



Agenda Item 3: AIS Developments

**FOLLOW-UP OF THE IMPLEMENTATION OF THE WGS-84, THE AIS/MAP INTEGRATED
AUTOMATED (DATA BASES) SYSTEM AND THE AIS/MAP QUALITY ASSURANCE
SYSTEM**

(Presented by the Secretariat)

SUMMARY

This Working Paper requests the Meeting to analyze the importance of following-up the implementation of the WGS-84; the AIS/MAP Integrated Automated System; and the AIS/MAP Quality Assurance System. This will contribute significantly to the safety, regularity and efficiency of air navigation in the CAR Region.

1. Introduction

1.1 The Global Air Navigation Plan for the CNS/ATM Systems, establishes that the object and importance of aeronautical information/data in an Area Navigation (RNAV) and Required Navigation Performance (RNP) environment, as well as the airborne computer-based navigation systems, have turned into a crucial and critical component of the CNS/ATM system, as all these systems depend on the provision of data. Consequently, corrupt and erroneous aeronautical information/data can potentially affect the safety of air navigation. For this reason, each ICAO Contracting State should take all necessary measures in compliance with the CAR/SAM Regional Planning and Implementation Group (GREPECAS) guidelines, the ICAO Standards and recommended practices (SARPS), and the guidelines of the Directors of Civil Aviation of the Region, to introduce a properly organized quality system containing procedures, processes and resources necessary to implement quality management at each function stage, especially concerning the WGS-84 geographical coordinates data. The quality systems recognized by ICAO have been created to provide users with the necessary assurance and confidence that distributed information and data satisfy stated requirements for data quality (accuracy, definition and integrity) and timeliness.

1.2 Undoubtedly, one of the major assets for the successful transition to the Global ATM System, is the function of the AIS/MAP Services that will provide timely data processing and quality information to the international aviation community.

1.3 C/CAR WG/1 Meeting (Mexico City, 19-23 February 2001), emphasized the importance of establishing close collaboration between the Civil Aviation Administrations and the Geodesic/Geographic Institutes to contribute to the completion of the WGS-84 implementation, in compliance with the requirements contained in Annex 4, 11, 14 and 15, and ICAO Doc 9674 (World Geodetic System, 1984).

1.4 Some of the Conclusions agreed by the GREPECAS/10 (Las Palmas, Canary Islands, 23-27 October 2001) and GREPECAS/11 (Manaus, Brazil, 3-7 December 2002) Meetings related with the developments in the Aeronautical Information Services and Charts (AIS/MAP) field are mentioned below:

- Conclusion 10/49 – Production of aeronautical charts based on WGS-84
- Conclusion 10/53 – Implementation of the NOTAM Data Banks
- Conclusion 10/54 – AIS Integrated Database Support for CNS/ATM
- Conclusion 10/55 – Publication of Geographic Coordinates based on WGS-84
- Conclusion 11/63 – Urgent action by States to complete WGS-84 implementation in the CAR/SAM Regions.
- Other Conclusions related with ATM development.

1.5 The First North American, Central American and Caribbean Directors of Civil Aviation Meeting (NACC/DCA/1) held in Grand Cayman, Cayman Islands, 8-11 October 2002, also agreed on several Conclusions related with AIS/MAP Developments in the CAR Region. Thus as a part of Conclusion 1/1 the main working guidelines established for the AIS/MAP field are:

- Implementation of the AIS/MAP Automation System.
- Implementation of the AIS/MAP Quality Assurance System.
- Full WGS-84 implementation.

2. Discussion

2.1 In ICAO as well as in other International Organizations that include Users of the Aeronautical Navigation Services, there is an increasingly serious concern on the delay in the WGS-84 implementation in the Region, perhaps because of the lack of action on implementation plans by some States/Territories/International Organizations. Due to the above, the ICAO reiterates the request to Civil Aviation Administrations that have not yet done so, to make major efforts to achieve this important requirement that includes the update and calculation of the geographical coordinates of the following navigation points: FIR, ATS, ATS/MET. Also, the predominant obstacles in the different phases in the areas of instrument flight procedures (IFR), should be published in the Aeronautical Information Publication (AIP), duly validated by the concerned authority and in coordination with adjacent FIRS of Central Caribbean States/Territories/International Organizations.

