

## **IBAC Technical Report Summary**

**Subject: Caribbean and South America Regional Air Navigation Plan**

**Meeting: Third Regional Air Navigation Meeting for the Caribbean and South America Regions - RAN CAR/SAM/3**

**IBAC File: ICAO Regional Air Navigation Meetings (RAN)**

**Reported by: Adalberto Febeliano**

### **Summary:**

RAN CAR/SAM is the acronym for **Regional Air Navigation Meeting for the CAR (Caribbean) and SAM (South America) Regions**. The meeting held in Buenos Aires was the third one for those regions, having the previous one happened in Santiago, Chile, back in 1989. CAR and SAM are 2 of the 9 regions ICAO divides the world into. The RAN CAR/SAM is meant to analyze the shortcomings and deficiencies in the air navigation activity identified by aircraft operators within those regions, prioritizing the actions necessary to overcome such deficiencies and planning the activities that will allow a seamless structure for safe and efficient air navigation. The meeting happens every 10 years, and the actions it calls for, after being fully approved by the ICAO Secretariat, become a commitment from the States and shall be implemented with their own resources, personnel and facilities. The third meeting was marked mainly by the planning activities for the implementation of the CNS/ATM - Communications, Navigation, Surveillance/Air Traffic Management technologies that are expected to be used within 10 years to replace the conventional ground-based nav aids, radars and communication systems. Additionally, matters that require an extra coordination effort between different countries – such as Search and Rescue Services and Volcanic Ash Watch – have been dealt with.

**Implication for Business Aviation:**

Decisions taken at the RAN CAR/SAM will affect all aviation activities in the Caribbean and South America regions in the coming years. From the creation of RVSM routes for crossing the South Atlantic to the availability of international airports and nav aids, all aspects related to civil aviation flights in the concerned regions are discussed by the States in this meeting, which is held every 10 years. Knowing the decisions taken, and following their implementation afterwards is of utmost importance in order to assure airspace and airport access, as well as avoiding changes in regulations that may pose unreasonable burdens on business aviation operators.

**Decisions Required:**

IBAC's presence for the second consecutive year as Observer within CAR/SAM venues has provided a higher profile than that of other General Aviation organizations, and the POC must strive to build a stronger recognition of the importance of Business Aviation within the participating countries. In order to attain that objective, the POC must not only maintain IBAC's presence in the GREPECAS meetings but also make sure that, every year, IBAC submits an information or working paper for the delegate's review.

*This report contains material for the sole information of IBAC Members and no guarantee or undertakings are given, or should be assumed, as to their accuracy. The content is under the copyright of the author and IBAC, and may not be distributed to third parties without specific agreement of the IBAC Director General.*

**Report on the 3<sup>rd</sup> RAN Meeting of the CAR/SAM regions****Buenos Aires, Argentina, 5 – 15 October 1999****Structure of this Report**

This report was prepared so that people with little knowledge of the matters involved could understand the major aspects at stake in each topic. For those more knowledgeable of the full-of-jargon-and-acronyms-style that ICAO officers are used to use please skip directly to item 3. RAN CAR/SAM Structure and Activities and following items 4, 5 and 6. The same applies to those that have had a chance to read last year's report on the GREPECAS meeting held in Santo Domingo, Dominican Republic, since much of the introductory information conveys either the same matters or very similar ones.

Prepared by: Adalberto Febeliano

Managing Director of ABAG – Brazilian General Aviation Association

Acting IBAC Liaison Officer to RAN CAR/SAM

Address: R. Simões Magro, 155 - 04342-100 - São Paulo - SP - Brazil

Tel / Fax: +(55) (11) 5583-2405

E-mail address: febeliano@sili.com.br

## **Introduction**

RAN CAR/SAM is the Regional Air Navigation Meeting of the CAR (Caribbean) and SAM (South America) regions.

