



International Civil Aviation Organization
CAR/SAM Regional Planning Implementation Group (GREPECAS)
**First Meeting of the Communications, Navigation and Surveillance / Air
Traffic Management Subgroup (CNS/ATM/SG/1)**
(Lima, Peru, 15 to 19 March 2010)

Agenda Item 4: **Review to pending matters of the ATM/CNS/SG, ATM/COMM, CNS/COMM and respective Task Forces, for consideration in the CNS/ATM Subgroup work programme**

REPORT OF THE SCRUTINY WORKING GROUP (GTE)

(Presented by the GTE Task Force)

SUMMARY	
This working paper presents the report of the CAR/SAM Scrutiny group (GTE), so that the CNS/ATM Subgroup may prepare its future work plan.	
References: <ul style="list-style-type: none">• Final Report of the GTE/6 Meeting• Final Report of the GTE/7 Meeting• Final Report of the GTE/8• CAR/SAM RVSM GTE Reference guide	
Strategic Objectives:	<i>A – Safety</i> <i>D – Efficiency</i>

1. Introduction

1.1 Since the decision to implement reduced vertical separation minima (RVSM) in the CAR/SAM Regions was taken, the Scrutiny Working Group (GTE) has made an analysis of large-height deviations (LHD) to assess the Target Level of Safety (TLS), as established in ICAO Doc 9574.

1.2 Part of this process is carried out by the CAR/SAM Regional Monitoring Agency (CARSAMMA), as responsible body for the performance monitoring of the system. The CAR/SAM RVSM GTE Reference Guide and the monitoring method of CARSAMMA may be found in the website of the latter.

1.3 The objective of the GTE is to analyse large-height deviations and estimate the time that the aircraft flies at a non-authorized height. This estimate is used to calculate the operational risk after RVSM implementation.

1.4 The GTE analyses the technical risk (affected by the reliability and aircraft avionic precision) as operational risk (affected by the human element) in the development of safety oversight. Criteria established help to determine whether an altitude event reported qualifies as LHD.

1.5 Once LHD is determined, data is reviewed to identify trends in performance. If an adverse trend exists the GTE formulates recommendations to reduce or mitigate the effect of such trends as part of RVSM implementation. The Group shall gather to analyse the performance history after implementation and make sure that operational errors are kept to the minimum.

1.6 This information is used to ensure that the airspace being analysed continues to comply with the target level of safety, which is necessary for RVSM operations continuity. From this process, procedures or other mitigating strategy may arise, to reduce the occurrence of large-height deviations.

1.7 It must be recalled that GREPECAS recommended corrective actions for the short and mid-term, contained in Conclusion 15/36 – Measures to reduce operational errors in ATC coordination cycle between adjacent ACCs. GREPECAS encouraged States and International Organizations to implement a safety management system and, as technology permits, to implement data communications between ATS facilities (AIDC) in a gradual manner.

2 Revision

2.1 The GTE met in eight occasions, where all 90m (300 ft) large-height deviations (LHD) were revised, as per the reports received by CARSAMMA. The GTE analysed all occurrences of 90m (300 ft) or more large-height deviations (LHD) reported to CARSAMMA between September 2008 and December 2009. **Appendix** to this working paper shows the report of the GTE/8 Meeting, with the results of analyses carried out.

2.2 The GTE found that M and N errors are still one of the main two categories, representing approximately 97% of the LHDs reported. When analysing categories of events, it is shown that errors are not caused by RVSM operation, and the main contributory factor are common aircraft transference procedures from one ATC unit to another.

2.3 The aforementioned analyses revealed that from a significant amount of LHD events categorized as M and N, approximately 20% correspond to the reporting points VESKA and BEROX.

2.4 To this end, the meeting recalled that many letters of operational agreement (LOA) between ACCs contain the coordination procedures, radar and non-radar, to transfer communications of the aircraft. In some cases, communications of one aircraft will be transferred FIVE (5) minutes before the estimated hour in which the aircraft shall reach a transference point in the ATS route.

