



SAM 03/03-AIS/MAP/AUTO

WP/5.1

30/05/03

INTERNATIONAL CIVIL AVIATION ORGANIZATION

SOUTH AMERICAN OFFICE

AERONAUTICAL INFORMATION SERVICES, AERONAUTICAL CHARTS AND AIS AUTOMATION COORDINATION AND IMPLEMENTATION MEETING

(SAM 03/03-AIS/MAP/AUTO)

(Lima, Peru, 13 to 17 October 2003)

Agenda Item 5: Advances achieved on the implementation of AIS/MAP Automated Systems in the SAM Region.

(Presented by the Secretariat)

SUMMARY

This working paper presents for the consideration of the meeting aspects related to the advances achieved in the AIS/MAP Automated Systems implementation in the ICAO South American Region.

References:

- Report of the Third CAR/SAM/3 RAN Meeting, (Buenos Aires, Argentina, 5 to 15 October 1999).
- Report of the AIS/MAP/SG/7 (Varadero, Cuba, 23 to 27 October 2000)
- Report of the GREPECAS/10 Meetings (Las Palmas, Canary Islands, Spain, 23 to 27 October 2001)

1. Introduction

1.1 ICAO Annex 15 states that the main objective of AIS services is to ensure the flow of information required to guarantee the safety, regularity and efficiency of international air navigation. In other words, the lack of efficient and timely information could, in one way or another, affect the efficiency of air operations. In this regard, the aeronautical community has become aware of the need to provide efficient AIS services in the SAM Regions, and of those problems directly related to late dissemination of aeronautical information to international users. Therefore, States must understand the importance of a proper provision of AIS services to ensure the required level of efficiency of air operations, also taking into account that airlines rely directly on the efficient provision of this type of service.

1.2 In addition to the foregoing, it should also be noted that most of the current AIS services have been suitable for a manual operation, where the main dissemination element has been written material. However, with the rapidly evolving technology in the aeronautical field, airlines require immediate aeronautical information/data, updated in real time. On the other hand, computer systems, such as the integrated flight management system (FMS), GNSS sensors, flight planning and automated flight simulation, require precise and immediately available information. In order to meet the operational requirements of CNS/ATM, GNSS and FMS systems, and use the geographic information systems (GIS) and terrain digital modelling systems (DTMS) application software integrated into AIS databases for the electronic production of aeronautical charts, States must be aware of the drastic changes that AIS service support and provision structures will require in order to allow for an effective transition from the existing AIS manual systems to a fully automated and integrated AIS environment.

2. **Background**

2.1 Since the CAR/SAM/2 RAN meeting (1989), it has been agreed that there is a need to establish technical and operational requirements for the creation of regional automated AIS databases. Following the establishment of the GREPECAS Regional Group (1990), the objective was set to support the development of automated AIS systems as a means to both improve the international exchange of NOTAMs in the area of concern, and foster the overall improvement of AIS service provision. When defining the concept of an integrated automated AIS system for the CAR/SAM Regions, it was agreed that this type of system should be based on operational principles aimed at avoiding inconsistencies and discrepancies among interconnected facilities. Therefore, it was felt that this type of system should be designed based on common procedures and standard formats, with interactive terminals and commands, with user-friendly and seamless access for both operators and users in general. Likewise, the technicians in charge should ensure, at all times, the efficient operation of such systems and the effective reception by users in general of the data required.

2.2 Regarding the need to transition towards a fully automated AIS environment, two basic strategies have been conceived for the CAR/SAM Regions, namely: the need for each State to implement its own National NOTAM Bank (NASC), which, interconnected with the other banks through the AFS service, would form the CAR/SAM Integrated Automated AIS System. This first option would also allow the States to implement their own internal automated AIS systems, which, depending on their level of development, could be interconnected to the CAR/SAM Integrated Automated AIS System. As a second stage in the evolution of the CAR/SAM Integrated Automated AIS System, the CAR/SAM/3 RAN Meeting, through Conclusion 12/7 – Establishment of a CAR/SAM AIS database system, agreed on the need to develop basic requirements and planning criteria for a Supreme Regional AIS database system which, according to its design, would be based on the establishment by each State of central AIS database access terminals.

