International Civil Aviation Organization

The Third Meeting of the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG/3)

Bangkok, Thailand, 16 – 19 April 2024

Agenda Item 2: Review Outcomes of Related Meetings

SOUTH CHINA SEA TRAFFIC FLOW REVIEW GROUP MEETING OUTCOMES

(Presented by the Secretariat)

SUMMARY

This paper presents the key outcomes of the eleventh meeting of the South China Sea Traffic Flow Review Group (SCSTFRG/11) for the review and action by SAIOSEACG.

1. INTRODUCTION

1.1 The South China Sea Traffic Flow Review Group (SCSTFRG) was established by SEACG to analyse the traffic flow in the overall South China Sea airspace, ATS routes and the suitability of the flight level allocation scheme (FLAS) and flight level orientation scheme (FLOS) to optimize airspace capacity and enhance flight safety in the long term.

1.2 The Eleventh Meeting of the South China Sea Traffic Flow Review Group (SCSTFRG/11) was held in Bangkok, Thailand, from 04 to 06 July 2023. The meeting was attended by 40 participants from China, Hong Kong China, Indonesia, Lao PDR, Malaysia, Philippines, Singapore, Thailand, the United States of America, Vietnam, IATA, IFATCA and ICAO. The relevant presentations and papers are available at https://www.icao.int/APAC/Meetings/Pages/2023-SCSTFRG11.aspx

2. DISCUSSION

SCSTFRG Priority Areas

2.1 ICAO presented the progress review on SCSTFRG Priority Areas with the intention of seeking progress, commitments, and agreement on an implementation timeline for each Priority Area.

Priority Area 1: A1/A202

2.2 Action items under Priority Area 1 were to enhance the longitudinal spacing on ATS route A1 and A202 to 20 NM and develop a parallel route to A1.

- 20 NM longitudinal spacing has been implemented on ATS route A1 since 2020.
- The Eighth Meeting of the South China Sea Traffic Flow Review Group (SCSTFRG/8, Bangkok, Thailand, 03 – 05 September 2019) had agreed for ATS route A1 and the proposed parallel route to be designated as RNAV 2, which would involve

modification on the existing ATS route A1 route alignment, subject to the concerned States agreement of the displacement of the entry and exit points at the FIR boundary.

- Figure 1 illustrates the position of the proposed parallel route to ATS route A1, and the traffic flow orientation preferred by Hong Kong China, Lao PDR and Thailan.

