*International Civil Aviation Organization*

**Twenty-Seventh Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/27)**

Video Teleconference, 22 – 25 August 2022

**Agenda Item 3: Reports from Asia/Pacific RMAs and EMAs**

# JASMA HOT SPOT IDENTIFICATION

(Presented by JASMA)

**SUMMARY**

This paper presents a process to consider whether the former Hot Spot L, the area around the boundary between Fukuoka Flight Information Region (FIR) and Khabarovsk FIR, should be identified and reclassified as a hot spot.

## 1. INTRODUCTION

1.1 It was informed that the process of identifying and monitoring of the Large Height Deviation (LHD) hot spots had been developed informally over several years at the 26th Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/26) by the RASMAG Chair.

1.2 The Monitoring Agency for Asia Region (MAAR) presented a draft process for identifying, monitoring and removing LHD hot spots for the Regional Monitoring Agencies (RMAs) and En-route Monitoring Agencies (EMAs) in the Asia Pacific region at the Ninth Meeting of the RASMAG Monitoring Agencies Working Group (RASMAG/MAWG/9) in February 2022. Results of the experiment on the proposed hot spot identification process were also discussed and agreed to conduct as a trial at the RASMAG/MAWG/9 meeting.

## 2. DISCUSSION

2.1 The Japan Airspace Safety Monitoring Agency (JASMA) has monitored current and former hot spots around the Flight Information Region (FIR) boundary, Hot Spot B (AKARA airspace), Hot Spot D (Fukuoka – Manila FIRs) and the former Hot Spot L (Fukuoka – Khabarovsk FIRs), cautiously.

2.2 **Figure 1** shows the trend of the number of LHDs occurred around the FIR boundary between Fukuoka FIR and Khabarovsk FIR from 2017 to 2021.

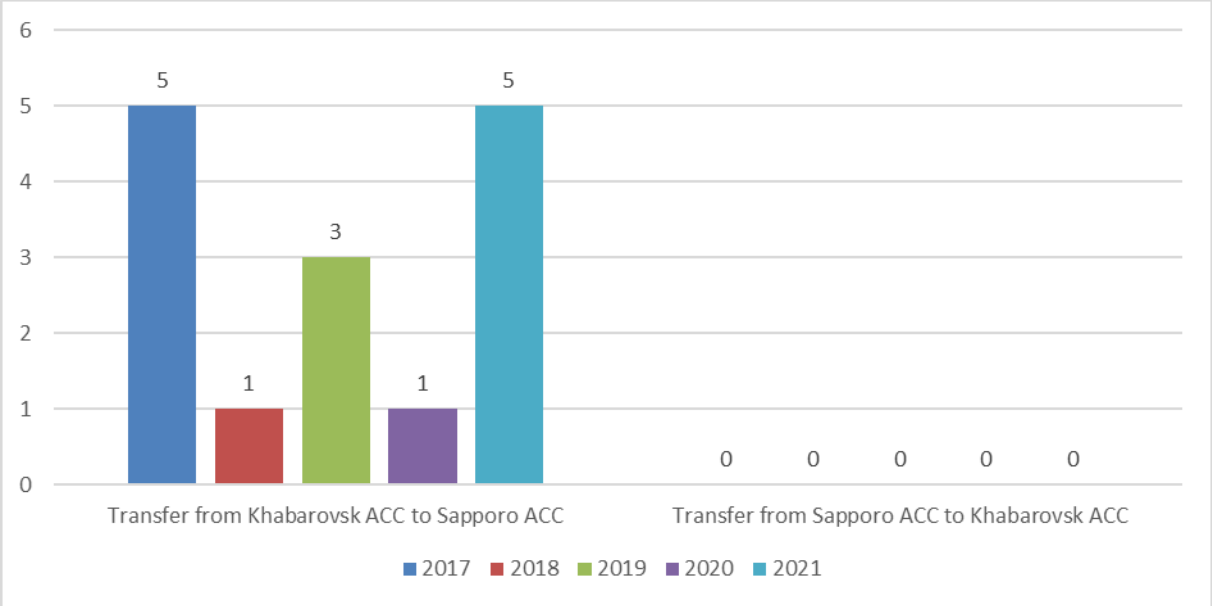


**Figure 1**: Number of LHDs at former Hot spot L between Fukuoka FIR and Khabarovsk FIR

2.3 The area around the FIR boundary between Fukuoka FIR and Khabarovsk FIR, was identified as Hot Spot L based on the number of LHD occurrences in the area in 2017 at the RASMAG/23 meeting in July 2018. Then, the area was removed from the hot spot list based on the small number of LHDs from 2018 to 2020 at the RASMAG/26 in September 2021.

