



AP/ATM/5
WP/03
06/06/03

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

**Fifth Meeting/workshop of Air Traffic Management (ATM) Authorities and
Planners for RVSM, RNAV routes and RNP implementation in the CAR and SAM Regions
(AP/ATM/5 RVSM-RNAV-RNP)**

(Panama, Panama, 18 to 20 June 2003)

Agenda Item 3: Review of the CAR/SAM RNP Application Strategy

Status of application of Conclusion AP/ATM/4/9

(Presented by the Secretariat)

Summary

This working paper presents the status of application of **Conclusion AP/ATM/4/9**, of the Fourth Meeting/Workshop of ATM Authorities and Planners of the CAR/SAM Regions, and the answer to the RNAV/RNP Survey by the States/International Organizations to the corresponding ICAO NACC and SAM Regional Offices.

1. Introduction

1.1 During the AP/ATM/4 Meeting/Workshop, in order to finalize the updating of the List of RNAV Trajectories and to have available the information that enables the development of a CAR/SAM RNP Application Strategy, Conclusion **AP/ATM/4/9 Analysis of Airspaces for RNP application in the CAR/SAM Regions** was approved, which is presented in **Appendix A** to this Working Paper, through this Conclusion it was agreed that the States/International Organizations should complete a survey to be developed by the RNAV/RNP Task Force and the ICAO NACC and SAM Regional Offices.

2. Analysis

2.1 In close coordination, the RNAV/RNP Task Force and the ICAO NACC and SAM Regional Offices developed and circulated the letter and the survey to the States/International Organizations presented in **Appendix B**. The deadline to send the answer was 30 May 2003. **Appendix C** presents the

status of application of such Conclusion, according to the information so far provided to the corresponding ICAO NACC and SAM Regional Offices.

3. **Action suggested**

3.1 The meeting is invited to take note of this Working Paper.

APPENDIX A

Conclusion AP/ATM/4/9 Analysis of Airspaces for RNP application in the CAR/SAM Regions

That, considering the need to obtain the information for the development of the RNP application strategy in the CAR/SAM Regions:

- a) the Task Force sent a survey on the Need for RNP Application in the CAR/SAM Regions to the ICAO NACC and SAM Regional Offices, not later than 15 March 2003;
- b) the ICAO NACC and SAM Regional Offices sent the survey to CAR/SAM States and International Organizations, not later than 15 April 2003; and
- c) the CAR/SAM States reply the survey to the ICAO NACC and SAM Regional Offices not later than 30 May 2003.

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LT 11/3.19.11/0336

15 April 2003

**Subject: Survey to update the RNAV List of Trajectories in the CAR/SAM Regions
Survey on RNP application need in the CAR/SAM Regions**

**Action
required: Sent the reply to this Regional Office not later than 30 May 2003**

Dear Sir,

I have the honour to address you this letter regarding the above mentioned subject, which was discussed during the Fourth Meeting/Workshop of ATM authorities and planners in the CAR/SAM Regions for RVSM, RNAV routes and RNP Implementation (AP/ATM/4 – RVSM-RNAV-RNP), carried out in Santa Cruz, Bolivia, from 27 to 31 January 2003, sponsored by the UNDP/ICAO RLA/98/003 Project – “Transition to the CNS/ATM Systems in the CAR/SAM Regions”.

As you may recall, through these meetings/workshops a successful Implementation Program of RNAV Routes has been initiated, based on the RNAV List of Trajectories approved by GREPECAS and adopted by the Third CAR/SAM Air Navigation Meeting.

So far, 11 RNAV routes, included in that List, have been definitely implemented and, additionally, during the AP/ATM/4 Meeting/Workshop, 6 new RNAV trajectories were proposed for study and subsequent implementation.