2.5 In view of the above, the meeting supported that States should take the corresponding actions so that adjacent ACCs review the letters of agreement so that, if such were the case, review and incorporate such procedure. Likewise, radar data sharing plan and gradual implementation for data exchange between ATC units (AID) should be revised.

2.6 In the light of the above, the meeting should revise the Appendix to this working paper, with a view to preparing a work programme for the future CNS/ATM Subgroup, and also issue comments, if such were the case, to improve safety in the CAR/SAM Regions.

2.7 The meeting is invited to:

- a) Take note of the information contained in this working paper;
- b) Encourage States/Territories and International Organizations to support the measures drafted in GREPECAS Conclusion 15/36 - "*Measures to reduce operational errors in the ATC coordination cycle between adjacent ACCs*"; and
- c) Encourage States/Territories and International Organizations to send representatives to the GTE meetings programmed in the CAR and SAM Regions.

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APPENDIX

Eighth Meeting of the Grupo de Trabajo de Escrutinio (GTE/8) (Port of Spain, Trinidad, from 26-28 January 2010)

REPORT

1. HISTORY OF THE MEETING

1.1. PLACE AND DURATION OF THE MEETING

1.1.1. The Eighth Meeting of the Grupo de Trabajo de Escrutinio (GTE/8) was held at the Crown Plaza Hotel in Port of Spain, Trinidad, from 26-28 January 2010.

1.2. OPENING CEREMONY AND OTHER MATTERS

1.2.1. Mr. Madison Walton, Rapporteur of the GTE, greeted the participants, and emphasized the importance of the issues to be addressed as well as notable adverse trends that have been identified within the Regions. Mr. Walton specifically noted facility-to-facility coordination issues and urged the Group to consider this trend when evaluating reports of large height deviations and determining proposed remedial actions.

1.2.2. Mr. Samuel Lampkin, Manager Air Traffic Services Trinidad and Tobago Civil Aviation Authority, and host of the meeting welcomed the participants highlighting the importance of the work to be accomplished and its positive effect on the reduction of risk in the airspace of the Regions.

1.3. SCHEDULE, ORGANIZATION, WORKING METHODS, OFFICERS AND SECRETARIAT

1.3.1. The Meeting agreed to hold its sessions from 0800 to 1500 hours, with appropriate breaks. The work was done with the Meeting as a Single Committee. Mr. Madison Walton, delegate from United States and Rapporteur, served as Chairman of the Meeting.

1.4. WORKING LANGUAGES

1.4.1. The working languages of the Meeting were Spanish and English.

1.5. AGENDA

The following agenda was adopted.

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| Agenda Item 1: | History of RVSM, Regional Monitoring Agencies and Scrutiny Groups
a) Roles and responsibilities
b) Overview of Target Levels of Safety |
| Agenda Item 2: | GTE Overview – CARSAMMA & Rapporteur
a) Terms of Reference
b) Background
c) Composition
d) Objectives |

- e) Methodology
- f) Reporting

Agenda Item 3: Large Height Deviation (LHD) Analysis – CARSAMMA

- a) Application of GTE methodology to LHD events
- b) Summarize parameter values
- c) Identify operational trends from data base

Agenda Item 4: Other business

1.6. ATTENDANCE

1.6.1. The meeting was attended by 20 participants. A list of the participants is included in **Attachment A**.

2. Agenda Item 1: History of RVSM, Regional Monitoring Agencies and Scrutiny Groups

2.1. The meeting reviewed the need for system performance monitoring, historical development of Regional Monitoring Agencies (RMA) and recalled the roles and responsibilities of CARSAMMA, the responsible RMA for the Caribbean and South American Regions.

2.2. In addition, the meeting reviewed the ICAO accepted target level of safety (TLS) for airspace in which Reduced Vertical Separation Minimum (RVSM) is implemented and the effect of large height deviations (LHD) on the outcome of collision risk calculations.

