International Civil Aviation Organization

Sixth Meeting of the Bay of Bengal Traffic Flow Review Group (BOBTFRG/6)

Bangkok Thailand, 14 – 15 November 2024

Agenda Item 4: Discussion on PBN Routes Development and FLAS/FLOS Optimization

REVIEW OF THE EXISTING FLAS/FLOS IN BAY OF BENGAL AIRSPACE

(Presented by the Secretariat)

SUMMARY

This paper presents the Bay of Bengal Flight Level Allocation Scheme (FLAS) Chart that was prepared based on the data submitted by BOBTFRG Administrations.

1. INTRODUCTION

1.1 In an endeavour to have a better understanding of the FLAS operating within the Bay of Bengal airspace, the ICAO APAC Regional Sub-Office circulated emails before this meeting, had requested the BOBTFRG Administrations to update the Data Related to the Bay of Bengal FLAS Chart.

2. DISCUSSION

Bay of Bengal FLAS Chart

2.1 Through the updated data submitted by States, the ICAO APAC Regional Sub-Office has corrected the data from the previous version of the FLAS Chart to provide an overview of the FLAS currently operating in the Bay of Bengal airspace.

2.2 The Bay of Bengal FLAS Chart is provided in **Chart 1,** which is recommended to be utilised for the Group to review the FLAS with a view to enhancing the efficiency of air traffic in the Bay of Bengal airspace (BOBTFRG Terms of Reference refers).