3. **Action to foster the implementation of automated AIS systems**

3.1 The SAM Regional Office has taken relevant action to foster the automation of AIS services and the implementation of the CAR/SAM integrated automated AIS system. In this regard, it should be noted that the first meeting of the CAR/SAM Integrated Automated AIS System was held in Cuba, on 24-25 June 1999. Likewise, two seminars on AIS automation have been held, the first of which was aimed at showing the technological developments of the automated AIS system industry. The second was held in 2001, in Ecuador, and was aimed at providing the AIS/MAP technical personnel with relevant information on the implementation and use of automated AIS systems, the implementation of a database system, and the policies being applied in the region in this field. On this particular matter, the meeting

should take note of the action adopted by some States for the establishment of automated AIS systems in the area concerned (see **Appendix A**).

3.2 As a follow-up to the action adopted by the AIS/MAP/SG/7 meeting (2000) with respect to the status of implementation of NOTAM data banks in the CAR/SAM Regions, the GREPECAS/10 Meeting noted that some States/Territories had made some progress in the implementation of this type of facilities, and, accordingly, formulated Conclusion 10/53 (Implementation of NOTAM Data Banks), requesting those States that had not complied yet with this requirement, to implement NOTAM data banks as part of the CAR/SAM Integrated Automated AIS System. It also requested ICAO to carry out activities to promote the effective implementation of this type of facilities in the area of concern. Furthermore, and regarding the technical specifications for the first phase of the CAR/SAM Automated AIS System, GREPECAS/10 adopted Conclusion 10/51 (Coordinated Plan Document (NASC) and Common Operational Procedures Manual (COPM)), urging States to continue using these two documents and apply the technical guidelines contained therein.

4. **Discussion**

4.1 As a follow-up to the agreements reached by the CAR/SAM/3 RAN Meeting (1999) regarding the need to develop basic requirements and planning criteria for a CAR/SAM AIS Database (CASADAB), and recognising the impact of that type of systems on the effective implementation of CNS/ATM, GNSS and FMS systems, pursuant to the Global Plan for CNS/ATM systems, GREPECAS/10 urged the States (Conclusion 10/54) to continue working on this matter. In this regard, the GREPECAS Database Task Force agreed to focus said activities on the development of technical, operational and administrative requirements for the establishment of AIS/MAP databases and the definition of technical requirements for the electronic exchange of aeronautical information/data, through a standard conceptual model.

4.2 Regarding that stated in the previous paragraph, it would be advisable for States to duly consider the fact that AIS service automation in the SAM Region cannot be seen as an isolated event of each particular State, but rather, the implementation of this type of systems should be subject to regional coordination. In this sense, it should also be noted that standard specifications are required for the operational integration of all the systems within a common development platform, using standard conceptual models for the electronic exchange of aeronautical information/data. Consequently, it may be concluded that there is a need for regional coordination and to use resources from the regional technical cooperation projects to develop technical specifications and implement and commission the automated AIS systems in the SAM Region.

4.3 Although the GREPECAS/10 Meeting (2001) acknowledged that some CAR/SAM States had made significant progress in the implementation of NOTAM Data Banks, the First Meeting for the Coordination and Implementation of the CAR/SAM Automated AIS System (Cuba, 1999) noted the need to implement common query protocols to allow for standard access to this type of facilities, as established in the GREPECAS COPM Manual (Chapter 7) (see **Appendix B**), since the problem persisted in the area of concern. In this respect, it would be advisable for the meeting not only to review the technical implications of this requirement, but also to take some type of additional action so that the States may effectively comply with the uniform application of said query protocols.

4.4 In view of the operational need for users to be able to have readily available, reliable, real-time aeronautical information/data of the required integrity, the AIS/MAP/SG/7 Meeting agreed to adopt Draft Conclusion 7/7, requesting GREPECAS to advise the States as to the convenience of providing electronic mail facilities (e-mail) to AIS services. In this respect, and although GREPECAS/10

dismissed the aforementioned action on the understanding that it referred to aspects concerning aeronautical communication systems planning, this meeting could re-examine this issue from a different approach, in order to better understand it. It would also be appropriate to note that the AIS/MAP Divisional Meeting (Montreal, 1998) approved Recommendation 3.2/2, which considered the possible use of the INTERNET for the exchange of aeronautical information/data, taking into account data integrity requirements. Regarding this particular issue, the adoption of some action could be considered, as indicated in paragraph 5.5 of this working paper.