On the other hand, the Second Meeting of the ATM Committee of the GREPECAS ATM/CNS Subgroup (ATM/COM/2), in order to speed up the remaining RNAV routes planning and implementation process, approved **Decision ATM/2/1 – Analysis for the Implementation of RNAV Routes Network**, through which the RNAV/RNP Task Force (RNAV/RNP/TF) of the ATM Committee is requested to analyze the impact of the different factors in the RNAV Routes Network implementation

process and identify those routes that could be deleted of the CAR/SAM Air Navigation Plan (ANP) – Basic Vol.

Such meeting also approved **Decision ATM/2/3 – Study for RNP Implementation in the CAR/SAM Regions**, through which the RNAV/RNP/TF is requested to analyze the aspects that could affect RNP Implementation, study and propose an RNP Implementation strategy and study the need to update the ANP CAR/SAM – FASID ATM Evolution Tables.

Taking into account the above, during the AP/ATM/4 RVSM-RNAV-RNP Meeting/Workshop and so that the RNAV/RNP/TF may continue with the tasks assigned, the following Conclusions were approved: **Conclusion AP/ATM/4/7; Conclusion AP/ATM/4/8; Conclusion AP/ATM/4/9 and Conclusion AP/ATM/4/10**; through which States/Territories and International Organizations are requested to present proposals to update the RNAV List of Trajectories and to adopt the Guidance for RNAV Routes Implementation in the CAR/SAM Regions and use it in the development of their corresponding RNAV Routes National Plan.

Additionally, based on such proposals, the RNAV/RNP/TF is requested to present at the AP/ATM/5 Meeting/Workshop a draft of the trajectories for the Implementation of the RNAV Routes Network in the CAR/SAM Regions and that, through the corresponding NACC and SAM ICAO Offices, send a survey on the need for RNP Application in the CAR/SAM Regions and, based on the results of that survey, present a proposal of RNP application strategy in the CAR/SAM Regions at the AP/ATM/5 Meeting/Workshop.

As you can see, the implementation of RNAV and RNP routes, as well as RVSM, is a complex and laborious process that requires the active participation of the parties involved. Such processes are reaching one by one the goals established in their respective Implementation Programmes and this is due to the commitment of all the States/Territories and International Organizations involved. This participation is possible by virtue of the efforts and support that so far have provided the different aeronautical administrations of the CAR/SAM Regions.

Finally and to enable the RNAV/RNP Task Force to accomplish the tasks assigned according to the Work Programme established, I would very much appreciate your taking the necessary measures so that the answer to this survey be submitted to this Regional Office **as soon as possible** and, in any event, **not later than 30 may 2003**.

Accept, Sir, the assurances of my highest consideration.



José Miguel Ceppi
Regional Director
South American Office
Lima

Enc.

RNAV/RNP Survey

- a) The objective of this survey is:
- i) Identify the proposals of CAR/SAM Administrations to update the List of RNAV Trajectories;
 - ii) Compile statistical information of the air traffic operating in the ATS Routes Network (international routes) of the CAR/SAM Regions;
 - iii) Collect information related to the aircraft fleet operating in the ATS Routes Network (international routes) of CAR/SAM Regions and their RNAV capacity;
 - iv) Compile information on the RNP capacity of the aircraft fleet operating in the CAR/SAM Regions;
 - v) Identify the administrations plans on RNP Implementation and its capacity for airworthiness and operations approval.

This information will enable the RNAV/RNP Task Force (RNAV/RNP/TF) of the ATM Committee of the GREPECAS ATM/CNS Subgroup to establish the necessary actions to propose a RNAV Routes Network and the CAR/SAM RNP Application Strategy

b) The Guidance for the Implementation of RNAV Routes in the CAR/SAM Regions, adopted during the AP/ATM/4 Meeting (Santa Cruz, Bolivia, 27-31 January 2003) and presented in **Attachment A**, could be used as assistance and support for the analysis and appropriate answer to this survey.