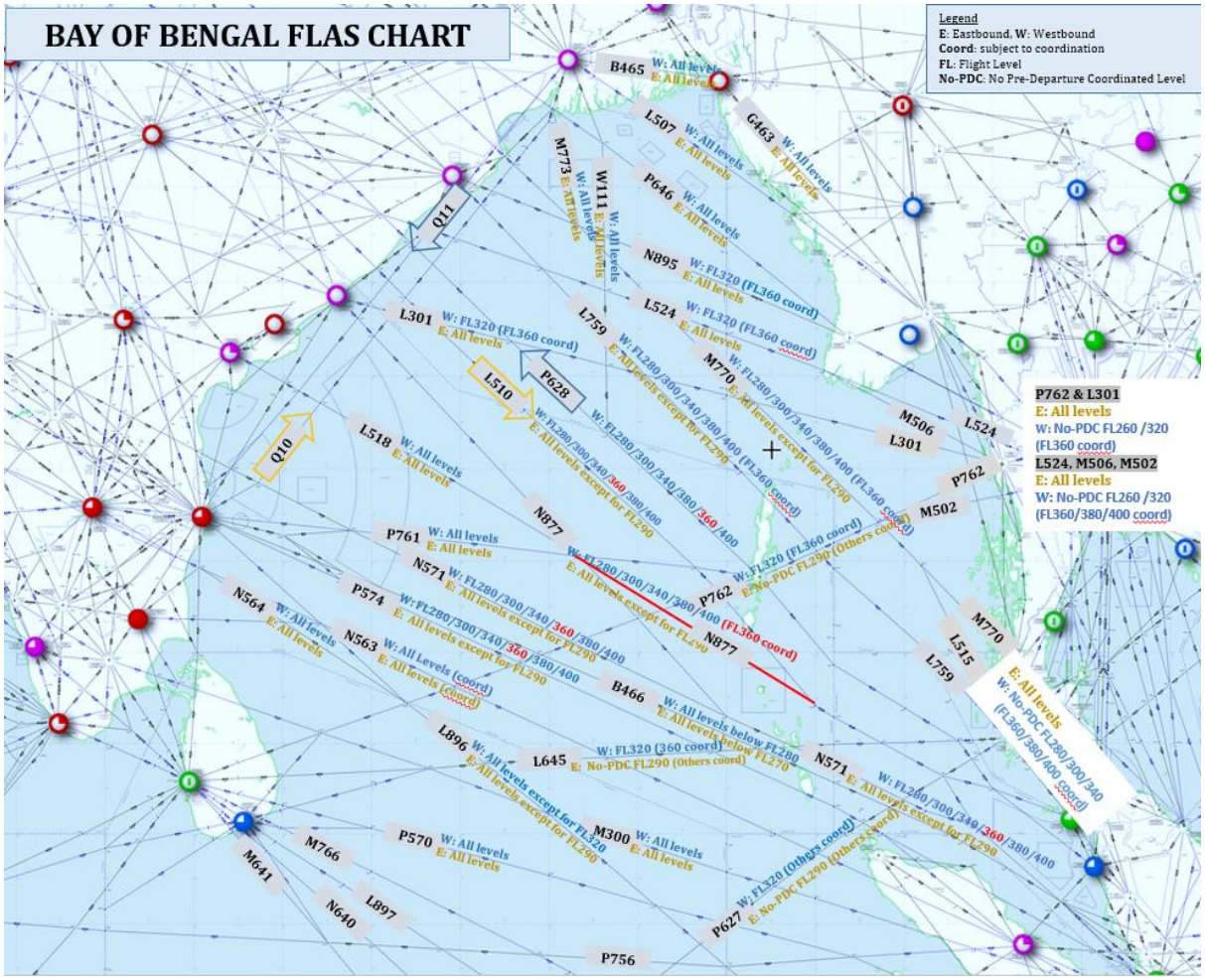

Chart 1: FLAS/FLOS among the ATS Routes

2.3 The meeting is encouraged to initiate the discussion on the improved FLAS operation to enhance efficiency and meet the Group's objectives, with reference to the Asia/Pacific Region Seamless ANS Plan and expected traffic returns from COVID-19.

Observation of FLAS/FLOS among the ATS Routes

2.4 This group noted the airspace structure's interconnectivity and FLAS/FLOS system. In years of operation, ACCs have become accustomed to this FLAS system and derived a relatively mature risk response plan, such as the Large-Scale Weather Contingency Plan and flexible temporary coordination mechanism. In fact, the current FLAS system has been proven to be reliable, but the following drawbacks should be taken into consideration:

- The reduction of fuel efficiency and increment of carbon emission because of the unavailability of the optimal cruising level, especially on the secondary routes.
- Frequent flight-level changes to accommodate the FLAS requirements among different route segments.
- High demands of extra coordination, causing an increase in the ATCOs' workload, especially in adverse weather conditions.
- Lack of flexibility: some of the secondary crossing routes are now busier than the primary routes compared with the original concept, so timely adjustment is necessary.

- Human factors issues. Systemic risks resulting from the switching from normal FLAS to Large-Scale Detour Procedure, lead to the high possibility of coordination errors in the ATC-to-ATC transfer of control responsibility.
- Excessive longitudinal separation increased the reliance on vertical separation to separate the traffic, leading to insufficient use of limited flight Levels, significantly contributing to the shortage of flight-level resources.
- The capability and efficiency of current FLAS might be insufficient to cope with future traffic growth.

FLAS/FLOS Expectations in the APAC Seamless ANS Plan

2.5 The objective of Seamless ATM was agreed by the Asia/Pacific Seamless ATM Planning Group/APSAPG) as follows:

'The objective of Seamless ATM is the ***safe and interoperable provision of harmonized and consistent air traffic management service*** *provided to a flight, appropriate to the airspace category and* ***free of transitions due to a change in the air navigation service provider or Flight Information Region****.'*

2.6 All States should use the ICAO Table of Cruising Levels (FLOS) based on feet as contained **in Annex 2 Appendix 3a.** as specified in paragraph 7.15 as Regional Seamless ANS Elements with Priority 2.

2.7 As per ATM performance expectations in the APAC Seamless ANS Plan PASL 7.35 (Priority 2), priority for FLAS level allocations should be given to higher-density ATS routes over lower density ATS routes. FLAS should comply with **Annex 2, Appendix 3a** unless part of an OTS. FLAS other than OTS should only be utilised for safety and efficiency reasons within:

a) Category R airspace with the agreement of all ANSPs that provide services:
   - Within the airspace concerned; and
   - Within adjacent airspace which is affected by the FLAS; or

b) Category S airspace with the agreement of all ANSPs that provide services:
   - Where surveillance tract conflictions occur within 50NM of the FIRB; and
   - ATS surveillance coverage does not overlap the FIRB concerned, or ATS surveillance data is not exchanged between the ATC units concerned.

Bay of Bengal ATS Surveillance and Communication coverage

2.8 According to the current *APAC Seamless ANS Plan version 3.0*, paragraph 6.13 identified the Bay of Bengal as lacking ATS surveillance and DCPC VHF coverage, which need to be addressed with the highest priority. Recent developments in the CNS area since the CNS SG/26 meeting might be of interest to BOBTFRG.

2.9 As of mid-August 2022, there were 16 States/Administrations provided their updated coverages, and all plottable data provided has been applied to the update of coverage maps. Based on the inputs from States/Administrations, the Bay of Bengal pictures of ATS surveillance and DCPC VHF coverage are given as follows in Figures 1 and 2 respectively.