The regional air navigation meetings are meant to coordinate the efforts of the various States in one or, in this case, in two regions in order to provide a seamless network of air navigation services. For the majority of airmen this may look like an easy task, but it is rather complex. From the basic need for all airways to have continuity regardless of national boundaries to the more sophisticated demand for a reliable communication network that may allow relaying of air traffic from one control center to the next, the basic needs of aircraft operators demand close coordination of the air navigation services of neighboring countries, what is not a natural attitude of the States – usually very much concerned about their self-determination.

Recognizing that this coordination not necessarily would come naturally from all States, ICAO has developed the idea of bringing all of them together regularly, with an agenda that would guide them through the needs of the operators (normally brought by IATA). This structure has already allowed fruitful results in the past, and it has been further enhanced by the creation of the Planning and Implementation Regional Groups (PIRG's) that are expected to overview the implementation of the decisions taken in the RAN's.

In the case of the CAR/SAM regions, the PIRG is known as GREPECAS, and IBAC has been admitted last year as an observer to GREPECAS – what has granted the same status in the RAN held in Buenos Aires.

As an observer IBAC has been granted access to all subgroup meetings in the RAN, namely:

**the AOP Committee (Aerodrome Operations);**

**the ATM Committee (Air Traffic Management);**

**the CNS Committee (Communications, Navigation and Surveillance);**

**the MET Committee (Aviation Meteorology);**

**the AIS Committee (Aeronautical Information Services); and**

**the Implementation Committee.**

All committees meet concomitantly, in different rooms. Some of the committees are further split in subgroups – for instance, the ATM committee was split in a group dealing with ATM matters and another one discussing Search and Rescue structures – what makes following all discussions very difficult, if not impossible, unless one can count on a large structure of officers.

In IBAC favor, however, there is the fact that all subgroups prepare a final report that is submitted to the Implementation Committee, which in turn approves the reports and submit them for final approval at assembly level.

The Implementation Committee was, therefore, the focal point of IBAC's participation.

### **Highlights on the CAR/SAM Regions**

The CAR/SAM (Caribbean / South America) region is marked by two important aspects: it is still primarily a no-radar-coverage region and it is composed by a large number of States, presenting a very different level of economic development and of investment capabilities.

The former aspect is due to the huge oceanic area under the responsibility of its composing States, which is self explanatory for the Caribbean countries but is more dramatic, albeit less evident, for the maritime countries in western Atlantic and Eastern Pacific. Brazil alone is responsible for an oceanic area almost twice its territorial area, not to mention Argentina, Chile, Peru and Colombia.

Furthermore, the vast Amazon area in northern Brazil still lacks a minimum support in terms of navigation and communication aids – although Brazil has a large project under development, contracted to Raytheon, to solve this.

These large unmonitored areas do have, in most cases, adequate Air Traffic Services – ATS and Air Traffic Information Services – AIS provided by the States, sometimes in HF.

The large number of States brings immediately concerns of adequate coordination in the implementation of the Air Navigation Plan.

There are several States that possess a strong and growing economy, with a large air transportation industry behind it. Those are, among others, Brazil, Argentina, Chile, Colombia, Mexico.

Within these States, one may expect to find adequate airports, air navigation aids and air traffic services (although not necessarily at the same level found within the US, Canada and Western Europe), as their own airlines would press for it or, sometimes, operate themselves some facilities. Within these countries, the domestic air transportation industry will generate significant revenues in air navigation fees that most likely will be enough for the maintenance of their present structure and allow a slow development of their facilities.

On the other hand, there are several much smaller states that have no means to invest in facilities, equipment and personnel training. Air transportation industry for them may be more the foreign airlines bringing tourists than one of the most dynamic industries in the world. Airport fees will barely cover the maintenance of their present facilities, and air navigation fees will hardly pay for the salaries of controllers.

Within these States, it may be very difficult to justify the investment in a new VOR station, in an ILS system, or in a new en-route radar, for they may be competing against a new medical

equipment needed for a hospital. That is why the Air Navigation Plan implementation, in the CAR/SAM region, may slip and take longer than expected, or even needed.

