



**International Civil Aviation Organization**  
**The Second Meeting of South China Sea Major Traffic Flow Review Group**  
**(SCS-MTFRG/2)**  
Haikou, China, 22-24 July 2015

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**Agenda Item 5: Discussion on PBN Routes Development and FLAS/FLOS Optimization**

**UNIDIRECTIONAL EASTBOUND AND WESTBOUND  
PARALLEL ROUTE STRUCTURE IN THE SOUTH CHINA SEA**

(Presented by MALAYSIA)

**SUMMARY**

This paper presents a proposal for the establishment of unidirectional eastbound and westbound parallel route structure to accommodate crossing traffic in the South China Sea airspace.

**1. INTRODUCTION**

1.1 As highlighted in the First Meeting of South China Sea Major Traffic Flow Review Group (SCS – MTFRG/1), IP06 - Major Traffic Flow figures indicated a significant increase in traffic movements between Kuala Lumpur FIR and Kota Kinabalu FIR from year 2012 to year 2014 with an annual increase of 14 %. As trunk routes, M758 and M761 carried a total of 742 movements a week into the South China Sea.

1.2 Malaysia would like to reiterate the view that these crossing routes should be considered as one of the Major Traffic Flows and consequently be given priority in order to manage these traffic flows more effectively. By relating these crossing routes with northbound/southbound routes, there is an imminent need for the establishment of the unidirectional eastbound and westbound parallel route structure to increase the capacity so as to accommodate high volume traffic flows between Kuala Lumpur FIR and Kota Kinabalu FIR.

1.3 With the rapidly changing distribution of traffic flows and the significant improvements in ATM facilities recently completed or currently underway, it is timely to strategically plan for further enhancements to crossing routes in the South China Sea.

**2. DISCUSSION**

Establishment of unidirectional eastbound and westbound parallel route structure in the South China Sea

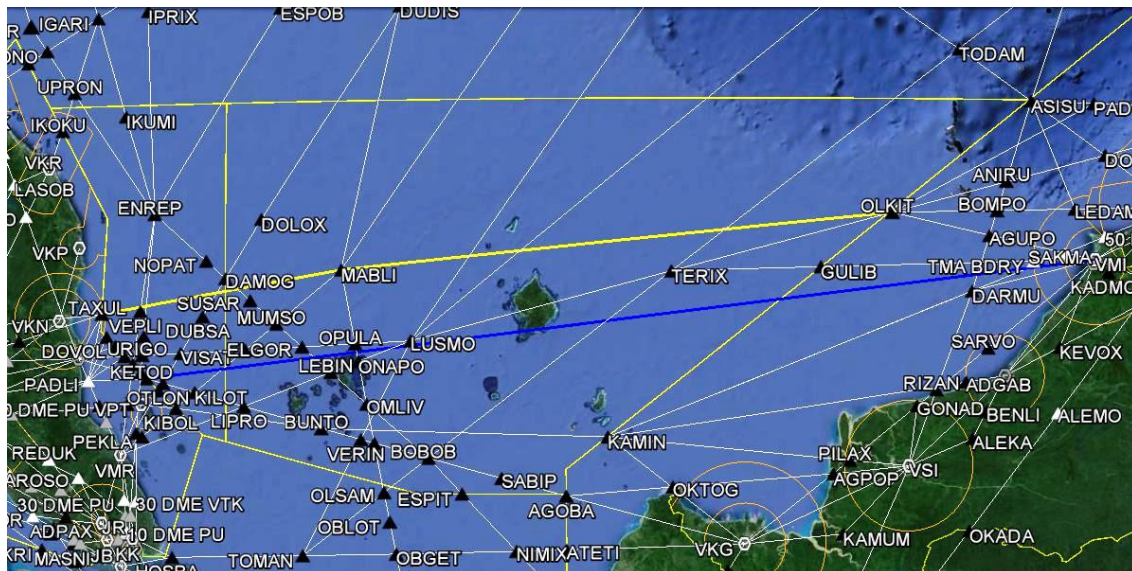
2.1 M758 serves as the primary eastbound and westbound crossing route connecting KL International Airport (KUL) and major airports in Borneo, namely Kota Kinabalu International Airport (BKI), Brunei International Airport (BWN) and Miri Airport (MYY). It is envisaged that efficiency and capacity gains will be achieved through the adoption of flexible and dynamic routes structure, with the establishment of either unidirectional eastbound and westbound parallel routes, reduced horizontal separation and/or extra level allocation

