

INTERNATIONAL CIVIL AVIATION ORGANIZATION



**REPORT OF THE FOURTH MEETING OF THE AIR TRAFFIC FLOW
MANAGEMENT TASK FORCE (ATFM/TF/4)
AND BOBCAT WORKSHOP**

BANGKOK, THAILAND, 7 – 11 NOVEMBER 2005

The views expressed in this Report should be taken as those of the
ATFM Task Force and not of the Organization.

Adopted by the ATFM Task Force
and published by the ICAO Asia and Pacific Office

ATFM/TF/4 & BOBCAT Workshop
Table of Contents

TABLE OF CONTENTS

PART I - HISTORY OF THE MEETING

	Page
Introduction	i
Attendance	i
Officers and Secretariat	i
Opening of the Meeting	i
Language and Documentation	ii

PART II - REPORT ON AGENDA ITEMS

Agenda Item 1:	Adoption of Agenda.....	1
Agenda Item 2:	Review of Terms of Reference.....	1
Agenda Item 3:	Review Outcomes of BOBCAT Paper Trials.....	2
Agenda Item 4:	Flow Management Handbook	12
Agenda Item 5:	Safety Assessment.....	13
Agenda Item 6:	Operational Trial Arrangements.....	13
Agenda Item 7:	Update the Coordinated Plan for implementation of actions agreed by the Task Force	21
Agenda Item 8:	Review and Update ATFM/TF Task List	22
Agenda Item 9:	BOBCAT Workshop	22
Agenda Item 10:	Any other business	24
Agenda Item 11:	Date and venue of the next meeting	26

APPENDICES

Appendix A:	List of Participants	A-1
Appendix B:	List of Papers.....	B-1
Appendix C:	Terms of Reference for ATFM/TF.....	C-1
Appendix D:	BOBCAT Paper Trials – Summary of Discussions	D-1
Appendix E:	BOBCAT Paper Trials – List of Participants.....	E-1
Appendix F:	Paper Trials Results.....	F-1
Appendix G:	ATFM Users Handbook.....	G-1
Appendix H:	Safety Assessment Hazard Log.....	H-1
Appendix I:	IATA User Requirement for BOBCAT Slot Allocation	I-1
Appendix J:	Draft AIP Supplement.....	J-1
Appendix K:	Task List.....	K-1
Appendix L:	Presentation – BOBCAT System Overview	L-1
Appendix M:	Presentation – ANSP Role and Responsibility	M-1

PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Fourth Meeting of the Air Traffic Flow Management Task Force (ATFM/TF/4) was held from 7 to 11 November 2005 at the Kotaite Wing of the ICAO Asia/Pacific Office. Two days of the meeting (9 and 10 November 2005) were devoted to a Workshop in relation to the Bay of Bengal Cooperative ATFM Advisory System (BOBCAT) under development by Thailand.

2. Attendance

2.1 The meeting and workshop was attended by 46 experts from Australia, India, Indonesia, Malaysia, Myanmar, Singapore, Thailand, United States and IATA. A list of participants is at **Appendix A** to this report.

3. Officers and Secretariat

3.1. Mr. Ron Rigney, Airservices Australia acted as Chairperson and presided over the meeting throughout its duration.

3.2. Mr. Andrew Tiede, Regional Officer ATM, was the Secretary for the meeting.

4. Opening of the Meeting

4.1 The meeting was opened by Mr. Andrew Tiede on behalf of Mr. Lalit Shah, Regional Director of the Asia/Pacific Regional Office. In opening the meeting, Mr. Tiede commented that although this was the Fourth Meeting of the full task force, there had been another 4 special coordination and ‘mini’ meetings in relation to the ATFM/TF, a total of 8 meetings in the 10 months since the task force was formed. This demonstrated the strong interest in making a difference in regard to the flow management circumstances in the Bay of Bengal area and in particular to addressing the choke point issues associated with the restricted transit of the Kabul FIR. Ensuring that flights arrived at the Kabul FIR boundary in an orderly fashion would make a significant difference by easing traffic handling and minimising unforecast diversions and associated delays and technical stops for airlines.

4.2 Mr. Tiede commented that the complexities involved in achieving positive outcomes in this regard were well known to the parties involved and would only be overcome by continuing the good cooperation and collaborative decision making that had characterized the work of the task force thus far. He highlighted the limited time available this week to advance the work of the task force and urged all participants to make maximum effective use of the time available. Mr. Tiede noted the strong attendance by airline representatives and thanked them for their participation.

4.3 Mr. Ron Rigney in his address welcomed the participants to the fourth meeting of the ATFM/TF and acknowledged the work that had been undertaken to date by AEROTHAI in the development of the BOBCAT system. In considering the Working Papers for presentation at this meeting, Mr. Rigney indicated that a number of decisions would need to be taken at this meeting, to enable the continued development of the BOBCAT system.

4.4 Mr. Rigney also reflected on the significant events that had taken place within the Asia and Pacific regions in the weeks since the third Task Force meeting and specifically referred to the earthquake in Pakistan and Northern India, as well as the devastating effects of Hurricane activity in the Southeast and Gulf areas of the United States of America. On behalf of the ATFM Task Force, Mr. Rigney expressed sincere sympathies and condolences to Pakistan, India and the United States of America for the loss of life under such tragic circumstances. In commenting on the global environment, Mr. Rigney referred to the role that the international civil aviation community had in preserving the environment, through the excellent work that was being undertaken in reducing exhaust gas emissions, which also included the work of the Air Traffic Flow Management Task Force.

4.5 Mr. Rigney also took the opportunity to acknowledge the strong representation of IATA member airlines and congratulated Mr. Owen Dell on his recent appointment to the position of Chairman of the IATA Regional Coordination Group (RCG).

4.6 In conclusion, Mr. Rigney urged all participants to actively participate in the discussions and workshop activities during the week, so that every opportunity was given to the successful development of BOBCAT and the eventual implementation of an ATFM system for the Bay of Bengal.

5. **Language and Documentation**

5.1. All discussions were conducted in English. Documentation was issued in English. A total of 15 Working Papers and 2 Information Papers were considered by the meeting. A list of the Working and Information Papers is at **Appendix B**.

PART II - REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Agenda

1.1 The meeting considered the provisional agenda that had been proposed by the Regional Office and adopted it as the agenda for the meeting:

- Agenda Item 1: Adoption of Agenda
- Agenda Item 2: Review the Terms of Reference
- Agenda Item 3: Review Outcomes of BOBCAT Paper Trials
- Agenda Item 4: Flow Management Handbook
- Agenda Item 5: Safety Assessment
- Agenda Item 6: Operational Trial Arrangements
- Agenda Item 7: Update the Coordinated Plan for implementation of actions agreed by the Task Force
- Agenda Item 8: Review and Update ATFM/TF Task List
- Agenda Item 9: BOBCAT Workshop
- Agenda Item 10: Any other business
- Agenda Item 11: Date and venue of the next meeting

Agenda Item 2: Review of Terms of Reference

2.1 The meeting reviewed the guidance available from APANPIRG and the ATM/AIS/SAR Sub-Group in respect of regional flow management requirements. The meeting noted that, on the recommendation of ATM/AIS/SAR/SG/15 (July 2005), APANPIRG/16 (August 2005) had included item 11 on the APANPIRG List of Key Priorities as follows:

Air Traffic Flow Management

States to consider and implement aspects of air traffic flow management (ATFM) including:

- a) centralized ATFM*
- b) inter-regional cooperative ATFM;*
- c) establishment of ATFM databases;*
- d) application of strategic ATFM planning; and*
- e) application of tactical ATFM planning*

2.2 APANPIRG/16 had allocated responsibility in this respect to the ATM/AIS/SAR Sub-Group and routine reporting would be undertaken by the Sub-Group to APANPIRG each year.

2.3 In conducting a review of the Terms of Reference of the ATFM/TF, the Secretariat drew the attention of the meeting to the work of ATFM/TF/1 (April 2005) which had reviewed and updated the objectives and terms of reference (TOR) for the ATFM/TF. In order to meet the objectives described in the TOR, the ATFM/TF had adopted a phased implementation programme in accordance with the following:

Phase One: Flights planning to transit the Kabul FIR

Phase Two: Other international flights crossing the Bay of Bengal and/or South and South East Asia areas

Phase Three: Future planning for increased traffic within the Bay of Bengal and South and South East Asia areas

2.4 The meeting recognized that any ATFM tool, including BOBCAT, was not an ATC separation tool. In considering the development of rules and procedures for the operational trial, the meeting agreed that the work of the ATFM/TF should focus very clearly on addressing the Phase One implementation issues only and that consideration of Phase 2 & 3 issues would be dealt with by the task force in due course. Accordingly, the meeting stressed the need to develop ATFM rules and procedures that simply and clearly enabled the Phase One implementation only.

2.5 In this respect the meeting considered that the existing TOR adequately reflected the requirements and activities of the ATFM/TF and, accordingly, retained the TOR as reflected in **Appendix C**.

Agenda Item 3: Review outcomes of BOBCAT Paper Trials

3.1 At a Special ATS Coordination Meeting of the ATFM/TF Project Management Team (SCM ATFM/TF PMT), held at the Singapore Aviation Academy on 10 – 11 August 2005, the ATFM/TF agreed that the capabilities of BOBCAT should be demonstrated via a series of desktop or paper trial simulations, prior to implementing an operational trial.

Paper Trials 5 – 7 October 2005

3.2 A meeting to demonstrate the BOBCAT system by way of paper trials was arranged at the AEROTHAI premises in Bangkok on 5 – 7 October 2005. A summary of discussions and list of participants from this meeting have been included as **Appendices D and E** respectively. The paper trials identified several matters, as described in the appended summary of discussions, which required further consideration by the ATFM/TF in order to agree suitable BOBCAT parameters for application during the operational trial.

3.3 Although aspects of BOBCAT capability were able to be demonstrated during the paper trial, some problems were experienced and suitable data was not available from some States, resulting in a minimum number of appropriate scenarios being completed in the time allocated. The meeting recognized that further paper trialing of BOBCAT was required in order to ensure that genuinely representative results were available for consideration by the ATFM/TF.

Paper Trials 19 October 2005

3.4 In order to facilitate a further paper trial of BOBCAT, IATA undertook to coordinate a one night data sampling involving as many airlines as possible submitting simulated slot requests, including second and third preferences for routes and flight levels, for collation and application as a BOBCAT data set. Accordingly, data were obtained from airlines for the night of 19 October 2005 and a number of scenarios were processed by BOBCAT using this data set. Spreadsheets containing the results of the different trial scenarios, as reported below, have been reproduced in **Appendix F**.

Note: The appended spreadsheets include extra data in respect of flights departing Kuala Lumpur that was not available at the time the scenarios below were processed by BOBCAT. As such, the results below do not include assessment of departures ex Kuala Lumpur.

Data Set

3.5 During compilation of the resultant data set, several inconsistencies were identified within the submitted data and, in order to ensure the data set was statistically valid, the following amendments were made:

- a) aircraft flight level at DI were changed to CVSM flight levels consistent with flight level at PAVLO or LEMOD because of agreement between India and Pakistan concerning management of RVSM flight level in transition into CVSM airspace;
- b) Wheels Up Time (WUT) of 20 minutes after ETD was used for aircraft that did not submit WUT;
- c) flight level for aircraft requesting to transit M770, L759 and P628 via IKULA, TAVUN and VPL at FL300 were changed to FL280 since FL300 was not available due to multinational agreement in place;
- d) elapsed time for flights transiting M770 and L759 but who submitted elapsed time at VPL instead of IKULA and TAVUN were changed to elapsed time at IKULA and TAVUN based on elapsed time between VPL and the two waypoints of like type aircraft traveling at same mach number; and
- e) Maximum Acceptable Delay (MAD) was not permitted to be negative, so MAD was set as zero for flights submitting negative MAD.

