



*International Civil Aviation Organization*

**Fourth Meeting of the Southeast Asia Route Review Task Force  
(SEA-RR/TF/4)**

Bangkok, Thailand, 22 – 26 November 2010

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**Agenda Item 4: Review Current Operations across Southeast Asia and Identify Problem Areas**

**TRAFFIC DATA ANALYSIS BY  
THE DATA COLLECTION AND ANALYSIS  
SMALL WORKING GROUP 1 (SWG/1)**

(Presented by Singapore and Thailand)

**SUMMARY**

This paper presents the traffic analysis based on the one week traffic data supplied by the States from January to September 2010

**1. INTRODUCTION**

1.1 The Southeast Asia Route Review Task Force (SEA-RR/TF) was established to review of ATS routes in the South China Sea area, taking in particular consideration to the AR9 flow of traffic. The SEA-RR/TF replaced the RNP-SEA Task Force which had completed the implementation of 50/50NM horizontal separation minima on RNP10 routes L642 and M771.

**2. DISCUSSION**

*Traffic Sample Data Collection*

2.1 At the SEA-RR/TF/1 meeting, it was decided to establish Small Working Groups (SWGs) to concentrate on particular specialised issues and to report back to the plenary meeting with recommendations and actions. One of the SWG formed was the data collection and analysis- SWG/1 comprising Singapore and Thailand. The SWG/1 had been tasked to collect and analysis one week of traffic sampling data submitted by the States. This was agreed at the first SEA-RR/TF meeting. Every month, States were to collect one week of traffic data using the third Sunday of every month as the start point. The SWG/1 had envisaged a presentation at SEA-RR/TF 3 meeting using 9 months of the collected data to show traffic density of the routes in the SEA region, highlighting intersections with high volume of traffic and potential increase in certain sectors or city-pairs.

2.2 Unfortunately, some States had not submitted their traffic data to the SWG/1 or had experienced issues in ensuring integrity of their data. This slowed down the progress of the SWG/1 in data analysis. States are again urged to submit the traffic sampling data to the SWG/1 to enable their analysis of the ATS routes in the Southeast Asia (SEA) areas in totality.

2.3 In order not to slow down the progress of the Task Force, the SWG/1 decided to use the incomplete information it received and assemble it into a presentation on the analysis of the routes within the SEA areas. It will be presented together with this paper.

2.4 The methodology in calculations will be explained in the presentation. States will be informed on the proper data collection process that may simplify their collection process and help the SWG/1 in their preparation of collected data for analysis.

Sample Results of Traffic Sample Data Collection (January – September 2010)

2.5 The traffic data collected identifies routes with high traffic volumes, city pairs in the region with high traffic counts, and the traffic patterns of routes in the region using hourly intervals. Owing to the limited data available, The SWG/1 can only focus on a small portion of airspace for analysis. However, this exercise will serve as an example of how States could, from such analysis, better utilise their airspace by adopting suitable measures to increase capacity and efficiency.