5. Conclusion

5.1 Regarding the subject matter of this working paper, the meeting may deem it advisable to request States to take concrete action in order to comply with the effective implementation of national data banks (NASC) in direct support of the CAR/SAM Integrated Automated AIS System, and to consider, within their plans, the establishment of databases for their AIS services, so as to foster the application of this type of system in the SAM Region. Furthermore, it may also deem it advisable to urge the SAM Regional Office to foster the activities required to support the States in the implementation of this type of systems. Regarding the uniform application of query protocols for national data banks (NASC) in the SAM Region, the meeting might review the technical implications of such requirement, as established in the GREPECAS COPM manual (Chapter 7) (see Appendix B to this paper). In view of the foregoing, the adoption of the following action is proposed to the meeting:

CONCLUSION 5/1: IMPLEMENTATION OF NATIONAL DATA BANKS (NASC) IN THE SAM REGION

That SAM States:

- a) that have not yet implemented NOTAM data banks (NASCs) in their International NOTAM Offices in direct support of the CAR/SAM Integrated Automated AIS System, and taking into account that the current level of technological development permits the implementation of these facilities at a reasonable cost, be urged to take prompt action to implement the required NASCs by 2004, and to that end, use, insofar as possible, the economic resources of technical cooperation projects;
- b) for the implementation of their NASCs, apply the “Coordinated Plan” and the “COPM Manual” as approved by GREPECAS for that purpose; and
- c) when implementing new NASCs and/or re-designing their NASCs, take into account the need for these to provide aerodrome AIS offices pre-flight information bulletins (PIBs), pursuant to the operational requirements of users, and to integrate such systems into the OPMET data banks and flight plan databases, in order to offer an integrated pre-flight service.

CONCLUSION 5/2: IMPLEMENTATION OF COMMON QUERY PROTOCOLS

That SAM States that:

- a) have NOTAM data banks already installed that do not meet the common query protocol requirements contained in the GREPECAS COPM Manual (Chapter 7), take the necessary measures to review and adjust their systems in order to effectively comply with this technical requirement by May 2004 at the latest;
- b) are in the process of acquiring and/or developing NOTAM data banks, design their systems in such a way that they effectively meet the aforementioned common query protocol requirements.

CONCLUSION 5/3: IMPLEMENTATION OF QUALITY SYSTEMS IN NOTAM DATA BANKS OF THE SAM REGION

That SAM States that:

- a) have NOTAM data banks in operation, take the necessary action to implement quality assurance systems in said facilities, through the application of ISO 9000, 9000-3 and 10003 standards and any other specification applicable for this purpose, in order to ensure the integrity of the aeronautical information/data provided;
- b) have not yet implemented a NASC, consider within the list of specifications for its implementation all of the technical requirements needed for the implementation of quality assurance systems in said facilities.

CONCLUSION 5/4: IMPLEMENTATION OF AN INTEGRATED AIS DATABASE SYSTEM IN THE SAM REGION

That, in order to enable the implementation of an integrated AIS database system in the ICAO South American Region, SAM States take the necessary steps to:

Support the establishment of a new Regional Technical Cooperation Project and/or extend the scope of one of the project of this type currently under way in the Region, in order to have the necessary economic resources for the implementation of AIS databases in each State, and for the implementation of a regional AIS database capable of selectively and rationally integrating national databases into AIS databases of other Regions, in direct support of the future navigation satellite systems.

CONCLUSION 5/5: USE OF INTERNET TECHNOLOGY BY SAM AIS SERVICES FOR SUPPLEMENTARY PROVISION OF AERONAUTICAL INFORMATION

That, considering the growing use of INTERNET technology by the AIS services of the different ICAO Regions, as well as the need to have effective alternate means for the regular provision of aeronautical information to the different types of users, SAM States, inasmuch as possible:

- a) consider providing INTERNET facilities to their AIS services, so that the former can be used as an alternate means for the supplementary provision of aeronautical information/data to international users;
- b) engage computer programming experts experienced in the design of web pages integrated into AIS databases, so that AIS technicians may develop the most appropriate and convenient standards, specifications, and operational procedures for effective use of INTERNET and INTRANET facilities for the production, maintenance and provision of AIS products through this communication environment;
- c) once this facility has been implemented in AIS services, disseminate in an efficient manner the types of AIS products to be provided and the frequency with which said products will be available through said facilities.

6. **Suggested action**

6.1 The meeting is invited to:

- a) review the contents of this working paper and its Appendices A and B; and
- b) adopt the actions presented under item 5 of this working paper and approve any other action or measure that may be required on this matter.

- - - - -