International Civil Aviation Organization
Asia and Pacific Office

Fourteenth Meeting of the Regional Aviation Safety Group – Asia and Pacific Regions (RASG-APAC/14)

(Bangkok, Thailand, 28-29 November 2024)

Agenda Item 4: ICAO / Member State / Industry Presentations

RASMAG OUTCOMES

(Presented by RASMAG Chair)

SUMMARY

This paper provides a summary of the key outcomes from the Twenty-Ninth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/29) and informs APRAST the future development of an airspace deviation occurrence data sharing process and reporting process between RASMAG and APRAST.

1. INTRODUCTION

1.1 The Twenty-Ninth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/29) was held in Bangkok, Thailand, from 19 to 22 August 2024. RASMAG is a Sub-Group of APANPIRG that is tasked to:

a) facilitate the safe implementation of reduced separation minima and CNS/ATM applications within the Asia and Pacific Regions in regard to airspace safety monitoring; and

b) assist States to achieve the established levels of airspace safety for international airspace within the Asia and Pacific Regions.

1.2 Meeting documentations and the final reports of RASMAG/29 can be found at the following webpages:

- icao.int/APAC/Meetings/Pages/2023-RASMAG-29.aspx

1.3 **DISCLAIMER**: The presentation of material in this report does not imply the expression of any opinion whatsoever on the part of ICAO, APANPIRG or the RASMAG of APANPIRG concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

2. DISCUSSION

RASMAG/29 Meeting Outcomes

APAC Consolidated Safety Report

2.1 The Monitoring Agency for the Asian Region (MAAR) presented a combined summary of the safety analysis results for the Asia/Pacific Region, on behalf of the Asia/Pacific RMAs and En-route Monitoring Agency (EMA). The report was divided into the Pacific (PAC) area, and Asia area (**Figure 1**). The full APAC consolidated Safety Report can be found in **Attachment A**. The APAC consolidated Safety Report included the following highlights:

a) Risk by Areas;

b) Geolocations of LHD/LLD/LLE[1];

c) LHD/LLD/LLE hotspots, trends and mitigations; and

d) Reporting Rates of LHD/LLD/LLE

Note: airspace safety estimates in this report are measured in terms of fatal accidents per flight hour (fapfh).

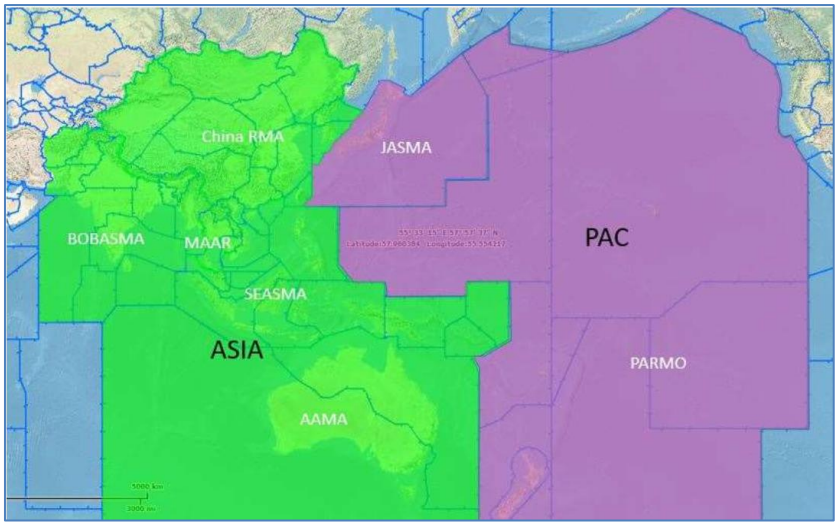

Figure 1: Asia and Pacific Safety Reporting Areas

Pacific Area Vertical Collision Risk

2.2 The estimated vertical collision risk for 2023 for the PAC area did not meet TLS. (**Table 1**), mostly driven by Hot Spot N (Hawaii CEP/Oakland USA). The responsible units have already implemented mitigation procedures while planning for an ATM system upgrade to begin in 2025 to resolve the issues at this hot spot.

