International Civil Aviation Organization

Fifth Meeting of the Bay of Bengal Traffic Flow Review Group (BOBTFRG/5)

Bangkok, Thailand, 6 – 8 December 2023

Agenda Item 6: Any Other Business

OCEANIC TRANSITION FREE ROUTE AIRSPACE (FRA), A CASE STUDY FOR BAY OF BENGAL – ARABIAN SEA – INDIAN OCEAN(BOB-AS-IO)

(Presented by IATA)

SUMMARY

This paper presents a case study for establishing Free Route Airspace (FRA) in the oceanic portion of the Bay of Bengal – Arabian Sea - Indian Ocean (BOB-AS-IO), where the transition to/from continental and Oceanic airspace takes place within robust VHF Communication and Surveillance coverage over large portions of Oceanic airspace.

1. INTRODUCTION

1.1 The development of FRA (Free Route Airspace) is growing across different parts of the world. ANSPs, in collaboration with airspace users, are setting up several examples of FRA implementation for achieving Safety, Capacity, and Efficiency enhancements.

1.2 In the case of Bay of Bengal- Arabian Sea – Indian Ocean (BOBASIO) Oceanic airspace:

1.2.1 Airline reports highlight a need for airspace capacity enhancement.

1.2.2 Several challenges experienced by the ANSPs have deferred the implementation of reduced longitudinal separation.

1.3 This case study may help develop suitable strategies by utilising the existing infrastructure and capabilities to address the airspace users' aspirations.

2. DISCUSSION

Airline reports:

2.1 Departure delays/non-optimum en-route flight profiles: The ANSPs in BOB-AS-IO have LoAs (Letters of Agreements) to implement 50NM Longi separation minima. However, airlines still experience a need to consider planning 15-minute wheels-up separation for heavy long-haul departures- that are flight planned to follow the same airway and need to operate at the same Flight level (FL). This is possibly due to a mix of air traffic with and without equipage (FANS 1A) as well as certain challenges for the reduction in longitudinal separation (for example, PBCS compliance, certification, regulatory approvals, and CRA arrangements, among others).

2.2 Changing airways/flight levels over Oceanic airspace: The present airspace system has a limitation for changing airways over oceanic crossing points or facilitating a climb to the next optimum flight level while in the Oceanic airspace.

2.3 Accommodating DEP/ARR flights to coastal/ near coastal airports: Growing air traffic to the coastal airports frequently faces challenges in attaining optimum flight levels and times required to operate at a much lower (non-optimum) flight level throughout flying the oceanic airspace. Likewise, there is a potential to offer efficient profiles for the arrival flights in a high-density overflying + DEP + ARR air traffic flow.

Oceanic Transition Free Route Airspace (FRA) BOB-AS-IO Case study:

2.4 Procedural airspace regulations: The portions of oceanic airspace where the transition to/from continental to Oceanic airspace occurs under existing robust VHF COMM+ SUR coverage (that gets extended over the Oceanic part). However, the airspace classification regulations may necessitate to follow Oceanic separation minima.

2.5 Airspace Classification: Upgrading the airspace class of the portion of Oceanic airspace that has robust COMM+SUR coverage and authorising suitable separation minima application within this part of oceanic airspace will enable its transformation into FRA.

2.6 FRA BOB-AS-IO Benefits: Upgrading the airspace class for the portion of the oceanic airspace discussed above and opening it as FRA will have the following benefits:

2.6.1 Enhancing Airspace Safety: It will help distribute the air traffic from the congestion bottlenecks that generally occur around this portion of oceanic airspace in the present airspace structure. That will reduce the RT communication and effectively address the typically observed frequency congestion around these portions of airspace.

