



---

**Agenda Item 3: Air Navigation Services**

**3.1 CNS/ATM**

**ICAO/PAIGH Regional Cooperation Project for the  
Production of 1:1000,000 and 1:500,000 VFR aeronautical charts**

(Presented by the Secretariat)

**SUMMARY**

The aim of this working paper is to request the General Directors to consider supporting the regional cooperation project focused on the production of aeronautical charts for visual air navigation. It is proposed in this project that CAR/SAM States unite, in order to accomplish the requirements established in Annex 4 and in Doc. 8733 – *CAR/SAM Air Navigation Plan*, agreed in AIS/MAP/SG/9 Meeting.

**References:**

- ICAO Annex 4.
- CAR/SAM Air Navigation Plan – Doc. 8733.
- Review of GREPECAS/12 Report by the ANC and ICAO Council.
- Ninth Meeting of the AIS/MAP GREPECAS Subgroup, June 2005.

**1. Introduction**

1.1 During the Ninth AIS/MAP Subgroup Meeting held in June, 2005 in Santo Domingo, Dominican Republic, the AIS/MAP specialists considered that it was very important to develop a regional cooperation project to achieve the production of aeronautical charts for visual air navigation in the CAR/SAM Regions through the cooperation mechanisms of international organizations of ICAO and PAIGH. Conclusion 9/10 of that meeting: *PAIGH/ICAO Project for the production of aeronautical charts* is shown in **Appendix A** to this working paper of ease of reference to the Directors.

1.2 The project has the possibility of being sponsored in its preliminary studies by the GEASA/WHTI initiative, as it was considered by this Group in its Fourth Meeting, held in Cartagena, Colombia, in May 2005. Even though the project will be considered by the GREPECAS/13 Meeting, it is important that the CAR Region Aeronautical Administrations consider the convenience to take advantage of this meeting to make progress in the consolidation and support of the Region for the future project.

1.3 The basis of this project is supported by the responsibility of producing the World Aeronautical Chart –ICAO 1:1000 000, as established in the Air Navigation Plan for CAR/SAM Regions, Table AIS 7 of Part VIII, FASID – Volume II of the Plan, complemented by Chart AIS 2 and based on Annex 4. The Table and Chart are depicted in **Appendix B** to this Working Paper.

1.4 Annex 4 also establishes that as an alternative to the aforementioned Chart 1:1000 000, States may provide the Aeronautical Chart –ICAO 1: 500 000, or small scale navigation charts, in order to ensure the coverage of all ground areas and thus fulfill the operational needs within their territories and of the regions in general.

1.5 Likewise, the Air Navigation Plan sets out that States having assumed the responsibility should assign in their national charts programmes the necessary priority to the production of aeronautical charts required, taking into account the repercussions it has in air navigation safety and in aviation security (AVSEC).

1.6 Within this context, the PAIGH will present for its approval in its Council meeting to be held in Caracas, Venezuela, in November 2005, the terms in which the project have been approved, in the first instance by the Subgroup, for its follow-up.

## **2. Discussion**

2.1 It is recognized that several States of the CAR/SAM Regions have faced and still face serious difficulties in the production of aeronautical charts for visual air navigation and in complying with the SARPs and Recommendations of Annex 4. These difficulties are basically due to the fact that civil aviation bodies nor geographical bodies have assigned the required priority for their production, as none of them allots a suitable budget to this end.

2.2 Based on the above, the Meeting is reminded that the Air Navigation Plan establishes that those States not having produced the aeronautical charts should produce them as soon as possible. Six years have elapsed since the Third CAR/SAM Regional Air Navigation Meeting (CAR/SAM/3 RAN ), Buenos Aires, Argentina, October 1999, and the deficiency on VFR aeronautical charts still persists in the CAR/SAM Regions.

2.3 Throughout the years, as stated in the respective reports of the Second and Third CAR/SAM Regional Air Navigation Meeting (CAR/SAM/2 and CAR/SAM/3 RAN), these difficulties have been recognized as well as the need for States to dedicate more efforts for the production of the charts. Specifically, the report of the CAR/SAM/3 RAN Meeting indicates and highlights the need for collaboration among States and among specialized charts organisms, as an essential step to obtain this objective.

2.4 It is also known that, as part of the efforts taken at the regional level for the production of these charts, there is the cooperation project fostered to that end by the Aeronautical Charts Committee of the Panamerican Institute of Geography and History (PAIGH) in 1997, (see **Appendix C**, in English version only) in which ICAO was invited to jointly develop it. This joint project, for a number of reasons, did not have a proper follow-up. Nevertheless, the PAIGH Aeronautical Cartography Commission continued with the efforts to develop the project until 1999 without having positive results.

