



International Civil Aviation Organization

North American, Central American and Caribbean Office

Sixth Meeting of Directors of Civil Aviation of the Central Caribbean (C/CAR DCA/6)

Nassau, Bahamas, 02-04 July 2003

C/CAR DCA/6 - WP/04

19/05/03

Agenda Item 2: Review of the Summary of Discussions of the Third C/CAR Working Group Meeting

**SUPPORT TO THE IMPLEMENTATION PLANS FOR THE AIS/MAP AUTOMATED INTEGRATED SYSTEM AND AIS/MAP QUALITY ASSURANCE SYSTEM
IN THE CENTRAL CARIBBEAN**

(Presented by the Secretariat)

SUMMARY

This Working Paper requests the Meeting to consider the importance of increasing their support to the implementation plans of the AIS/MAP Automated Integrated System and to the AIS/MAP Quality Assurance System, which will significantly contribute to the safety, regularity and efficiency of air space in the Central Caribbean States.

1. Introduction

1.1 The CNS/ATM Global Air Navigation Plan establishes that in an Area Navigation (RNAV) and Required Navigation Performance (RNP) environment, as well as the airborne computer-based navigation systems, information and aeronautical data have turned into a crucial and critical component of the CNS/ATM systems, as these systems depend on the provision of data. Consequently, corrupt and erroneous aeronautical information/data can potentially affect the safety, efficiency and regularity of air navigation.

1.2 In the Central Caribbean, each ICAO Contracting State/Territory 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.

1.3 During the Third Central Caribbean Working Group Meeting (C/CAR WG/3), held in Curacao, Netherlands Antilles, 24-28 March 2003, under Agenda Item 3, the importance of the Aeronautical Information Services was emphasized and the relevant relationship that this has with other air navigation fields in terms of safety in the certification and audit processes. On the other hand, it was also requested to establish 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) and the following Conclusions were agreed:

- Conclusion 3/1 - ICAO Regional AIS/MAP training
- Conclusion 3/2 - Survey inventory questionnaire on the status of implementation of the WGS-84
- Conclusion 3/3 - ICAO AIP model in electronic format
- Conclusion 3/4 - Full implementation of AIS/MAP services prior to ICAO USOAP ATS & AGA audits

1.4 Additionally, 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 Also 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 Automated Integrated System.
- Implementation of the AIS/MAP Quality Assurance System.
- Full WGS-84 implementation.

1.6 On the other hand, during the First NACC/DCA Meeting (NACC/DCA/1) COCESNA presented important information related with the progress achieved in Central America on AIS/MAP Automation, setting a good example to be followed in the CAR Region, establishing NOTAM and AIS databases which take into consideration the implementation of a Geographic Information System (GIS) as part of the Integrated Automated Systems.

2. Discussion

Actions to be undertaken in the Central Caribbean on the Implementation of the WGS-84

2.1 In ICAO as well as in other International Organizations that include Users of the Aeronautical Navigation Services, such as IATA, 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. 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 air navigation points: FIR, ATS, ATS/MET. These air navigation points should be coordinated with adjacent FIRs of the Central Caribbean States in order to decide which coordinates will be published in the concerning AIPs, as well as the predominant obstacles in the different phases in the areas of instrument flight procedures (IFR), which should be published in the Aeronautical Information Publication (AIP), duly validated by the concerned authority.

2.2 Concerning the WGS-84 project, it is important to point out that the States/Territories should validate geodetic information, obtaining the involvement of the Geographic/MAP Institutes, making Technical Cooperation agreements that would enable the validation process of the data in order that it can be published in the AIPs of each State/Territory.

2.3 It is essential that the Civil Aviation Administrations record all surveyed 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.

2.4 The objective is to provide the descriptive details of the WGS-84 surveys 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.

Quality of the Publications

2.5 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 flight, pre-flight and in-flight information.

2.6 The Central Caribbean Working Group have examined and informed in the three meetings held on the various relevant aspects regarding the implementation of NOTAM Data Bases initially, and AIS/MAP recently, and have 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.

2.7 Cuba is an example in the CAR Region of having completed the AIS/MAP Quality System tasks according with the Recommendations of Annex 15 and the International Organization for Standardization (ISO) 9000 series of Quality Assurance Standards. After completion this system has been duly certified by an approved organization. This is an important reference to be followed by all States/Territories of the C/CAR Region.

