



Agenda Item 2: Air navigation issues
2.4 Nassau Area Control Centre

THE BAHAMAS FLIGHT INFORMATION REGION (FIR)

(Presented by Bahamas)

SUMMARY

This Working Paper presents information to the Meeting on the on-going process for the establishment of the Nassau Area Control Centre.

1.1 Current Situation

1.1.1 In 1952 during a meeting which convened in Havana, Cuba, those in attendance included The Bahamas, the United States (FAA) and Cuban Aviation Authorities. At the meeting the configuration of *The Bahamas control airspace (BCA)* was reduced from *surface to unlimited*, and from *encompassing the entire Bahamas territory* to an area approximately two hundred miles between the boundaries, to an *upper limit* of six thousand (6,000) feet. Further, it was determined that the FAA would provide air navigation services (including air traffic services and search and rescue services) for aircraft operating at Bahamian airports beyond the established BCA boundaries and overflight aircraft in Bahamian airspace. This airspace is currently designated as the *Miami Oceanic (east) airspace*. It is important to note that the only major adjustment to the BCA took place during 1986 when the *terminal control area (TMA)* was introduced with the advent of radar approach control.

1.1.2 Thus, The Bahamas Department Civil Aviation (CAD) jurisdiction rests within the control airspace (*lower limit 1,500 feet, upper limit 6,000 feet*), and the terminal control area at Nassau (upper limit 12,000 feet), and Freeport terminal control area 1,500 feet up to an altitude of 6000 feet.

1.1.3 The FAA exercises positive control, from the Miami Air Route Traffic Control Center (ARTCC), over the Bahamian airspace for all air traffic operating within and over flying through the Miami Oceanic airspace. The Miami ARTCC provides the services using air-ground communications and air surveillance systems located in the Miami Oceanic FIR – primarily in The Bahamas (Freeport communications and Nassau radar and communications). Of equal importance, The Bahamas has installed VSATs at the following locations: Nassau and Grand Bahama International airports; Marsh Harbour, Treasure Cay, North Eleuthera, Governor’s Harbour, Exuma International, and San Salvador airports. The VSATs at Family Island airports are primarily used for voice communications, ground to ground, and air to ground between pilots and controllers at Nassau air traffic services.

1.1.4 The Bahamas also shares data with the FAA, through a system termed a common digitizer, and other US agencies involved in:

- (a) US homeland security to support defence and counter terrorism requirements.
- (b) Search and rescue, such as US Coast Guard.

1.1.5 The U.S. Congress has recently approved legislation for the reimposition by the FAA of air navigation charges on flights overflying the US domestic airspace, which includes Miami Oceanic airspace. FAA is currently developing the administrative procedures to implement these charges.

2. The Bahamian Civil Aviation Department Proposal

2.1 The International Civil Aviation Organization (ICAO) recognizes the right of each member contracting state to provide air navigation services within the airspace over its territorial land and seas. Furthermore, ICAO permits its member states to collect air navigation charges to *recover* the expenses incurred in the provision of such air traffic services and in the general improvement of aviation/airport facilities in the country. Accordingly, the implementation of major changes to airspace and imposition of air navigation charges must be approved by ICAO Headquarters.

2.2 The CAD proposes to install a new *Nassau Area Control Center (NACC)* and associated air navigation systems in The Bahamas to permit the CAD to retake control of its airspace, in a fully coordinated manner, with neighbouring countries. The airspace currently designated as the Miami Oceanic (East), and the airspace over Andros Island, presently under control of Cuba, will become the new Nassau (or Bahamas FIR). Once the new NACC is certified as fully operational control would be transferred from the Miami and Cuba ARTCC to the NACC.

2.3 Since the development of the NACC and the training of all appropriate personnel will take some time, the Government of the Bahamas has been discussing an interim arrangement with the FAA. In this arrangement, the GOB proposes to effect the establishment of a Bahamian FIR as soon as ICAO approval will permit. In order to assure the continuity of existing levels of service and safety, the GoB would contract with the FAA to continue to provide the current level of air navigation services over the Bahamian FIR. Prior to this period and in coordination with ICAO and IATA, the GoB will propose a set of user charges to be collected by IATA and distributed as per our agreement to the GoB and the FAA.

3. The New Nassau Area Control Center (NACC)

3.1 Under the proposed concept, the current Approach Control/Control Tower facilities at both Nassau and Grand Bahama airports will remain as they are and continue to provide services within the respective terminal control areas to arrivals and departures at each airport.

3.2 The objective of the new NACC will be to provide en-route services within the new FIR and effect coordination with adjoining ACCs such as Havana, Port au Prince, Kingston and the Miami ARTCC. The overriding consideration will be to ensure that current levels of safety and operational efficiency are not jeopardized in any way but, where possible, enhanced.