c) Concerning the questions regarding the CAR/SAM RNAV Routes Network, the List of RNAV Trajectories adopted during the AP/ATM/4 Meeting, based on the list approved by GREPECAS and the Third RAN CAR/SAM Meeting, which appears in **Attachment B**, should be used.

d) Take note that there are already RNAV routes implemented through the AP/ATM meetings/workshops. It should also be considered that new trajectory(s), if any, that your Administration might consider appropriate to be included in the above mentioned List of RNAV Trajectories.

e) Likewise, your Administration should take note of the users needs and requirements in order to propose:

- New RNAV trajectories not included in the List;
- Modification and/or exclusion of any trajectory(ies) already in the List;
- Modification and/or exclusion of any ATS route(s) already implemented.

f) In case of proposals for new trajectories, do not consider city pairs or specific segments between check points or navaids that are part of a longer trajectory already contemplated in the List or in an existing route, or which trajectory(ies) is(are) too close to the current ones or foreseen in the List.

g) Those segments that could be included in a national routes network or be part of an arrival/departure route should neither be considered.

Taking into account that the length of an arrival/departure route is not standardized and that such procedure starts/ends when it abandons/enters the enroute phase, an appropriate distance to those effects could be considered that from/until which the cruise level is reached/abandoned (approximately 150 NM).

h) When making the analysis, it could maybe be considered more convenient to make modifications to the actual air traffic, whether in the TMAs or enroute.

i) A serious and exhaustive analysis of all the factors involved, as indicated in the Guidance for the Implementation of RNAV Routes in the CAR/SAM Regions, will enable to answer this survey adequately and with the necessary information to be used by the RNAV/RNP Task Force.

j) Mark with an “x” the corresponding answer. If required or considered relevant, comments may be included. Use additional pages, if necessary.

RNAV

1. Has your Administration implemented the World Geodetics System 1984 – WGS-84 in the airspace under your jurisdiction? If negative, indicate the date foreseen for the implementation. In case of a partial implementation, indicate the status of the implementation.

YES

NO

PARTIALLY

Comments:

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2. Is there any proposal from your Administration to include a new trajectory that does not appear in the List of RNAV Trajectories? If affirmative, indicate the specific segment(s) of such trajectory(ies) and the origin/destination corresponding to the airspace under your Administration jurisdiction; for example (and only as example):

City pairs: Lima/Montevideo:

- i) If the proposal is from Peru, origin/destination point, for example, ASIA (ASI) VOR/DME.
- ii) If the proposal is from Uruguay, origin/destination point, for example, CARRASCO (CRR) VOR/DME.

In each case, the subsequent definition of the origin/destination point of the other Administration involved will remain pending.

YES NO

Comments:

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3. Is(are) there any trajectory(ies) of the List of RNAV Trajectories which origin/destination is in the airspace under your Administration jurisdiction of? If affirmative, indicate the specific point(s) of origin/destination. If it is the case, indicate the special circumstances; such as: existence of prohibited/restricted areas, proximity to mountainous zones or areas, traffic already established for aircraft with conventional navigation equipment and without RNAV equipment, etc.

Answer this question as in question number 2.

YES NO

Comments:

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4. After making the corresponding analysis, is(are) there any ATS conventional or RNAV route(s) that your Administration considers should be deleted or its(their) trajectory(ies) modified? Indicate the reason; for example: proximity to an existing route or to a route proposed by your Administration to be included in the List; due to its minor use or not in use any more, etc. If this is the case, mark the proposed modification, indicating the corresponding segment(s) and the respective origin/destination point(s).

Answer this question as in question number 2. Take into account that in this case it would not be necessarily between city pairs, but mainly, between segments established by check points and/or nav aids.

YES NO

Comments:

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5. Has your Administration statistical data on the amount and percentage of aircraft operating in the ATS Routes Network (international routes) of the airspace under your Administration jurisdiction with RNAV equipment? If affirmative, indicate the corresponding figures for each route.