Paper Trial Parameters

3.6 The following paper trials were completed by BOBCAT using the 19 October 2005 data set:

- a) *Trial 1a:* MAD was used as submitted, 20-minute MAD was used for flights that had not submitted MAD; intermediate fixes LLK and KKJ (in India) were included in waypoint configuration;
- b) *Trial 1b:* MAD was used as submitted, 20-minute MAD was used for flights that had not submitted MAD; intermediate fixes LLK and KKJ (in India) were not included in waypoint configuration;

- c) *Trial 2a:* MAD of 15/20/30 minutes was used for flights with 3 or more choices, 4th and later choices used MAD of 30 minutes; flights with 2 choices had MAD of 15/30 minutes while flights with single choice had MAD of 30 minutes; intermediate fixes LLK and KKJ were included in waypoint configuration;
- d) *Trial 2b:* MAD of 15/20/30 minutes was used for flights with 3 or more choices, 4th and later choices used MAD of 30 minutes; flights with 2 choices had MAD of 15/30 minutes while flights with single choice had MAD of 30 minutes; intermediate fixes LLK and KKJ were not included in waypoint configuration;
- e) *Trial 3a:* MAD of 20 minutes was used for all aircraft choices; LLK and KKJ were included in waypoint configuration;
- f) *Trial 3b:* MAD of 20 minutes was used for all aircraft choices; LLK and KKJ were not included in waypoint configuration;
- g) *Trial 4a:* MAD of 30 minutes was used for all aircraft choices; LLK and KKJ were included in waypoint configuration;
- h) *Trial 4b:* MAD of 30 minutes was used for all aircraft choices; LLK and KKJ were not included in waypoint configuration;
- i) *Trial 5a:* MAD of 60 minutes was used for all aircraft choices; LLK and KKJ were included in waypoint configuration;
- j) *Trial 5b:* MAD of 60 minutes was used for all aircraft choices; LLK and KKJ were not included in waypoint configuration;

3.7 In considering the trial outcomes, a number of aircraft were not allocated slots by BOBCAT as a result of the available slots not meeting the slot parameters requested, particularly in respect of MAD limitations. These flights could be managed by nominating a suitable MAD or by selecting an available slot from the vacant slots in the published slot allocation list. In addition, the data set contained some slot requests for flights which did not need to have slots allocated as the flights were outside the scenario parameters; these flights are recorded as 'not requiring slot' in the trial reports below.

3.8 The trial outcomes have been depicted in bar graph format in **Figures 1 through 5** below. In addition, bar graph presentations have been calculated in respect of the Average Delay for Trials 1 to 5 (**Figure 6**), the Maximum Delay for Trials 1 to 5 (**Figure 7**), the Standard Deviation of Delays for Trials 1 to 5 (**Figure 8**) and the Percentage of flights Not allocated Slots for Trials 1 to 5 (**Figure 9**)

Trial 1a (LLK and KKJ included) and Trial 1b (LLK and KKJ excluded)

3.9 The results of *Trials 1a and 1b* have been plotted in **Figure 1** below. In *Trial 1a*, delay statistics were observed as follows:

Average Delay	Standard Deviation	Maximum Delay
5 minutes	7.2 minutes	20 minutes

In *Trial 1b*, delay statistics were observed as follows:

Average Delay	Standard Deviation	Maximum Delay
4 minutes	7.3 minutes	26 minutes

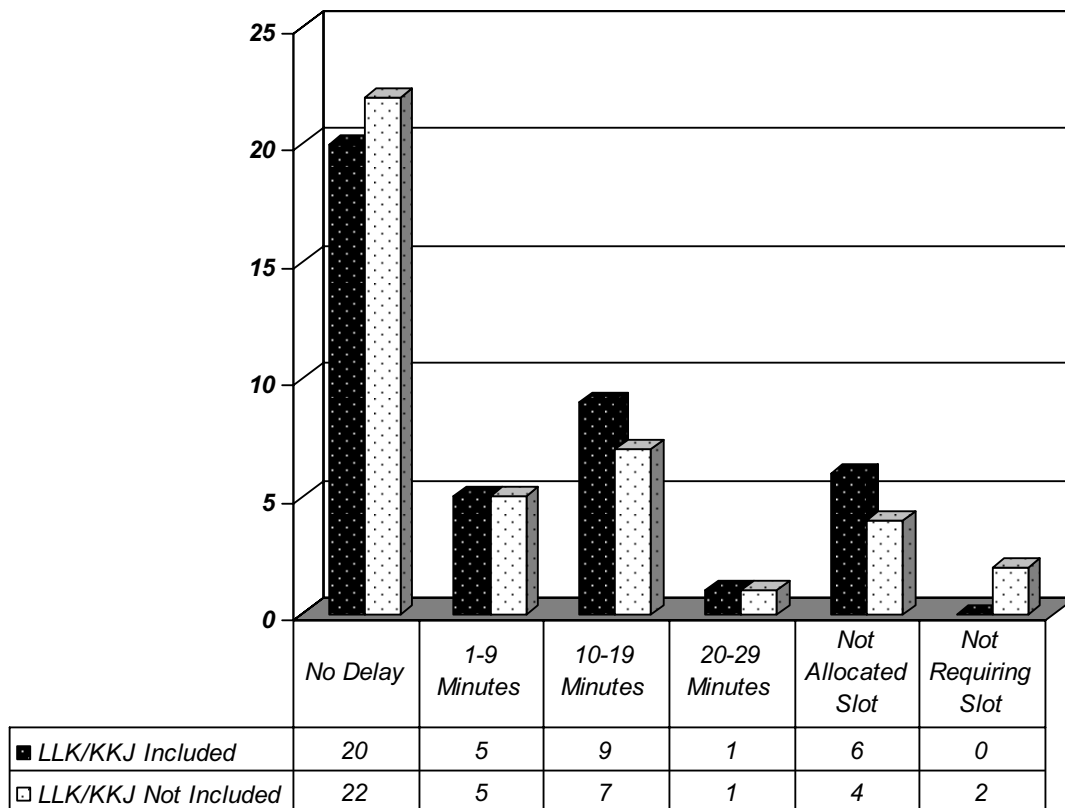


Figure 1 – Results of Trials 1a and 1b

Trial 2a (LLK and KKJ included) and Trial 2b (LLK and KKJ excluded)

3.10 The results of *Trials 2a and 2b* have been plotted in **Figure 2** below. In *Trial 2a*, delay statistics were observed as follows:

Average Delay	Standard Deviation	Maximum Delay
4 minutes	6.8 minutes	24 minutes

In *Trial 2b*, delay statistics were observed as follows:

Average Delay	Standard Deviation	Maximum Delay
3 minutes	5.2 minutes	20 minutes

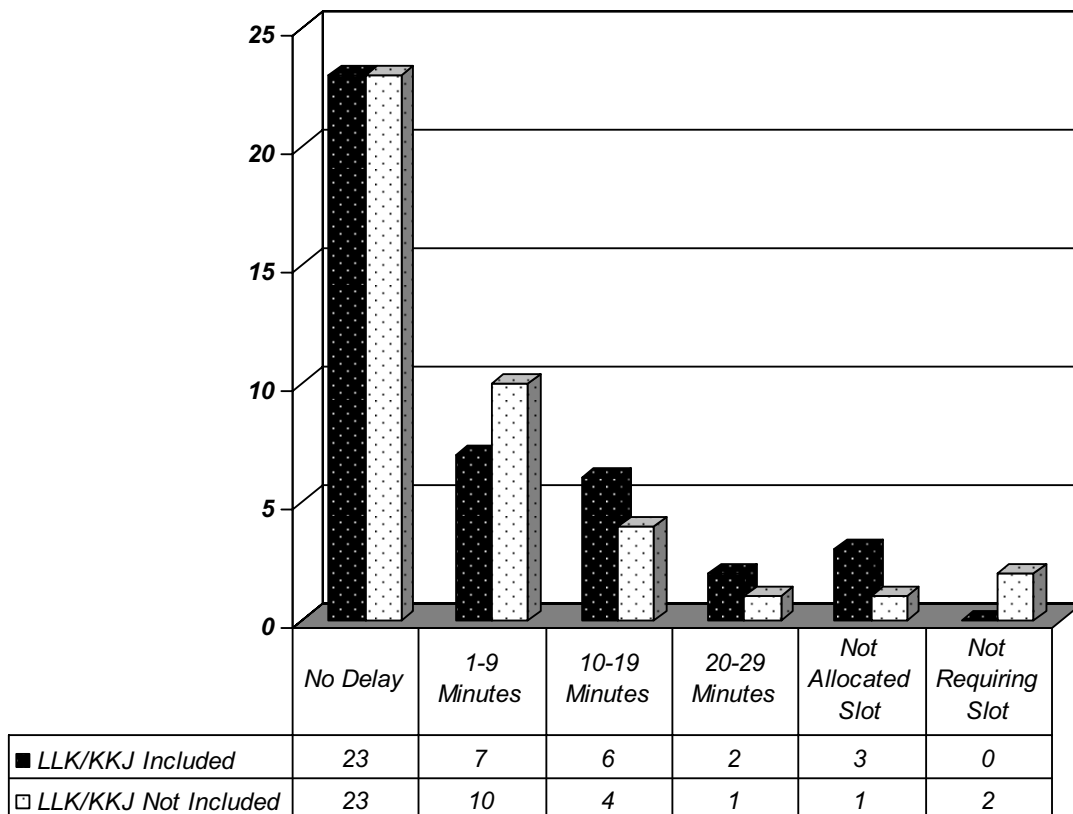


Figure 2 – Results of Trials 2a and 2b

Trial 3a (LLK and KKJ included) and Trial 3b (LLK and KKJ excluded)

3.11 The results of *Trials 3a and 3b* have been plotted in **Figure 3** below. In *Trial 3a*, delay statistics were observed as follows:

Average Delay	Standard Deviation	Maximum Delay
5 minutes	7.0 minutes	20 minutes

In *Trial 3b*, delay statistics were observed as follows:

