



- Agenda Item 2: Review of the reports of the AIM Subgroup Contributory Bodies**
2.3 Report of the rapporteur of the Task Force on Electronic Aeronautical Charts in Aeronautical Information Management (AIM/eMAP/TF/1), and the meeting of the PAIGH aeronautical charts group

**REPORT OF THE ICAO/PAIGH COOPERATION PROJECT FOR THE PRODUCTION OF
VFR ELECTRONIC AERONAUTICAL CHARTS**

(Presented by the Rapporteur)

SUMMARY	
This working paper summarises the results of the first meeting of the Working Group on Aeronautical Charts of the PAIGH Mapping Commission.	
References:	
<ul style="list-style-type: none">Final technical report of the ICAO/PAIGH Cooperation Project for the production of VFR electronic aeronautical charts. Santiago, Chile, 10 - 13 March 2009.	
ICAO Strategic Objectives	<i>This working paper is related to Objectives A and D.</i>

1. Introduction

1.1 The first meeting of the Aeronautical Charts Group (e-MAP/1) was held in Santiago, Chile, on 10-13 March 2009. The meeting was attended by 7 guest delegates from Argentina, Colombia, Ecuador, Mexico, Panama, Paraguay, and Uruguay, 4 special guests from the General Direction of Civil Aviation of Chile, 12 technical speakers from the Aerial Photography Service of the Chilean Air Force, and the Coordinator, geographer Viviana Barrientos Lardinois, Head of the Working Group. The **Appendix** to this working paper contains the report of said project.

2. Analysis of the meeting

2.1 The International Civil Aviation Organization (ICAO) and the Pan American Institute of Geography and History (PAIGH) have been always concerned about the safe and systematic development of aviation. For this reason, they have established committees and working groups for promoting the development and implementation of standards to enhance safety.

2.2 The International Civil Aviation Organization (ICAO), a specialised body of the United Nations System, whose mission is to promote the implementation of standards, methods and procedures that will contribute to enhance safety, requested the participation of experts on Earth Science to further the technical aspects that will permit the implementation of the Air Navigation Plan. The experts agreed on the need to foster a regional coordination project for the production of standard and inter-operational electronic aeronautical charts. The coordination of this task was entrusted to the Delegation of Chile.

2.3 To this end, a joint ICAO/PAIGH meeting was held to obtain the support of the two organizations for the implementation of a cooperation project. This required the reactivation of the PAIGH Aeronautical Charts Group and the summoning of technical experts, for which various alternatives were examined.

2.4 Consequently, the “ICAO/PAIGH COOPERATION PROJECT FOR THE PRODUCTION OF VFR ELECTRONIC AERONAUTICAL CHARTS” was developed and submitted to the Project Evaluation Committee of the PAIGH Mapping Commission. The project set forth the need to have resources to finance the participation of delegates from the region at a work meeting to discuss and agree on the technical and methodological bases for digital chart production based on international standards. The project was approved by the Evaluation Committee and ratified at a joint meeting of the PAIGH Commissions held in Itu, Brazil, in June 2007.

2.5 In its first stage, the project contemplates bringing together experts on aeronautical topics to make a diagnosis of the regional situation regarding the production of electronic aeronautical charts, fostering cooperation among organisations/States, and contributing to reduce differences in the level of migration from analogue to electronic aeronautical mapping. To this end, letters were sent to the presidents of the National Mapping Commissions, and to the Regional Expert of the ICAO Aeronautical Information Management Group, inviting experts to participate at this first meeting of the Working Group on Aeronautical Charts of the PAIGH Mapping Commission, designated as MAP TF 01. Based on the responses received, a group of experts were selected to receive the financial support obtained through the aforementioned ICAO/PAIGH Project.

3. Suggested Action

3.1 The Meeting is invited to:

- a) take note of the contents of this working paper; and
- b) take into account the results of the report contained in the **Appendix** to this working paper.



Pan American Institute of Geography and History
MAPPING COMMISSION
Working Group on Aeronautical Charts
MAP TF 01 meeting
Santiago, Chile, 10 – 13 March 2009.



“Final Technical Report”

**“ICAO/PAIGH COOPERATION PROJECT FOR THE PRODUCTION OF VFR ELECTRONIC
AERONAUTICAL CHARTS”
CART 2.1.1.1.10.1**

First Meeting of the Working Group on Aeronautical Charts of the PAIGH Mapping Commission

1. Introduction

1.1 The growth of the aeronautical industry has led aviation to play an increasingly important role in the economic development of the States, due to the impact it has on areas such as trade, tourism, employment, infrastructure, both public and private. In very short time, air traffic and safety requirements have increased significantly, bringing about the need to establish standards and procedures to strengthen safety. Within this context, it is necessary to have an aeronautical mapping activity consistent with the current needs of aviation.