Table 1: Pacific Area Vertical Collision Risk 2023

Pacific Area – annual flying hours = 3,462,071			
Source of Risk	**Risk Estimation**	**TLS**	**Remarks**
Vertical Technical Risk	0.22×10^{-9}	2.5×10^{-9}	Below Technical TLS
Vertical Operational Risk	10.55×10^{-9}	-	-
2023 Vertical Overall Risk	**10.77×10^{-9}**	5.0×10^{-9}	**Above TLS**

[1] LHD – Large Height Deviation, LLE – Large Longitudinal Errors, LLD – Large Lateral Deviation

2.3 The PAC vertical collision risk estimates had been above TLS for the last few years and in 2023, there was a slight decrease when compared to the previous year (**Table 2**).

Table 2: Pacific Area Vertical Collision Risk Estimates 2016 – 2023

Year	Vertical Overall Risk Estimate (x 10^{-9} fapfh)	Remark
2023	10.77	Above TLS
2022	19.62	Above TLS
2021	19.74	Above TLS
2020	16.71	Above TLS
2019	30.21	Above TLS
2018	19.40	Above TLS
2017	7.30	Above TLS
2016	5.01	Above TLS

2.4 There was a total of 134 LHDs in the Pacific area in 2023 (increased from 118 in 2022), with total duration 362 minutes and 36 levels crossed. 33 of the occurrences were Category A, B or C (25%), 64 were Category D, E or F (48%), zero were Category G or H, 20 in Category I (15%), 16 were Category J or K (12%), and one were Category L or M (1%).

Pacific Area Horizontal Collision Risk

2.5 The estimated horizontal collision risk for 2023 for the PAC area met TLS in all longitudinal and lateral risk categories. (**Table 3**)

Table 3: Pacific Area Horizontal Collision Risk 2023

Pacific Area – annual flying hours = 1,892,881 hours			
2023 PAC Area	**Risk Estimation**	**Airspace**	**Remarks**
Total Lateral Risk	**0.09×10^{-9}**	Pacific	Below TLS
Total Longitudinal Risk	**0.17×10^{-9}**	Pacific	Below TLS
2022 PAC Area	**Risk Estimation**	**Airspace**	**Remarks**
Lateral Risk	2.09×10^{-9}	Pacific	Below TLS
50NM Lateral Risk	0.456×10^{-9}	Japan	Below TLS
30NM Longitudinal Risk	0.0008×10^{-9}	Japan	Below TLS
10MIN Longitudinal Risk	1.754×10^{-9}	Japan	Below TLS

2.6 There was a total of 141 LLDs and LLEs in the Pacific area in 2023 (decreased from 146 in 2022), with a total duration of 1774 minutes and total horizontal deviation of 812NM. 16 occurrences were Category A, B or C (11%), 112 of the occurrences were Category D, E or F (79%), one was Category G (1%), 11 were Category H (8%) and one in Category I or J (1%).

Asia Vertical Collision Risk

2.7 The estimated vertical collision risk for 2023 for the Asia area met TLS (**Table 4 and Table 5**). The overall risk continued to decline since 2017 due to various safety improvement initiatives and was below the TLS since 2021. There was a total of 824 LHDs reported in the Asia area in 2023 (increased compared to 518 in 2022), with total duration 414 minutes and 237 levels crossed.

Table 4: Asia Area Vertical Collision Risk 2023

Asia Area – annual flying hours = 10,153,474 hours			
Source of Risk	**Risk Estimation**	**TLS**	**Remarks**
Vertical Technical Risk	0.56×10^{-9}	2.5×10^{-9}	Below Technical TLS
Vertical Operational Risk	2.84×10^{-9}	-	-
2023 Vertical Overall Risk	**3.40×10^{-9}**	5.0×10^{-9}	**Below TLS**

Table 5: Asia Area Vertical Collision Risk Estimates 2016 –2023

Year	Vertical Overall Risk Estimate (x 10^{-9} fapfh)	Remark
2023	3.40	Below TLS
2022	1.53	Below TLS
2021	4.03	Below TLS
2020	7.42	Above TLS
2019	12.88	Above TLS
2018	15.50	Above TLS
2017	27.30	Above TLS
2016	12.53	Above TLS

Asia Area Horizontal Collision Risk

2.8 The estimated horizontal collision risk for 2023 for the Asia area met TLS in all longitudinal and lateral risk categories (**Table 6**). There were ten LLDs and LLEs reported in the Asia area in 2023, with the total horizontal deviation of 136NM.