Average Delay	Standard Deviation	Maximum Delay
4 minutes	6.3 minutes	19 minutes

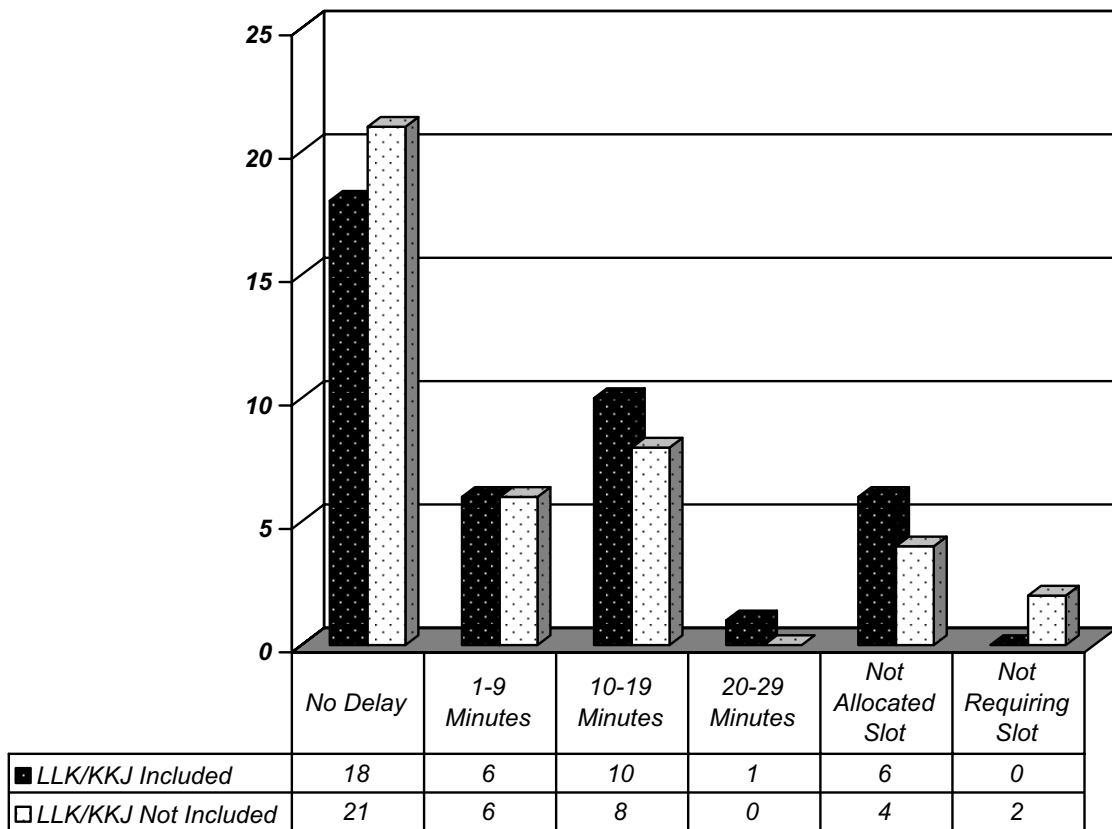


Figure 3 – Results of Trials 3a and 3b

Trial 4a (LLK and KKJ included) and Trial 4b (LLK and KKJ excluded)

3.12 The results of *Trials 4a and 4b* have been plotted in **Figure 4** below. In *Trial 4a*, delay statistics were observed as follows:

Average Delay	Standard Deviation	Maximum Delay
9 minutes	10.5 minutes	30 minutes

In *Trial 4b*, delay statistics were observed as follows:

Average Delay	Standard Deviation	Maximum Delay
7 minutes	9.6 minutes	29 minutes

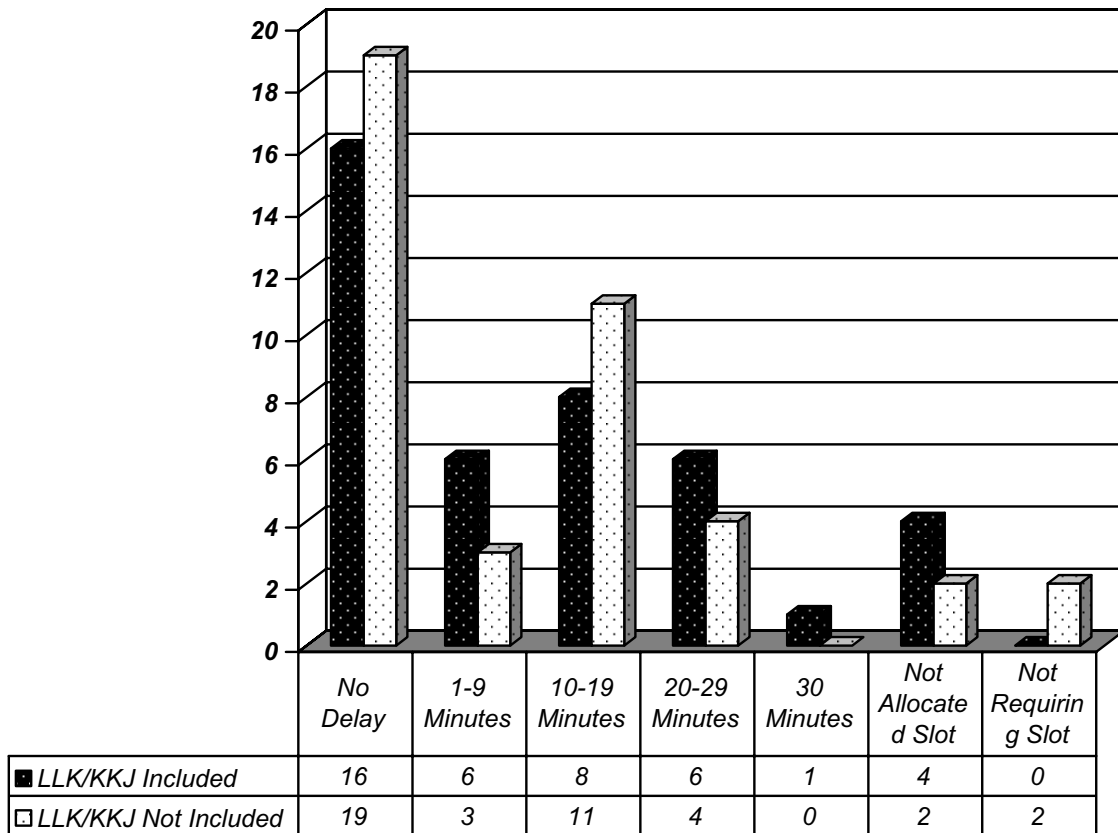


Figure 4 – Results of Trials 4a and 4b

Trial 5a (LLK and KKJ included) and Trial 5b (LLK and KKJ excluded)

3.13 The results of *Trials 5a and 5b* have been plotted in **Figure 5** below. In *Trial 5a*, delay statistics were observed as follows:

Average Delay	Standard Deviation	Maximum Delay
19 minutes	21.0 minutes	60 minutes

In *Trial 5b*, delay statistics were observed as follows:

Average Delay	Standard Deviation	Maximum Delay
15 minutes	16.9 minutes	57 minutes

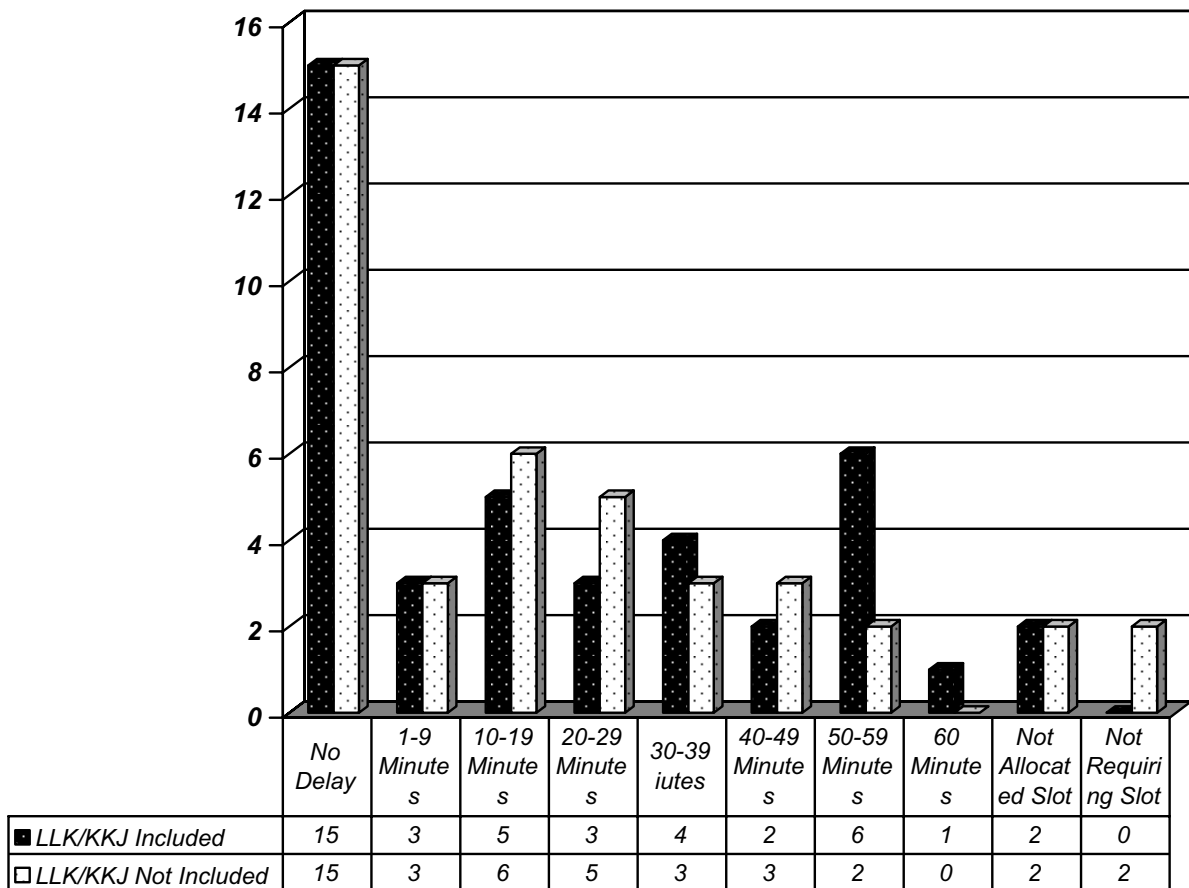


Figure 5 – Results of Trials 5a and 5b

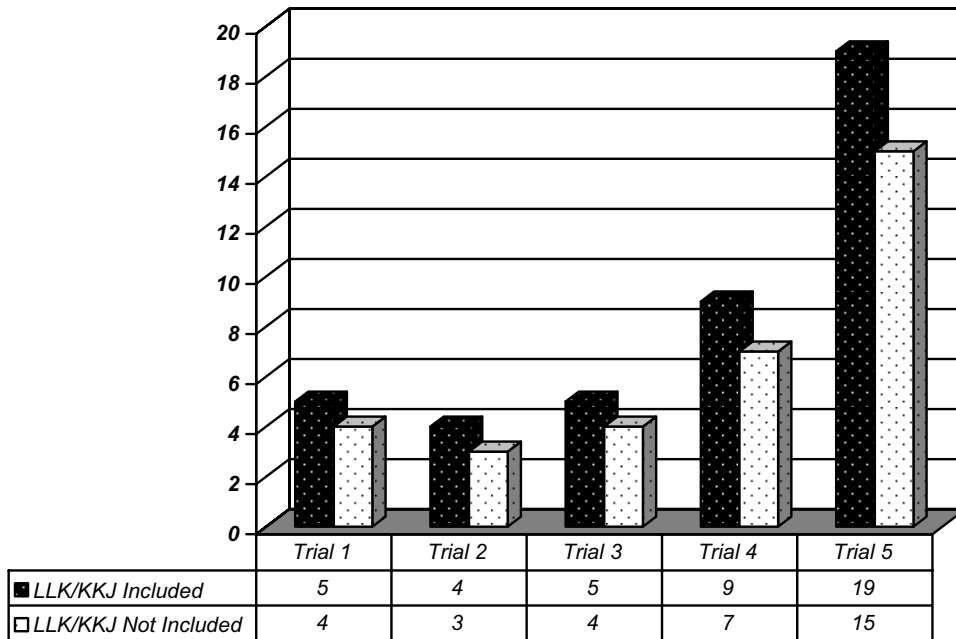


Figure 6 – Average Delay for Trials 1 to 5.