2.5 In view of the present circumstances, and in a collaboration effort between International Organizations, the dialogue is open again between the authorities of the PAIGH and ICAO in order to reactivate the aforementioned project between these two specialized organizations possibly supported by the Organization of American States (OAS). The project, in order to cover all the States of the CAR and SAM Regions might count with the support of other bodies such as the “Western Hemisphere Transportation Initiative (WHTI)” and its “Group of Experts on Aviation Safety, Security and Assistance (GEASA)”, as well as the International Cartography Association (ICA).

2.6 In this regard, the GREPECAS Administration Coordination Group (ACG), when reviewing in its Fifth Meeting the Terms of Reference of the AIS/MAP Subgroup, agreed to add in its Work Programme the AIS/MAP/6 task entrusting to "Develop an ICAO/PAIGH TC draft project for the production and implementation of the 1:000,000 and 1:500,000 VFR aeronautical charts. Reactivation of the PAIGH Aeronautical Charts Committee.", to which priority A was assigned.

2.7 In order to proceed with this project the Ninth Meeting of the GREPECAS AIS/MAP Subgroup (Santo Domingo, Dominican Republic, June 2005) convened in reactivating the PAIGH Aeronautical Charts Committee and conform it in one unique Working Group within the GREPECAS, in order to work jointly in the reviewing and updating a technical cooperation project. Through the mentioned “*Conclusion 9/10 - PAIGH/ICAO Project for the production of aeronautical charts*”, a PAIGH/ICAO Aeronautical Charts Working Group was created. The terms of reference and work programme of this Group are also included in Appendix A for better reference to the Meeting. It is pointed out that in the composition of this Group Cuba and COCESNA are included.

2.8 On the other hand, the Meeting will recall that Air Navigation Commission and ICAO Council, when reviewing the Report of the Twelfth GREPECAS Meeting, resolved to urge the CAR/SAM States to comply with the provisions of Annex 4 so as to maintain the international standards on charts symbology. The request aims at keeping uniformity in the production of aeronautical charts at a global level in compliance with what is stated in the CAR/SAM/3 RAN.

### **3. Conclusion**

3.1 Taking into account the aforementioned, the Meeting is informed that in the Ninth Meeting of the GREPECAS AIS/MAP Subgroup attended 20 States/Territories and 5 International Organizations, all agreed on the need to develop a regional project for the production of the mentioned aeronautical charts. In light of the aforementioned, and due to the difficulties faced in the CAR Region to produce these charts, the Meeting is invited to take action so that CAR/States may comply with the requirement of Annex 4 and of the Air Navigation Plan. To this end, it is necessary that States cooperate in the PAIGH/ICAO cooperation project, which is a feasible solution in this old problem.

**4. Suggested action**

4.1 States are invited to take note of the above analysis and adopt the following draft Conclusion:

**DRAFT  
CONCLUSION 2/XX PAIGH/ICAO PROJECT FOR THE PRODUCTION OF  
AERONAUTICAL CHARTS**

That, taking into consideration the difficulties experienced in general in the CAR Region regarding the production of Aeronautical Charts required in Annex 4, and GEASA initiative to sponsor the preliminary studies to develop a regional cooperation project, States and International Organizations:

- a) consider their integration in the production of aeronautical charts project, that is proposed within the ICAO and PAIGH technical cooperation frame;
- b) support the work of ICAO/PAIGH Aeronautical Charts Working Group, which functions under the GREPECAS mechanism, in order to develop a project under the Terms of Reference and Work Programme that are shown in Appendix B to this working paper.

-----

**APPENDIX A**

**DRAFT CONCLUSION 9/10 and  
TERMS OF REFERENCE AND WORK PROGRAMME OF THE  
PAIGH/ICAO AERONAUTICAL CHARTS WORKING GROUP**

**DRAFT  
CONCLUSION 9/10**

**PAIGH/ICAO PROJECT FOR THE PRODUCTION OF  
AERONAUTICAL CHARTS**

That, taking into consideration the difficulties experienced in general in the CAR/SAM Regions regarding the production of Aeronautical Charts required in Annex 4, and the GEASA initiative to sponsor the preliminary studies, the GREPECAS:

- a) approve the development of a project for the production of aeronautical charts under PAIGH and ICAO technical cooperation schemes;
- b) establish PAIGH/ICAO Aeronautical Charts Working Group to carry out, specially, the development of the ICAO/IPGH TC draft Technical Co-operation project for the production and implementation of the 1:000,000 and 1:500,000 VFR aeronautical charts under the Terms of Reference and Work Programme presented in the Appendix A to Agenda Item 5;
- c) designate the Secretary of the AIS/MAP Subgroup to coordinate with PAIGH, with TCB and with any other body related with fostering the Project; and
- d) urge the Task Force to initiate actions as soon as possible and to develop the draft project to be presented at GREPECAS.