2.2 Based on the revised South China Sea Flight Level Allocation Scheme (FLAS) agreed in the 2008, the FLAS levels allocated for M758 (as crossing route) are FL290, FL330 and FL370 for eastbound traffic and FL300, FL340 and FL380 for westbound traffic. However, due to high capacity for eastbound and westbound traffic flow, the existing FLAS are insufficient to accommodate the growth of air traffic.

2.3 Presently, 10 minute separation applies on M758. However, in reality actual separation of 12 minutes or more is the norm. Often aircraft are held on ground while waiting for more favourable/optimum levels. Thus it has incurred a lot of extra delay, additional fuel burn and extra carbon dioxide emission into the atmosphere.

2.4 To alleviate the constraints for eastbound and westbound crossing traffic in the South China Sea, it is proposed that a unidirectional parallel route for M758 shall be considered as a long term solution. The proposed parallel route and the realignment of existing M758 is as below:

AIRWAY	WAYPOINT	DIRECTION
M758	VMI – KETOD	Westbound
New parallel route	TAXUL – MABLI – OLKIT	Eastbound



2.5 It is proposed that the 6 flight levels allocated with the current FLAS for M758 shall be made available for both M758 and the new parallel route.

2.6 Furthermore, the proposed unidirectional eastbound and westbound parallel route would reduce complexity within Kuala Lumpur TMA with no significant changes to the other route network. Arriving traffic (westbound) to KUL will be via a direct route from VMI to KETOD thereafter UKASA. This solution permits to reduce complexity in the northern area of the TMA by reducing criss-crossing with departing flights (eastbound) via KIMAT - TAXUL. Furthermore traffic entering via UKASA enters the approach phase directly in the PMS easing the ATCO approach task of sequencing the inbound traffic.

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50 NM Reduced Horizontal Separation

2.7 The purpose of 50 NM longitudinal separation is also to increase the airspace capacity for crossing routes in the South China Sea. In terms of airspace capacity, the 50 NM spacing provides a capacity of approximately 8 aircraft per hour per flight level, therefore with 6 levels available; the theoretical capacity of unidirectional eastbound and westbound parallel route is 48 flights per hour.

2.8 50 NM longitudinal separation minima provides ATC with enhanced capability to manage air traffic and enhances the capability to respond to operator requests by accommodating enroute climbs by crews to fuel-efficient altitudes, weather avoidance and to provide other operational flexibilities. These reduced separation standards require enhanced CNS capabilities in air traffic systems and on board the aircraft. The enhanced air traffic surveillance systems provide controllers with automated tools to assist in separation assurance and with tools to better monitor flight plan conformance. Enhanced communication and surveillance systems enable both controllers and pilots to better communicate and manage weather deviations.

2.9 It shall be noted that majority of airlines that operates on existing M758 are ADS-B capable inclusive of legacy and low cost carriers. With the planned implementation of a remote VHF communications facility in the South China Sea, it would then be appropriate to study the feasibility of implementing 50 NM longitudinal separation on M758 and the proposed parallel route, taking into account the various requirement required, e.g. RNAV10, safety assessment, aircraft equipage and airline readiness as a precursor to the implementation of RNP4/RNP2 Navspecs in the near future.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) deliberate the establishment of unidirectional eastbound and westbound parallel route structure, reduced horizontal separation and/or extra level allocations to alleviate the constraint for eastbound and westbound crossing traffic in the South China Sea.

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