1.2 The International Civil Aviation Organization (ICAO) and the Pan American Institute of Geography and History (PAIGH) have been always concerned about the safe and systematic development of aviation. For this reason, they have established committees and working groups to promote the development and implementation of standards to improve safety.

1.3 For many years, the Aeronautical Charts Committee of the PAIGH Mapping Commission has been making important contributions to the development of technical manuals and specifications for the production of aeronautical charts. After several years of activities, it stopped meeting due to the technological changes introduced by the use of digital systems for chart production, and also due to budgetary reasons.

1.4 Consequently, and taking into account the demand of modern aviation for digital, updated, reliable, inter-functional, and standard mapping products, the Aerial Photography Service (SAF) requested the coordination of the Aeronautical Chart Committee of the PAIGH Mapping Commission to help further these topics. At the 18th General Assembly of the PAIGH and at the consultation meetings of its committees, held in Caracas, Venezuela in November 2005, the SAF was entrusted with the coordination of the Mapping Commission for the 2005-2009 period.

1.5 The International Civil Aviation Organization (ICAO), a specialised body of the United Nations System, whose mission is to promote the implementation of standards, methods and procedures that will contribute to the development of safety, requested the participation of experts on Earth Science to further the technical aspects that will permit the implementation of the Air Navigation Plan. The experts agreed on the need to foster a regional coordination project for the production of standard and inter-operational electronic aeronautical charts, a task whose coordination was entrusted to the Delegation of Chile.

1.6 To this end, a joint ICAO/PAIGH meeting was held to obtain the support of the two organisations for the implementation of a cooperation project. This required the reactivation of the PAIGH

Aeronautical Charts Group and the summoning of technical experts. To this end, several alternatives were examined.

1.7 Consequently, the “ICAO/PAIGH COOPERATION PROJECT FOR THE PRODUCTION OF VFR ELECTRONIC AERONAUTICAL CHARTS” was developed and submitted to the Project Evaluation Committee of the PAIGH Mapping Commission. The project set forth the need to have resources to finance the participation of delegates from the region at a work meeting to discuss and agree on the technical and methodological bases for digital chart production based on international standards. The project was approved by the Evaluation Committee and ratified at a joint meeting of the PAIGH Commissions held in Itu, Brazil, in June 2007.

1.8 In its first stage, the project contemplates bringing together experts on aeronautical topics to make a diagnosis of the regional situation regarding the production of electronic aeronautical charts, fostering cooperation among organisations/States, and contributing to reduce differences in the level of migration from analogue to electronic aeronautical mapping. To this end, letters were sent to the presidents of the National Mapping Commissions, and to the Regional Expert of the ICAO Aeronautical Information Management Group, inviting experts to participate at this first meeting of the Working Group on Aeronautical Charts of the PAIGH Mapping Commission, designated as MAP TF 01. Based on the responses received, a group of experts were selected to receive the financial support obtained through the aforementioned ICAO/PAIGH Project.

1.9 The first meeting of the Working Group on Aeronautical Charts of the PAIGH Mapping Commission was held on 10-13 March 2009, at the premises of the Aerial Photography Service of the Chilean Air Force, the host organisation.

2. Participants

2.1 The meeting was attended by 7 guest delegates from Argentina, Colombia, Ecuador, Mexico, Panama, Paraguay, and Uruguay; 4 special guests from the General Direction of Civil Aviation of Chile; 12 technical speakers from the Aerial Photography Service of the Chilean Air Force; and the Coordinator, geographer Viviana Barrientos Lardinois, Head of the Working Group. The guest delegates that received financial support from the project were: Maria Ines Villalba from Argentina, Harlen Mejías from Colombia, Catalina Erazo from Ecuador, Victor Samudio from Panama, Juan Espinola from Paraguay, and Adán Díaz from Uruguay. This financial support included air tickets, lodging and meals. In turn, the host organisation provided the materials, physical infrastructure, technical specialists, daily transportation, and meals for all the participants.

3. Activities

3.1 The meeting was inaugurated by Coronel Ludwig Gronemeyer Crestto, Director of the Aerial Photography Service of the Chilean Air Force, and was attended by the President of the PAIGH Mapping Commission, Dr. Alejandra Coll Escanilla, both of whom highlighted the importance of regional integration.

3.2 During the closing ceremony, Coronel Ludwig Gronemeyer Crestto acknowledged the work done by the group for reaching consensus and developing procedures that would contribute to the production of standard and inter-functional electronic aeronautical charts.

3.3 In addition to the technical sessions, a camaraderie meeting was held at the Bali – Hi restaurant, where delegates enjoyed of a relaxed moment, in rhythm with the typical dances of Chile.