In the past more developed countries have, sometimes, paid for the installation of equipment that would help their own airlines flying in the region, but as a massive investment in the new CNS/ATM facilities is foreseen also among them it is understandable that some States, within CAR/SAM, are trying to slow the pace of changes, so they can – literally – pay for their own bills.

More recently the regions have been a fertile ground for the development of multinational service providers facilities, notably communication networks in the Caribbean. Sometimes sponsored by commercial entities, these service providers are in the forefront of what may well be the future of the majority of air navigation services not only in these regions, but actually worldwide.

It is worthwhile to mention that, in spite of the lack of abundant financial and human resources, the CAR and SAM regions are forward-looking, since they will be the first ones to include the CNS/ATM program and technologies formally in their Regional Air Navigation Plans.

### **RAN CAR/SAM Structure and Activities**

The RAN CAR/SAM is basically an assembly where countries that are part of the regions concerned have voting rights, while other countries are granted only the observer status. The assembly is traditionally chaired by a representative from the host country, who in this case was the head of the Argentinean Civil Aviation Department, Brigadier Major Dutra. The secretariat, however, is always provided by ICAO, and in this case by both ICAO Regional Offices personnel, in Lima and in Mexico City.

The secretariat holds considerable power, since they are in charge of actually writing the documents that will be presented to the subgroups, to the committees or to the assembly. Because RAN CAR/SAM is held in two languages – English and Spanish – the secretariat also faces the challenge of always preparing two versions of each document, one in each language.

This meeting has pioneered in the use of modern communication technology to relay raw texts in either language to ICAO headquarters in Montreal, where they would be translated into the other language. The Internet was the means for it, and the process worked fairly well, albeit the accumulation of documents for translation in the last few days did cause some trouble and delays.

The RAN CAR/SAM agenda was divided in 13 items:

### **Additions, if required, to the Statement of Basic Operational Requirements and Planning Criteria approved by the Air Navigation Commission**

#### **Location of regular and alternate aerodromes**

#### **Aerodrome planning**

#### **Aerodrome services**

#### **Air traffic management**

#### **Airspace organization and provision of ATS**

**Airspace utilization**

**Search and rescue services**

**Aeronautical meteorological offices and their functions, and meteorological observation networks**

**Exchange of operational meteorological data between ground stations**

**Aeronautical communication services**

**Aeronautical radio navigation services**

**Surveillance services**

**Aeronautical information services and aeronautical charts**

**Implementation of the CAR/SAM Air Navigation Plan, with particular emphasis on shortcomings and deficiencies in the air navigation field affecting safety**

These agenda items were dealt with by the assembly (agenda item 1) and by the 6 subgroups, as indicated below:

**AOP The AOP Committee has handled agenda items 2,3 and 4;**

**ATM Handled items 5 and 6;**

**CNS Handled items 9, 10 and 11;**

**MET Handled items 7 and 8;**

**AIS Handled item 12; and**

**IG Handled item 13**

Each of these subgroups had its own President and Secretary, and their activities were submitted to the assembly in the last day for final approval.

Some of the subgroups were further split into even more specific sub-subgroups, such as the AOP committee, which was split into 2 sub-committees, and the ATM committee, which was also split in 2 subcommittees.

As usual all decisions were taken by unanimous acclamation, albeit some of the matters discussed did cause vivid debates.

The Air Navigation Plan for the CAR/SAM regions was essentially assembled during this two-week meeting, with only minor wording and translation changes been left for ICAO's officers to work on later.

The Secretariat of the meeting was able to provide to all participants two diskettes in the last day of the meeting with all interim texts of the Regional Air Navigation Plan, which are being held at ABAG's headquarters. In case any fellow Association needs to have quicker access to the texts, please let us know and we will arrange for copies to be sent. However, the final version is expected to be made available in Montreal in the next few weeks.