Table 6: Asia Area Horizontal Collision Risk 2023

Asia Area – annual flying hours = 503,528 hours			
2023 Asia Area	**Risk Estimation**	**Airspace**	**Remarks**
Total Lateral Risk	**1.517×10^{-9}**	ASIA	Below TLS
Total Longitudinal Risk	**4.444×10^{-9}**	ASIA	Below TLS
2022 Asia Area	**Risk Estimation**	**Airspace**	**Remarks**
30NM Lateral Risk	0.068×10^{-9}	SEA	Below TLS
50NM Longitudinal Risk	0.096×10^{-9}	SEA	Below TLS
30NM Lateral Risk	0.786×10^{-9}	SEA	Below TLS
50NM Longitudinal Risk	0.475×10^{-9}	SEA and SA/IO	Below TLS

Outcomes of RASMAG-MAWG Meetings

2.9 The MAWG was established by RASMAG consisting of the various Regional Monitoring Agencies (RMA) and En-route Monitoring Agencies (EMA). The RMAs conduct continuous airspace safety monitoring of the application of Reduced Vertical Separation Minima (RVSM) and the EMAs monitor the safety performance of implementations utilising reduced horizontal plane separations. These monitoring agencies need to collaborate to ensure a harmonised arrangement and processes to support the Asia and Pacific States.

2.10 The MAWG discussed technical matters relating to the scope of Safety Monitoring, inter alia, Altimetry System Error (ASE) & Height Monitoring Activities, EMA/RMA Safety Monitoring and Monitoring Activity of Non-approved Aircraft.

2.11 During the Eleventh Monitoring Agencies Working Group (MAWG/11) meeting, JASMA[2] presented the procedures and the cases in which aircraft operators directly submitted a Large Height Deviation (LHD) report directly to the JASMA with the LHD reporting form as published in Japan's AIP. JASMA inquired at the meeting of the procedures for how RMAs/States/Administrations obtained an LHD report from aircraft operators.

[2] Japan Airspace Safety Monitoring Agency (JASMA)

2.12 The meeting explored various sources of safety data reporting systems and the existing data sharing mechanism whereby the monitoring agencies could possibly obtain LHD occurrence reports from flight crews. It was mentioned that the member States had the obligation to submit LHD occurrence data to the RMAs even though it was usually delegated to ANSPs. The meeting also discussed the possibility to propose an action at RASMAG/29 for the ICAO to conduct a survey asking if the member States had a reporting mechanism in place and were aware of the requirement to submit LHD occurrence information including those reported by air operators. After consultation with ICAO, ICAO and the Chair would initiate contact with RASG-APAC to explore appropriate ways to address this issue.

2.13 Historically, the LHD reports received by RMAs mainly comprised of reports from ANSPs and very limited numbers from Air Operators. Since the analysis is supported by information contained within these LHD reports, it would be beneficial to include more air operators' report/data received by the State CAAs, assuming that each State has already set up a mandatory safety reporting system in accordance with the provision in Annex 19 – "States shall establish a mandatory safety reporting system that includes the reporting of incidents."

2.14 RASG-APAC may take note that the MAWG would start to discuss about an integrated approach to share these reports. If the idea is practically feasible, the monitoring agencies planned to work on a proposal during the next MAWG meeting and subsequently present a working paper to the next APRAST meeting to seek concurrence for a more integrated and efficient data sharing protocol.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) note the information in this paper; and

b) discuss the feasibility of establishing a new SEI Working Group by APRAST in order to enhance safety resolving issues related to ANSPs, Air operators and states.

— END —