2.4 However, the number of LHDs in this area increased to 5 in 2021 despite less traffic volume. JASMA considered whether the area should be identified and reclassified as Hot Spot L at the RASMAG/27 meeting by using the management process of hot spots that MAAR developed, as a trial.

2.5 **Figure 2** through **Figure 6** shows the LHD cluster map identified in Fukuoka FIR from 2017 to 2021. The filled blue square symbols represent LHD location in the RVSM stratum of Fukuoka FIR. The filled circle size means an LHD duration of 50 seconds or more. The circles and ellipses colored in light blue mean LHD clusters identified by JASMA.

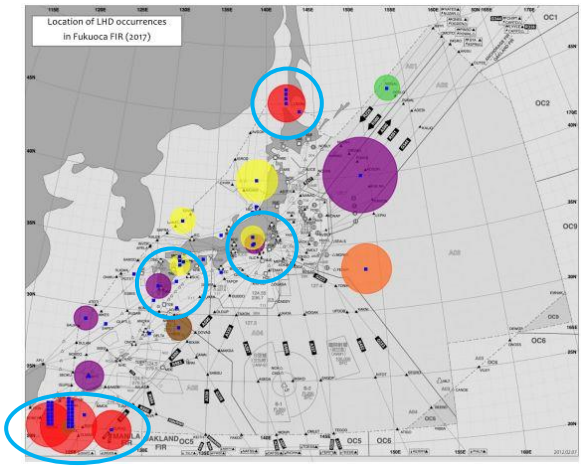


**Figure 2:** LHD cluster map in 2017 (4 clusters)

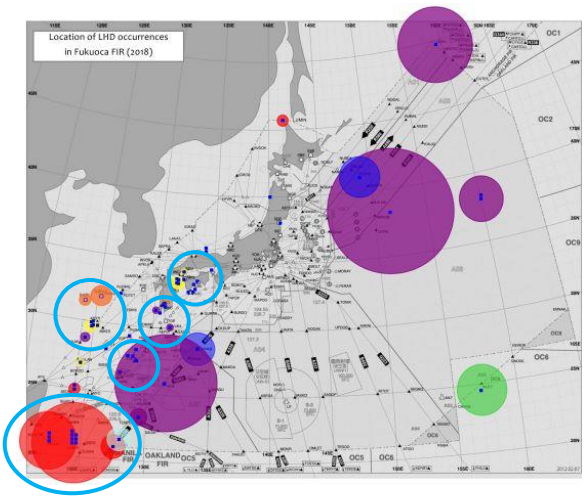


**Figure 3:** LHD cluster map in 2018 (5 clusters)

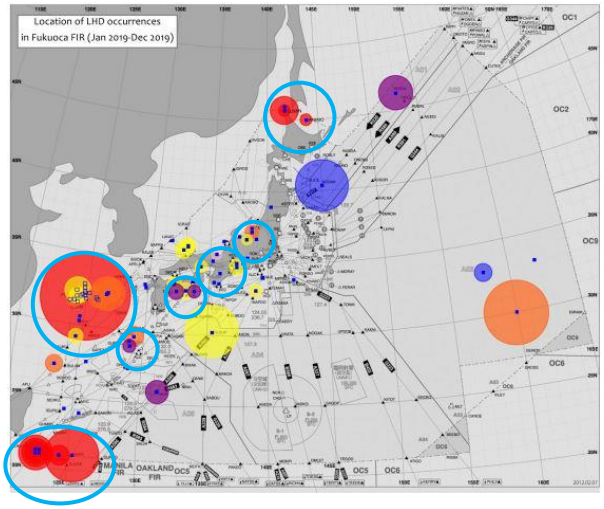


**Figure 4:** LHD cluster map in 2019 (7 clusters)

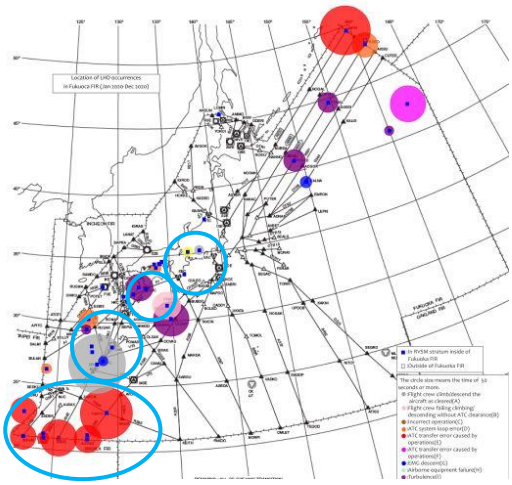

**Figure 5:** LHD cluster map in 2020 (4 clusters)

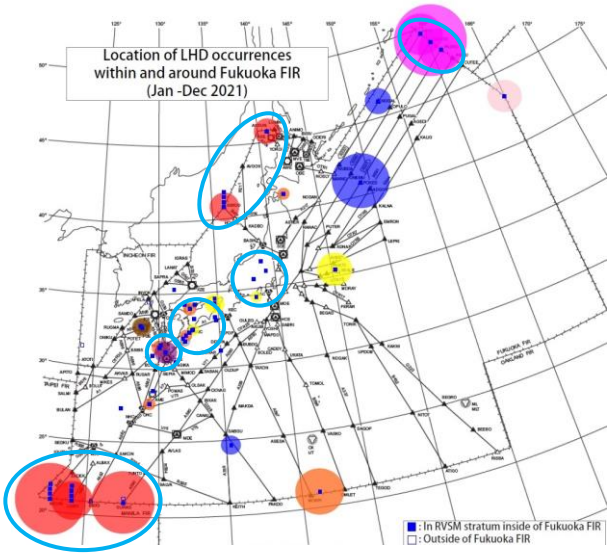


**Figure 6:** LHD cluster map in 2021 (6 clusters)

2.6 **Table 1** represents "Number of Clusters" in **Figure 2** through **Figure 6**, "Number of LHDs" and "Operational Risk" in Fukuoka FIR from 2017 to 2021. Criteria of "Number of LHDs" and "Risk Estimates" are calculated by the draft process MAAR developed.

| Fukuoka FIR | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|
| Number of Clusters | 4 | 5 | 7 | 4 | 6 |
| Number of LHDs | 64 | 64 | 64 | 42 | 56 |
| Operational Risk ($x10^{-9}$ FAPFH) | 9.09 | 10.16 | 11.04 | 11.38 | 9.35 |
| Criteria: Number of LHDs | 12.80 | 10.67 | 8.00 | 8.40 | 8.00 |
| Criteria: Risk Estimate ($x10^{-9}$ FAPFH) | 1.82 | 1.69 | 1.38 | 2.28 | 1.34 |
| Criteria: TLS ($x10^{-9}$ FAPFH) | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |

**Table 1**: LHD profiles and Hot Spot criteria of Fukuoka FIR from 2017 to 2021

2.7 **Table 2** represents the results of the analysis and consideration for Hot Spot L, around the FIR boundary between Fukuoka and Khabarovsk FIRs, from 2017 to 2021. 'Negative' means under the hot spot criteria and "Positive" means over the criteria.