2.8 Furthermore, the details for the implementation of the AIS/MAP Quality Assurance Programme will be established by the AIS/MAP Guidance Manuals. These Guidance Manuals will be submitted for that specific purpose by ICAO. Once the AIS/MAP Subgroup completes the revision of the manuals and these are approved by the GREPECAS, will be distributed to the CAR/SAM States/Territories/International Organizations.

2.9 Based on the information in paragraph 1.1, 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 mainly focus on the need to meet all safety related aspects of AIS/MAP information. Undoubtedly, one of the crucial aspects for the successful transition to the ATM Global System, is the most important function of the Aeronautical Information Services: to guarantee the provision of AIS/MAP information from Data Bases with the required quality, integrity and timeliness to the International Civil Aviation Community.

2.10 Additionally and considering that the C/CAR WG/3 Meeting identified some problems that affect the AIS/MAP implementation and recommended solutions (refer to paragraphs 4.1 to 4.6 of WP/03 of the C/CAR WG/3 Meeting), the DCAs are requested to undertake additional actions to impel implementation.

3. **Agreements reached by the NACC/DCA/1 Meeting**

3.1 Considering the Deficiencies pointed out in WP/13 of Agenda Item 4.7 of the NACC/DCA/1 Meeting (Grand Cayman, Cayman Islands, 8-11 October 2002) it is important that the Meeting notes the Conclusions adopted in order to search for solutions to these deficiencies, using the tool offered by ICAO through its Technical Cooperation Programme promoting technical cooperation projects for the efficient implementation of the CNS/ATM Systems.

3.2 Regarding the above, the NACC/DCA/1 Meeting adopted the following Conclusions:

“CONCLUSION 1/24 INSTRUMENTS FOR THE EFFECTIVE IMPLEMENTATION OF NEW CIVIL AVIATION SYSTEMS

That, recognizing the urgent need to take effective measures for the efficient implementation of the new civil aviation systems, States/Territories/International Organizations consider taking the following actions:

- a) dedicate financial resources to provide the necessary support to the implementation of the new civil aviation systems, taking into account that infrastructure and services are high cost items and that it is necessary to plan and develop a national plan;*
- b) analyze the feasibility of developing regional technical cooperation projects, involving several States/Territories/International Organizations;*
- c) consider the convenience of promoting international co-operation and bilateral/multilateral agreements that facilitate mutual assistance among States/Territories/International Organizations;*
- d) undertake major efforts to join and actively participate in the Regional Technical Co-operation projects, currently executed in the CAR/SAM Regions; and*
- e) propose new projects as deemed necessary.”*

**“CONCLUSION 1/25 FINANCING RESOURCES TO INCREASE THE PARTICIPATION
OF STATES / TERRITORIES / INTERNATIONAL
ORGANIZATIONS IN REGIONAL COOPERATION PROJECTS**

ICAO and States/Territories/International Organizations are urged to continue efforts to obtain financing in order to participate in regional projects for the implementation of the new civil aviation systems aimed at increasing airspace capacity, safety, efficiency and regularity of civil aviation.”

4. Conclusion

4.1 Taking into consideration the aforementioned, the Meeting is invited to adopt the following Conclusion:

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CONCLUSION 6/XX: TOP PRIORITY SUPPORT TO ACHIEVE IMPLEMENTATION
OF THE SYSTEMS: AIS/MAP AUTOMATED INTEGRATED
AND AIS/MAP QUALITY ASSURANCE IN THE CENTRAL
CARIBBEAN STATES/TERRITORIES**

That the States/Territories in the Central Caribbean in order undertake actions toward effective implementation of the AIS/MAP Automated Integrated and AIS/MAP Quality Assurance Systems in view of the problems presented by the AIS/MAP Deficiencies, agree:

- a) to develop within the ICAO Technical Cooperation Programme, a project aimed to solve the deficiencies presented in the Aeronautical Information processes;
- b) to this end, the Technical Cooperation Project will focus on the effective implementation of the AIS/MAP Automated Integrated System and AIS/MAP Quality Assurance System;
- c) the project will have as frame of reference the works developed by Cuba and COCESNA in their concerning systems; and
- d) the ICAO Regional Office will prepare a Technical Cooperation Project Document, which will be submitted to the consideration of the Civil Aviation Administrations not later than 30 September 2003.

5. Suggested Action

5.1 The Meeting is invited to:

- a) take note of the information contained in this Working Paper;
- b) discuss and comment progress as well as difficulties encountered on the WGS-84 implementation, AIS/MAP Automated Integrated System and the AIS/MAP Quality Assurance System implementation;
- c) approve the Draft Conclusion 6/xx presented in paragraph 4.1; 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.