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INTERNATIONAL CIVIL AVIATION ORGANIZATION
NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN OFFICE

FOURTH MEETING OF DIRECTORS OF CIVIL AVIATION OF THE CENTRAL CARIBBEAN

(Grand Cayman, Cayman Islands, 17 – 20 May 2000)

Agenda Item 6: AIS Plans

b) Review of the progress in the WGS-84 System Implementation

FOLLOW-UP TO THE APRIL 2000 WGS-84 SEMINAR

(Presented by the United States)

Summary

At the 15th Meeting of the Directors of Civil Aviation of the Eastern Caribbean in June 1999, the United States proposed a regional workshop to advance development of WGS-84 data. This would allow the transition to satellite navigation technologies and implementation of CNS/ATM plans for the region. Invitations to this seminar were extended to the entire Caribbean region. This paper discusses the outcomes of the seminar held in Trinidad and Tobago in April 2000 and recommended next steps for the region.

1. Introduction

1.1 The United States National Geodetic Survey (NGS) conducted a Global Positioning System (GPS) program during the period of March-May 1996, which included aeronautical surveys for 29 airports in 19 countries in the Caribbean area. One objective of the campaign was to allow future surveys of obstacles and navigation aids with respect to the established control data to ensure the positional and elevation integrity of coordinate and height information relative to the airport reference system.

1.2 Following the NGS program, local governments and airlines conducted more extensive surveys that included obstacles and navigation aids. Limited WGS-84 positioning information was published in some of the national Aeronautical Information Publications (AIPs).

1.3 There is, however, a need for a larger effort throughout the region to gather all the WGS-84 data collected, verify that data, and obtain additional information as necessary. This will allow full implementation of the Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) system. The resultant information needs to be made available to the international aviation community and published in the respective national AIPs and charts.

1.4 As a result, at the 15th Meeting of the Directors of Civil Aviation for the Eastern Caribbean, the United States proposed a regional seminar to advance development of WGS-84 data. This would allow the transition to satellite navigation technologies and implementation of CNS/ATM planning for the region.

1.5 ICAO and the United States agreed to sponsor such a regional event in the Caribbean. This Seminar was based on a similar successful seminar hosted by COCESNA in El Salvador in November, 1999. With the help of Trinidad and Tobago, various United States Government Agencies and private industry (PSOMAS and AERONAV Inc.), a WGS-84 seminar was held in Port-of-Spain, Trinidad and Tobago, April 3-7, 2000. This seminar was attended by aviation officials from 13 countries in the Caribbean, along with geodetic/survey participants from 3 countries, and the University of the West Indies.

2. Discussion

2.1 This seminar stressed the need for the completion of WGS-84 airport surveys in order to take advantage of the benefits offered by the Global Positioning System (GPS) and facilitate the regional Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) implementation effort. The specific items presented are listed below:

2.2.1 The Federal Aviation Administration (FAA) presented an overview of the Global Navigation Satellite System (GNSS), the Global Positioning System (GPS), space-based and ground-based augmentation systems, and scenarios for the implementation of GNSS in the Caribbean Region;

2.2.2 The National Imagery and Mapping Agency (NIMA) and PSOMAS stressed the importance of accurate WGS-84 data to support CNS/ATM, the requirement to follow correct GPS survey procedures and specifications, the need for quality assurance and data management, and the NIMA airfield initiative; and

2.2.3 AERONAV, Inc., provided instruction on the development of RNAV routes, feeder routes, and GPS approach and departure procedures. Also, States were made aware of the "DIRECT" program. This computer program will enable countries to calculate RNAV route waypoints, headings and distances.

2.2 Participants at the seminar discussed the need to have additional procedural development training available to States in the Caribbean. One such opportunity is being developed at the FAA Academy in Oklahoma City. Currently, the FAA is in the process of developing a six-week course that would provide basic PANS-OPS training. This training can be provided either in-country or as resident training at the Academy in Oklahoma City. Additionally, the Academy is developing a 2-week follow-up course that will provide students who are already familiar with PANS-OPS with information pertaining to any new procedures that have been developed by ICAO.

2.3 NIMA expressed an interest in sustaining the contacts that were made at this seminar and intends to contact States directly to discuss the status of their programs. Where requested, NIMA may be able to provide advice regarding data geodetic survey techniques to ensure that results meet international standards.

3. Conclusion

3.1 This seminar provided a foundation in WGS-84 survey procedures and instrument procedures development for civil aviation authorities implementing CNS/ATM. However, this was only a first step in establishing regional capability to develop and utilize WGS-84 data. Further training and regional cooperation are integral to this process. To this end, the FAA Academy in Oklahoma City is currently developing a basic PANS-OPS course that may prove useful in the establishment of procedural development capabilities in the region.

4. Requested Action

4.1 In order to build upon this success, States are requested to adopt the following conclusion based on the information presented::

CONCLUSION 4/X **WGS-84 IMPLEMENTATION AND AERONAUTICAL CHARTS DEVELOPMENT.**

The Directors of Civil Aviation of the Central Caribbean agree that:

a) States should seek training opportunities in the area of instrument procedures development from whatever sources available;

b) States should continue to evaluate all airports in the region with regards to completing WGS-84 surveys. Surveys should include obstacles and navigation aids and should be completed as soon as possible in order to comply with ICAO standards; and

c) States should establish WGS-84 survey data management procedures by the 5th Meeting of the Directors of Civil Aviation of the Central Caribbean, to ensure the availability of the data required to support current instrument procedures and future survey work.

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