

**Fortieth Meeting of the
Informal South Pacific ATS Coordinating Group
(ISPACG/40)**

**Brisbane, Australia
5-7 May 2026**

Agenda Item 2: ISPACG Regional Reports

**PROPOSED PROCESS RELATED TO FEEDBACK APPLICABLE TO SAFETY
OCCURRENCE REPORTING**

Prepared by: AAMA and PARMO

SUMMARY

The purpose of this paper is to highlight the benefits of analysing large height deviations (LHDs) in RVSM airspace and reporting corrective actions implemented to mitigate or reduce LHDs. Regional monitoring agencies (RMAs) conduct such analysis and share it between ICAO regional bodies and states. The paper also proposes a reporting mechanism between ATC units and between RMAs and ATC units in order provide feedback on corrective actions implemented to reduce LHDs.

1. INTRODUCTION

- 1.1 RMAs have been established by their respective ICAO regional planning groups (PIRGs) to support the continued safe use of RVSM within a designated airspace by performing safety monitoring services. RMAs are responsible for conducting safety assessments and generating a safety report for an airspace(s) for which they have been designated responsibility. Part of this task includes collecting and assessing reports of large height deviations (LHDs).
- 1.2 The primary benefit of assessing LHDs is determination of key parameter values that contribute to estimation of collision risk; however, an equally valuable benefit is operational trend analysis. LHD trend analysis provides valuable insight by identifying patterns and changes in operational performance over time and enables detection of potential emerging risks or areas of improvement.
- 1.3 Currently, air traffic control units are required to document and report LHDs. Based on the data collected, there may be a need for the ATC unit to develop and implement corrective actions to mitigate or reduce the number of LHDs attributed to a specific error type.
- 1.4 As recommended by ICAO Annex 19, Safety Management, States should develop and maintain a process to evaluate the effectiveness of actions taken to manage safety risks and resolve safety issues.

- 1.5 With respect to assessing the effectiveness of corrective actions applicable to mitigating or reducing LHDs, it was recognized that State Safety Programs (SSPs) could benefit from trend analyses already performed by RMAs and enhance the evaluation process specified in para 1.4.
- 1.6 In addition, air traffic control units could liaise with other units regarding LHDs involving ATC coordination issues along a shared Flight Information Region (FIR) boundary.

2 DISCUSSION

2.1 Corrective actions implemented as an outcome of assessing LHDs

- 2.1.1 An increase in the number of LHDs of a specific error type, a concentration of LHD occurrences in a geographic location, or identification of a long duration LHD typically results in identification of a hazard which must be mitigated. Hazards should be managed to an acceptable level by mitigating the safety risk through the application of remediation measures that often result in changes to operating procedures, equipment or infrastructure.
- 2.1.2 In 2024 the Asia-Pacific Regional Airspace Safety Monitoring Advisory Group (RASMAG) agreed to a process to identify hot spots among LHDs in a given geographic region, for formal notification to the Asia-Pacific Air Navigation PIRG. A list of hot spots across the Asia Pacific is reviewed by RASMAG every year. For a hot spot to be removed from the list, proof of mitigation measures should be presented alongside a decrease in operational risk below the relevant Target Level of Safety (5×10^{-9} fatal accidents per flight hour).
- 2.1.3 In accordance with ICAO SMS requirements, the service provider shall develop and maintain the means to validate the effectiveness of safety risk controls. Assessing the effectiveness of implemented mitigations is essential to ensure that the corrective actions taken are reducing the identified risks they were designed to address. By evaluating outcomes, organizations can determine whether a mitigation strategy is working as intended, identify gaps or unintended consequences, and make informed adjustments if necessary. This process promotes continuous improvement and evidence-based decision making.
- 2.1.4 For example, during 2018, a significant increase in the number and duration of LHDs that occurred near the Melbourne-Colombo flight information region (FIR) interface was observed. It was determined that the events were largely attributed to pilot and coordination errors. An in-depth analysis of the root causes of the LHDs informed the development of potential risk-reducing control measures. Consequently, during 2019 and 2020 the following mitigations were implemented: air traffic control awareness training and sectorization of the Colombo FIR. After the mitigations were implemented, LHD identification and trend analysis continued to assess the effectiveness of the

control measures. As shown in figure 1, a reduction in the number and duration of LHDs during the period of 2019 – 2021 can be observed. The results of the trend analysis could be used as a source of confirmation that the control measures developed to reduce the number of LHD occurrences are working as intended.

