

INTERNATIONAL CIVIL AVIATION ORGANIZATION

CAR/SAM AIS/ATM/CNS 02/00 Informal Meeting

(Cayenne, 27-29 March 2001)

- Item 3: Review of CNS matters, taking into account:**
- a) **AFS deficiencies and shortcomings**
 - b) **AMS deficiencies and shortcomings**
 - c) **Surveillance and radar implementation plans**

Surveillance and radar implementation plans

(presented by the Secretariat)

Summary

This working paper offers some general thoughts to be taken into account when planning radar facilities, and presents the current status of surveillance systems in the Eastern CAR/SAM Subregion. Its objective is to have the States of the Subregion report on their plans to implement surveillance systems, as set forth in Volume II, FASID, of the CAR/SAM Air Navigation Plan.

References:

- Report of the Third CAR/SAM Regional Air Navigation Meeting (Doc9749);
- CAR/SAM Regional Air Navigation Plan, Volumes I and II;
- GREPECAS/8 report; and
- ATS Planning Manual, Doc.9426.

1. Background

1.1 The GREPECAS/8 meeting, held in the Dominican Republic on 9-17 November, 1998, suggested in its Conclusion 8/50 that it would be advisable to convene a meeting to examine and propose measures to overcome the deficiencies affecting the provision of air traffic services in the Eastern CAR/SAM Subregion, that is, the Belem and Manaus (Brazil), Rochambeau (French Guiana), Paramaribo (Suriname), Georgetown (Guiana), Maiquetía (Venezuela) and Piarco (Trinidad and Tobago) FIRs.

1.2 According to the table on the status of radar implementation in the CAR/SAM Regions, presented as Appendix K to item 2 of the GREPECAS/8 meeting, the status of implementation of surveillance systems in the Eastern CAR/SAM Subregion is as follows: the Belem FIR has primary and secondary radar in place and there are plans to install eight additional systems; at the Manaus FIR, there are four radar systems already installed and eight additional ones are foreseen; the Rochambeau FIR has a primary and secondary radar system in place. The Guiana and Suriname FIR has no radar system and the Maiquetía FIR has four radar systems already installed. See **Appendix A** to this working paper.

1.3 Surveillance systems need to be implemented for the provision of ATM services in the Subregion, due to the limited coverage of said systems in the area and for ATM evolution purposes, as specified in the ATM evolution tables of the CAR/SAM Regional Air Navigation Plan (ANP, Volume II - FASID).

1.4 Aeronautical surveillance in the Eastern CAR/SAM Subregion is mainly done through voice position reports *via* ground-air VHF and HF communication systems.

2. **Analysis**

2.1 For the optimization of radar services in the CAR/SAM Regions and for the installation of new radar systems, the aspects mentioned in **Appendix B** to this working paper should be taken into account.

2.2 The CAR/SAM ATM evolution tables and Table CNS 4A, contained in Volume II – FASID – of the new Air Navigation Plan, should be taken into account when planning for the installation of surveillance systems.

2.3 Developments in aeronautical data links and airborne navigation systems now allow aircraft to transmit their position and other data to the relevant ATS units and even to broadcast such information, using automatic dependent surveillance (ADS) systems, which are based on a contract between the ATS unit and the aircraft, and ADS Broadcast (ADS B), which allows other aircraft and ground-based systems within its area of coverage to receive the information.

2.4 It is foreseen that the use of ADS/ADS B will increase gradually, especially in those areas where it is not practical or cost-effective to provide radar services. The CAR/SAM RAN/3 Meeting, held on 5-15 October 1999, in Buenos Aires, formulated Recommendation 11/2 (ADS planning and implementation), recommending States to consider, in co-ordination of airspace users, the implementation of ADS to provide surveillance in those areas where it is not possible or cost-effective to provide radar services (**Appendix C**).

2.5 With respect to the foregoing, the meeting is invited to provide information on surveillance systems planning in the Subregion in question (primary and secondary radars), as well as any information on plans for using ADS and conducting the respective tests.

2.6 Due to the high cost of radar systems (primary, secondary), and in order to expedite the implementation of radar surveillance systems in a safe, efficient and cost-effective manner, the States of the Eastern CAR/SAM Subregion should consider, wherever feasible, the possibility of entering into bilateral and multilateral arrangements for sharing radar data between ATS centres of neighbouring States and using a common radar format and a common communication protocol for the exchange of radar data. In this sense, the CAR/SAM RAN/3 Meeting formulated Recommendation 11/5. **Appendix D** contains the guide for shared use of radar data between adjacent States.

2.7 The CAR /SAM RAN/3 Meeting felt that it was essential for CAR/SAM States to apply the ICAO procedures for the assignment of 24-bit aircraft addresses (see Annex 10, Volume III, Part I, Chapter 9) as a matter of urgency (Rec 11/6). This is an intrinsic feature of Mode-S secondary radar to be used for surveillance and data link purposes and for the operation of the airborne collision avoidance system (ACAS). Additionally, it should be noted that the 24-bit aircraft address is a field of the ATN network service access point (NSAP) address to be used in the future as an aircraft identifier for all data link services purposes. Consequently, the meeting is requested to inform on the status of implementation of this recommendation.

3. **Suggested action**

3.1 The meeting is invited to:

- a) take note of the information presented; and
- b) report the plans that each State of the Eastern CAR/SAM Subregion has for the implementation of radar systems and other surveillance systems specified in section 2 of this note.

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