



Agenda Item 1: Implementation of the provision of electronic terrain and obstacle data (e-TOD)

**PROJECT G1 – IMPLEMENTATION OF THE PROVISION OF
ELECTRONIC TERRAIN AND OBSTACLE DATA (E-TOD)**

(Presented by the Secretariat)

SUMMARY	
<p>Project G1 “Implementation of the provision of electronic terrain and obstacle data (e-TOD)” has developed an Action Plan for the introduction of functional improvements in the provision of aeronautical information services. This working paper provides information on the progress made, and States must update this information in the corresponding Tables.</p>	
<p>References:</p> <ul style="list-style-type: none">• Annex 15 to the ICAO Convention.• SAM/AIM/4 Multilateral Meeting.	
<p>ICAO Strategic Objectives:</p>	<p><i>A - Safety</i> <i>C - Environmental protection</i></p>

1 Background

1.1 **Project G1 “Implementation of the provision of electronic terrain and obstacle data (e-TOD)”**, whose corresponding description and GANTT are shown in **Appendix A** to this working paper, developed an Action Plan for the introduction of functional improvements in the provision of aeronautical information services.

1.2 Likewise, a “Guide-Document on the Objectives of the e-TOD Project” was prepared, which refers to the background of e-TOD implementation in the States of the Region, and describes in detail the tasks to be performed for that implementation. It also addresses the economic aspects (elements to be considered when calculating costs) and the project timetable. Finally, it provides guidance on the conduction of the project risk analysis.

1.3 Likewise, a document on the “Technical and e-TOD Project Specifications” was prepared, mainly containing information on the technical aspects of e-TOD implementation. It provides plenty conceptual information on digital elevation models, obstacles, metadata, quality, etc.

1.4 As part of the tasks of the e-TOD project, a model was developed to establish Service Level Agreements (SLA) to receive aeronautical data and information under predefined criteria that

ensure that their inclusion in Aeronautical Information Management Systems will permit the delivery of information based on the quality criteria required to attain the ATM systems foreseen in the Global Air Traffic Management Operational Concept.

1.5 The products developed to assist SAM States in the implementation of the provision of electronic terrain and obstacle data (e-TOD), and which were analysed and approved at the meeting held within the framework of GREPECAS Project G1, are as follows:

- a) Guide-Document on the objectives of the e-TOD project
- b) Technical and e-TOD project specifications
- c) Model Service Level Agreement (SLA)
- d) Model list of data for SLAs

2 Discussion

2.1 According to information available to date, 4 States have a GIS or automated system for the integration of aeronautical information. At present, all SAM States have approved the Guide-Document. Two States -Argentina and Uruguay- have SLAs. SLAs are essential to ensure the quality of the data received by the aeronautical information services for their publication.

Analysis of the achievement of goals, based on G1 indicators/metrics

- Percentage of States that have implemented GIS or automated systems.
- Percentage of States that have approved the Guide-Document with the Action Plan.
- Percentage of States that have established SLAs.

2013 State	% of States with automated or GIS systems = 28 %	% of States that have approved the Guide-Document with Action Plan = 100%	% of States that have established SLAs = 14%
ARG	YES	YES	YES
BOL		YES	
BRA	YES	YES	
CHI		YES	
COL	YES	YES	
ECU		YES	
FGY		YES	
GUY		YES	
PAN		YES	
PAR		YES	
PER	YES	YES	
SUR		YES	
URU		YES	YES
VEN		YES	

2.2 This information needs to be updated in order to measure the progress made by the respective Administrations since the previous SAM/AIM meeting.


3. **Suggested action:**

3.1 The Meeting is invited to:

- a) take note of the information contained in this working paper;
- b) review and elaborate on the description of AIM Project G1 and its corresponding GANTT as it may deem appropriate.

APPENDIX A

SAM Region	PROJECT DESCRIPTION (DP)	DP N° G1	
<i>Programme</i>	Title of the Project	Start	End
<p><i>AIM</i></p> <p>(ICAO Programme Coordinator: Roberto Arca Jáurena)</p>	<p>Implementation of the provision of electronic terrain and obstacle data (e-TOD) (SAM)</p> <p>Project coordinator: Juan González (Uruguay)</p> <p>Experts contributing to the project: SAM/AIM IG</p>	<p>26/09/11</p>	<p>31/12/15</p>
<p>Objective</p>	<p>Support the implementation of the provision of e-TOD by SAM States, and provide guidance to States on GIS acquisition and management.</p>		
<p>Scope</p>	<p>The scope of the project contemplates the assessment and identification of implementation levels associated to the provision of electronic terrain and obstacle data. It contemplates the drafting of an Action plan and guides for the implementation of e-TOD to support developments in the provision of electronic terrain and obstacle data for the evolution of digital terrain models (DTM) to gradually improve electronic aeronautical charts and other similar products, with the support of tools such as the geographical information systems (GIS).</p>		
<p>Metrics</p>	<ul style="list-style-type: none"> • Number of States that have implemented GIS or automated systems. • Guide-document with action plan approved. • Number of States that establish SLAs. 		