4. New Communications, Navigation, Surveillance and Air Traffic Management Systems

4.1 The NACC will be equipped with modern, ICAO-compliant (and FAA-compatible) Air Traffic Management (ATM) systems which will include multi-radar and flight data processing systems with en-route radar controller work stations, flight data and technician work stations. There will be automated exchange of flight data and associated coordination messages between the NACC and the adjoining ACCs in conformance with ICAO standards and recommended practices. Embedded in the NACC system will be such safety enhancing features as aircraft flight path, conflict alert and minimum safe altitude warning features. Additionally, the ATM system will be equipped with a Reduced Vertical Separation Minima (RVSM) mode to support such operations in the Caribbean region.

4.2 At strategic locations cross the country, appropriate VHF/UHF/HF radio communication, navigation (VOR/DME) and radar surveillance (primary/monopulse secondary) systems will be installed to ensure that all aircraft operating within the new FIR will be able to receive communication and surveillance services from the NACC. In this respect, the new FIR will have significantly enhanced CNS/ATM capabilities. The chart presented in the **Appendix** to this paper shows radar coverage based on three collocated primary/secondary Mode S radars. The VHF coverage will also be similar. The precise communication and surveillance coverage will be defined in the detailed Implementation Plan. The introduction of the radar system in the southeast Bahamas will provide radar coverage in an area between Nassau radar and Grand Turk radar where the FAA presently does not have coverage.

5. Recruitment and Training of Operations and Technical Staff

5.1 Immediately upon the approval of the concept by ICAO, additional air traffic operations and technical support staff will be recruited and trained to ICAO standards in the US and Canada to enable them to provide air traffic services from the new NACC.

6. Coordination with ICAO, the FAA and other stake holders

6.1 At the outset, a Bahamas FIR Implementation Team composed of the Ministry of Transport and Aviation (MTA) and CAD and experts deemed appropriate by The Bahamas Government will develop a detailed plan for the implementation of the full capability summarized above. The Bahamas will brief ICAO Regional Office in Mexico City and ICAO HQ in Montreal seeking approval. The plan will be fully coordinated with the FAA, Cuba, Haiti and other concerned neighbouring countries so that well-proven current practices and procedures will be implemented and improved when possible.

6.2 Appropriate consultations will be held with the International Air Transportation Association (IATA), and all users of the airspace like international airlines and aircraft operators. Employee unions will be briefed about the plan and on new opportunities available to their membership.

7. Implementation Schedule, Cost and Financing

7.1 The above processes will be launched simultaneously and it is estimated that the implementation of the total capability and the coordination will take approximately two (2) to three (3) years. As mentioned above, however, with the appropriate arrangement with the FAA, the GOB plans to expedite the creation of the FIR in order to facilitate the collection of user fees to support the NACC development.

7.2 The GOB proposes that the entire operation of the new NACC and the new FIR will be tested in air traffic control simulators with observers from airlines and adjoining ACCs invited to

participate before becoming fully operational. Initially the NACC will function in a “passive operational mode” shadowing the operations being conducted by the Miami ARTCC for a predetermined period until the newly trained operations and technical staff become fully conversant with the procedures and equipment and the performance of controllers is considered satisfactory.

7.3 The new NACC will then assume full control while the Miami ARTCC continues to shadow the operation for a predetermined period, ready to regain control if necessary.

7.4 Finally, at predetermined time, a ‘cutover’ to the NACC will be affected.

7.5 The entire process will, therefore, take a minimum of three years to implement.

8. **US Homeland Security**

8.1 Currently, the FAA coordinates with appropriate offices in the US government to exchange information to support US homeland security, defence and search and rescue operations. It should be noted that currently the FAA relies only on data from secondary surveillance radars (common digitizer CD2 system) for enroute control. The secondary surveillance radars only detect transponder-equipped aircraft and do not detect intruder aircraft nor weather phenomena.

8.2 With the implementation of the new NACC, support to the above offices will be enhanced in that data from newly installed primary and secondary radars will be made available to the FAA and to other U.S. government agencies as appropriate. Additional primary radars will provide weather data as well as detection of intruder aircraft which operate without transponders.

9. **Benefits to the Bahamas**

9.1 The benefits to the Bahamas are the following:

(1). The government of the Bahamas will exercise full control over its sovereign airspace.

(2). The project will create significant directly related employment of about 100 people in high technology, areas of the economy and several times that number in additional support jobs.

(3). The new FIR will generate revenues in excess of US \$30M annually. The revenue stream will not only finance the capital costs of implementing the total project and pay for the yearly operations and maintenance budget of the Department Civil Aviation but will also be able to contribute to financing the development of Family Island aerodromes.