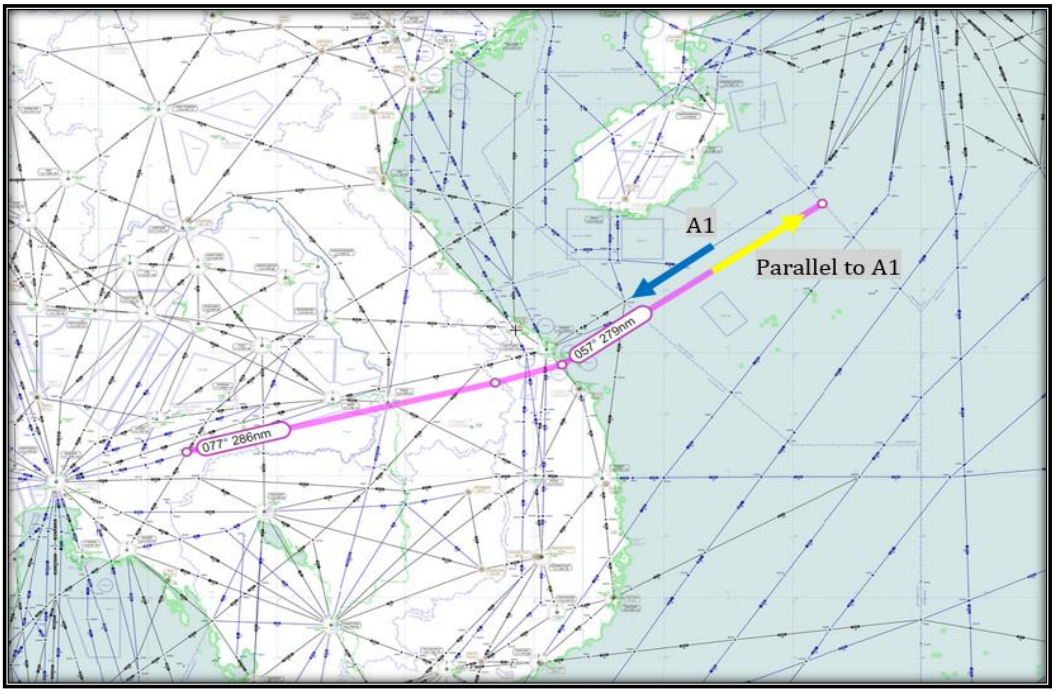

Figure 1: Uni-directional Parallel Route to ATS Route A1

- At SCSTFRG11, China suggested a South-westbound parallel uni-directional route in Sanya FIR IGLEG-SYT13-BUNTA, and the suggested North-eastbound parallel uni-directional route in Sanya FIR was ITBAM-IKELA. The conventional ATS route A1 will be replaced by the new parallel uni-directional routes as designed. China recommended RNAV2 navigation specification on this proposed parallel route Shown in the below Figure 2.

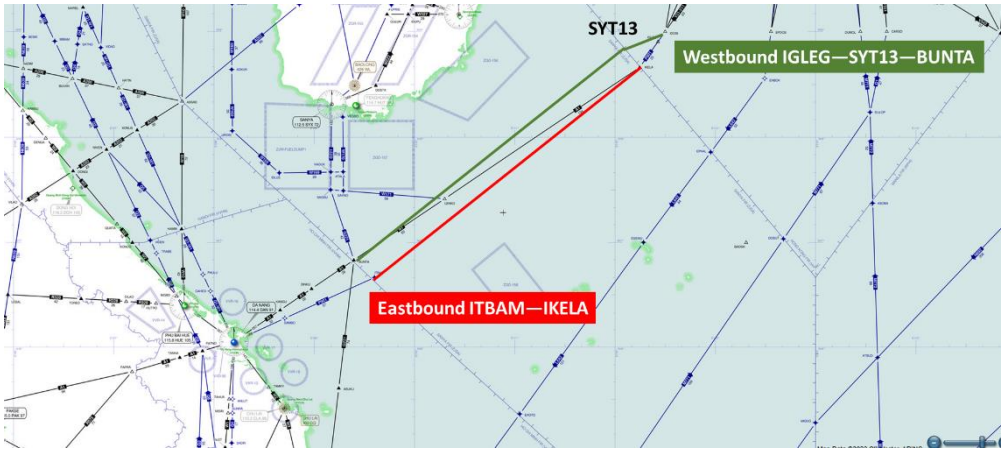

Figure 2: Proposed parallel uni-directional routes (Within Sanya FIR)

- Viet Nam suggested that China consider the use of reversed orientation on these two proposed parallel routes. In response to Viet Nam's suggestion, Hong Kong China and Thailand supported China's original proposal.

- Hong Kong China also informed the meeting that Hong Kong China has already implemented a pair of parallel routes within Hong Kong FIR between KAPLI and IKELA. The traffic flow orientation aligns with China's proposal and the suggestion provided by Thailand. There is no room for Hong Kong China to reverse the orientation.

- China stated that Viet Nam's suggestion could be further discussed at the upcoming bilateral meeting and emphasised that the plan needs to be harmonised by all the States/Administrations concerned.

Priority Area 2: L642/M771

2.3 Action items under Priority Area 2 were to enhance the longitudinal spacing on ATS route L642 and M771 to 20 NM, and investigate the possibility of implementing parallel routes to L642 and M771.

- 20 NM separation has already been implemented on L642 and M771 between Singapore and the Ho Chi Minh FIR boundary.

- Hong Kong China expressed their full readiness to implement the 20NM longitudinal spacing on L642 and M771 and took the leading role to speed up the progress of implementation. Hong Kong China proposed to conduct a trial operation on L642 and M771 in Q3 2023. Although some details still need to be discussed, it was affirmed by China and Viet Nam that their best effort would be carried out to reach the common goal.