<p>Strategy</p>	<p>The conduction of project activities will be coordinated among project members, the project coordinator, and the programme coordinator, mainly through teleconferences (GoToMeeting application) and meetings that may be held within other scheduled events, based on the activities of the work programme. The project coordinator will coordinate with the programme coordinator for the inclusion of additional experts, if warranted by the tasks and works to be executed. The results of the work done will be submitted to the consideration and review of State experts in the form of a final consolidated document for analysis, review, and approval, and for presentation to the GREPECAS PPRC by the programme coordinator.</p>				
<p>Goals</p>	<p>Draft the Guide-document containing the objectives of the e-TOD project. 2012. Define the technical and e-TOD project specifications. 2012. Prepare the document containing the e-TOD technical specifications. 2012. Guide on the acquisition of a geographical information system (GIS). 2012. GIS implementation Manual. 2012.</p>				
<p>Rationale</p>	<p>Compliance with the SARPs of Annexes 15 and 4 to facilitate the execution of performance-based air operations and to advance with the AIS-AIM Transition Roadmap. A close relationship with other projects is needed in order to obtain the operational requirements of the aforementioned applications and their respective tentative dates of implementation.</p>				
<p>Related projects</p>	<p>This project is related to Project G2 “Implementation of Aeronautical Information Exchange Systems (AIXM)” and Project G3 “Implementation of the Quality Management System in the AIM units” in the CAR/SAM States.</p>				
<p>Project deliverables</p>	<p>Relationship with the performance-based regional plan (PFF)</p>	<p>Responsible party</p>	<p>Status of implementation*</p>	<p>Delivery date</p>	<p>Comments</p>
<p>Survey on the status of eTOD implementation.</p>	<p>PFF: SAM AIM/02</p>	<p>Juan González Uruguay</p>		<p>30/11/2011</p>	<p>Finalised on schedule.</p>

Generate follow-up report.	PFF: SAM AIM/02	Juan González Uruguay		30/04/2012	Finalised on schedule.
Develop Guide-Document with the objectives of the eTOD project.	PFF: SAM AIM/02	Juan González Uruguay		30/09/2012	Finalised on schedule. Delivered 30/09/2012
Define the technical specification of the eTOD project.	PFF: SAM AIM/02	Juan González Uruguay		30/09/2012	Finalised on schedule. Delivered 30/09/2012
Develop the document with the eTOD technical specifications.	PFF: SAM AIM/02	Juan González Uruguay		30/09/2012	Finalised on schedule. Delivered 30/09/2012
Guide for the acquisition of a geographical information system (GIS).	PFF: SAM AIM/01	Juan González Uruguay		09/03/2012	Finalised on schedule.
GIS implementation manual.	PFF: SAM AIM/01	Juan González Uruguay		09/03/2012	Finalised on schedule.
Conduct seminars for eTOD specialists, describing the plans and expected operational and economic benefits.	PFF: SAM AIM/02	ICAO coordinator		30/09/2014	
Develop a training programme and documentation for eTOD operators.	PFF: SAM AIM/02	Juan González Uruguay		31/10/2014	
Resources required	Designation of experts in the execution of some of the deliverables. More commitment by States to support the designated Coordinators and experts.				

*Grey

Task not started

Green

Activity underway as scheduled

Yellow

Activity started with some delay but expected to be completed on time

Red

It has not been possible to implement this activity as scheduled; mitigating measures are required

Timetable in MS Project with the tasks, sub-tasks, deliverables, and responsible parties

G1 - Implantación del suministro de datos electrónicos sobre el terreno y obstáculos (e-TOD) en los Estados SAM / Implementation for the provision of terrain and obstacle electronic data (e-TOD) in SAM States