4. Work Sessions

4.1 Three technical work sessions were held, the discussions of which appear in the respective proceedings. On Friday 13, an analytical meeting was held, the conclusions of which are shown below:

1. In many States, the entities responsible for the production of aeronautical charts use charts from other mapping bodies as topographic reference. Consequently, the delegates agreed to get in contact with such organisations, at an official and technical level, to address the topics discussed at this meeting and unify criteria concerning the production of aeronautical charts on a scale of 1:1.000.000.
2. The meeting discussed the need to establish documented quality control and metadata methods, both in the mapping organisations and in aviation. A proposal was made to use the Chilean experience on the implementation of a quality management and control system under ISO 9001:2000, 19113, 19114 and 19115 standards by Technical Committee 211 as an example, as a way of controlling the productive process and generating quality management systems that reflect the characteristics, precision, and reliability of the mapped data. Consequently, it was proposed that the delegates ask their respective Organisation/State to officially request the participation of specialists from the Aerial Photography Service to help them in the analysis, design, and implementation of a quality management system adjusted to their respective organisations and based on common international standards.
3. The meeting agreed to ask Mr. Santiago Borrero M. to send a digital letter for Mr. Raúl Martínez, regional expert of the ICAO Aeronautical Information Management Group, requesting delivery of a copy of Document 8697 (Aeronautical Chart Manual) to the working group, to be used as a reference and for its adjustment to the electronic environment. The delegates will also coordinate so that the specialists in their respective organisation/State may be authorised to review it. The document will be reviewed in separate parts, setting deadlines for comments. In order to carry out this task, it was agreed that the chapter on general aspects would be reviewed in no more than 15 days, starting when the document was received in digital format by the Coordinator and relayed to the respective delegates. After compiling all the comments, a document would be sent to PAIGH for its assessment and subsequent delivery to ICAO.
4. The need to standardise the electronic aeronautical chart production process was discussed, considering the different levels of development of the countries in the region in this respect. It was noted that the organisations/States that had computer systems had similar processes, but most of them were not duly documented. In this regard, and for standardisation purposes, it was decided to establish a common process, to be developed based on the methodology used by the Aerial Photography Services, as described in the presentations. In April, the Coordinator would send the background information for analysis, and after receiving the suggestions and no later than one month, it would be sent to PAIGH for its review and subsequent distribution.
5. The meeting agreed to insist on the need to further the transition to WGS-84. Consequently, a dialogue on the technical characteristics of WGS-84 and its similarities and/or differences with SIRGAS (South American Datum for the Americas) was established. It was noted that such differences would be insignificant due to the scales of the VFR aeronautical charts, especially when the end product was a printout. These acquire more importance in electronic aeronautical charts and in approach or aerodrome charts. In this regard, the representative of Mexico stated that his country would not adopt SIRGAS for technical reasons, especially regarding height information, which brought about the need to have a geoidal model. Due to the complexity of the topic, it was agreed to wait for the relevant organisations and groups to give their opinion in this regard.

6. Mention was made of the need to establish the technical requirements and characteristics of GPS instruments used for the establishment of significant aeronautical points. This was considered to be a priority issue in the standardisation process, since they were the basis for the data used. Since no experts on the topic were present, the meeting agreed to search for information on the instruments used by each organisation/State for review by an expert, who would propose a list of minimum characteristics that GPS instruments should have. This topic, together with the establishment of a common collection and recording methodology, would be discussed later on, but should be addressed before the next meeting of the group.
7. In order to further the cooperation among organisations/States, the meeting considered the need for the personnel of the Aerial Photography Service to implement a regional programme to assist in the production of SIG-based aeronautical charts. Therefore, it agreed that the delegates would propose to their respective organisations the idea of officially inviting the Aerial Photography Service of the Chilean Air Force for this purpose. This would require resources for its implementation.
8. The meeting agreed that organisations producing basic mapping information and those responsible for producing aeronautical charts in each State should participate at the second work meeting (TF MAP 02). Mention was also made of the need to invite representatives of the United States and ICAO, due to the need to establish new links with the NGA (National Geospatial Intelligence Agency) for negotiating a joint agreement or, otherwise, expediting individual agreements. This will reveal the actual needs of the States at regional level, so that the NGA may support the training of technical staff. The participation of ICAO staff was deemed of utter importance for furthering the establishment of basic common standards.
9. The meeting also examined the need to present PAIGH with a project to continue with the ICAO/PAIGH project, in order to have the resources to organise the next work meeting. To this end, it was agreed that the delegates would try to obtain the formal support of their respective organisations through a letter of support, whose format would be sent by the Coordinator. Once received, it would be included as background information, according to that requested in the PAIGH project submission form.
10. The delegate of Colombia stated that he would make consultations to hold the next meeting of the working group in Bogota – Colombia.

4.2 The first meeting of the Group on Aeronautical Charts of the PAIGH Mapping Commission ended at 12:30 hrs.

- END -