**PAIGH/ICAO Aeronautical Chart Working Group**

**1. Terms of Reference**

- a) To establish and conduct a joint project with PAIGH and other national and international organizations to develop processes and to determine database and Geographic Information System technology capable of producing electronic aeronautical charts in the CAR/SAM Region that meet ICAO Annex 4 standards.
- b) To determine sources of adequate digital chart data available, such as terrain, to support the economic production of the full range of electronic charts.
- c) To develop a plan, with achievable objectives in phases, for the funding and production of Electronic Aeronautical Charts based on WGS-84 in support of the CNS/ATM Systems and the Global Navigation Satellite System (GNSS) including the Flight Management System (FMS); the plan would provide for:

- a training program for CAR/SAM States to ensure adequate human resources are in place to support the initial ICAO/PAIGH project and the continual maintenance of the charts,
  - the funding and the establishment of database and GIS systems capable of producing and maintaining electronic charts
  - the achievable time-phased production of charts based on priority, and
  - the follow-on maintenance of the charts.
- d) meet and coordinate with the AIS/DB/AUTO/TF concerning database issues pertaining to electronic aeronautical chart support and production.

**2. Work Programme**

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
MAP-WG/1	<p><b>Establish the Composition of the ICAO/PAIGH Aeronautical Charts Working Group with Experience in Aeronautical Charting</b></p> <p>a) Recruit ICAO and PAIGH members experienced in cartography, digital map or chart production, WGS 84, and digital terrain modeling to participate in the Task Force; invite the Cartographic and Geographic Institutes of the CAR/SAM Region to participate.</p> <p>b) Arrange joint AIS DB AUTO/MAP Task Force meetings to share database expertise between the participants and to coordinate charting database requirements.</p>	A	2005	2006
MAP-WG/2	<p><b>Determine Methodology for Electronic Chart Production</b></p> <p>a) Identify existing technology capable of producing electronic charts that meet the ICAO Annex 4 standards.</p> <p>b) Determine that methodology most achievable for a Joint ICAO/PAIGH electronic charting project and follow-on chart maintenance in the CAR/SAM Region</p>	A	2005	2007
MAP-WG/3	<p><b>Prepare a Plan to Produce Electronic Charts Based on the Priority of each Chart to be Produced and with Achievable Milestones</b></p> <p>a) Determine the priority of charts to be produced,</p> <p>b) Review past PAIGH and ICAO plans for the production of aeronautical charts and other example regional development plans to gain background for the development of a truly achievable plan,</p> <p>c) Prepare a plan that includes background on the recommended production process, the steps necessary to compile the data required, the quality</p>	A	2005	2007

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
	process, and achievable milestones for production of charts based on priority requirements.			
MAP-WG/4	<p><b>Define Sources or Methods for Obtaining Electronic Terrain, Obstacle, Geodetic, Aeronautical and Other Cartographic Base Data Necessary to Produce Electronic Charts</b></p> <p>a) determine data sources available within the State civil aviation authority,                      b) determine the availability of digital data from State Cartographic and geographic Institutes,                      c) determine the availability of international organization and commercial sources of data.</p>	A	2005	2007
MAP-WG/5	<p><b>Seek Sources for Funding and Support for a Joint ICAO/PAIGH Electronic Charts Project in the CAR/SAM Regions</b></p> <p>a) gain State aviation authority commitment to the joint project and determine that portion of funding that may be sustained by each of the CAR/SAM Region States,                      b) determine States and organizations that can provide data and production resources,                      c) determine States and organizations that will assist in the funding of the project such as the World Bank, International Development Bank and the U.S. Trade Development Agency;                      d) determine the most effective use of Special Implementation Projects (SIP) funding resources</p>	A	2005	2007
MAP-WG/6	<p><b>Develop Implementation Plan for the Production of Electronic Charts</b></p> <p>a) plan production milestones based on the available technology, human resources, funding, data, and chart priority,                      b) plan follow-on chart maintenance milestones and schedules based on the available technology, human resources, funding, data, and chart priority.</p>	A	2005	2008

**3. Composition**

Argentina, Brazil, Chile\*, Cuba, COCESNA, Jeppesen.

