



AP/ATM/4  
WP/07  
03/01/03

**International Civil Aviation Organization  
UNDP/ICAO Regional Project RLA/98/003  
Transition to the CNS/ATM Systems in the CAR and SAM Regions**

**Fourth Meeting/Workshop of Air Traffic Management (ATM) Authorities and Planners  
(AP/ATM/4)**

Santa Cruz, Bolivia, 27-31 January 2003

**Agenda Item 3: Review of the matters related to RVSM Implementation in the CAR/SAM Regions**

**a) Analysis of the conclusions on RVSM adopted during GREPECAS/11 Meeting**

(Presented by the Secretariat)

**Summary**

This working paper presents the conclusions related with the RVSM implementation programme in the CAR/SAM Regions, as emanated from the ATM Committee of the ATM/CNS Subgroup during GREPECAS/11 Meeting (Manaus, Brazil, 3 to 7 December 2002).

**References**

- Report of GREPECAS/11
- Report of the ATM/CNS/SG/2

**1. Background**

1.1. GREPECAS/11 Meeting reviewed the activities carried out by the Second Meeting of the ATM/CNS Subgroup (Rio de Janeiro, Brazil, 16 to 20 September 2002), and especially those activities related with the RVSM implementation in the CAR/SAM Regions.

## 2. Analysis

### **RVSM implementation programme in the CAR/SAM Regions**

2.1. GREPECAS/11 Meeting recalled that, through Conclusion 10/11, had agreed to the two-staged implementation of RVSM in all of the flight information regions under the jurisdiction of the CAR/SAM States/Territories/International Organizations, pursuant to the basic programme developed by the Task Force of this Committee. It also recalled that the first stage, effective in April 2004, would cover FL350 to FL390, and the second stage from FL290 to FL410, on a date to be determined depending on operational requirements.

2.2. The Meeting noted that, due to the fact that the United States had modified its RVSM implementation plan for its domestic airspace from two phases to one, the RVSM Task Force of the ATM Committee had considered that an effort should be made to harmonize both implementation plans.

2.3. Following studies conducted on this matter, the ATM Committee concluded that it would be advisable to request GREPECAS to modify Conclusion 10/11 in order to allow RVSM implementation from FL290 to FL410 in a single phase, and that this implementation be carried out on a date consistent with that of the NAM Region, currently foreseen for December 2004.

2.4. The Meeting also noted that the ATM Committee continued to review this matter with a view to developing an operational concept that would allow those States that were not in a position to implement RVSM in a single phase to use the airspace in a tactical manner, so as to prevent delays in the implementation in those parts of the region that were ready to implement RVSM.

2.5. The Meeting reviewed the proposal of the ATM Committee and noted the concerns expressed by Argentina and Colombia regarding the single-phase implementation of RVSM, due to the impact it could have on the fleets operating in both States.

2.6. The delegate of Argentina also stated that one of the objectives of his State was to protect its civil aviation until such time that economic conditions would permit its recovery. An implementation that restricts flight possibilities would result in the shrinkage of markets, the generation of less foreign currency, unemployment, etc. He also urged the Group to keep working and to conduct studies on the economic cost/benefit resulting from RVSM implementation, but did not reject the initial implementation of RVSM from FL350 to FL410 as an interim solution until conditions improve and permit the extension of such implementation to FL290.

2.7. On the other hand, the delegate of Colombia expressed the willingness of his State to harmonize its plans with those of the region, stressing the importance of having cooperative mechanisms for the RVSM implementation phase. He also expressed a concern regarding the economic impact on airlines, the need for a thorough study of tactical operations, the completion of the safety assessment, the analysis of the orographic impact on the Andean region, air traffic flow management and the appropriate systems for the coordination required between adjacent FIRs, in the understanding that the RVSM Task Force will deal with these aspects as agreed by GREPECAS.

2.8. Likewise, IFALPA expressed its concerns for safety in an RVSM environment, since, at present, there are some air-ground communication problems in the CAR/SAM Regions, which might affect implementation.

2.9. The Secretariat stated that all safety aspects involved had been considered in the RVSM implementation programme developed by the ATM Committee, which is based on the guidelines provided in Doc. 9574 (Manual on implementation of a 300-m (1000 ft) vertical separation minimum between FL290 and FL410 inclusive). It also noted that if any of the States, Territories and International Organizations involved were not capable of implementing the various elements and tasks of the implementation programme for any reason, or if the airspace safety assessment to be conducted by CARSAMMA were to show that it was not possible to meet the Target Level Safety (TLS) approved for the region, RVSM implementation would be postponed until such time that those matters were resolved.