## **Summary of Discussions**

More than 217 officers have participated within this RAN CAR/SAM meeting, from 32 States (either as Members or Observers) and 8 international organizations. The Chairman of the meeting was Brigadier Major Dutra, from Argentina, and the General Secretary was Mr. Paulo I. Hegedus, Director of the Regional ICAO Office for South America, from Brazil. Several officers from ICAO, either from the Regional Offices or from Montreal, have also participated, including Mr. Raymond Ybarra, Director of the Regional ICAO Office for North America, Central America and Caribbean, and Mr. Vladimir Zubkov, head of all ICAO's regional offices.

The RAN CAR/SAM subgroup activities have begun with a review of the decisions of the previous meeting, identifying the decisions that had been implemented, those that are no longer applicable and the ones that must be re-stated.

For each topic the RAN CAR/SAM agenda was divided into, Conclusions and Decisions were drawn. A Conclusion is the final decision on any matter that doesn't require necessarily an action (such as a recommendation to use some specific planning criteria), while a Decision is the final decision on any matter that does require an action, that shall be carried out by the States themselves. Some selected highlights on the meeting (grouped by committees, and not by agenda items) were:

### **4.1 AOP Committee**

The Aerodrome Operation committee has discussed the list of international airports in each State, for regular or alternate use, and has proudly noticed that since the 1989 meeting the number of those has been increased by 38 additional airports, which are required to offer adequate facilities and services. There have also been discussed means to improve the efficiency and safety of operations.

### **4.2 ATM Committee**

The Air Traffic Management committee has had one of the more important roles, as two very important matters were discussed by it: the use of ATM techniques to improve capacity in the busier areas and the implementation of reduced separation routes, initially in the South Atlantic area. The former will be used initially by Brazil in the São Paulo area and, despite having been used for a long time in US and Europe, is still a novelty for a region where air space congestion is only now becoming a problem. The latter encompasses both lateral separation reduction, through the use of the RNP concept, and RVSM routes, to be gradually used for the aircraft crossing the South Atlantic, again in a Brazilian initiative. It is also envisaged the use of a quality assurance program in the ATM services, as part of ICAO's Safety Oversight program, in order to further enhance safety of operations. The meeting has also emphasized the need to enhance language skills in the area, specially English.

### **4.3 CNS Committee**

The Communications, Navigation and Surveillance committee has updated the list of needed ground based air navigation aids, taking due account for the new requirements of the new technologies that will be shortly implemented. The States once more have had the opportunity to affirm their willingness to move gradually from the conventional ground based systems to the GNSS concept, emphasizing the need for the existing systems to be maintained in full compliance with ICAO standards and for the frequency bands allocated for such facilities to be protected from harmful interference until the new CNS/ATM technology is fully in place.

#### **4.4 MET Committee**

The Aviation Meteorology committee has discussed the steps towards the transition to the last phase of ICAO's WAFS (World Area Forecast System), one of the requirements to ease the implementation of the CNS/ATM systems in the CAR/SAM regions. Furthermore, there have also been discussed the regional procedures regarding airways volcanic ash watch, a factor that is becoming more and more important due to the recent increase in volcanic activity in the CAR and SAM regions.

#### **4.5 AIS Committee**

The Aeronautical Information Services committee has dealt with the automation of AIS and the availability of appropriate aeronautical information at aerodromes, as well as of a complete package of integrated aeronautical information. Availability of real-time AIS is considered critical for appropriate implementation of the new CNS/ATM systems.

#### **4.6 Implementation Group**

Discussing ways to alleviate the air navigation shortcomings and deficiencies of the CAR and SAM regions was the main objective of the IG. The Implementation committee has also discussed lengthy approaches to international cooperation for the implementation of CNS/ATM technologies, specially regarding possible financing sources, and also how those technologies can mitigate the impact caused by aviation on the environment.