- The group agreed that the discussion on the proposed implementation of parallel routes to L642 and M771 will be deferred, pending the results of the enhancement of longitudinal spacing.

- This topic will be further discussed with the *WP09 Progress Update on Capacity Optimisation of Air Routes L642 And M771* submitted by Hong Kong China in Agenda Item 3 of this meeting.

Priority Area 3: A461/A583/L625/N892

2.4 The action item was to enhance the longitudinal spacing on ATS routes A461, A583, L625, and N892 to at least 50 NM, with planning for 30 NM or less.

- A461/M501: Phase 1 and Phase 2 of 30 NM longitudinal spacing implementation between Hong Kong China, and the Philippines were completed.

- A583: The Philippines proposed a side meeting with Hong Kong China to discuss the details of Phase 3 Implementation, which was planned to commence in Q4 2023.

- N892 & L625: The Philippines confirmed that the implementation of 50NM longitudinal spacing would be postponed due to internal issues that need to be resolved first.

- This topic will be further discussed with the *WP10 Optimisation of Air Routes A461, M501 And A583 jointly* submitted by Hong Kong China and Philippines in Agenda Item 3 of this meeting.

Priority Area 4: Review of Existing FLAS/FLOS Operating within the South China Sea

2.5 Through the updated data submitted by South China Sea States/Administrations prior to the SCSTFRG/11 (Bangkok, Thailand, 4 - 6 July 2023), the ICAO APAC Regional Sub-Office has corrected the data from the previous version the Chart to provide an overview of the FLAS currently operating in the South China Sea airspace among the major routes, as illustrated in **Chart 1**.