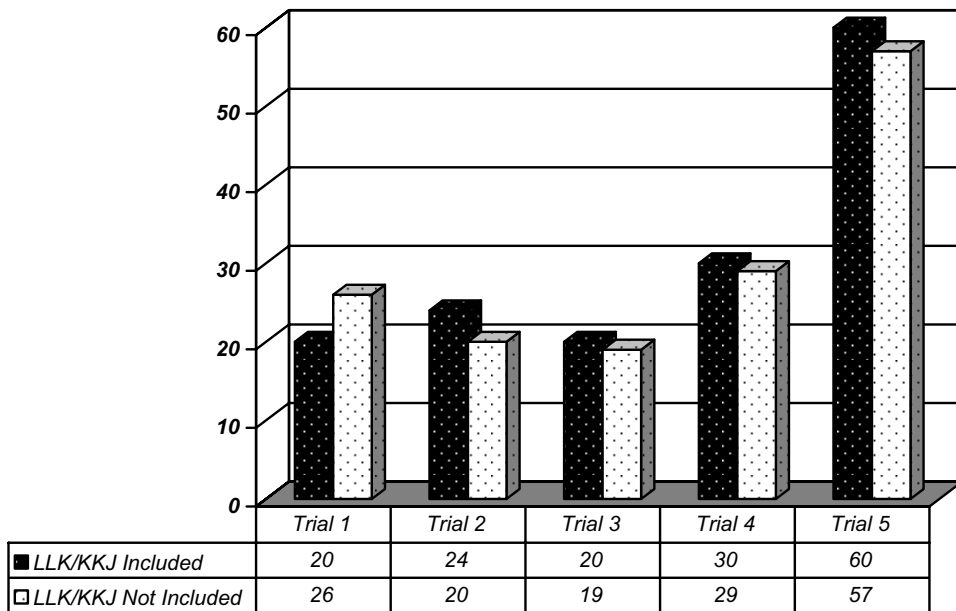


Figure 7 – Maximum Delay for Trials 1 to 5.

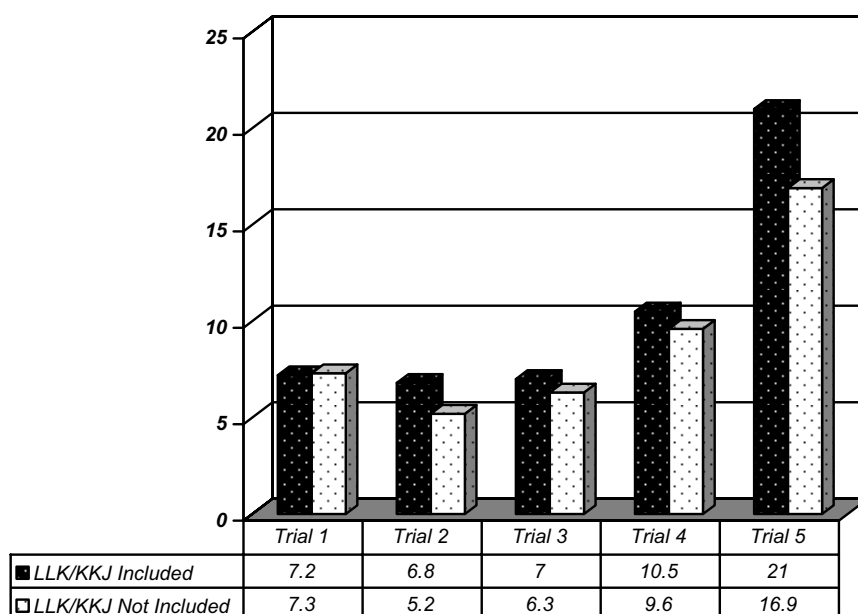


Figure 8 – Standard Deviation of Delays for Trials 1 to 5.

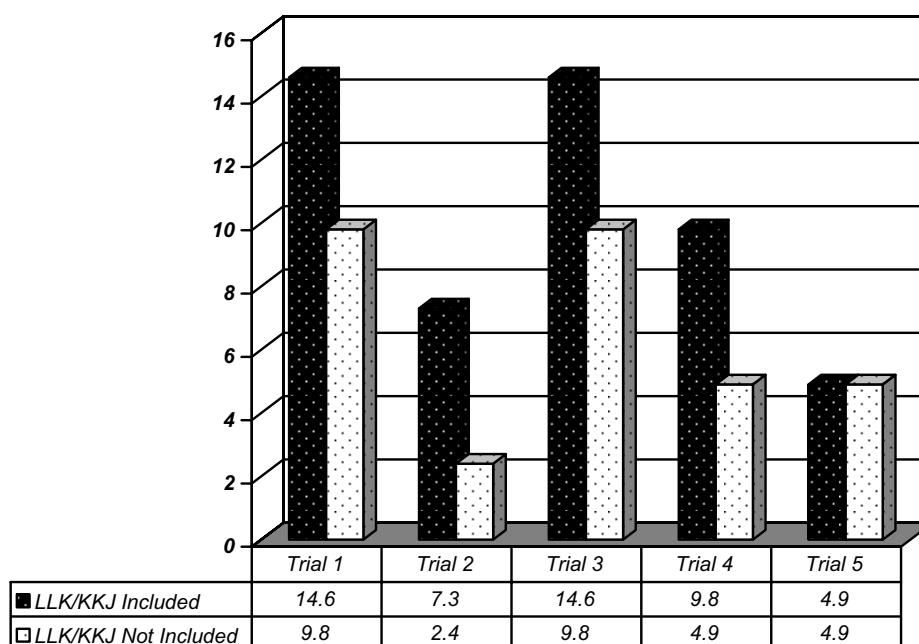


Figure 9 – Percentage of Flights Not allocated Slots for Trials 1 to 5.

Additional Paper Trials

3.14 In noting that the results of the paper trials described above were derived from a single data set, that of 19 October 2005, and did not include assessment of departures from Kuala Lumpur the meeting agreed that further paper trials would be of assistance in demonstrating the capabilities of BOBCAT and as well as providing some training value to affected airlines. The meeting was of the view that the additional paper trial data and outcomes should be made available to ATFM/TF/5 in January 2006 for review.

3.15 Accordingly, the meeting agreed that an additional data sample should be taken for traffic over 15 to 21 December 2005 or thereabouts. IATA and the BOBCAT development team undertook to coordinate arrangements in this regard, noting that if the BOBCAT system was sufficiently developed airlines would be requested to input their data directly into BOBCAT, rather than providing data via IATA as previously. The final arrangements would be agreed and circulated by AEROTHAI and IATA in early December.

3.16 Thailand would run BOBCAT paper trials based on the December data, with a view to reporting the progress of the trials to ATFM/TF/5 in January 2006.

3.17 The meeting noted the limited time that had been available for delegates to study the paper trial data during the conduct of the meeting and appreciated Thailand's offer to make all data available in soft copy on request, to allow delegates to vary "Excel" sorting parameters etc in studying the data. It was envisaged that the BOBCAT development team would soon be establishing an internet web board on the BOBCAT web site in order to facilitate user enquiries and discussions.

Agenda Item 4: Flow Management Handbook

4.1 In accordance with the provisions of ICAO Doc 4444 (PANS-ATM) Ch 3.2.1.5, ATFM/TF/1 had agreed that an ATFM Handbook should be developed as a Task List item (ID 2.2. refers). Further, the ATFM Handbook should include the operating rules and procedures, and associated guidance material for the ATFMU, ACCs and airline operators.

4.2 ATFM/TF/3 (September 2005) had reviewed the current draft of the Handbook, recognizing that a significant amount of information relating to the operation of the BOBCAT system still needed to be incorporated. Thailand updated the meeting in this respect, providing a list of suggested headings that were included in the draft AFTM Handbook (**Appendix G** refers).

4.3 The meeting considered that the small work group established during ATFM/TF/3, comprising the Task Force Chairman and representation from India, Thailand (AEROTHAI) and IATA, was an effective mechanism to progress the development of the ATFM Handbook. The meeting was of the opinion that every effort should be made to prepare a final draft of the Handbook for review and adoption during the ATFM/TF/5 meeting scheduled in January 2006. This would allow final amendments arising from the deliberations of ATFM/TF/5 to be incorporated and the ATFM Handbook released in sufficient time to enable wide circulation prior to the commencement of the operational trial on 16 March 2006.

4.4 The meeting agreed that after the initial issue, the Handbook would be maintained by the ATFMU and made available only in electronic copy via the ATFMU/BOBCAT website. This would result in single source documentation and ensure that the electronic copy was continuously up to date. The meeting recognized that ATFM/TF/3 had agreed to include requirements in the ATFM Handbook for software updates and other major changes under which proposed changes would be reviewed/authorized by a suitable oversight authority e.g. Air Traffic Flow Management Task Force, Bay of Bengal ATS

Coordination Group, AEROTHAI Senior Engineering Staff prior to implementation and agreed that a similar process should be considered for major amendments to the ATFM Handbook.

Agenda Item 5: Safety Assessment

5.1 The meeting recalled that the standards and recommended practices relating to the implementation by States of safety management programmes for Air Traffic Services (ATS) were introduced in Section 2.26 of Amendment 40 to Annex 11 – *Air Traffic Services*, which became applicable on 1 November 2001. Further provisions relating to the implementation of these safety management programmes, applicable from the same date, are contained in Chapter 2 of *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444).

5.2 The meeting reviewed and updated the draft BOBCAT Hazard Log, prepared as a result of the hazard identification activities commenced during ATFM/TF/3 in order to consider safety aspects in relation to the implementation of BOBCAT during the operational trial. Details of each of the seven identified hazards and associated mitigation activities have been recorded in the Hazard Log included as **Appendix H**. The meeting agreed that safety issues relating to the implementation of the operational trial would be further considered ‘off-line’ by all parties and issues arising would be communicated to the Regional Office as soon as possible.

5.3 The meeting agreed that in order to meet safety obligations under ICAO provisions a safety statement must be finalised during ATFM/TF/5 to record the safety issues identified by the task force, but noted that as the mitigations described in the Hazard Log would be in place no safety impediment to the conduct of the BOBCAT operational trial was anticipated.

Agenda Item 6: Operational Trial Arrangements

Commencement Date of ATFM Operational Trial

6.1 The meeting recalled that the ATFM/TF had adopted AIRAC 22 December 2005 as the implementation date of the operational trial. However, additional matters had been identified that needed to be addressed by the task force and difficulties had been experienced in a number of work areas that had acted to slow the rate of progress of the task force. During early October 2005 the Regional Office, in noting the work still outstanding, had contacted core team members and proposed that the 22 December date be deferred until the matter was able to be considered during ATFM/TF/4. In considering the issues associated with the trial, the meeting agreed that implementation of the operational trial be deferred until AIRAC 16 March 2006, with shadow operations commencing on 9 March, one week prior to live operations.

6.2 The meeting noted that a number of States had issued AICs notifying that the commencement date of the trial was anticipated to be 22 December 2005. Affected States should consider issuing NOTAM notifying that the implementation had been deferred until 16 March 2006.

6.3 The commencement of the operational trial would be subject to the decision of ATFM/TF Core Team and a Special ATS Coordination Meeting of Core Team members in respect of the Go/No Go decision was scheduled for the 20th & 21st February 2006.