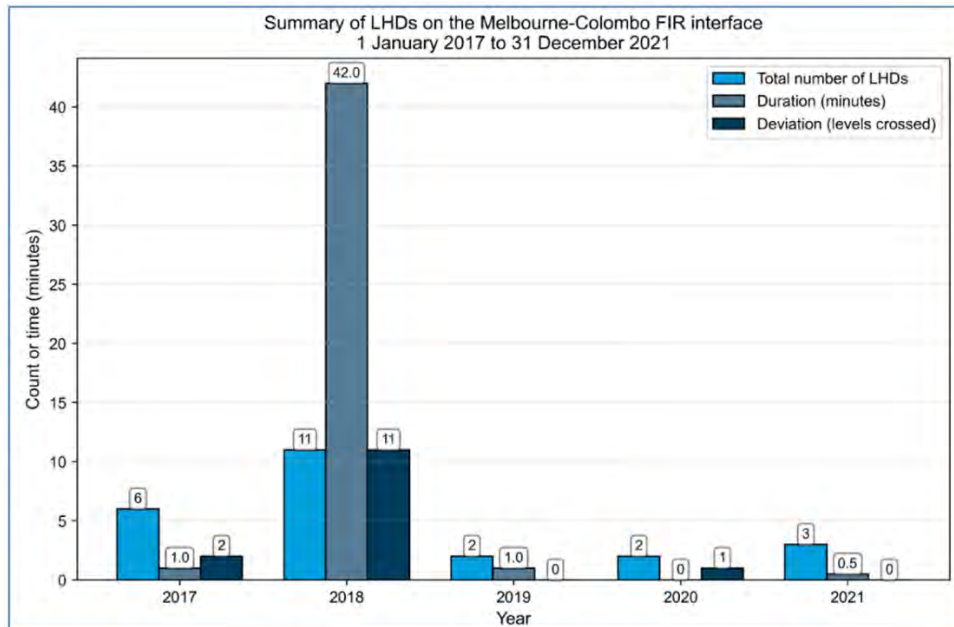


Figure 1. Summary of LHDs on the Melbourne-Colombo FIR interface 1 January 2017 – 31 December 2021

2.1.5 The following scenario is another example of how decision makers could benefit from LHD trend analysis. During 2024, two aircraft operating in the same traffic flow with the same call sign caused a long-duration LHD (240 minutes) in Oakland’s Oceanic airspace. Following the event, modifications were made to the oceanic automation system to prevent multiple aircraft with the same callsign to be in the airspace at the same time. Assessing LHDs in the airspace over time will inform air traffic management and safety experts on whether the modifications are sufficient for preventing future events of this type or if additional action is required.

2.2 Current LHD data collection practices

2.2.1 In accordance with ICAO standards and recommended practices, States have established data collection mechanisms to facilitate LHD reporting, with a requirement that ATC units report LHDs, at a minimum, monthly. It is the responsibility of the RMA to collect this information and provide periodic reports of observed height deviations to the appropriate PIRG and its subsidiary bodies, such as RASMAG.

2.2.2 While it is not a current requirement, States, their respective ATC units, and safety oversight groups could benefit from inclusion of reporting corrective actions implemented to mitigate or reduce the level of risk associated with LHDs to the appropriate RMA.

2.3 Proposed data collection practices

- 2.3.1 Given the well-established LHD reporting mechanisms and trend analysis currently performed by RMAs, the infrastructure and tools are already in place to support integration of tracking the effectiveness of corrective actions.
- 2.3.2 Inclusion of key elements such as implementation dates and the type of mitigation could be incorporated into LHD trend analyses performed by RMAs. This information significantly improves the accuracy and usefulness of the analysis because it provides a clear reference point to evaluate operational performance before and after the change. When analysts can align performance or incident data with the timing of a change, such as a new process, control, or system enhancement, they can confidently determine whether the change was effective.
- 2.3.3 Furthermore, RMAs can include the outcomes of corrective action analyses in their annual safety reports delivered to safety oversight groups (e.g., RASMAG). The benefit of this addition is that it provides a platform for sharing success stories with organizations providing air traffic services in other parts of the Asia/Pacific Region.

2.4 Proposed feedback loop

- 2.4.1 ATC units or service providers report LHD and corrective actions to the appropriate RMA. The report details should include:
- Type of error that the corrective action is intended to mitigate
 - Description of corrective action
 - Date of implementation
- 2.4.2 For an ATC coordination error LHD along an FIR boundary:
- ATC unit communicates above high-level information to adjacent ATC unit (and copies relevant RMAs on communication)
 - ATC units liaise regarding corrective action (if applicable)
- 2.4.3 RMA analyses single LHD or related LHDs and reports back to ATC units
- Quantify operational risk of LHD and conduct trend analysis (if applicable)
- 2.4.4 RMA reports to RASMAG
- RMA reports analysis results to RASMAG
 - RMA records feedback from the meeting and report back to the ATC unit

2.5 Example of feedback loop

2.5.1 Brisbane Centre reports LHD in June 2026

- LHD description: ATC coordination error resulting in LHD along the FIR boundary with Auckland Centre – late transfer of information regarding a particular flight
- Corrective action: post-incident review identifies contributing factors and – only if applicable – suggests changes to operational procedures
- Relevant RMAs: Brisbane Centre’s RMA is AAMA, and Auckland Centre’s RMA is PARMO
- Brisbane communicates LHD description and corrective action to Auckland Centre and AAMA
- Auckland Centre provides feedback to Brisbane Centre (copied to PARMO)
- AAMA liaises on LHD details with PARMO, who conducts analysis of LHD (quantifying operational risk of LHD in Auckland FIR, etc.)
- PARMO reports analysis results of single LHD (or related LHDs) to Auckland Centre and AAMA, who shares it with Brisbane Centre
- PARMO reports analysis results to RASMAG and shares any input with Auckland Centre (and AAMA with Brisbane Centre)

3 ACTION BY THE MEETING

- a) The meeting is invited to note the information in this paper;
- b) Review the proposed data collection practices presented in section 2.3 and the proposed feedback loop presented in section 2.4; and
- c) Provide feedback as necessary.

-- END --