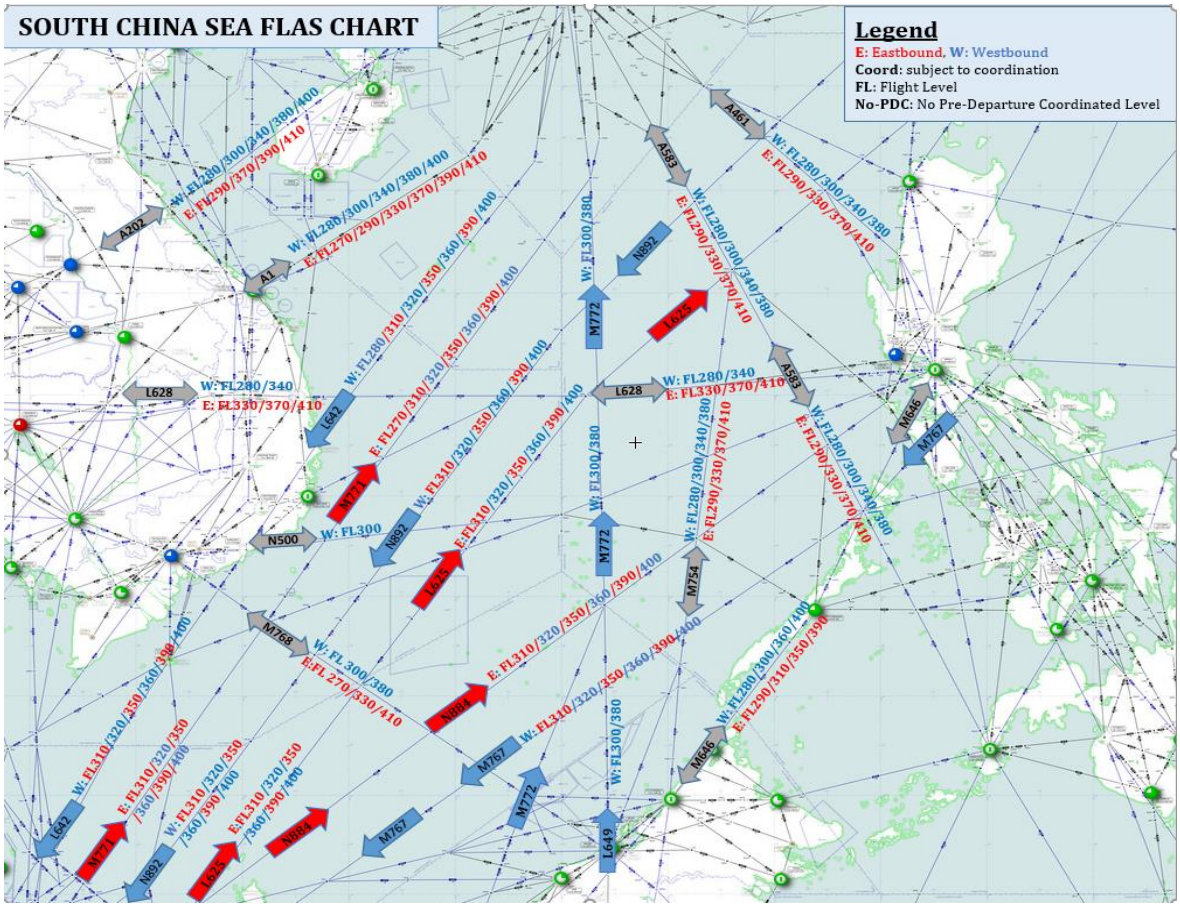

Chart 1: FLAS/FLOS among the ATS Routes (Updated in July 2023)

2.6 Discussion on South China Sea FLAS/FLOS has been going on for several years. ACCs have increasingly relied on the FLAS system and have developed a series of risk response plans, such as the Large-Scale Detour Procedure and flexible coordination mechanism. In fact, the current FLAS system has proven to be reliable, however, the following limitations should be taken into consideration:

- As the most economical level may not be assigned to the flights, the desired gain in fuel efficiency and emissions may be lost.
- Frequent flight-level changes are made to accommodate the FLAS requirements across various route segments, which may result in unsafe situations.
- High demands for extra coordination resulting in an increase in the ATCOs' workload, particularly under adverse weather conditions.

- Lack of flexibility: In comparison to the original concept, some of the secondary crossing routes are now busier than the primary routes and it is necessary to make timely adjustments.
- Systemic risks associated with human errors. The likelihood of coordination errors during the ATC-to-ATC transfer of control may increase when transitioning from FLAS operation to the Large-Scale Detour procedure.
- Safety issues caused by the transition from non-standard FLOS to standard FLOS at the TOC points, particularly at the boundary of the SCS area.
- The capability and efficiency of current FLAS might be insufficient to cope with future traffic growth.

2.7 The group also recalled the Principles and Guidelines of the Optimization of SCS FLAS/FLOS. The following aspects should be taken into account when optimising the existing SCS FLAS/FLOS:

- Normalization of the SCS-modified Single Alternative FLOS to the ICAO Standard Single Alternative FLOS as per Annex 2 Appendix 3a;
- Service performance level commensurate with the CNS/ATM system capabilities in accordance with the expectations of the *Asia/Pacific Seamless ANS Plan*;
- Harmonized and consistent service provision of separation and procedures across the SCS area to reduce human errors;
- Removal of FLAS to allow more opportunities for better flight level allocation according to fleet capability;
- Recognition of the gap between current practice and best practice by ANSPs concerned; and
- Airspace users' expectations and needs for improved capacity, efficiency and safety including economic and environmental considerations.

2.8 In view of the above-mentioned facts, the goal for the SCSTFRG should be the removal of FLAS in the SCS area to meet the *APAC Seamless ANS Plan*'s expectations. This cannot be achieved without a systematic and holistic roadmap supported by all stakeholders.

2.9 However, the SCSTFRG Priority 4 (optimisation of FLAS/FLOS operation) cannot be considered an isolated project; it has significant interconnectivity with the SCSTFRG Priority 1, 2 and 3 (reduction of longitudinal separation on primary routes). Reducing the longitudinal separation could enhance route capacity and improve airspace efficiency.

2.10 Possible breakthroughs of the SCS FLAS dilemma were suggested by ICAO, mindful of the above aspects, some thoughts based on IFATCA's original proposal at the SCSTFRG/7, the review of existing FLAS and FLOS operating within the SCS could be conducted in six phases:

- *Phase 1: Revision of FLAS on selected ATS routes*

  Re-allocation of two of the six flight levels on the primary routes M767/N884, L625/N892 (one eastbound and one westbound flight levels) to the secondary crossing routes A461, A583, M758 and M761. The remaining four flight levels on the primary routes would provide adequate capacity under normal circumstances to satisfy the traffic demand. The additional capacity that one flight level in each direction on the secondary crossing routes would relieve some of the delays and restrictions that are currently imposed on traffic.