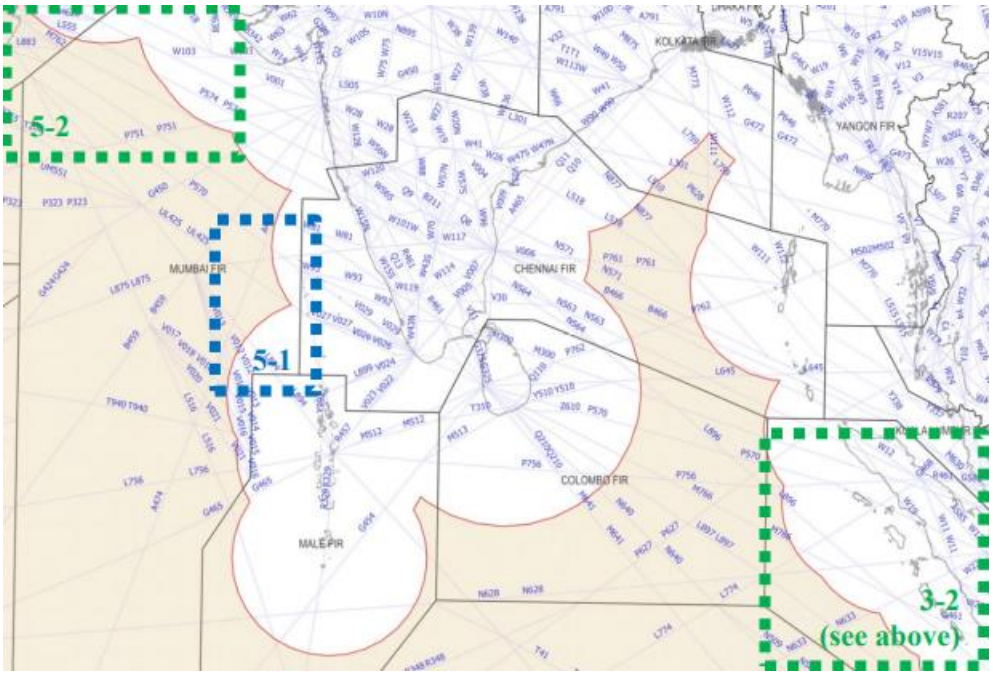

Figure 1: ATS Surveillance coverage in the BOB area of 2022

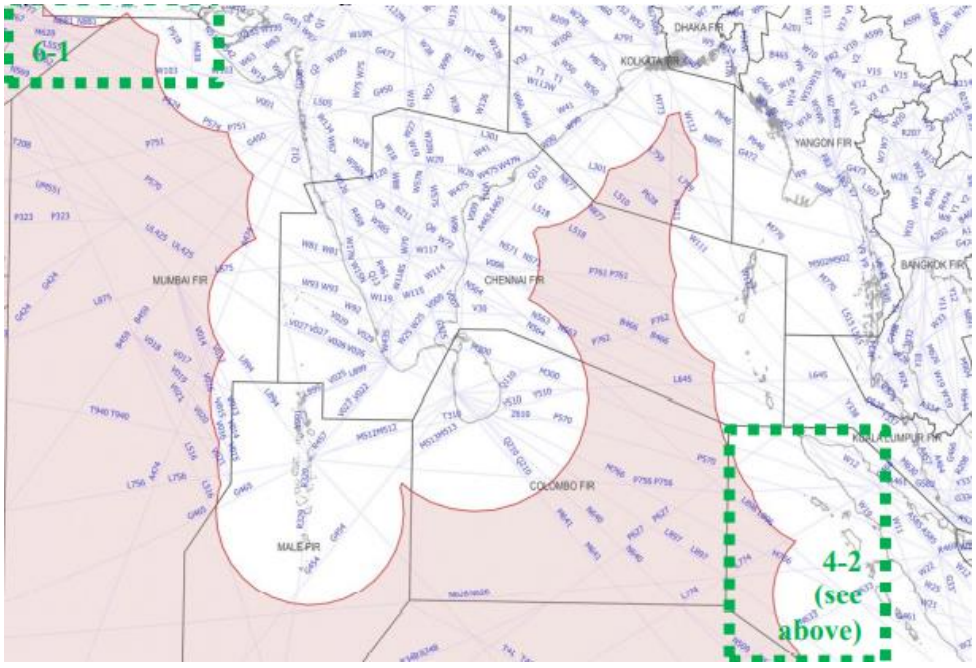

Figure 2: DCPC VHF coverage in the BOB area of 2022

Note: Figure 2 only considers DCPC VHF communications and does not include other forms of DCPC communications.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) review and provide feedback to the Bay of Bengal FLAS Chart; and

c) discuss any relevant matters as appropriate.