3. Agenda Item 2: GTE Overview – CARSAMMA & Rapporteur

3.1. The meeting reviewed the GTE composition and Terms of Reference (TOR as endorsed by GREPECAS).

4. Agenda Item 3: Large Height Deviation (LHD) Analysis – CARSAMMA

4.1. **Major Ricardo**, Manager of CARSAMMA, presented all events reported during the period of 1 January 2009 through 30 June 2009. A total of 317 reports were submitted from CAR and SAM Regions. The Meeting analyzed each event and, with expert judgment, determined parameter values necessary for collision risk estimation. A summary of reported events and GTE analysis is included in **Attachment B**.

4.2. The following chart provides a summary of the categories assigned to each event. The top two categories, M and N, account for approximately 97% of the reported LHDs.

Chart here

4.3. The following chart provided a summary of the rate of occurrence of large height deviations at the top reported positions. The top six reporting points account for approximately 40% of all large height deviations. Most notably, the reporting point VESKA and related reporting points such as BEROX account for more than 20% of the reported LHDs.

Chart here

4.4. Analysis revealed that an adverse trend involving ATC-to-ATC coordination errors between the Curacao and Santo (St.) Domingo FIRs specifically over the VESKA reporting point previously identified during GTE/6 has not been resolved. Please refer to Figure 1 Reporting Point VESKA and Surrounding FIRs.

4.4.1. The situation also involves the Haiti FIR. Aircraft transitioning through the Port au Prince FIR to the Curacao FIR also transition through the St. Domingo FIR for a short period of time. In many cases, Haiti provided a revised boundary crossing time estimate for a particular aircraft over VESKA to St. Domingo, by the time St. Domingo coordinates the revised estimate to Curacao the aircraft has already entered Curacao's airspace. This results in a significant variation between the time of the boundary crossing and the time expected into the Curacao FIR. It was noted that Haiti often provides multiple time estimate revisions for aircraft passing through St. Domingo to Curacao. This could be a workload issue.

4.4.2. This issue should be investigated further through CARSAMMA and ICAO, keeping in mind that the operating speed of current aircraft and predominant traffic flow could require changes to existing agreements in order to reduce the risk on a systematic level. Remedial action, if necessary, will be recommended upon the conclusion of the investigation.

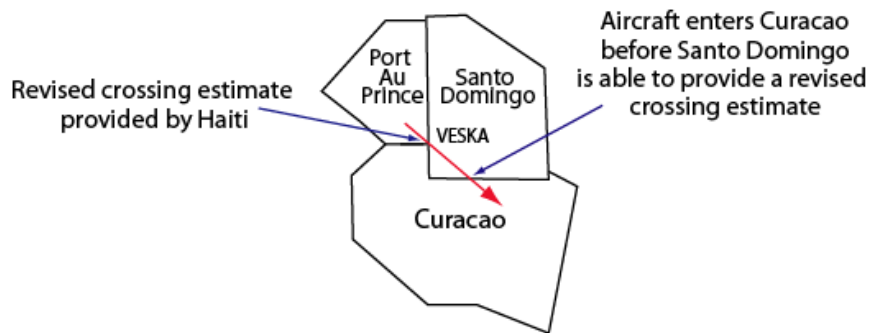


Figure 2 Reporting Point VESKA and Surrounding FIRs

4.5. GTE analysis also revealed an error of significant duration that warrants specialized attention. It was reported that on the 23rd of March 2009 a B763 flew through the Atlantico FIR without initiating any contact. The summary of the report follows: “The mentioned traffic flew without making any contact with ATLANTICO ACC. The flight duration was 4 hours and forty minutes. We got to know about what had happened because the air traffic controller of ASCENTION TWR informed the arrival time.”