Update on BOBCAT Development

6.4 Thailand provided an update in respect of the work of the BOBCAT development team (AEROTHAI), highlighting the following developments to the meeting.

6.5 The BOBCAT domain name registration process had commenced with application being lodged for URL <http://www.bobcat.aero/>. Website development has almost been completed and delivery of all system hardware to AEROTHAI premises occurred on 11 November 2005.

6.6 In addition to conducting paper trials on 5-7 and 19 October 2005, AEROTHAI had undertaken further research on the following BOBCAT critical issues:

- a) Draft AIP Supplement;
- b) Suggested Topics to be included in the BOBCAT ATFM Operational Handbook;
- c) Research on Maximum Acceptable Delay parameter;
- d) Research on Wheels Up Time and Flow Buffer Time;
- e) Research on BOBCAT Intermediate Waypoints;
- f) Research on Cutoff Time to be used; and
- g) Research on Time Period of BOBCAT Operations.

6.7 The development of Airline Dispatcher User Interface was almost completed with the majority of components to be shown and tested at BOBCAT Workshop during the meeting. The ANSP User Interface and ATFMU interface were also in the final stages of completion.

ATFMU Preparations

6.8 The design and planning layout of the ATFMU Office had been completed. Contractors will shortly commence work on ATFMU renovation and decorations. Installation of equipment will then take place. Once equipment has been installed, including linkup to the BOBCAT system, several trials will be conducted to ensure reliability of the ATFMU before coordinated trials commence with ANSPs and airline dispatchers.

6.9 Development of ATFMU procedures is underway. Suitable ATFMU staff with ATC experience have been selected and a training programme is under preparation. Training of ATFMU staff will commence shortly.

6.10 The ATFMU has been allocated an AFTN address of VTBBZDZX.

IATA User Requirements

6.11 IATA updated the meeting that traffic flow through the Kabul FIR between 2000-2400 UTC still continued to cause delays for departures at the S E Asian airports. More importantly, flights were routinely rerouted around the Kabul airspace adding at least 35 minutes extra flying time as well as causing expensive technical stops for refueling. IATA considered that an air traffic management system was necessary to regulate the flow and optimize the usage of available slots through the Kabul FIR. This would provide users with a transparent system with choices of levels and routes and forewarning of applicable delays. IATA stressed that in their view the problems were the Kabul FIR entry issues and, in accordance with the task force terms of reference for Phase 1, the ATFM/TF should clearly concentrate on addressing the problems of flights planning to transit the Kabul FIR.

6.12 IATA expressed concern that the BOBCAT paper trials held from 5-7 October 2005 had appeared to move too far from the Phase 1 primary aim of addressing transits of Kabul FIR by including significant focus on:

- a) the inclusion of intermediate waypoints, in addition to Kabul FIR entry points, for the purpose of providing longitudinal spacing for flights at merging points in Indian domestic airspace, and
- b) the inclusion of westbound flights landing at airports in Northern India and Pakistan.

6.13 IATA could not understand the need for, nor support, the inclusion of westbound flights to Delhi or other Indian and Pakistan airports into the ATFM system for Phase 1. Additionally, flights which do not transit the Kabul FIR could be cleared to other RVSM levels. IATA also opposed the use of intermediate waypoints in determining slot availability over Kabul FIR as they result in a loss of slot availability and an extension of delays to a wider geographical area.

6.14 In order to clarify the focus of the task force, IATA considered that there was an urgent need for a system requirements statement to be developed so that the system could be designed and prepared accordingly. IATA, whilst acknowledging that many issues had been addressed by the BOBCAT development team in the “Concept of Operation of BOBCAT” document (ver 2.1), considered that the following matters should be fully addressed in designing the ATFM system:

- a) Is there a need for a full time ATFM Unit?
- b) What is the role of BOBCAT/ATFMU after the pre departure slot assignments are completed?
- c) What is the system play area? Which are the “system” airports? If Bangkok, Kuala Lumpur, Singapore, Delhi and Lahore are system airports, how are flights from non-system airports like Guangzhou, Hanoi and Hong Kong to be handled? How will non-system airports be involved in BOBCAT?
- d) Should there be a delay in departure resulting in a flight missing the assigned slot, how will new slots be obtained - by the operator or by ATC? What if the operator does not have an operational flight following system to undertake this task? What if the airport of departure is outside the “system” airports and therefore the local ATC have no knowledge of BOBCAT?
- e) Should a flight be delayed enroute, resulting in the flight missing the assigned slot over Kabul FIR, how will this be handled?
- f) What value will be accorded to wheels up time? Who will decide it? Airline or ATC ? How does the wheels up time impact the slot assignment?
- g) What are the system parameters and limits with regard to Maximum Acceptable Delay (MAD), longitudinal separation minima, Mach number, and time buffers?
- h) What are the cut-off times for slot application and approval?
- i) What are the rules for negotiation?

- j) What are the procedures for data entry? For example, can amendments be made after executing the input? How does the system deal with syntax or format errors?
- k) What is the output format?
- l) How will data be recorded?
- m) Who will review the system operations and when will it be done?

6.15 IATA had prepared a “Basic User Requirement Statement for BOBCAT Slot Allocation Programme Phase 1” document (**Appendix I** refers) and strongly urged the meeting to fully address the above issues and the parameters in the User Requirement Statement in order to finalize the system definition so that AEROTHAI could develop and test the system to meet the requirements.

6.16 AEROTHAI advised that answers to many of these questions were already available and that more answers could be expected as a result of this meeting. AEROTHAI undertook to review the matters raised by IATA above and in the User Requirement Statement to ensure that these aspects were addressed in the design of the BOBCAT system. The meeting recognized the importance of these issues and considered that much of the information in this respect should be contained in the ATFM Handbook.

6.17 IATA strongly reiterated that the sole objective of the users has always been, and remained, the provision of westbound slots entering into Kabul FIR and allowing airlines to choose their own slots.

BOBCAT System Parameters for Operational Trial

Time period managed by BOBCAT Operations

6.18 The meeting considered the period that would need to be managed by the BOBCAT operations in respect of traffic transiting Kabul FIR. The present arrangements allow FL280/310/350/390 to be used westbound through the Kabul FIR during the period of 2000-2359 UTC daily on all transit routes except G792/V390 where FL280 is not available. This particular time period was negotiated with the military authorities in Afghanistan some years ago and was designed to cater for the daily westbound night-time rush period.

6.19 Inspection of the sample data from the paper trials demonstrated that that all major conflicts requiring the attention of BOBCAT fell within this period. Accordingly, the meeting agreed that the time period to be covered by BOBCAT would be set as 2000-2400 UTC daily.

Slot Request Cut-Off time

6.20 Airline dispatchers will be able to request slot allocation times and route segment flight level sequences which an aircraft prefers to use in transit to Kabul FIR several hours ahead of actual entry time into Kabul FIR. After an agreed cut-off time for inputting requests, BOBCAT will process requests from airlines and notify all airline dispatchers of their assigned estimated wheels up time (WUT), estimated time over (ETO) on each waypoint and flight level to be used through the Kabul FIR.

6.21 In considering which time should be nominated as a cut-off time for airline slot request lodgment, after which the slot allocation list would be compiled and distributed, the ATFM/TF had previously agreed that there should be only one cut-off time and this should relate to a time at least 2-3 hours before the first ETD of aircraft planning to enter the BOBCAT system.

6.22 Subsequent to extensive discussion on this matter during the meeting, a cut of time of 1200 UTC was adopted for the operational trial.

Wheels Up Time Calculations

6.23 The meeting noted that, although the calculation of Wheels Up Time (WUT) was not an integral requirement of the BOBCAT system, the accuracy of this component would have a major effect on the slot allocation time of each aircraft entering the Kabul FIR. In addition, the meeting was advised that with regard to the air traffic control responsibilities concerning ATFM, the use of WUT readily provided a picture to the ground and/or aerodrome controller regarding the departure sequence, which in turn allowed proper management by these controllers in sequencing aircraft from their parking position towards the runway threshold. It was considered that without this information errors in ground sequencing could occur to the point where some aircraft may unnecessarily miss their allocated WUT.

6.24 The meeting recalled that during the BOBCAT system paper trial held on 5 – 7 October 2005, flight plan data used for the trials was extracted from relevant ACC sources based on actual flights over the period of 18 – 24 September 2005. For this trial, it was agreed to use a common time of 20 minutes taxi time from parking position to WUT. At the 19 October 2005 paper trial, dispatchers were asked to nominate their own taxi time or, if unable to do so, use 20 minutes as was previously used at the earlier trial. About half of the flights processed used a standard 20 minutes from ETD to WUT while other dispatchers varied their selection by giving aircraft as low as zero to 10 minutes WUT from ETD, with others using more than 20 minutes.

6.25 The meeting considered that local control tower ATC or aerodrome owners would be in the best position to calculate how long it would take for an aircraft to taxi from any terminal gate or tarmac position to the nominated runway. Based on normal procedures to push back, un-hook aircraft and commence taxiing, these figures could be pre-calculated and given to all dispatchers for their use in the submission of slot requests. This would then allow ATC to manage aircraft in an orderly manner to be in the correct departure sequence as well as assist aircraft as necessary during the taxi phase so as to make their WUT. It should be noted that the control tower would have information on all WUT's at their particular airport.

6.26 In the case where there were major works on an airport which would have an affect on taxi time from the terminal gate position, ATC would be able to calculate a new set of figures to cover this situation. They would also be in the best position to adjust taxi time as necessary for unforeseen occurrences which may occur.

6.27 Accordingly, the meeting agreed that local ATC at Singapore, Malaysia and Thailand would be requested to calculate a single taxi time for their respective airports which was representative of the normal taxi time taken from the terminal gate to the runway holding point (i.e. excluding remote aprons) by flights involved in the ATFM operational trial. The single taxi time per airport would be used in BOBCAT slot calculations and would be included in the ATFM Handbook and on the BOBCAT website. The Regional Office undertook to write to the air navigation service providers involved with a request for this information.

Flow Buffer time period & missed WUT

6.28 The meeting discussed various options that may be available to cater for an aircraft that, for any reason, was going to miss his allocated WUT or was in a position to become airborne just prior to his WUT. Also of significance was the ability to meet the slot time at the Kabul FIR.

6.29 After extensive discussion, the meeting agreed to the application of a single 5 minute “Flow Buffer” that could be absorbed either on the ground as ground/taxi delay or during flight. Accordingly, the meeting agreed that BOBCAT would consider a parameter of 10 minutes for the longitudinal separation standard at the Kabul FIR boundary PLUS a 5 minute Flow Buffer in allocating slots. It was anticipated that experience during the operational trial would demonstrate that ground delays slightly in excess of 5 minutes could be recovered enroute in order to establish the flight entry at Kabul in accordance with the allocated slot time.

6.30 The meeting noted that the Flow Buffer was applicable after the WUT. As the procedures established by the ATFM/TF for BOBCAT operations were intolerant of aircraft departing prior to the allocated WUT, the 5 minute Flow Buffer was applicable after the scheduled WUT.

Intermediate Gateways in Indian Airspace

6.31 The meeting recalled that, during ATFM/TF/2 (June/July 2005), India raised concerns in regard to a number of operational difficulties which presently occurred within their airspace and requested that, where possible, these matters be addressed in the development of BOBCAT. This was again raised at the Special Coordination Meeting of the ATFM/TF Project Management Team held in Singapore on 10-11 August 2005.