### **5 Additional Information on Selected Subjects**

The RAN CAR/SAM/3 was strongly marked by political discussions related to the implementation of the CNS/ATM technologies.

The particularities of the new system are causing the countries to adopt new approaches to the planning and implementation of aeronautical services.

Firstly, the new system will be very expensive to implement. On the top of the list of the most expensive items there is the satellite constellation, which cost is not even precisely known at this time.

If, in one hand, GPS was made available free of charge to all users, several countries are concerned about the consequences of adopting it as the standard navigation means, for one reason or other. Either for strategic reasons, or for more practical legal rules, many countries are concerned about the use of the GPS as the needed GNSS for the CNS/ATM systems (some countries are concerned, for instance, in approving GPS widespread use because, if one accident occurs that can be attributed to a failure in the GPS system, they will be made legally responsible for having approved the use of a system that is beyond their control).



It is important to remember that the whole concept of the new technology is based on the availability of a GNSS – a Global Navigation Satellite System. GPS is the most successful GNSS constellation so far. The Russian GLONASS didn't take off, and the European constellation is still only on paper.

The CNS/ATM technology, nevertheless, will not rely only on the GNSS. Ground and satellite based augmentation systems will be needed, either for wide areas (WAAS – Wide Area Augmentation System) or for local areas (LAAS – Local Area Augmentation System).

Augmentation systems are designed basically to measure the error in the GNSS signals and to communicate those errors for the aircraft flying nearby (or not that nearby). By taking that error in account, augmented GNSS precision can reach levels of extremely high precision.

WAAS, for instance, is one of the technologies that naturally call for international cooperation, since one or two WAAS could very well cover the entire CAR and SAM regions.

This fact has brought into the RAN CAR/SAM/3 several discussions on how to structure multinational entities that could offer this type of service and, last but not least, how to obtain funds to finance such ventures.

It is very unlikely that any singular country within the CAR and the SAM regions will ever design, launch or operate a GNSS system – but there are many which could do it for WAAS, LAAS or similar technologies.

That was the reason why there were several hot discussions on how a multinational entity should be integrated in the RAN, how it would relate to GREPECAS and how it would charge fees from users to recover its investments – and it seems that we are only at the beginning of such disputes.

From the users point of view the new technologies are welcome. As long as the air navigation fees are kept to adequate levels, user communities would certainly support their existence.

What shall make us alert, though, is the fact that there are many countries (some of which with a mere symbolic presence in the CAR and SAM regions) pushing for a "deregulation" of a service that hasn't even started. It seems that those interests are economically driven, and therefore one may suspect that user fees may be of special economic and financial interest.

Apart from those discussions, States have been oriented to stress within their respective communities how the use of CNS/ATM may mitigate the impact aviation has on the environment, specially by the reduction in fuel consumption.

There has also a marked tendency towards simplifying the planning and implementation process, so the regional air navigation plan can be amended in faster and easier manners, to be more adaptable to the quickly evolving environment.

## **6 Suggested Follow-up Actions**

As suggested after the GREPECAS meeting, IBAC's presence to such events must be, above all, political. We haven't yet had the opportunity of presenting a Working Paper or an Information Paper, and we can't lose another opportunity.

The next GREPECAS meeting is planned to be in Rio de Janeiro, and IBAC must once more strive to be present. IBAC's General Director must attend the meeting (at least for a couple of

days), and at that time we will have to present a Working Paper – ICAO officers have told us that they are waiting for it.

Participation in the meetings of the other PIRGs is also very important – again political presence is the key element. Observer status must be obtained at all PIRGs, and IBAC must have at least one representative at each of those meetings – the future infrastructure of aviation is being decided in those regional meetings.

As mentioned for the GREPECAS, IATA has a very strong participation in all those meetings and, although our objectives and theirs may conflict in 10% of the cases, in the absolute majority of cases we could certainly defend the same position they do.

Strengthening our relationship with IATA and IFALPA (two of the international organizations that are more present in the international aviation arena) is definitely something we must do.