YES NO

Comments:

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RNP

6. Has your Administration planned Required Navigation Performance (RNP) values application in the airspace under your jurisdiction? If affirmative, indicate the airspace(s) and its corresponding RNP value(s) foreseen.

YES NO

Comments:

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7. Does your Administration have statistical data on the utilization index of the users' preferred flight levels? If affirmative, indicate such index by route, flight levels (required and authorized), origin/destination, hour and aircraft type in the airspace under your jurisdiction. Use the following chart as example:

Route	Date		Check Point			(OUT/IN (2))
UL 302	05 May 2003		IREMI (1)			
Identification	Origin/ Destination	Aircraft Type	Hour	Requested FL (3)	Authorized FL	Remarks (4)
LAN 517	SCEL/SPIM	B 767	02:05	350	350	
AAM 684	SCEL/KMIA	B 757	02:08	390	310	Weather
XRY 231	SCEL/MPTO	DC 8	02:15	310	280	Traffic

- (1) If possible, use common points of the FIR(s).
- (2) Mark **OUT** when the flight direction determines that the aircraft **leaving** and **IN** when it is **entering**, respectively, from the corresponding airspace.
- (3) Indicate the FL really requested by the pilot. It may concur with the requested FL in the FPL.
- (4) Indicate, mainly, the reason why the aircraft did not fly at the requested FL.

YES NO

Comments:

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8. In relation to question 7, if your Administration does not have statistics, based on the ATC operational experience, indicate the route(s) or route segment(s), level or set of flight levels mostly used and set of hours, in the airspace under your jurisdiction in which the users are not able to fly at their preferred levels.

If the answer to question 7 was YES, write NA in this question.

Comments:

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9. Does your Administration have statistical data on the index of delays caused by the lack of availability of the users' preferred flight levels in the airspace under your jurisdiction? If affirmative, indicate Airport(s), route(s), hour(s).

YES NO

Comments:

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10. In relation to question 9, if your Administration does not have statistics, based on the ATC operational experience, indicate the Airport(s), route(s) and set of hours in which there are delays caused by the lack of availability of the users' preferred flight levels.

If the answer to question 9 was YES, write NA in this question.

Comments:

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11. Is there airspace under your Administration jurisdiction which capacity could be increased with the application of parallel routes? If affirmative, specify if it is due to traffic reasons, etc. and which will be the RNP value that, in your opinion, would be necessary.

YES NO

Comments:

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12. Does your Administration have statistical data of the aircraft operating in the airspace under your jurisdiction with RNP capacity? If affirmative, indicate the amount and percentage of aircraft and the approved RNP value(s).

YES NO

Comments:

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13. Does your Administration have capacity and/or experience in airworthiness and operational RNP approvals? If affirmative, indicate the experience obtained.

YES NO

Comments:

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14. Does your Administration have data on communications and surveillance coverage in the airspace under your Administration jurisdiction? If affirmative, indicate the airspace with such coverage. If available, enclose the coverage diagram(s).

YES NO

Comments:

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APPENDIX C

Status of Application of Conclusion ATM/AP/4/9 of the Fourth Meeting/Workshop of Air Traffic Management Authorities and Planners of the Caribbean and South American Regions		
States/International Organizations	Reply to the RNAV/RNP Survey	Remarks
ARGENTINA		
BOLIVIA		Only sent the proposals to the List of RNAV routes.
BRAZIL		
CHILE		
COCESNA	X	
COLOMBIA		
CUBA		
DOMINICA REPUBLIC		
ECUADOR	X	
FRENCH GUIANA		
GUYANA		
HAITI		
JAMAICA		
MEXICO	X	
PANAMA	X	
PARAGUAY		
PERU	X	
SURINAME		
TRINIDAD & TOBAGO		
URUGUAY		Only sent the proposals to the List of RNAV routes.
U. S. A.		
VENEZUELA	X	