2.10. Following a lengthy and productive exchange of opinions and after the States and International Organizations expressed their positions regarding RVSM implementation in their airspace, GREPECAS/11 Meeting formulated Conclusion 11/23 and Decision 11/24, transcribed hereby for a better analysis of this issue:

**CONCLUSION 11/23      RVSM IMPLEMENTATION IN THE CAR/SAM REGIONS**

That CAR/SAM States and COCESNA plan RVSM implementation in a single stage between FL290 and FL410 inclusive in the flight information regions under their jurisdiction in a consistent manner with the implementation in the NAM Region, which is currently foreseen for December 2004.

**DECISION 11/24      RVSM ACTIVITIES TO BE CARRIED OUT BY THE ATM/CNS SUBGROUP**

That, with a view to the harmonious implementation of RVSM in the CAR/SAM Regions, the ATM/CNS Subgroup:

- a) continue its activities and work programme so that RVSM implementation in the CAR/SAM Regions may be carried out in a single stage between FL290 and FL410 inclusive;

- b) taking into account the RVSM implementation plans of the CAR/SAM States and COCESNA, develop an operational concept and establish the most appropriate procedures to expedite implementation in those States which might face difficulties with the implementation of RVSM in a single stage; and
- c) submit results to GREPECAS/12 for assessment and relevant action.

**General considerations for RVSM implementation**

2.11. When reviewing this matter, and reviewing the conclusions proposed by the ATM Committee as regards general considerations for RVSM implementation, GREPECAS approved the following conclusions which, for ease of reference are shown in **Appendix** to this working paper with their complete texts:

<b>CONCLUSION 11/26</b>	<b>POINT OF CONTACT FOR THE ATS SERVICE PROVIDER</b>
<b>CONCLUSION 11/27</b>	<b>POINT OF CONTACT FOR THE AIRCRAFT AND OPERATOR APPROVING STATE</b>
<b>CONCLUSION 11/28</b>	<b>AIR TRAFFIC CONTROL AUTOMATED SYSTEMS</b>
<b>CONCLUSION 11/29</b>	<b>FLIGHT LEVEL OCCUPANCY ANALYSIS</b>
<b>CONCLUSION 11/30</b>	<b>HEIGHT-KEEPING PERFORMANCE MONITORING</b>
<b>CONCLUSION 11/31</b>	<b>HEIGHT KEEPING PERFORMANCE MONITORING SERVICE</b>
<b>CONCLUSION 11/32</b>	<b>PARTICIPATION IN THE RVSM TASK FORCE</b>

**Regional Monitoring Agency (CARSAMMA)**

2.12. GREPECAS/11 recalled that, through Conclusion 10/12, the GREPECAS had accepted the offer made by Brazil to take on the duties and responsibilities of the regional monitoring agency for the CAR/SAM Regions until such time that a regional agreement were reached. It also recalled that, in that same conclusion, the NACC and SAM Regional Offices had been requested to obtain approval from the States/Territories/International Organizations to assign this monitoring responsibility to one State, group of States or to a regional cooperation mechanism. The Meeting was also informed that the ATM/CNS Subgroup had requested GREPECAS to take relevant action to confirm Brazil as the regional monitoring agency so as to continue with the airspace safety oversight and assessment programme. In view of the above, the GREPECAS Secretariat sent a note to the States/Territories/International Organizations requesting information on objections to the designation of Brazil as the party responsible for said agency. The Meeting was informed that 15 responses had been received in support of the designation of Brazil as the State responsible for the Regional Monitoring Agency.

2.13. Likewise, the Meeting was informed that Colombia was interested in offering the technical and operational infrastructure of the Special Civil Aviation Administrative Unit to the CAR/SAM Regions so that they could start working together with the experts from the States in the region towards the implementation of a monitoring agency in Colombia.

2.14. Bearing in mind the work already accomplished by Brazil, its experience in RVSM matters, the investment made for the establishment of CARSAMMA as the regional monitoring agency, and the need to move ahead with the RVSM implementation programme, the Meeting concluded that it would be more advisable that the RMA be assigned to Brazil and expressed its acknowledgment to Colombia for its offer.

2.15. The delegate of Colombia expressed the firm will of his State to cooperate with CARSAMMA through technical cooperation mechanisms or with available resources, which would be advised through the relevant channels.

2.16. On the basis of deliberations and points of view expressed by the different delegations on this issue, the Meeting adopted the following conclusions (see Appendix to this working paper):

**CONCLUSION 11/33                    ASSIGNMENT OF THE CAR/SAM REGIONAL MONITORING  
AGENCY TO BRAZIL**

**CONCLUSION 11/34                    MAIN RVSM DUTIES AND RESPONSIBILITIES OF  
CARSAMMA**

**3.                    Suggested action**

3.1.                    The meeting is invited to note the information provided, and if such were the case, indicate the courses of action with respect to conclusions shown in **Appendix** to this working paper.