ID	Nombre de tarea	Duration	Start	Finish	Resource Names	2012																		
						2010		2012		2013		2014												
						Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1										
1	Implantación del suministro de los datos electrónicos sobre el terreno y obstáculos (e-TOD) en los Estados SAM + GIS/Implementation for the provision of terrain and obstacle electronic data (e-TOD) in SAM States + GIS	793 days	Thu 17/11/11	Mon 01/12/14	Juan Gonzalez/Coordinador OACI																			
2	Identificar el nivel de implantación de la Norma para la provisión de datos electrónicos sobre el terreno (e-TOD) para el Área 1 (Anexo 15, 10.1.3)/Identify the level of implementation of the Regulation for the provision of electronic terrain data (e-TOD)	118 days	Thu 17/11/11	Mon 30/04/12	Juan González																			
3	Generar Formulario de Consulta/Generate survey form	10 days	Thu 17/11/11	Wed 30/11/11	Juan González																			
4	Circular a los Estados/Circulate to States	7 days	Thu 01/12/11	Fri 09/12/11	Juan González																			
5	Reunir información de los Estados/Gather information from States	12 days	Thu 01/03/12	Fri 16/03/12	Juan González																			
6	Informe de seguimiento/Follow up report	64 days	Wed 01/02/12	Mon 30/04/12	Juan Gonzalez/Coordinador OACI																			
7	Plan de acción e-TOD/e-TOD action plan	675 days	Tue 01/05/12	Mon 01/12/14																				
8	Objetivos/Objectives	109 days	Tue 01/05/12	Sun 30/09/12																				
9	Establecer y priorizar objetivos del proyecto de implantación del e-TOD (tareas, costos, plazos de ejecución, riesgos del proyecto)/Establish and prioritise objectives of e-TOD implementation project (tasks, costs, impl. Target dates, project risks)	90 days	Tue 01/05/12	Sun 30/09/12	Juan González																			
10	Elaborar el Documento Guía con los objetivos del proyecto/Prepare guidance document with project objectives	80 days	Mon 11/06/12	Sun 30/09/12	Juan González																			
11	Especificaciones técnicas/Technical specifications	94 days	Mon 03/09/12	Thu 10/01/13																				
12	Definir las especificaciones técnicas y del proyecto/Define technical specifications of the project	20 days	Mon 03/09/12	Fri 30/11/12	Juan González																			
13	Elaborar el documento con las especificaciones técnicas/Prepare the document with technical specifications	30 days	Fri 30/11/12	Thu 10/01/13	Juan González																			
14	Realizar Acuerdos/Carry out agreements	315 days	Mon 18/06/12	Fri 30/08/13																				
15	Definir cláusulas contractuales para el uso de la información (protección, almacenamiento, distribución, etc)/Define contract clauses for use of information, storage, distribution, etc)	30 days	Tue 04/09/12	Mon 15/10/12	Estados																			
16	Firmar cartas de acuerdos, socializando los datos electrónicos de terreno y de obstáculos en las áreas comunes entre las fronteras de los Estados/Sign LOAs socialising e-TOD in common areas between States' boundaries	50 days	Mon 18/06/12	Fri 24/08/12	Estados																			
17	Firmar acuerdo de nivel de servicio (SLA) entre proveedores y servicio AIS/Sign service agreement - SLA between providers and AIS service	256 days	Fri 07/09/12	Fri 30/08/13	Estados/ Proveedores																			
18	Capacitación/Training	284 days	Tue 01/10/13	Fri 31/10/14																				

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ID	Nombre de tarea	Duration	Start	Finish	Resource Names	Timeline											
						10	2012			2013			2014				
						Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1			
19	Realizar seminarios orientados a los especialistas e-TOD, indicando los planes y los beneficios operacionales y económicos esperados/Hold seminars oriented towards e-TOD experts, indicating plans and operational and economical benefits expected.	3 days	Fri 26/09/14	Tue 30/09/14	Coordinador de Programa												
20	Desarrollar un programa de capacitación y la documentación para operadores de e-TOD/Develop training programme and documentation for e-TOD operators	284 days	Tue 01/10/13	Fri 31/10/14	Juan Gonzalez/Coordinador OACI									Juan Gonzalez/Coordinador OACI 01/10		31/10	
21	Análisis de requerimientos tecnológicos / Technological requirements analysis	283 days	Wed 31/10/12	Fri 29/11/13													
22	Evaluación de costos del proyecto en general/General project cost assessment	239 days	Wed 31/10/12	Mon 30/09/13	Estados												
23	Elaborar la documentación financiera/Draft financial documentation	44 days	Mon 02/09/13	Thu 31/10/13	Estados												
24	Presentar a la alta gerencia del documento final para su aprobación/Present the High Level Management the final document for approval	150 days	Mon 06/05/13	Fri 29/11/13	Estados												
25	Adquisición de herramientas tecnológicas/Acquisition of technological tools	326 days	Mon 02/09/13	Mon 01/12/14													
26	Adquirir los software, hardware y aplicativos de última tecnología/Acquire software and hardware and applications of state-of-the-art technology	152 days	Mon 02/09/13	Tue 01/04/14	Estados												
27	Instalar y poner en funcionamiento de las herramientas tecnológicas adquiridas/Install and put into operation technology tools acquired	132 days	Tue 01/04/14	Wed 01/10/14	Estados												
28	Entrenar al personal especializado en el manejo de estas herramientas/Train specialised personnel in handling these tools	43 days	Thu 02/10/14	Mon 01/12/14	Estados												
29	Desarrollo del GIS en Estados SAM para gestión de datos e-TOD, y gestionar info requerida para apoyar aplicaciones de nav aérea definidas/Development of GIS in SAM States for e-TOD and manage info required to support air nav applications	50 days	Mon 02/01/12	Fri 09/03/12													
30	Desarrollos de Guías y Manuales GIS/Guidance and Manual Developments	50 days	Mon 02/01/12	Fri 09/03/12													
31	Guía para la adquisición de un sistema de información geográfica/Guidance material for acquisition of a GIS	50 days	Mon 02/01/12	Fri 09/03/12	Juan González												
32	Manual Guía Implantación de un GIS/Guidance for GIS implementation	50 days	Mon 02/01/12	Fri 09/03/12	Juan González												