| Hot spot L (FIR Boundary between Fukuoka and Khabarovsk FIRs) | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|
| Number of LHDs | 5 | 1 | 3 | 1 | 5 |
| Criteria: Number | 12.80 | 10.67 | 8.00 | 8.40 | 8.00 |
| Hot spot Risk (x10-9 FAPFH) | 0.87 | 0.30 | 1.44 | 0.00 | 0.64 |
| Criteria: Risk Estimate ($x10^{-9}$ FAPFH) | 1.82 | 1.69 | 1.38 | 2.28 | 1.34 |
| Criteria: TLS ($x10^{-9}$ FAPFH) | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| Result and Action by RASMAG meeting | Identified as Hot Spot L (RASMAG/23 in 2018) | Continue Monitering (RASMAG/24 in 2019) | Potential to non-Hot spot (RASMAG/25 in 2020) | Removed from hot spot list (RASMAG/26 in 2021) | Potential to Hot spot (RASMAG/27 in 2022) |
| | | | | | |
| | | | Legend: | Positive | Negative |

**Table 2**: The results of analysis and consideration on Hot Spot L from 2017 to 2021

2.8 As a result of JASMA's analysis, the number of LHD occurrences and hot spot risk for Hot Spot L in 2017 meet criteria although the number of LHDs marked the highest number between 2017 and 2021. On the other hand, hot spot risk in 2019 identified as "Positive" does not meet the criteria even though the number of LHDs is 3, which is not the highest during the same period.

2.9 The number of LHDs and hot spot risk for the former Hot Spot L in 2021 meet the criteria, although the number of LHDs marked the highest number as well as in 2017. According to the result, JASMA would not propose identifying and reclassifying the area, around the FIR boundary between Fukuoka FIR and Khabarovsk FIR as Hot Spot L at the RASMAG/27 meeting.

2.10 However, further analysis, consideration and discussion would be needed regarding the process during the trial phase since some contradiction seems to be confirmed. Besides, it might be required to standardize how to identify clusters.

2.11 JASMA would like to express our appreciation that MAAR developed and shared the useful scheme for managing hot spots and supported JASMA's analysis and consideration. JASMA also would continue to join this trial and provide our feedback to RMAs and States.

## 3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matters as appropriate.

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