



**Twenty-First Regional Aviation Safety Group – Pan America (RASG-PA)
Executive Steering Committee Meeting (RASG-PA ESC/21)
Willemstad, Curaçao, 8 September 2014**

Agenda Item 2: Review of RASG-PA ESC/21 Documentation

LARGE HEIGHT DEVIATION (LHDs) ISSUES IN THE CAR AND SAM REGIONS

(Presented by Secretariat)

EXECUTIVE SUMMARY	
<p>This working paper presents the results of the Caribbean and South American Monitoring Agency (CARSAMMA) and the Scrutiny Working Group (GTE) analysis and assessment of Large Height Deviations (LHDs) in the CAR and SAM Regions as presented in the Seventeenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/17) and the RASG-PA planned action for LHDs.</p>	
Action:	Suggested action is presented in Section 4.
<i>Strategic Objective:</i>	<ul style="list-style-type: none"> • Safety
<i>References:</i>	<ul style="list-style-type: none"> • GREPECAS/17 Meeting Report, Cochabamba, Bolivia, 21 to 25 July 2014 • RASG-PA/ESC/16 Summary of Discussion, Lima, Peru, 12 to 13 March 2013 • PA-RAST/12 Summary of Discussion, Mexico City, Mexico, 21 to 22 February 2013 • PA-RAST/11 Summary of Discussion, Santiago, Chile, 18 to 19 October 2012

1. Introduction

1.1 Since the implementation of the Reduced Vertical Separation Minima (RVSM) in the CAR and SAM Regions, CARSAMMA and the GTE have worked on LHDs issues to assess the Target Level of Safety (TLS) as established in ICAO Doc 9574.

1.2 CARSAMMA has used the internationally accepted safety assessment process since the introduction of RVSM in CAR and SAM airspace. The basic Collision Risk Model (CRM) is used for estimating the total system risk attributable to all causes.

1.3 During the GREPECAS/17 meeting held in Cochabamba, Bolivia, from 21 to 25 July 2014, two working papers were presented in relation to LHDs issues.

2. Summary

2.1 The highlights of the GREPECAS/17 discussion regarding LHDs issues were the following:

1. Only 78% and 42% of the information provided to CARSAMMA by CAR and SAM States, respectively, had been used because of errors in the completion of the forms sent to the Agency.
2. CARSAMMA identified 157 and 407 flights in RVSM airspace in the CAR and SAM Regions, respectively, which were not registered in the Global Database of RVSM-Approved Aircraft, accounting for 0.44 % and 0.18% of the total number of flights, respectively.
3. 58% of LHDs that occurred in the CAR and SAM Regions could not be used for safety assessment calculations due to missing or inaccurate information on the LHD forms, thus significantly affecting the Reduced Vertical Separation Minimum (RVSM) airspace risk estimates.
4. The poor quality of information sent to CARSAMMA results in a process of investigation and clarification, thus increasing workload and causing delays with LHD validation by the GTE, which currently takes 7 months.
5. CARSAMMA organized a meeting of CAR and SAM focal points in Rio de Janeiro, Brazil, 11-13 August 2014, as an urgent measure to tackle the issues identified in the completion of LHD forms.
6. Some regional Area Control Centres (ACCs) have implemented automated transfers, but coordination problems still exist that were not reflected in the operational Letters of Agreement (LoA) between adjacent Flight Information Region (FIRs), especially concerning receipt of flight plans, flight plan duplication, and lack of aircraft altitude specifications (climb/descent) for handover purposes. Additionally, the absence of transfer of control had increased significantly, generating a serious loss of situational awareness at the expense of safety.

7. Many bilateral meetings have been held among the States to minimize or eliminate operational errors that corresponded to M- and N-coded LHDs. Some points of transfer between FIRs still have no reliable handover procedures. Multilateral meetings and discussions have a positive impact on safety. In this sense, the States should revise their LOAs to include the necessary procedures for ensuring correct transfer of control, thus minimizing M- and N-coded LHDs.
8. The preliminary total risk estimated for the FIRs under study for 2013, prior to the analysis by the GTE, was 1.19×10^{-8} , that is above the TLS, which is 5.0×10^{-9} . This value could change depending on the results of the GTE/14 Meeting.

2.2 As a consequence of the abovementioned issues, the GREPECAS/17 Meeting decided to:

- a) Divide the GTE teleconferences for LHD validation by corresponding CAR and SAM Regions
- b) Conduct training of CARSAMMA focal points
- c) Develop a project to reach a sustainable solution to mitigate problems with the provision of air traffic service and LHD form data quality including tasks aimed at redistributing the workload, reducing LHD validation times, and monitoring data quality more efficiently

2.3 RASG-PA considered including LHD issues as part of the activities of PA-RAST Safety Enhancement Team (SET) 4 that will develop the Safety Enhancement Initiatives (SEIs) for the Mid Air Collision (MAC) emerging risk area in the Pan America Region as determined by the RASG-PA Information Analysis Team (IAT).

3. Conclusion

3.1 94% of the LHDs reported are due to human factors including coordination errors in the ATC-to-ATC transfer or control responsibility.

3.2 CARSAMMA and the GTE have been working since 2011 using the new quantitative and qualitative methodology for risk analysis: the Collision Risk Model (CRM) in the Safety Management System (SMS) methodology to analyze LHD reports, contained in the approved Manual-Guide on the Assessment of Large Height Deviations (LHDs).

3.3 LHDs in the CAR and SAM Regions increased from 49% in 2012 to 54% in 2013; therefore, mitigation actions by the States/Territories are required.

3.4 Close contact between CARSAMMA and State CAAs is key in order to obtain the required data to fulfil its duties and responsibilities and clarify any concerns on the status of RVSM approval of aircraft and operators.

3.5 RASG-PA involvement is appropriate in the mitigation process from the operational/safety perspective of pilots and air traffic controllers.

4. Suggested Action

4.1 The ESC is invited to:

- a) note the information provided in this paper;
- b) encourage PA-RAST SET 4 to develop one or more SEI with respect to LHDs; and
- c) encourage RASG-PA Secretariat to coordinate the activity of the PA-RAST SET 4 regarding LHDs issues in the CAR and SAM Regions with the GREPECAS Secretariat in order to avoid duplication of efforts.

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