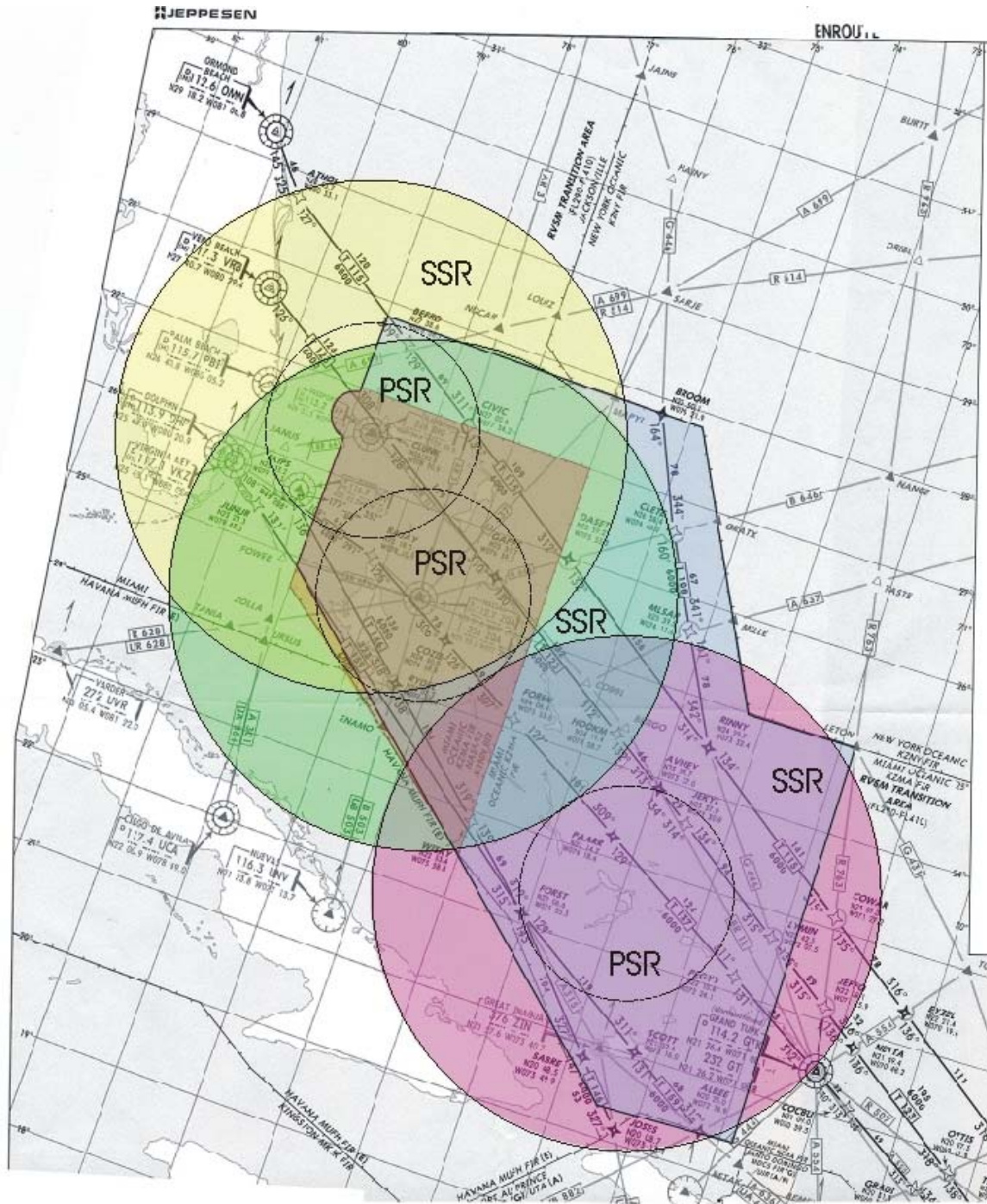
(4). The new ACC will be equipped with capabilities to offer Controller training to other States in the region, providing another avenue to gain additional revenues.

(5). The total project will be planned and implemented in coordination with the FAA, Cuba, Haiti, Turks and Caicos Islands, IATA and other adjoining ACCs in the Central Caribbean area, in accordance with ICAO procedures.

10. **Proposed Action Items**

10.1 Comments of the DCA/C-CAR area will be appreciated. The goal is to obtain ICAO approval of the Department of Civil Aviation's proposed concept, in the interim, a detailed Implementation Plan will be developed and presented to ICAO for input and final approval, as soon as reasonably possible.

APPENDIX RADAR COVERAGE BAHAMAS FIR



- END -