- *Phase 2: Improve horizontal efficiency to enhance vertical efficiency*

  Reduce longitudinal separation (operationalization of 5-10NM ATC separation, 10-20 NM separation at Transfer of Control Points (TOC)) among ATS routes, especially for primary routes, which occupy the majority of flight level resources as soon as possible. As a result, the capacity of the ATS route will be significantly increased, and the demands of flight level will be released by such an increase.

- *Phase 3: Release flight level on selected ATS routes and revision of non-standard FLOS*

  Release flight levels on selected ATS routes, which are supported by the aforementioned capacity increment. Revision of the FLOS on the primary routes L625/N892 and M767/N884, from the SCS modified single alternate FLOS to the standard FLOS (Annex 2, Appendix 3a) would serve the purpose of removing the need to transition flights in the Manila FIR.

- *Phase 4: Reshuffle the FLAS or flexibly use FLAS*

  Dynamically adjust the FLAS system in a scientific method.

- *Phase 5: Partial removal of FLAS*

  Gradually reducing dependence on FLAS systems. Suspended the FLAS operating in normal situations, and only activated it in adverse weather or contingency conditions.

- *Phase 6: Re-structure the SCS Route Network and Removal of FLAS*

Review of the Current and planned CNS/ATM Capabilities and Identifying Associated Reduced Horizontal Separation

2.11 ICAO presented data on surveyed ATC separation standards that were being applied within the APAC Region compared to the provisions in the elements 7.34 and 7.35 of the *Asia/Pacific Seamless ANS Plan*. The survey questions circulated were expected to provide greater clarity on the separation minimums used in the region. The analysis in that WP was focused on SCSTFRG States/administrations.

- In general, South China Sea area Category R airspace and interfaces complied with the expectations of the Asia/Pacific Seamless ANS Plan, however Category S and interfaces would require more efforts to comply with the expectations of the Asia/Pacific Seamless ANS Plan.

2.12 Indonesia presented its initiative to support seamless Air Navigation Services within the South China Sea (SCS) Region by optimizing infrastructure in Ujung Pandang FIR and Jakarta FIR. The meeting was informed of the following updates:

- Jakarta ACC and Ujung Pandang ACC have successfully reduced longitudinal spacing to 10NM since March 30th, 2021, due to the majority of airlines being equipped and approved for PBCS and RNP operations. Besides that, surveillance coverage analysis indicates that most of Indonesia's airspace was categorised as category S airspace, also enabling the effective implementation.

- Indonesia encouraged neighbouring FIRs with similar airspace categories to implement 10NM spacing or closer to 5NM based on surveillance spacing. Additionally, Indonesia extended an invitation for ADS-B data sharing to neighbouring states concerned about surveillance.

Review of the Existing Traffic Flow Route Structures in SCS Airspace

2.13 Indonesia, Malaysia, Singapore, and Viet Nam jointly presented a progress update on efforts by States to enhance the traffic flow on ATS route M768 through reduction of longitudinal spacing and the associated implementation plan.

2.14 The meeting acknowledged that to move forward with the initiative to enhance longitudinal spacing on ATS route M768 to 50NM, Indonesia, Malaysia and Singapore have agreed to designate M768 as RNP10 for the segment of the route east of waypoint AKMON, for FL290 and above. For the route segment west of waypoint AKMON, there will be no change to the navigation specifications within Ho Chi Minh FIR and both Ho Chi Minh and Singapore ACCs will carry out ATC coordination to affect the 50NM longitudinal separation. The States concerned have agreed on the implementation timeline as shown in Table 1 below.