6.32 In this regard, India had again requested that, if possible, a facility for intermediate gateway fixes should be included in the BOBCAT design in order to relieve enroute choke-points. This, in turn, was expected to assist aircraft making their entry gate time into the Kabul FIR. India expressed the view that inclusion of this feature did not imply that BOBCAT was a separation tool, but rather a flow management practice to effectively space aircraft to meet their entry gate time into Kabul FIR. The ATFM/TF agreed that this matter would be looked at as part of the paper trial exercises to enable conclusions to be reached as to whether they were suitable or necessary for application during the operational trial.

6.33 During the paper trials scenarios were completed using two options; option 1 with intermediate gateways included and option 2 with intermediate gateways excluded. The two gateways used for these exercises were Lucknow (LLK) and Khajuraho (KKJ).

6.34 IATA was concerned that the inclusion of intermediate gateways was outside the Phase 1 terms of reference of the task force and, in accordance with the IATA user requirements described previously, IATA could not support the inclusion of intermediate gateways in the operational trial parameters. After extensive discussion by the meeting, it was agreed that representatives from India and IATA would meet ‘off-line’ prior to the next data collection period commencing 15 December 2005 in order to explore ways to address the situation to the satisfaction of both parties.

6.35 The task force recognized the importance of this issue to both India and IATA and also recognized that if it was not resolved, the operational trial could not be implemented. The meeting was informed that India was making good progress towards commissioning an ATC radar to serve the Varanasi ACC and that it was likely that this equipment would assist the tactical management of traffic in the vicinity of LLK and KKJ. The task force encouraged the parties to meet at an early opportunity with a view to resolving the issue and providing a report to ATFM/TF/5 on the outcomes of the discussions.

Westbound Aircraft Landing Northern India & Pakistan

6.36 The meeting also discussed issues regarding flights transiting the Bay of Bengal and Indian sub-continent on routes used by Kabul traffic but which were planned to land in India and Pakistan prior to entering the Kabul FIR. In considering whether these flights should be included in the BOBCAT parameters, the meeting noted that the data collected for the paper trials demonstrated that the few aircraft

in this situation which operated during the BOBCAT period were at levels higher than long haul aircraft over flying Kabul FIR.

6.37 Accordingly, it was appropriate that these flights be tactically managed on descent using the Delhi radar in order not to impede the flight profile of BOBCAT aircraft. It was also noted that other flights arriving in Delhi from departure points on the eastern side of the Bay of Bengal were generally outside the time window of BOBCAT and therefore were not required to be included in the BOBCAT processing.

6.38 After considerable discussion, the meeting agreed that westbound arrivals to northern India and Pakistan during the BOBCAT period would be managed tactically by India during the operational trial.

Training Requirements

6.39 The meeting agreed that BOBCAT training would be required for dispatchers from as many airlines as possible, and that ATS users of BOBCAT would also benefit from having access to suitable training. The meeting agreed that a suitable computer based training package located on the BOBCAT website would provide easy access to training for interested parties. The BOBCAT development team agreed to draft a suitable training package for inclusion on the website.

6.40 The meeting also recognized the important role the Bay of Bengal and South Asia ATFM Handbook in providing training material for users of the system and agreed that the Handbook should include as much information as possible in respect of interactions with the system. The ATFM Handbook would be posted on the BOBCAT website prior to the commencement of the operational trial.

AIP Supplement

6.41 The meeting recognized that in order to ensure that a suitable AIP Supplement was prepared and distributed in time to meet the 19 January AIRAC date for the operational trial on 16 March 2006, all information for the AIP supplement would need to be available by late December 2005. A significant amount of technical information confirmed as a result of the BOBCAT paper trials would be incorporated into the AIP Supplement.

6.42 The small work group comprising Thailand, Malaysia, Singapore and India that had been established during ATFM/TF/3 had completed some work on the draft AIP Supp and continued with the development of the Supplement during the meeting. A copy of the current draft AIP Supplement has been included as **Appendix J**. The meeting gratefully accepted the offer from Singapore to use the services of the AIS section of CAAS to finalize the formatting of the AIP Supplement once the drafting was complete.

Equipment Requirements

6.43 In order to participate in the trial, the preferred method for airlines and ATS providers to access BOBCAT would be by way of the public internet. This made it necessary for participants to have reliable access to suitable computer equipment that satisfied the following minimum specifications:

- 6.44 A Personal Computer of any operating system with the following characteristics
- Processor: minimum CPU clock speed of 150 MHz
 - Operating System: Any that operates one of the following web browsers (i.e. Windows 2000/XP, Linux, Unix, or Mac OS)
 - RAM: 128 MB or larger (depending on operation system)

- Hard disk Space: minimum of 500 MB or larger (depending on operating system)
- Monitor Display Resolution: Minimum of 1024 x 768 pixels
- Web Browser: Internet Explorer 5.5 or newer, Mozilla 1.0 or newer, Mozilla Firefox 1.0 or newer, Netscape 7 or newer
- Internet Connection : 56 Kbps Modem or faster Internet connection

6.45 The ATFM/TF/3 meeting recognized that some organizations and administrations had lengthy procurement processes and, if equipment of this nature had to be acquired, considered that the notification period provided by the AIP Supplement may not be sufficient to allow equipment procurement. Accordingly, in response to a request from ATFM/TF/3, the Regional Office had issued State Letter AP093 (ATM) dated 15 September 2005 advising States of the minimum equipment specifications described above.

Role of ATS Providers

6.46 The meeting acknowledged the important role that ATS Units would play in the conduct of the trial. Airline operators would be provided with a slot time that they were then obliged to meet. Accordingly, appropriate handling would be required from ATS providers to ensure that airlines were able to meet the slot times as issued. Delays in becoming airborne on departure would result in aircraft missing published wheels up times and enroute delays could result in aircraft missing gateway times. ATS providers would need to ensure that all ATC staff were cognizant of the need to review the published list of slot allocations regularly and assist aircraft to meet their respective slot times. In this respect, the meeting noted the provisions of PANS ATM Part 7-8, paragraph 7.8.1, which enable adjustments to be made to the sequence of departing aircraft in respect of aircraft subject to ATFM requirements.

Implementation and Duration of Trial

6.47 In considering the implementation of the trial, the meeting recognized that a staged implementation of the trial would be beneficial. During the early stages of operation, all parties would need to become familiar with BOBCAT and the procedures in the ATFM Handbook. The meeting considered that a 7-day period of hands on operation, in which all functions were carried out but the slot times were not actually applied to traffic, would allow all participants to become fully familiar with what was required. This period could also be used to advantage by dispatchers to create repetitive or stored flight plan databases. Subsequent to the week of 'dry run' or 'shadow' operations, live operations could commence with BOBCAT derived slot times being applied to operational traffic. The meeting agreed that Stage 1 (shadow) operations would commence on 9 March 2006, with Stage 2 live operations commencing a week later on AIRAC 16 March 2006. Final details would be clarified in the trigger NOTAM issued a few weeks prior to commencement of the trial.

6.48 The meeting agreed that subsequent to the implementation of live operations, it would be necessary to allow a reasonable period for the trial to become established. Although it was considered an unlikely scenario, the meeting considered that if there were dramatic difficulties in the live operations the trial would need to be suspended immediately whilst investigation and remediation was undertaken. Otherwise the trial would be subject to a formal review process during the ATFM/TF/6 meeting which would be held on 4th & 5th April 2006. It was anticipated that the review by ATFM/TF/6 would provide the task force with sufficient information to enable decisions to be taken in respect of the trial.

6.49 In considering how to measure the effectiveness of the operational trial, the meeting agreed that a 'benchmarking' exercise to establish the quantum of delays prior to the commencement of the trial would provide a reference point against which the effect of the changed procedures could be compared. The meeting considered that the week of shadow operations immediately prior to the live trial would provide a good opportunity to collect suitable data to serve as the reference point and requested that this matter be further developed during ATFM/TF/5.

6.50 It was important that the task force develop a methodology and set of objective criteria against which the trial performance could be measured, in order to facilitate objective assessment of the ATFM trial and the provision of high integrity information to enable States and users to evaluate the effectiveness of the BOBCAT system. An item was added to the task list in this respect.

Agenda Item 7: Update the Coordinated Plan for implementation of actions agreed by the Task Force

7.1 The meeting agreed to the following steps in order to ensure the commencement of the operational trial on AIRAC 16 March 2006 as scheduled:

Date	Activity	Responsible	Remarks
9 December	Finalize AIP Supplement details and distribute to States & IATA for comment by end December	AIP SUPP work group (India, Malaysia, Singapore, Thailand, IATA)	Singapore to provide AIS support to format draft AIP SUP
15 December	Circulate advanced draft of ATFM Handbook to States & IATA for comment by 10 January 2006	ATFM Handbook work group (Chairman, India, Thailand, IATA)	
Approximately 15-21 December	BOBCAT Paper Trial	Thailand	AEROTHAI and IATA to arrange data collection for paper trial and report results to ATFM/TF/5
1-14 January 2006	Make final preparations to enable issuance of AIP Supplement on AIRAC 19 January, subject to approval of final draft by ATFM/TF/5	India, Malaysia, Pakistan, Singapore and Thailand	
16-20 January	ATFM/TF/5 (16 th & 17 th) and BBACG/17 (18 th – 20 th)	Task Force	Finalize & accept: • AIP Supplement, • ATFM Handbook, • Safety Statement, Review December Paper Trial, Draft Trigger NOTAM; Establish data 'benchmarking' arrangements

Date	Activity	Responsible	Remarks
AIRAC 19 January	Publish AIP Supplement	India, Malaysia, Pakistan, Singapore and Thailand	AIRAC date 19 January gives 2 cycle notification
Late January	Circulate ATFM Handbook	Task Force	
20 & 21 February	SCM Core Team	ICAO & Core Team Members	Go/No Go meeting
2 March	Issue Trigger NOTAM	India, Malaysia, Pakistan, Singapore and Thailand	
9 March	Commence shadow/ghost of Operational Trial	All	Stage 1 – 1 week shadow/ghost;
16 March	Commence ATFM Operational Trial	All	Stage 2 – full trial operations
4 & 5 April 2006	ATFM/TF/6 - Two day Trial Review Meeting	ATFM Task Force	

Agenda Item 8: Review and Update ATFM/TF Task List

8.1 The meeting reviewed and updated the ATFM/TF Task List in light of the inputs and discussions that occurred during ATFM/TF/4. The revised Task List is shown as **Appendix K**.

Agenda Item 9: BOBCAT Workshop

9.1 Two days of the ATFM/TF/4 meeting (Wednesday 9th & Thursday 10th) were allocated to a BOBCAT Workshop. The objective of the BOBCAT Workshop was to facilitate interaction between the BOBCAT development team and dispatchers from as many affected airlines as possible, as well as staff from regional ATS providers that would be operationally involved with the ATFM trial. The Workshop included details of the interaction with the BOBCAT system required from airlines and ATS users, and an explanation of the procedures and requirements proposed for the operational trial.