2.6.2 Airspace Capacity and Efficiency: It will enable Optimizing vertical as well as horizontal flight profile:

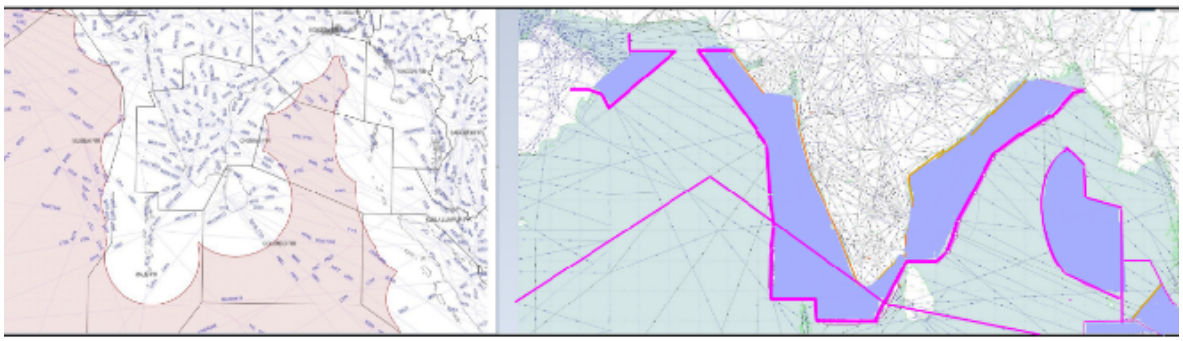
2.6.2.1 Vertical profile: Handling the equipped and non-equipped traffic mix and facilitating them to attain requested Optimum flight levels may become easy with the application of COMM+SUR-based reduced separation minima in the portions of the oceanic airspace. This will enable more flights to operate at required Optimum Flight Levels through the Oceanic airspace stretches.

2.6.2.2 Horizontal profile: The flight plannable DCT (direct) segments in the FRA will enable changing /choosing the optimum flight path considering upper wind patterns. The BOB-AS-IO oceanic airspace has frequent thunderstorms and cyclones; changing airways within the FRA will help in avoiding onward enroute weather deviations over the deep oceanic portions of the airspace.

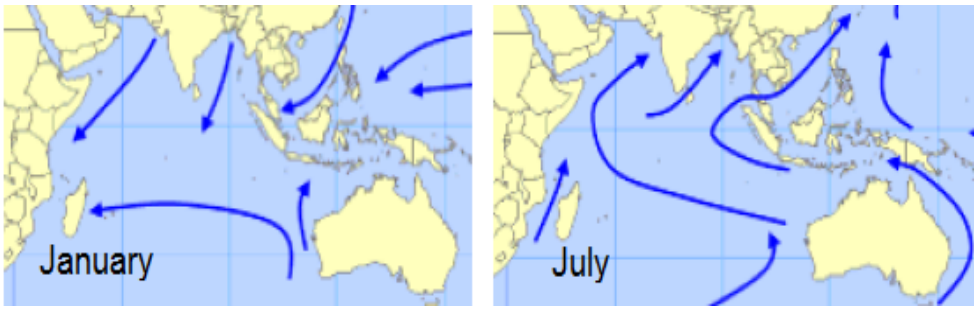
2.6.3 Opportunity with Mid Ocean COMM/SUR coverage: In the Bay of Bengal, there is a unique opportunity to enhance airspace efficiencies with Port Blair Radar and RCAG – integrated into the VOMF (Chennai) FIR. This portion of Oceanic airspace adds excellent value to the BOB-AS-IO FRA Zone.

2.6.4 Illustrative graphics for the BOB-AS-IO FRA Airspace

Surveillance and VHF COMM Coverage Projected FRA (Free Route Airspace)



2.6.5 Example of Upper winds patterns in BoB-AS-IO Geographical area:



2.7 Collaboration with neighbouring ANSPs: BOB-AS-IO has several examples of collaboration among ANSPs with ADS-B Data sharing and Multimodal ATFM. This can be further explored for utilising the overlapping COMM/SUR coverage with mutual understanding, focused on airspace safety, capacity, and efficiency enhancement.

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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Draft Conclusion/Decision BOBTFRG/5-X: Oceanic Transition portion of BOB-AS-IO transformation to FRA	
What: Consider developing a structured program for the BOB-AS-IO Geographical Area's Oceanic Transition portion into Free Route Airspace.	Expected impact: ☐ Political / Global ☒ Inter-regional ☐ Economic ☒ Environmental ☒ Ops/Technical
Why: Utilise the existing infrastructure, capabilities, and ATM provisions to enhance Safety, Capacity and Efficiency of the airspace.	Follow-up: ☐Required from States
When:	Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	