4.6. While reviewing event reports, it was determined there was confusion regarding the definition and application of the Error Code I “ATC system loop error; (e.g. pilot misunderstands clearance message or ATC issues incorrect clearance)” and that clarification is required to facilitate accurate application of the error code for future analyses. The Rapporteur reminded the Group that accurate assignment of Error Codes is essential to effectively identify adverse trends and that the Group, upon common agreement, may amend existing error codes or add additional error codes as needed to enhance GTE analysis. Further more, it was agreed that the table of Error Codes included in the “Caribbean and South American RVSM Grupo de Trabajo de Escrutinio (CAR/SAM RVSM GTE) Reference Guide” will be updated accordingly.

4.7. It was further noted that many reports lacked details, specifically a comprehensive summary, necessary to accurately assign parameter values. The Group agreed it would appeal to ICAO to urge States, Regions and International Territories to accurately report vertical events including as much detail as possible.

4.8. In addition, GTE analysis revealed that the availability of radar surveillance in the area in which an LHD occurred greatly minimized the duration value of the event. The greatest exposure to risk is the amount of time spent “straight and level” at a flight level other than the cleared flight level, otherwise termed “duration.” Since it is necessary to accurately assess each event accordingly; it was agreed that a new field should be added to the CARSAMMA Altitude Deviation Form to include radar availability status.

4.9. CARSAMMA reported that a proposal was presented to the Fourth All RMA Coordination Meeting to rename the existing Altitude Deviation Form so that users would not limit its use only to deviations which entailed movement in the vertical dimension and to consider the provision of radar information such as field #6: “Radar- yes/no-if yes, which FL was seen”. The Meeting recalled that although category type “N” events contribute to LHD analyses, a physical large height deviation does not occur. The meeting supported CARSAMMA’s proposal and concluded that it is within CARSAMMA’s authority to implement amendments to the Altitude Deviation Form.

4.10. The Group also reviewed reporting trends and noted that some facilities are reporting their own errors in support of enhancing safety for the Region. In light of this encouraging trend, the Group agreed to urge service providers to participate in error reporting. While encouraging error reporting, the Group continues to emphasize that error reports received for the purposes of large height deviation analysis are confidential and used for safety purposes only.

4.11. The Group noted several events reported to CARSAMMA were applicable to adjacent oceanic regions. Since some ACCs adjoin international oceanic airspace, ICAO NACC and SAM Regional Offices are requested to advise the corresponding adjacent ICAO regional Offices (EUR/NAT, WACAF) that said LHD report will be forthcoming from the adjacent ACC and urge positive interaction with reporting CAR/SAM unit.

4.12. Upon conclusion of report evaluation, the GTE noted that for the eighth meeting in a row the primary cause of reported LHD in the CARSAM Region is categories “M”, error in ATC unit to ATC unit in transition message, and “N”, Negative transfer received from transitioning ATC-unit.

4.12.1. In an effort to eliminate errors associated with the largest contributing LHD error categories, States, Territories and International Organizations are reminded of the action from the Fifteenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/15) that encouraged *urgent action* to wit:

CONCLUSION 15/36 - MEASURES TO REDUCE OPERATIONAL ERRORS IN THE ATC COORDINATION LOOP BETWEEN ADJACENT ACCs

That taking into account the impact of operational errors in the ATC coordination loop between adjacent ACCs on air operations safety:

- a) CAR/SAM States/Territories/International Organizations apply, on an urgent basis among other measures, the programme for the prevention of errors in the coordination loop between adjacent ACCs described in Attachment B to this part of

the Report in order to reduce LHDs caused by errors in traffic coordination messages between ATC units to achieve an acceptable target level of safety;

- b) CAR/SAM States/Territories/International Organizations gradually implement the interface for data exchange among ATC units (AIDC); and
- c) ICAO coordinate, provides assistance, and conduct follow-up on the implementation of these corrective measures.

4.13. The Group would like to congratulate the States, Authorities and International Territories for their effort in submitting the monthly LHD reports. Compliance with this request has improved with each meeting.

INSERT RECOMMENDED ACTION