9.2 Mr. Christopher Metts, Senior FAA Representative, Tokyo acted as Rapporteur for the first day of the Workshop and Mr. Ron Rigney, Chairman ATFM/TF was the Rapporteur for the second day of the Workshop. Presentations were made by the BOBCAT development team from AEROTHAI (Thailand) in relation to a total system overview and the operational interfaces with the BOBCAT system from the perspectives of an airline dispatcher and an air navigation services provider (i.e. Control Tower, ACC). Copies of the presentations have been included as **Appendices L and M**. The workshop identified a number of actions and issues for consideration by the BOBCAT development team, as follows:

- a) Rather than referring to the action of the BOBCAT as “arranging” departures, refer to “coordinates” departures;

- b) Issue “read receipts” to airlines upon submission of slot time request to confirm request received at ATFMU;
- c) In cases of dispute, who will work the resolution? ATFMU - AEROTHAI will establish procedures for dispute resolution to be published in the ATFM handbook;
- d) As ATC capability to handle traffic increases (for example the addition of Radar sites, RNAV, GNSS, etc) will BOBCAT continue to be necessary? AEROTHAI agreed to add a process for periodic reassessment to the ATFM handbook;
- e) Airspace Changes: AEROTHAI will publish procedures in the ATFM handbook to be followed when States make changes to their airspace structure;
- f) Does BOBCAT reflect the current airspace baseline. This will be further verified through operational use, but it is generally accepted to be complete;
- g) Dispatcher Screens: A discussion took place as to the syntax of the system and what can or will happen when errant data is introduced. It was felt that further testing would be required, but that since this is not a separation or flight processing tool, that syntax errors were not of great safety consequence;
- h) Route Definitions: The BOBCAT defines routes by using waypoints. After much discussion, this was felt to be acceptable;
- i) Wheels Up Times (WUT): There was a great deal of discussion on this matter. The outcome was that dispatchers would manually input WUT, but that at some point in the future BOBCAT should evaluate an automated approach to this issue. In order not to confuse the times, it was recommended that the web site input form be changed to include the “blocks-off” time, with the standardized airport taxi times on the form so as to assist in calculating the WUT. The ATFM Handbook will be updated to outline the appropriate procedures for WUT;
- j) Reduce Dispatcher Workloads: It was generally agreed that any and all action should be taken to reduce the added workload presented by BOBCAT on Dispatchers;
- k) Mach Number: It was decided that Mach Number input to the form only requires 2 digits. However, since the ICAO standard for Mach Number is 3-digit, the meeting decided to standardize input in the ICAO standard;
- l) Input Screens: There was a request by dispatchers to allow multiple, simultaneous input as opposed to one item at a time. AEROTHAI will evaluate possible options;
- m) Mixed Traffic: An AIP supplement will be published requiring all traffic in the affected airspace to utilize the BOBCAT system. Procedures for flights unable to comply will be included in the ATFM Handbook;
- n) Ease of identifying vacant slots – need a quick and easy screen that allows ready selection of unallocated slot;

- o) Discussions on application of MNT and use of Mach Number within the BOBCAT system;
- p) Not all ANSPs have bi-lateral agreements in place between adjoining FIRs for the operation of MNT;
- q) Discussion on slight variations to actual WUT and the relationship between Tactical ATC and ATFM;
- r) Cooperation is the key to the success of BOBCAT;
- s) Consideration of requirements necessary to make an objective assessment of the BOBCAT Operational Trial and the decision to proceed to full implementation. This will require data from ANSPs and Airlines to enable benchmarking to take place and to form a basis for the final decision-making;
- t) Request another day for collection of data – can we have a week of data commencing 15 December. AEROTHAI is more than happy to take as many days of data as required from 15 December – but must be in the same format. IATA – no problems to provide data and would prefer to have Airlines input data direct to BOBCAT;
- u) There should be some provision for the analysis of the data output, so we know that the system is working the way it should be working – however Airlines will need to be equipped for interface with BOBCAT;
- v) Trial would need to cover-off issues regarding user name and passwords. Suggest allocate only a small number of user names and passwords and then use those Dispatchers in a “Train the Trainer” role;
- w) More work required on security access and processes; and
- x) 16 March – AIP SUP must be issued by 19 January 2006. Request that Final Draft AIP SUP be sent out from ICAO Regional Office in sufficient time for consideration before TF/5 meeting and that data from BOBCAT also be presented on 16 January Request data from BOBCAT also be presented on 16 January for analysis by TF/5 prior to finalization of AIP SUP.

9.3 The meeting thanked the airline participants for their considerable input to the development process, noting that very many of the items that had been identified for improvement during the Workshop would not have been able to be identified without the specific knowledge and experience of the airline dispatchers present during the Workshop. The BOBCAT development team had taken considerable note of the many discussions and suggestions over the two days and would make very endeavor to incorporate these items into the system software design.

Agenda Item 10: Any other business

Contact with Pakistan

10.1 The meeting again noted and regretted the absence of Pakistan from this meeting, recognizing the critical role that Pakistan played in feeding traffic into the Kabul FIR. Although Pakistan had been invited to the 8 ATFM/TF related meetings this year they had not attended any of the meetings. However, immediately prior to the ATFM/TF/3 meeting a letter had been received by the Regional

Office, regretting Pakistan's absence from the task force activities but advising of support for the ATFM operational trial proposed by the task force and for the publication of an AIC that included Pakistan as part of the trial arrangements.

10.2 The meeting considered that Pakistan was an integral part of the flow management arrangements proposed for the operational trial and that without involvement from Pakistan the operational trial could not proceed. Accordingly, the meeting requested that the Regional Office again make every attempt to notify Pakistan of the progress of the ATFM/TF and seek their active involvement in the operational trial, including the publication by Pakistan of the AIP Supplement in support of the trial.

Contact with Afghanistan

10.3 In a similar vein the meeting noted and regretted the absence of Afghanistan from this meeting, as Afghanistan would also be affected by the operational trial. A representative from Kabul ACC had provided a briefing in relation to Afghanistan operations to ATFM/TF/2 in Delhi (June 2005), and expressed support for the ATFM operational trial. The Regional Office was also in reliable email contact with the Kabul ACC Manager and undertook to ensure that Afghanistan and the Kabul ACC were notified of the ATFM operational trial arrangements via the Middle East Office of ICAO (Cairo), to which Afghanistan was accredited.

Draft ICAO Safety Management Manual (SMM, Doc 9859)

10.4 Although safety management provisions had been introduced into Annex 11 some years ago, ICAO had experienced some delays in publishing an appropriate Manual of Safety Management for ATS. A draft ATS Manual was eventually presented to the 11th Air Navigation Conference (22 September – 3 October 2003) and was circulated electronically as a final draft document.

10.5 Subsequently, in light of the expansion of provisions for safety management systems in other areas in addition to ATS, in particular Annex 14 – *Aerodromes* and Annex 6 – *Operation of Aircraft*, ICAO pursued the philosophy of a combined safety management manual, rather than a series of separate manuals addressing separate ICAO Annexes.

10.6 The meeting was advised that, with effect from mid October 2005, the draft *ICAO Safety Management Manual* (SMM, Doc 9859-AN/460), containing combined safety management provisions, had been placed on the internal ICAO web and was authorized for release to State civil aviation administrations as a final draft document, subject to a disclaimer noting that the document was still a “work in progress”. A reproduction of the Table of Contents of the SMM has been included as **Appendix XX** and electronic copies of the draft Manual would be available from the Regional Office on request. The SMM supersedes the Manual of Safety Management for ATS which will no longer be circulated.

Airbus A380 Wake Turbulence

10.7 As the new Airbus A380 large aircraft would commence regional demonstration flights from approximately 10 November, ICAO had received a number of requests from States in respect of the wake turbulence separation minima to be applied. ICAO State Letter AP108/05 (ATM) dated 3 November 2005 had been transmitted in this respect, advising caution in respect of wake turbulence spacing with the A380.

10.8 On 10 November 2005, additional ICAO State Letter AP111/05 (ATM) was transmitted by the Regional Office in respect of this issue. In view of the size/weight of the aircraft, an ad hoc group of experts under the auspices of the United States Federal Aviation Administration (FAA), EUROCONTROL, the Joint Aviation Authorities (JAA) and the manufacturer is examining the wake

turbulence aspects of the aircraft in comparison with other large aircraft. The final report of the working group is expected to be available in early 2006.

10.9 In the meantime, analyses and flight test data available to the group have raised concerns about horizontal and vertical wake turbulence spacing criteria for approach, landing, departure, and enroute operations of the A380 relative to other aircraft. Current data analyses indicate that A380 wake vortices will descend further and be significantly stronger at 300 m (1 000 ft) below the generation altitude than for other aircraft in the heavy wake turbulence category. On rare occasions, A380 wake vortices may descend 600 m (2 000 ft) and possibly pose a passenger comfort issue, but not a hazard. It is not clear at present what level of hazard A380 wake vortices pose at 300 m (1 000 ft) to other aircraft. Guidance is presented as follows:

1. Departure spacing:

- a) one additional minute to be added to all separations listed in *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444), paragraph 5.8, when an A380 is the leading aircraft;
- b) one additional minute to be added to the separation in PANS-ATM, paragraph 5.8.5.

2. Horizontal spacing:

- a) where both aircraft are established on final approach, 10 NM between an A380 and any other following aircraft;
- b) 15 NM minimum radar spacing for all other phases of flight, including enroute, between an A380 and all other aircraft operating directly behind at the same altitude or less than 300 m (1 000 ft) below. (*See also paragraph 3 below.*)

3. Vertical spacing:

Vertical spacing guidance will not be completed for several months. There are indications, however, from the initial analysis of data that wake vortex from an A380 may be encountered by aircraft flying 300 m (1 000 ft) below at greater strengths than from current aircraft of the heavy wake turbulence category. Because it has not yet been possible to establish the level of hazard associated with these wake vortices, offset tracks or additional vertical spacing is advised until the final vertical spacing guidance has been established.

10.10 States concerned may wish to further enquire with the State of Manufacture and/or the aircraft manufacturer for information on latest wake turbulence data in order to facilitate consideration of these issues.

Agenda Item 11: Date and venue for the next meeting

11.1 The meeting confirmed the dates for the ATFM/TF/5 meeting which would be held on 16 and 17 January, immediately prior to the BBACG/17 meeting on 18-20 January 2006.

11.2 In noting that the implementation of the operational trial was now scheduled for 16 March 2006, the meeting agreed that it was appropriate that a meeting of the ATFM/TF Core Team members be held during February to consider final arrangements and make the decision as to whether the trial proceeded on 16 March. Accordingly, the meeting agreed that the Go/No Go SCM would be held over 2 days on 20 & 21 February 2006.

11.3 A post implementation review of the ATFM operational trial was tentatively scheduled over 2 days on 4 & 5 April 2006, approximately two and a half weeks after the trial implementation.

12. **Closing of the meeting**

12.1 The Chairman, in closing the meeting, thanked the participants and their Administrations for their excellent support and contributions, as well as to the Asia/Pacific Regional Office for the arrangements and support provided which greatly contributed to the success of the meeting. The Chairman also thanked the representatives from IATA member airlines for their active participation and contributions to the BOBCAT Workshop activities.

