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Bangkok, Thailand, 3 – 7 August 2026

Agenda Item 6: ATM Coordination and Implementation

6.2: ATC Separation

OPERATIONAL IMPLEMENTATION AND EXPERIENCE OF 20 NM LONGITUDINAL SEPARATION ON ATS ROUTES L642 AND M771

(Presented by China and Hong Kong China)

SUMMARY

ATS routes L642 and M771 are major international air routes connecting the Sanya, Hong Kong and Ho Chi Minh Flight Information Regions (FIRs). To evaluate the feasibility of reduced longitudinal separation, the Sanya, Hong Kong and Ho Chi Minh FIRs jointly launched a trial operation utilizing a 20 NM longitudinal separation standard on L642 and M771 in May 2024. Following a two-year trial operation, the three parties signed a new Letter of Agreement (LOA) on 20 May 2026, officially establishing the 20 NM longitudinal separation as the default transfer standard. As of 30 June 2026, approximately 5,900 flights had benefited from this initiative. This paper presents the implementation process, operational performance and key lessons learned.

1. INTRODUCTION

1.1 ATS routes L642 and M771 are major international air routes connecting the Sanya, Hong Kong and Ho Chi Minh FIRs. In recent years, the steady resurgence of region air traffic has placed escalating demands on route capacity, flight level allocation and cross-FIR operational coordination. Daily operation faces increasing challenges under complex traffic and weather conditions.

1.2 To address the challenges, the trial operation of 20 NM longitudinal separation standard on L642 and M771 was launched in May 2024. This trial aimed to validate operational procedures, assess safety margins and evaluate operational performance across various traffic conditions, ranging from routine traffic flows to peak demand and adverse weather conditions. Following a successful validation period, the three parties signed a new Letter of Agreement (LoA) on 20 May 2026, officially establishing the 20 NM longitudinal separation as the default transfer standard for routes L642 and M771. As of 30 June 2026, approximately 5,900 flights benefited from this project

2. DISCUSSION

Implementation Process

2.1 **Major Milestones.** The implementation progressed through three phases: operational validation, progressive expansion and routine implementation:

- a) **Operational Validation Phase.** In May 2024, the first continuous operational validation was successfully completed, confirming that 20 NM longitudinal separation was suitable for practical operations.
- b) **Progressive Expansion Phase.** Following the Seventh China–Viet Nam CNS/ATM Coordination Meeting in December 2024, the participating parties agreed to expand the scope of the trial, extending the implementation period from limited validation sessions to the primary daily operating period. In March 2025, the implementation period was extended to 2300 UTC for the first time, achieving a total operating duration of 22.4 hours in a single day and providing valuable experience for long-duration operations. In May 2025, 20 NM longitudinal separation was successfully applied for the first time during the activation of the Large-scale Weather Deviation Contingency Procedure (LSWDCP), demonstrating the applicability of the procedures under adverse weather conditions.
- c) **Routine Operation.** On 20 May 2026, the three parties signed a new Letter of Agreement (LoA), establishing 20 NM longitudinal separation as the default transfer standard for ATS routes L642 and M771 and officially transitioning from the trial phase to routine operational implementation.

2.2 **Operational Performance.** During the trial period, both the operational duration and the number of benefited flights showed a steady upward trend:

- a) from May to December 2024, the average daily implementation time was 2.53 hours, benefiting an average of 2.26 flights per day.
- b) between January and May 2025, the average daily implementation time increased to 15.28 hours, while the average number of benefited flights rose to 23.21 per day, with a maximum of 60 flights benefiting in a single day.
- c) from June 2025 to May 2026, the average daily implementation time was 15.3 hours, the average number of benefited flights was 30.21 per day, and the maximum number of flights benefiting in a single day was 62.
- d) on 20 May 2026, 20 NM longitudinal separation became the default transfer standard for ATS routes L642 and M771. Under routine operations, standardized procedures are applied without the need for ad hoc coordination on longitudinal separation under normal operating conditions. Operational coordination now primarily focuses on special situations such as weather impacts and traffic demand fluctuations. Compared with the initial trial phase, operational procedures have become more standardized, further improving the consistency of cross-FIR operations.
- e) by 20 July 2026, routine operations had remained stable. From the beginning of the trial operation, approximately 5,900 flights benefited from the project. No operational safety occurrences attributable to the application of 20 NM longitudinal separation were recorded during the trial period. An increasing number of flights will benefit from this initiative, and the operational efficiency and quality of flight operations on L642 and M771 will be further enhanced.