## **APPENDIX**

### **CONCLUSION 11/23      RVSM IMPLEMENTATION IN THE CAR/SAM REGIONS**

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That, with a view to the harmonious implementation of RVSM in the CAR/SAM Regions, the ATM/CNS Subgroup:

- a) continue its activities and work programme so that RVSM implementation in the CAR/SAM Regions may be carried out in a single stage between FL290 and FL410 inclusive;
- b) taking into account the RVSM implementation plans of the CAR/SAM States and COCESNA, develop an operational concept and establish the most appropriate procedures to expedite implementation in those States which might face difficulties with the implementation of RVSM in a single stage; and
- c) submit results to GREPECAS/12 for assessment and relevant action.

### **CONCLUSION 11/25      ATC SIMULATIONS**

That, in order to assess the possible impact of RVSM implementation, the States that are in a position to do so conduct ATC simulations and submit their results to the corresponding ICAO NACC and SAM Regional Offices.

### **CONCLUSION 11/26      POINT OF CONTACT FOR THE ATS SERVICE PROVIDER**

That the States/Territories/International Organisations that have not yet done so, advise the President of the ATC Working Group (ATC/WG), as soon as possible, through the ICAO Regional Offices, on the point of contact for each ATS service provider in the CAR/SAM Regions.

**CONCLUSION 11/27                    POINT OF CONTACT FOR THE AIRCRAFT AND OPERATOR  
   APPROVING STATE**

That the States/Territories/International Organizations advise the Rapporteur of the RVSM Task Force, through the ICAO Regional Offices, on the point of contact for each State involved in granting RVSM approval to aircraft and/or operators if such points of contact have not yet advised the Regional Monitoring Agency, CAR/SAMMA.

**CONCLUSION 11/28                    AIR TRAFFIC CONTROL AUTOMATED SYSTEMS**

That ATS providers assess the impact of RVSM implementation on automated control systems and plan for any modifications and/or upgrades required in the system as soon as possible.

**CONCLUSION 11/29                    FLIGHT LEVEL OCCUPANCY ANALYSIS**

That, with a view to the regional implementation of RVSM, CAR/SAM States/Territories/International Organizations conduct an analysis of flight level occupancy between FL290 and FL410, inclusive, considering flight category, type of aircraft and duration and number of operations per flight level. Information can be collected using the forms contained in **Appendix D** to this part of the report.

**CONCLUSION 11/30                    HEIGHT-KEEPING PERFORMANCE MONITORING**

That, in order to monitor the height-keeping performance of aircraft in RVSM airspace, the CAR/SAM Regions:

- a) use the GMU monitoring method; and
- b) consider using the GMUs provided by the United States.

**CONCLUSION 11/31            HEIGHT KEEPING PERFORMANCE MONITORING SERVICE**

That the height-keeping performance be monitored through IATA, which will engage a qualified contractor, provided that the contractor's measuring methodology and results are recognized by another regional monitoring agency, such as APARMO or EUROCONTROL, and the service is equally available to all CAR/SAM airspace users.

**CONCLUSION 11/32            PARTICIPATION IN THE RVSM TASK FORCE**

That, in view of the coordination required and to avoid a potential negative impact on RVSM implementation programmes of CAR/SAM States, the States/Territories/International Organizations participate in a wide and committed manner in the activities of the RVSM Task Force.

**CONCLUSION 11/33            ASSIGNMENT OF THE CAR/SAM REGIONAL MONITORING AGENCY TO BRAZIL**

GREPECAS agrees to assign the duties and responsibilities of the CAR/SAM regional monitoring agency (CARSAMMA) to Brazil.

**CONCLUSION 11/34            MAIN RVSM DUTIES AND RESPONSIBILITIES OF CARSAMMA**

That the main RVSM duties and responsibilities of the CAR/SAM Monitoring Agency (CARSAMMA) are as follows:

- a) to establish and maintain a central registry of RVSM-approved operators and aircraft of each State/Territory that use the CAR/SAM RVSM airspace;
- b) to facilitate the transfer of approved data to and from other RVSM regional monitoring agencies;
- c) to establish and maintain a database containing the results of height-keeping performance monitoring and height deviations of 300 ft or more within CAR/SAM airspace, and to include in the database the results of CARSAMMA requests to operators and States for information on the causes of large height deviations observed;
- d) to provide timely information to State authorities and operators on changes or monitoring status of aircraft type classifications;

- e) administer the GPS monitoring system (GMS);
- f) assess compliance with RVSM height-keeping performance requirements by operators and aircraft, and introduction of RVSM in the CARSAM Regions;
- g) provide the means for identifying non-RVSM approved operators using CAR/SAM RVSM airspace and to notify the appropriate State authority accordingly;
- h) develop the means for summarizing and communicating the content of relevant databases to RVSM Task Force decision makers, so that it can be used to decide when and to what extent RVSM will be applied in the airspace under their responsibility; and
- i) conduct the CAR/SAM airspace safety assessment.