\* *Rapporteur*: Viviana Barrientos

Note: The Substitute Rapporteur will be designated at the next meeting of the Task Force

-----

**APPENDIX B**

**Table AIS 7 — Tableau AIS 7 — Tabla AIS 7 (FASID)**

**PRODUCTION RESPONSIBILITY FOR SHEETS OF THE  
WORLD AERONAUTICAL CHART — ICAO 1:1 000 000**

**RESPONSABILITÉ DE LA PRODUCTION DES FEUILLES DE  
LA CARTE AÉRONAUTIQUE DU MONDE AU 1/1 000 000 — OACI**

**RESPONSABILIDAD DE LA PRODUCCIÓN DE LAS HOJAS DE  
LA CARTA AERONÁUTICA MUNDIAL — OACI 1:1 000 000**

EXPLANATION OF THE TABLE

*Column*

- |   |   |
|---|---|
| 1 | Name of State accepting production responsibility   |
| 2 | World Aeronautical Chart — ICAO 1:1 000 000 sheet number(s) for which production responsibility is accepted |
| 3 | Remarks   |

EXPLICACIÓN DE LA TABLA

*Columna*

- |   |   |
|---|---|
| 1 | Nombre del Estado que acepta la responsabilidad de la producción.   |
| 2 | Carta aeronáutica mundial — OACI 1:1 000 000, número de las hojas por cuya producción se acepta la responsabilidad. |
| 3 | Observaciones.  |



State État Estado	Sheet number(s) Numéros de feuilles Números de las hojas	Remarks Remarques Observaciones
Argentina	3259, 3260, 3314, 3315, 3316, 3381, 3382, 3383, 3434, 3435, 3436, 3490, 3491, 3492, 3537, 3538, 3585, 3625, 3627, 3668, 3672, 3699, 3737, 3738, 3762, 3789	
Bolivia	3193	Will be published in the future./Sera publiée ultérieurement./Se publicará más adelante.
Brazil	2826, 2892, 2893, 2894, 2895, 2943, 2944, 2945, 2946, 2947, 2948, 2949, 3013, 3014, 3015, 3016, 3017, 3018, 3066, 3067, 3068, 3069, 3070, 3071, 3137, 3138, 3139, 3140, 3141, 3189, 3190, 3191, 3192, 3261, 3262, 3263, 3265, 3313, 3384	
Chile	3194, 3258, 3317, 3381, 3436, 3437, 3490, 3538, 3585, 3627, 3668, 3737, 3762, 3789	
Colombia	2769, 2770, 2828, 2829, 2890, 2891*	*Only to cover its own territory./Pour son propre territoire seulement./ Sólo para cubrir su propio territorio.
Cuba	2585, 2586, 2587	
Dominican Republic	2648	
Ecuador	2888, 2890*, 2951, 2953	*Only to cover its own territory./Pour son propre territoire seulement./ Sólo para cubrir su propio territorio.
El Salvador	2710*	*Only to cover its own territory./Pour son propre territoire seulement./ Sólo para cubrir su propio territorio.
France	2825	Chart at 1: 740 000 covering French Guiana is published./Une carte au 1/740 000 de la Guyane française est publiée./Se publica la carta al 1: 740 000, cubriendo la Guayana Francesa.
Haiti	2647	
Honduras	2710	
Mexico	2471, 2472, 2520, 2521, 2588, 2589, 2590, 2591, 2642, 2643, 2644, 2645	
Nicaragua	2709, 2768	
Panama	2769, 2830	Covered by Aeronautical Chart - ICAO 1:500 000, to cover its own continental territory and territorial waters./Couvert par la Carte aéronautique au 1/500 000 — OACI. Pour son propre territoire et ses eaux territoriales./Cubierta por la carta aeronáutica — OACI 1:500 000, para cubrir su propio territorio continental y aguas territoriales.
Paraguay	3260, 3314	
Peru	2950*, 3011*, 3012, 3072, 3073*, 3135*, 3136*, 3194*	* Will be published in the future./Sera publiée ultérieurement./ Se publicará más adelante.
United Kingdom	2646, 2705, 3499, 3530, 3672**, 3699**, 3737**, 3738**, 3762**, 3789**	** These charts are also published by Argentina./Ces cartes sont aussi publiées par l'Argentine./Estas cartas también son publicadas por la Argentina.
Uruguay	3434*	* Will be published in the future./Sera publiée ultérieurement./Se publicará más adelante.
Venezuela	2707, 2770, 2771, 2772, 2827, 2828	With modified sheetlines and covering its own territory only./Découpage modifié. Pour son propre territoire seulement./Con los límites de las hojas modificados y cubriendo solamente su propio territorio.



**APPENDIX C**

**PAIGH AERONAUTICAL CHARTS COMMITTEE**

**Available only in English version**

- END -