Operational Benefits and Preliminary Results

2.3 **Improved Utilization of Flight Level Resources.** Under the previous 50 NM longitudinal transfer standard, aircraft were required to change flight levels frequently to satisfy transfer requirements. Such constraints became increasingly evident during periods of high traffic demand and weather-related rerouting, resulting in additional flight level changes and transfer delays.

2.4 Following the implementation of 20 NM longitudinal separation, a significant higher proportion of aircraft have been able to maintain their preferred cruising levels, thereby reducing controllers' workload in managing the flight level coordination between adjacent FIRs.

2.5 **Greater Flexibility in Traffic Management.** Convective weather is a persistent operational feature over the South China Sea throughout the year, rendering weather deviation one of the most prevalent challenges in cross-FIR operations. During the trial operation, 20 NM longitudinal separation was successfully applied under both normal operating conditions and LSWDP. Operational feedback demonstrated that, provided surveillance and coordination requirements were satisfied, reduced longitudinal separation offered greater flexibility in accommodating weather deviations. The additional operational flexibility enabled controllers to manage aircraft movements in accordance with evolving weather conditions and traffic demand, rather than relying on flight level changes as the principal coordination measure.

2.6 **Enhanced Harmonization of Cross-FIR Operation Procedures.** During the initial stage of the trial, the application of 20 NM longitudinal separation relied heavily on tactical coordination, with different operational scenarios requiring case-by-case communication among the participating ATS units. As operational experience accumulated, the three parties progressively harmonized the default transfer standard, coordination procedures and contingency arrangements. Consequently, under routine operations, aircraft transfers can now be seamlessly completed using standardized procedures without necessitating additional coordination regarding longitudinal separation. The adoption of harmonized operation procedures has reduced coordination workload arising from procedural differences, improved the consistency of cross-FIR operations and enhanced the overall predictability of air traffic management.

2.7 **Collaborative Mechanisms Supporting Operational Enhancement.** The successful implementation of 20 NM longitudinal separation was supported not only by improvements in surveillance capability, but also by the long-established collaborative framework among the three participating FIRs. Throughout the trial period, the three parties conducted regular operational reviews based on traffic statistics, technical exchanges and dedicated coordination meetings. The implementation scope and associated procedures were progressively refined in accordance with operational experience and performance assessments. This collaborative process continued throughout the entire trial period and provided a mutually accepted operational basis for routine operations. The experience demonstrates that, for operational enhancement projects involving multiple FIRs, sustained collaboration and joint performance evaluation are essential in achieving common operational objectives.

Future Work

2.8 **Continue Operational Performance Monitoring.** The participating FIRs will continue to monitor routine operations and periodically evaluate traffic performance, procedural compliance and operational effectiveness under various scenarios. As traffic demand and the operational environment continue to evolve, periodic performance assessments will help identify emerging operational requirements and provide a sound basis for further procedural refinement.

2.9 **Further Refine Procedures for Special Operational Scenarios.** Complex weather conditions, airspace restrictions and periods of high traffic demand continue to present operational challenges for cross-FIR traffic management. Building upon operational experience gained during routine operations, the participating FIRs will further optimize procedures to cope with operational scenarios, including adverse weather operations, overtaking aircraft situations and other special operational constraints. Emphasis will be placed on improving coordination procedures and maintaining procedural consistency under varying operational conditions.

2.10 **Strengthen Regional Collaboration.** The operational procedures and collaborative mechanisms established under the implementation of 20 NM longitudinal separation initiative on ATS routes L642 and M771 offer valuable insights for comparable operational enhancement projects within the region. Through relevant ICAO Asia/Pacific regional forums, participating FIRs will continue to exchange their experiences regarding operational procedures, performance evaluation methodologies and collaborative implementation practices, thereby providing practical blueprint for future cross-FIR operational improvements across the region.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information presented in this paper;
- b) recognize the regional collaborative achievements of the Sanya, Hong Kong and Ho Chi Minh FIRs in jointly implementing 20 NM longitudinal separation;
- c) encourage States/Administrations, where appropriate, to share their experience in cross-FIR operational enhancement in accordance with regional operational needs and to further strengthen regional collaboration;
- d) provide comments and recommendations on further enhancing cross-FIR operational optimization within the Asia/Pacific region;
- e) discuss any relevant matters as appropriate.

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