTCA SC 193 and EUROCAE WG 44 industry groups, as well as on comments received from the States during the process of amendment of Annex 15.

1.2 These provisions refer to the function of electronic terrain and obstacle data, the coverage, obstacle numerical requirements, the content and structure of terrain and obstacle databases (defined as two independent databases), the specifications and availability of products for terrain and obstacle data.

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

## 2 Discussion

2.1 The technology of ground proximity warning systems (GPWS) with advanced capabilities provides the flight crew with information on imminent hazardous terrain and obstacles. The importance of having these data available lies on the earlier provision of warnings and giving pilots more time for taking appropriate corrective action.

2.2 Unfortunately, many qualified ground proximity warning systems use digital terrain data only for advisory purposes, since these data sets are not certified for use in navigation, as they lack strict quality (integrity) requirements. Consequently, the development of an integrated terrain and obstacle database offers significant safety benefits.

2.3 In some cases, cruising with one engine inoperative may create performance limitations that prevent the aircraft from continuing the flight above the minimum obstacle clearance altitude (MOCA) or the need to deviate from the route. Consequently, pilots must quickly and precisely estimate their best "escape" route in order to avoid high terrain and/or maintain the necessary terrain and obstacle clearance.

2.4 In the SAM Region, several States need to complete the first consolidation phase, which includes the following steps of the roadmap: oversight of differences among States with respect to Annexes 4 and 5, oversight of compliance with AIRAC standards, quality and full implementation of the WGS-84.

2.5 The SAM/AIM/1 multilateral meeting developed an Action Plan (**Appendix A** to this working paper) which, based on the new GREPECAS organisation, must be reviewed at this multilateral meeting with a view to taking into account its activities and tasks and harmonising it with the GIS and Metadata Action Plan, in order to design an AIM Project as proposed by the AIM subgroup at its last meeting.

## 3. Suggested action

3.1 In view of the above, the Meeting is invited to establish an *ad-hoc* group tasked with:

1) analysing and updating the e- TOD Action Plan shown in **Appendix A** to this working paper,

2) integrating e-TOD activities with GIS and Metadata activities.

3) designing the corresponding project.

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**APPENDIX A**

| e-TOD Action Plan | | | | |
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| 1 | **Implementation plan** | **Start** | **End** | **Remarks** |
| 1.1 | Establish and prioritise the objectives of the e-TOD implementation project (tasks, costs, implementation target dates, project risks) | 01/07/10 | 31/12/10 | |
| 1.2 | Develop the guiding document with project objectives | 01/01/11 | 01/03/11 | |
| 2 | **Procurement** | | | |
| 2.1 | Prepare an inventory of requirements | 01/03/11 | 01/07/11 | |
| 2.2 | Prepare the documentation on requirements | 01/07/11 | 01/08/11 | |
| 3 | **Training** | | | |
| 3.1 | Develop a training programme and the documentation for e-TOD operators | 01/08/11 | 01/10/11 | |
| 3.2 | Conduct trianing programmes | 01/10/11 | 01/12/12 | |
| 3.3 | Conduct seminars for e-TOD specialists, setting forth the plans and the operational and economic benefits expected. | 01/08/11 | Permanent | |

| e-TOD Action Plan | | | | |
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| 4 | **Operational concepts** | | | |
| 4.1 | Define the operational concepts | 01/03/11 | 01/09/11 | |
| 4.2 | Compile the necessary operational concepts in one document | 01/09/11 | 01/11/11 | |
| 5 | **Technical and logistic specifications** | | | |
| 5.1 | Define the technical and logistic specifications of the project | 01/11/11 | 01/06/12 | |
| 5.2 | Prepare the document with the technical and logistic specifications | 01/05/12 | 01/06/12 | |
| 6 | **Financial analysis** | | | |
| 6.1 | Estimate the general cost of the project | 01/06/12 | 01/11/12 | |
| 6.2 | Prepare the financial documentation | 01/01/13 | 01/05/13 | |
| 6.3 | Submit the final document to top management for approval | -- | 01/05/13 | |
| 7 | **Purchase of technological tools** | | | |
| 7.1 | Purchase state-of-the-art software, hardware and applications | 01/09/13 | 01/04/14 | |

| e-TOD Action Plan | | | | |
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| 7.2 | Install and use the tecnological tools purchased | 01/04/14 | 01/10/14 | |
| 7.3 | Train the specialised personnel in the use of the tools | 01/03/11 | 01/12/14 | |
| 8 | **Implementation** | | | |
| 8.1 | Have available the mapping material contained in the database | 01/09/13 | 01/04/14 | |
| 8.2 | Collect, certify and enter mapping data in the database for areas 1, 2, 3, and 4. | 01/04/14 | 01/10/14 | |
| 8.3 | Sign letters of agreement, sharing electronic data on terrain and obstacles in common areas at the boundaries between States. | 01/10/14 | 15/11/14 | |
| 8.4 | Sign a service level agreement (SLA) between providers and the AIS service | 01/04/14 | Undefined | |
| 8.5 | Define contract clauses on the use of information (protection, storage, distribution, etc.). | 01/04/14 | Undefined | |