Date	**Event/Action**
Jun – Jul 2023	• Work out coordination process to implement 50NM longitudinal separation on M768. • Harmonized publication of draft AIC – Describe the trial to designate M768 as RNP10 for FL290 and above, for the segment of route east of AKMON
Aug – Sep 2023	• Commencement of 2-month trial
Oct 2023	• End of 2-month trial • Collect feedback from the trial. • Agree on the date to designate M768 route segment east of AKMON as RNP10
Nov – Dec 2023	• Circulate, finalize, and publish the harmonized AIP Supplement designating the route segment as an RNP10 route.
Jan – Feb 2024	• Implementation of 50NM longitudinal separation on ATS route M768 by formalizing the coordination process with adjacent FIR

Table 1. *Timeline for Implementation of 50NM longitudinal separation on ATS Route M768*

- Viet Nam principally supported the reduction of the separation, but they have no plan to implement RNP/RNAV10 route specification for the route. It was clarified that RNP4 or RNAV5 with 30 NM separation would be more suitable. Furthermore, they also suggested RNP2 or RNAV2 for possible consideration. Besides, Viet Nam confirmed that 50 NM separation could be used for the transfer on both sides, and 20 NM could also be accepted by Ho Chi Minh ACC to receive the transfer from Singapore.

- Indonesia confirmed their full readiness to support Singapore's initiative, given that surveillance-based separation has already been used in Indonesia's airspace.

- Malaysia has expressed their full support for the proposal to enhance the 50 NM on M768, and proposed the same enhancement on crossing airway M772 at waypoint ASISU between Singapore FIR and Kota Kinabalu FIR. This enhancement would require coordination with Indonesia, Malaysia, Singapore, Philippines, and Hong Kong China.

- In response to Malaysia's proposal to also look into reducing the longitudinal separation on ATS route M772 to 50NM, Singapore responded that as ATS route M772 also goes through the Philippines' airspace, it is suggested to get the Philippines involved in this topic.

Side Meetings

2.15 The side meeting between Lao PDR, Thailand and Viet Nam regarding the use of FL390 on ATS Route A1.

- All parties agreed to retain FL390 as No-PDC FL for route Q2 and will be PDC FL for ATS Route A1, the availability will depend on Hanoi ACC approval.

2.16 The side meeting between Hong Kong China and the Philippines regarding the optimization of ATS route A583.

- As requested by the Philippines, a side meeting was conducted on 4th July 2023 at ICAO APAC regional office to discuss the proposal of the Phase 3 trial implementation of 30NM longitudinal spacing on ATS Routes A583. The meeting participants included representatives from the Philippines and Hong Kong China.

- The side meeting agreed that the trial implementation of 30NM longitudinal spacing on A583 should be commenced in November or December 2023 for 3 months tentatively, and to consider full implementation or refinement subject to trial result.

2.17 The side meeting between Philippines and Viet Nam.

- The Philippines mentioned the aircraft equipment requirements for the proposed application of 50NM longitudinal spacing on routes N892 and L625. These requirements include the RNP10, ADS-C/CPDLC, and PBCS RSP180 RCP240 since significant portions of these routes in Manila FIR are within the Category R airspace.

- In principle, Viet Nam agreed with the optimization proposal however, they recommend reviewing each State's CNS-ATM capabilities to determine readiness for the implementation. Viet Nam requested a formal correspondence from the Philippines stating its preparedness for the proposed plan. Coordination or collaboration will continue through email as POCs were identified for both States.

2.18 The Side Meeting Between Indonesia and the United States regarding the Action Item SEACG 26/7.

- Indonesia and the United States agreed to keep the Action Item 26/7 SEACG regarding a publication of an ANP PfA for SCS bypass route north from Biak in the SCSTFRG Task List until Indonesia completes an analysis of air carrier limitations with fulfilling Indonesia's UPR requirement and opportunities to increase use of UPR over the boundary between Ujung Pandang FIR and Oakland FIR. The United States would assist the analysis as needed. The States agreed to prioritize use of UPRs in this region

and, pending the findings, will discuss the best way to close the Action Item 26/7 SEACG in time for closing the Action Item at the SAIOSEACG/4 in 2025.

- This topic will be further discussed with the *WP23 the implementation of cross-boundary user-preferred routes (UPR)* in agenda item 7 of this meeting.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) Relevant states to update the meeting with the latest progress on the Priority Areas of the SCSTFRG; and

c) discuss any relevant matters as appropriate.

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