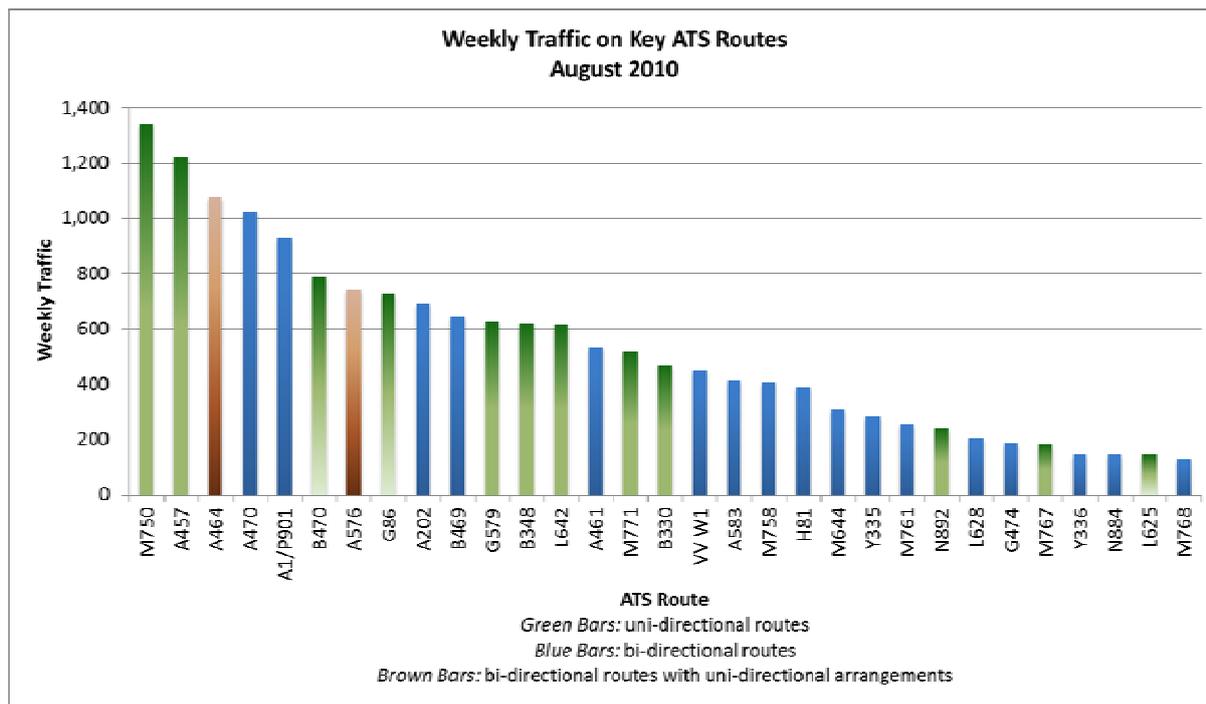


Figure 1: Weekly Traffic on Key ATS Routes from August 2010 Data

2.6 From Figure 1 above, we can see a representation of the various routes in the region with its associated traffic counts over 140 movements/week. The figure also shows the route arrangement, whether it is uni-directional or bi-directional.

2.7 The traffic count can also be used to compare traffic loading on parallel routes vis-à-vis crossing routes on a typical day or split into hourly bins where data integrity permits. From this information, States could determine the most appropriate measures to improve the efficiency and capacity in this area.

Traffic Demand from Flight Plan

2.8 It should also be noted that while traffic sample data collected since January 2010 represents actual traffic flown, data collected represents traffic that has gone through separation management by air traffic controllers as well as other airspace constraints arising from issues such as convective weather. As a result, information presented may not represent the actual traffic demand as traffic peaks would be understated due to ATC separation requirements and other reasons.

2.9 Nevertheless, final flight plans could still be analysed as the final traffic demand before flight. Traffic demand analysed from final flight plans would not have gone through separation requirements and other capacity constraint, thus would be more likely to show higher peaks during times where traffic demand is truly higher.

2.10 The meeting is also advised that software exists that would analyse flight plans into FIR boundary crossing information including waypoint, route, flight level and time. While such information would not be as rich as traffic sample data collected, it could serve as an alternate source of traffic demand, which could also be useful in comparing current traffic demand against actual traffic sample data, highlighting current constraints.

*Growth Rate from Other Data Source for Longer-Term Route Restructure Planning*

2.11 While traffic sample data collected so far focuses on actual traffic in year 2010, there is a possibility of using data from other sources such as IATA Airport Intelligence Services (AirportIS) or Official Airline Guide (OAG) schedules to compare traffic volumes in year 2010 against traffic volume in 2000 or 2005 in order to obtain traffic growth rate on a 10-year or 5-year basis, which could be used to forecast future traffic demand.

2.12 While it is possible to use a generic growth rate for the entire region, discrepancy of traffic growth rate among various city pairs in the Southeast Asia sub-region may result in traffic forecast being less accurate. Alternatively, application of traffic growth rate on key city pairs contributing traffic to each key ATS route in the sub-region could potentially provide a more accurate future traffic forecast for longer-term route restructure planning purposes.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- (a) Urge all States involved to provide traffic sampling data in accordance to the agreed template;
- (b) Note the methodology in deriving the traffic counts;
- (c) Note the usefulness of the analysis using traffic sampling data provided;
- (d) Discuss potential use of final flight plan as secondary source of traffic demand for comparison of current traffic against current constraints;
- (e) Discuss potential use of external data sources such as IATA Airport Intelligence Services (AirportIS) or Official Airline Guide to provide city-pair traffic growth rate in order to provide future traffic forecast for longer-term route structure planning purposes;
- (f) Consider any additional proposals by the SWG during the presentation; and,
- (g) To reduce the complex workload of Singapore and Thailand, who have agreed to the task of traffic data collection and analysis, States should accurately use template provided to submit traffic sample data.

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