2.2 It is essential that the Civil Aviation Administrations record all survey information and assure a minimum report, as it is of major importance to know the type of data that has been surveyed and to what level of accuracy and resolution this was done. Furthermore, another aim is to be able to recall the history of survey work undertaken to determine the WGS-84 coordinates that should be reported in a standardized format, with the great advantage of having consistency in the information, which will be reflected in the assessment-audit phase through the Survey Inventory Questionnaire - Appendix G to Doc 9674 (World Geodetic System, 1984), and facilitating efficient audit processes for future evaluation and reference.

2.3 The objective is to provide the descriptive details of the WGS-84 coordinates in order to have a vision of the complexity and volume of the information, obtaining in this way a more realistic profile of the implementation status, taking into consideration all the categories specified in the Survey Inventory Questionnaire, such as: NAVAIDS, SID, STAR, etc. It is emphasized to the Meeting that the WGS-84 information has not been received in the ICAO NACC Regional Office from some C/CAR States/Territories, neither has it been published through the concerning AIP.

2.4 Furthermore, the Meeting should take note of the need to enhance the provision of aeronautical information/data to the users by the States/Territories/International Organizations in accordance with the SARPS of Annexes 15 and 4, which define the responsibilities and functions of the Aeronautical Information Services and Aeronautical Charts (AIS/MAP). In a near future all Aeronautical Information and data will be provided through electronic media in support of CNS/ATM Systems.

2.5 The Meeting should recognize that in the near future the ATS and RNAV Systems will depend on the aeronautical information in electronic format which will be interrogated and exchanged from different Data Bases; these systems should of course meet all safety related aspects of AIS/MAP information.

2.6 Another aspect that perhaps has not been sufficiently discussed and identified as a severe risk, is the fact that corrupted or erroneous aeronautical information has great impact on flight management and control; this is to say, that aeronautical information as well as data are used by the Air Traffic Controllers, and flight operations personnel including flight crews, flight planning and flight simulators etc., requiring high safety and quality standards from AIS/MAP information/data providers. The aforementioned could only be achieved through the implementation of the Integrated Automated Aeronautical Information System that guarantees the AIS/MAP information from Data Bases is provided with the required quality, integrity and timeliness. These systems will also harmonize with AIS/MET information in support of the automated facilities for combined pre-flight and in-flight information.

2.7 The GREPECAS AIS/MAP Subgroup has examined various aspects regarding the implementation of Data Bases and discussed the severe deficiencies found in the information that is still manually processed. This situation should change with the introduction of the AIS/MAP Data Bases and Quality Systems that would guarantee that information meets the required integrity, availability and safety.

2.8 The AIS/MAP Quality System should be established in accordance with Annex 15 and in conformity with the International Organization for Standardization (ISO) 9000 series of Quality Assurance Standards, and certified by an approved organization. The details of an AIS/MAP Quality Assurance Programme would be formulated by every State/Territory/International Organization, using the AIS/MAP Guidance Manuals that will be submitted for that specific purpose by ICAO once the AIS/MAP Subgroup ends the review to be submitted to the approval of the GREPECAS and further distribution to the CAR/SAM States/Territories/International Organizations.

3. Conclusion

3.1 Based on the above mentioned information and considerations, the Meeting is invited to propose that the C/CAR Working Group replaces Conclusions 2/16 and 2/17, taking into consideration the new proposed texts presented below in order to complete the implementation of the AIS/MAP WGS-84 Automated System:

DRAFT

CONCLUSION 3/X: STATUS OF IMPLEMENTATION OF THE AIS/MAP AUTOMATED INTEGRATED SYSTEM

That the Central Caribbean States/Territories that have not yet submitted information on the implementation status of their concerned AIS/MAP automated system to the NACC Regional Office, send it not later than 31 October 2003.

DRAFT

CONCLUSION 3/X: RESPONSES TO THE SURVEY INVENTORY QUESTIONNAIRE ON THE STATUS OF IMPLEMENTATION OF THE WGS-84

That the Central Caribbean States/Territories that have not submitted the Survey Inventory Questionnaire on the status of the WGS-84 implementation, send it duly completed to the ICAO NACC Regional Office not later than 30 June 2003.

4. Suggested Action

4.1 The Meeting is invited to:

- a) take note of the information contained in this Working Paper;
- b) discuss and comment the progress made as well as the difficulties encountered on the WGS-84 implementation, AIS/MAP Automated System and the AISM/MAP Quality Assurance System implementation;
- c) consider the possibility to propose the replacement to the Conclusions 2/16 and 2/17 of the Central Caribbean Working Group, taking into account the new proposed texts on paragraph 3.1 of this Working Paper; and
- d) analyze and propose any other action that the Meeting might consider adequate to contribute to the implementation of the systems mentioned in b) above.