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INFORMATION PAPER

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**CAR/SAM Planning and Implementation Regional Group (GREPECAS)
Twenty Fourth Scrutiny Working Group Meeting (GTE/24)
Mexico City, Mexico, 5 to 9 August 2024**

- Agenda Item 3: Review of the Results of Large Height Deviation (LHD) and the Collision Risk Model (CRM) Analysis**
3.5 Lessons learned by CAR/SAM States to reduce the number of LHDs.

HEIGHT DEVIATIONS OF AIRCRAFT AND ASSESSMENT OF REPORTS

(Presented by Guyana)

EXECUTIVE SUMMARY

The issue of height deviations of aircraft is a critical safety concern in the aviation industry. Careful analysis of reports and data related to these deviations can inform the methods of mitigation implemented to eliminate or reduce any associated risk and maintain acceptable levels of safety.

Strategic

- Safety

Objectives:

- Air Navigation Capacity and Efficiency

References:

- RVSM Manual, Local Procedures.

1. Introduction

1.1 The issue of height deviations of aircraft is a critical safety concern in the aviation industry. The Air Navigation Service (ANS) must ensure the proper assessment and analysis of reports related to these deviations to maintain its safety standards. This working paper aims to outline the process of assessing and analysing height deviation reports in Georgetown FIR (SYGC) Guyana.

1.2 Assessment of Height Deviation Reports:

Pilots and Air Traffic Controllers are responsible for reporting height deviations during flight operations to the Air Navigation Services (ANS). The ANS conducts an initial review to gather basic information, including flight details, location, time of occurrence, and parties involved. Data analysis is conducted using flight data monitoring systems and surveillance data to identify causes and contributing factors. The ANS assesses the risk posed by the deviation, considering factors like proximity to other aircraft, altitude restrictions, and potential safety impact. If serious safety concerns are identified, the ANS may initiate a formal investigation, involving interviews, data collection, and expert analysis.

1.3 Analysis of Height Deviation Reports

1.3.1 Trend Analysis: The ANS conducts trend analysis of height deviation reports to identify recurring patterns or systemic issues within the ACC sectors. This analysis helps in developing targeted safety initiatives and training programs.

1.4 Scenarios

1.4.1 For the period January to December 2023, LHD reports indicated the following areas of interest and hotspots within the Georgetown FIR:

MINDA, VOKAV, and Position KORTO: - Change over WP between SYGC and TTZP.

These positions are hotspots for LHD because traffic departing from the Port of Spain (POS) must climb to maintain their cruising levels in RVSM airspace. While traffic departing from Georgetown (GEO) crosses these boundary Waypoints (WP) still climbing and are within 10 minutes to reaching the boundary. For example, a B738 aircraft typically takes approximately 22 minutes from POS to VOKAV, while the flying time from GEO to VOKAV is 25 minutes.

1.4.2 Coordination Challenges.

Estimates for aircraft flying from Pos to Geo via waypoints at the common boundary is received late. Traffic departing from both POS and GEO maybe climbing to maintain cruising levels at the common boundary, this requires robust communication (voice) and timely coordination between these ATS units. If the process is hindered or delayed in any way, it can potentially lead to problems (LHD).

1.4.3 Mitigation measures:

The use of ADS -B Surveillance has been crucial in mitigating LHD incidents with adjacent centres, since our ADS-B coverage is beyond our airspace boundary, it allows controllers to observe aircraft approaching the common FIR WP at different levels compared to what was previously coordinated or never coordinated. This often prompts ATC to enquire from the adjacent centres of such traffic and thereafter immediately completes the coordination process, albeit late but which still allows for mitigating any possible LHD.

1.4.4 Another area of interest or challenge is between Guyana and Brazil. Guyana ATM displays target label in the 2nd line with current FL, cleared FL and coordinated FL, however, when some estimate messages are received from Amazonica (SBAZ), perhaps through AIDC (still unknown and under investigation), the target label shows that the flight level has been coordinated by Georgetown with next ACC (TTPP or SVMII), that is current FL, corresponds to cleared FL which corresponds to coordinated FL. The Controller observing this status from the label may conclude that the coordination was done, and no further action was needed on his/her part only to find out upon transfer or prior observation and point out by the receiving ACC, that coordination was incomplete.

1.4.4.1 Mitigation measures.

Local procedures were developed to mitigate this risk, e.g. managing uncoordinated targets by colour coding the target label that appear with this status, and by displaying flight progress

strips on the strip board to indicate that the traffic was not coordinated or needed further action. We are actively exploring other ways to further mitigate/eliminate this risk.

2. Safety Recommendations:

2.1 Based on the findings of height deviation reports, the ANS has issue safety recommendations to air traffic controllers, and other stakeholders to prevent future incidents through training and educational programs that enhance awareness and knowledge of height deviation risks among aviation personnel. This includes simulator training, workshops, and information sessions.

3. Conclusion:

In conclusion, the assessment and analysis of height deviation reports are essential components of ensuring safety within SYGC. By following a systematic process of reporting, assessing, and analysing height deviations, the ANS can effectively identify risks, implement safety measures, and enhance overall aviation safety standards in the country.