ATFM/TF/4 & BOBCAT Workshop
Appendix A to the Report

LIST OF PARTICIPANTS

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
AUSTRALIA (1)		
Mr. Ron Rigney	ATM International Liaison Manager Airservices Australia Locked Bag 747 Eagle Farm QLD Australia 4009	Tel: +61 7 3866 3487 Fax: +61 7 3866 3402 Email: ron.rigney@airservicesaustralia.com
INDIA (2)		
Mr. Chandan Sen	Dy. General Manager [ATM] Airports Authority of India Rajiv Gandhi Bhavan Safdarjung Airport New Delhi 110003 India	Tel: +91 25110707 Fax: +91 25130134 E-mail: chandansen4@rediffmail.com
Mr. M. Sarangapani	Dy. General Manager (ATC), Chennai Airports Authority of India New ATS Complex Chennai Airport Chennai India	Tel: +91 44 22561538 Fax: +91 44 22340885 E-mail: sarankan@rediffmail.com
Mr. V. Somasundaram (<i>did not attend</i>)	General Manager [ATM] Airports Authority of India Rajiv Gandhi Bhavan Safdarjung Airport New Delhi 110003 India	Tel: +91 11 24652648 Fax: +91 11 24611078 E-mail: gmatmchqnad@aai.aero
INDONESIA (4)		
Mr. Wahyu Indragono	Deputy Director of ATS Directorate Aviation Safety Directorate General of Air Communications Jl. Medan Merdeka Barat No.8 Gedung Karya Lt.23 Jakarta, Indonesia	Tel: +62-21-3506617 Fax: +62-21-3507569 E-mail: atsindo@biz.net.id
Mr. Surachman	Deputy Director of ATS PT (Persero) Angkasa Pura I (ATS Provider) Kota Baru Bandar Kemayoran Blok B 12 Kav No. 2, Jakarta 10610 Indonesia	Tel: +62-21-654 1961 ext 2310 Fax: +62-21-654 1513 E-mail: surachman@angkasapura1.co.id
Mr. Gatot Haryanto	Assistant Manager Operation PT (PERSERO) ANGKASA PURA II Building 600, 3 rd Floor Bandara Soekarno-Hatta Cengkareng Indonesia	Tel: +62-21-550 6120 Fax: +62-21-550 6106 E-mail: gatot.haryanto@angkasapura2.co.id

ATFM/TF/4 & BOBCAT Workshop
Appendix A to the Report

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
Mr. Imron Pramana	Director PT. Elektrindomya Pakarnusa Jl. Soekarno-Hatta KM 13, 8 Lik-Unit-C8 Bandung 40613 Indonesia	Tel: 62-22-7801536 Fax: 62-22-7801690 E-mail: pramana@nusaweb.com
MALAYSIA (9)		
Mr. Richard Tan Hock Chye	Assistant Director of KL ATCC Air Traffic Control Centre Department of Civil Aviation Sultan Abdul Aziz Shah Airport 47200 Subang, Selangor Malaysia	Tel: 603-7847 3573 Fax: 603-7847 3572 E-mail: bmrich@hotmail.com
Mr. Kachat Din Mee	Deputy Director Air Traffic Control Centre Complex Department of Civil Aviation Sultan Abdul Aziz Shah Airport 47200 Subang Malaysia	Tel: 603-7847 3573 Fax: 603-7847 3572 E-mail: kachat@hotmail.com
Mr. Thivianathan Anthony Xavier	Deputy Director of KLIA TWR Air Traffic Control Complex Department of Civil Aviation 64000 KLIA Malaysia	Tel: 603-8787 4230 Fax: 603-8926 5989 E-mail: thivian@tm.net.my
Capt. Awtarjet Singh	Fleet Manager B747 Malaysia Airlines Flight Operations Division Ground Floor East Wing Flight Management Building 64000 Kuala Lumpur International Airport, Sepang Malaysia	Tel: (603) 87775308 Fax: (603) 87775313 E-mail: jets@mas.com.my sidcads@tm.net.my
Mr. Mohd Affendi Jaafar	Navigation Senior Officer Flight Operations Division Malaysia Airlines 2/F East Wing Flight Management Bldg 46000 KLIA Malaysia	Tel: 603-8777 5676 Fax: 603-8787 1244 E-mail: affendij@mas.com.my affendimuhammad@yahoo.com
Mr. Ahmad Zamani Bin Idrus (BOBCAT Workshop)	Flight Ops Executive Flight Operations Division Malaysia Airlines 2/F East Wing Flight Management Bldg 46000 KLIA Malaysia	Tel: 603-8787 1264 Fax: 603-8787 1244 E-mail: zamaniid@mas.com.my
Mr. Lai Nyit Sen	Ops Dispatch Executive Flight Operations Division Malaysia Airlines 2/F East Wing Flight Management Bldg 46000 KLIA Malaysia	Tel: 603-8787 1264 Fax: 603-8787 1244 E-mail: bryanlai@mas.com.my

ATFM/TF/4 & BOBCAT Workshop
Appendix A to the Report

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
Mr. Mohd Fazdil Abdullah (BOBCAT Workshop)	Wide-body Dispatcher Flight Operations Division Malaysia Airlines 2/F East Wing Flight Management Bldg 46000 KLIA Malaysia	Tel: 603-8787 1264 Fax: 603-8787 1244 E-mail: m.fazdil@yahoo.com
Mr. Faizal Amimi Muhamad (BOBCAT Workshop)	Etops Dispatcher Flight Operations Division Malaysia Airlines 2/F East Wing Flight Management Bldg 46000 KLIA Malaysia	Tel: 603-8787 1264 Fax: 603-8787 1244 E-mail: faizala@mas.com.my
MYANMAR (2)		
U Ohn Tin	Regional Air Traffic Control Officer Department of Civil Aviation Yangon International Airport Mingaladon 11021 Yangon, Myanmar	Tel: 951-663838 Fax: 951-665124 E-mail: ddats.dca@mot.gov.mm
U Tike Aung	Senior Air Traffic Control Officer Department of Civil Aviation Yangon International Airport Mingaladon 11021 Yangon, Myanmar	Tel: 951-663838 Fax: 951-665124 E-mail: ddats.dca@mot.gov.mm
SINGAPORE (2)		
Mr. Tai Kit	ATC Manager Civil Aviation Authority of Singapore Singapore Air Traffic Control Centre 60 Biggin Hill Road Singapore 509950	Tel: 65-6541 2668 Fax: 65-6545 6252 E-mail: tai_kit@caas.gov.sg
Mr. Edmund Heng Cher Sian	Project Officer (Airspace) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel: 65-6541 2457 Fax: 65-6545 6516 E-mail: Edmund_heng@caas.gov.sg
THAILAND (9)		
Mr. Weerawath Thaitakul	Chief of Air Traffic Control Airport Standards and Air Navigation Facilitating Division Department of Civil Aviation 71 Soi Ngarmduplee Rama IV Road Bangkok, 10120, Thailand	Tel: +66-2-286 8159 Fax: +66-2-286 8159
Mr. Choochart Mainoy	ATS Advisor Airport Standards and Air Navigation Facilitating Division Department of Civil Aviation 71 Soi Ngarmduplee Rama IV Road Bangkok, 10120, Thailand	Tel: +66-1-557 3357 Fax: +66-2-286 8159 E-mail: cmainoy@hotmail.com

ATFM/TF/4 & BOBCAT Workshop
Appendix A to the Report

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
Mr. Tinnagorn Choowong	Air Traffic Control Manager Enroute Air Traffic Management Department Aeronautical Radio of Thailand Ltd. 102 Ngarmduplee, Tungmahamek Sathorn, Bangkok 10120 Thailand	Tel: +66-2-285 9975 Fax: +66-2-287 8560 E-mail: tinnagorn.ch@aerorhai.co.th
Dr. Paisit Herabat	Executive Officer, Systems Engineering Air Traffic Services Planning Department Aeronautical Radio of Thailand Ltd. 102 Ngarmduplee, Tungmahamek Sathorn, Bangkok 10120 Thailand	Tel: +66-2-285 9191 Fax: +66-2-287 9716 E-mail: paisit@aerorhai.co.th
Mr. Piyawut Tantimekabut	Engineer, Air Traffic Services Engineering Research & Development Department Aeronautical Radio of Thailand Ltd. 102 Ngarmduplee, Tungmahamek Sathorn, Bangkok 10120 Thailand	Tel: +66-2-287 8616 Mobile: +66-9-169 5255 Fax: +66-2-287 8620 E-mail: piyawut.ta@aerorhai.co.th piyawut@gmail.com
Mr. John Richardson	Air Traffic Management Consultant Aeronautical Radio of Thailand Ltd. 102 Ngarmduplee, Tungmahamek Sathorn, Bangkok 10120 Thailand	Tel: +66-2-287 8488 Mobile: 66-01-8242467 E-mail: Jricho282@gmail.com
Ms. Saifon Obromsook	Systems Engineer, Air Traffic Service Planning Department Aeronautical Radio of Thailand Ltd. 102 Ngarmduplee, Tungmahamek Sathorn, Bangkok 10120 Thailand	Tel: +66-2-287 8291 E-mail: fon@aerorhai.co.th
Mr. Manoch Suesat	Senior Flight Operations Officer Operations Support Department Thai Airways International Public Company Limited Room 4214 Central Block Bangkok International Airport Bangkok 10210	Tel: +66-2-535 2450 Fax: +66-2-535 3814 E-mail: manoch.s@thaairways.com
Mr. Wajirawudh Wichienwan	Licensed Dispatcher Thai Airways International Public Company Limited BKKOW 4 th Floor Central Block Bangkok International Airport Bangkok 10210	Tel: +66-2-535 2979-83 Fax: +66-2-504 3803
UNITED STATES (1)		
Mr. Christopher S. Metts	Sr. FAA Representative Federal Aviation Administration U.S. Embassy – Tokyo 1-10-5 Akasaka, Minato-ku Tokyo 107-8420 Japan	Tel: 81-3-3224 5511 Fax: 81-3-3582 5974 E-mail: chris.metts@faa.gov

ATFM/TF/4 & BOBCAT Workshop
Appendix A to the Report

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
IATA (16)		
Mr. Soon Boon Hai	Assistant Director, Safety Operations & Infrastructure – Asia/Pacific International Air Transport Association 71 Robinson Road #05-00, SIA Building Singapore 068896	Tel: 65-6239 7267 Fax: 65-6536 6267 E-mail: soonbh@iata.org
Mr. Heikki Viitala	Manager, Operations Planning and Flight Support FINNAIR PLC/WL-62 01053 Finnair Finland	Tel: 358-9-818 5622 Fax: 358-9-818 6700 E-mail: heikki.viitala@finnair.com
Mr. Walter Dollman	Manager, Regulatory & Industry Affairs – Flight Operations QANTAS AIRWAYS QANTAS Centre Bldg. C/3 203 Coward Street MASCOT 2020 Australia	Tel: 61-2-9691 1195 Fax: 61-2-9691 1605 E-mail: wdollman@qantas.com.au
Mr. Graham Rennie	Manager Flight Dispatch QANTAS AIRWAYS QANTAS Centre Bldg. C/3 203 Coward Street MASCOT 2020 Australia	Tel: 61-2-9691 1157 Fax: 61-2-9691 1385 E-mail: grennie@qantas.com.au
Mr. Matthew Bouttell	Principal Navigation Analyst QANTAS AIRWAYS QANTAS Centre Bldg. C/2 203 Coward Street MASCOT 2020 Australia	Tel: 61-2-9691 1034 Fax: 61-2-9691 1118 E-mail: mbouttell@qantas.com.au
Capt. Aric Oh	Deputy Chief Pilot (Technical) Singapore Airlines Flight Operations Technical (SIN-STC 04-C) SIA Training Centre 04-C 720 Upper Changi Road East Singapore 486852	Tel: +65-6540 3694 Fax: +65-6542 9564 E-mail: aric_oh@singaporeair.com.sg
Mr. Giram Singh Sandhu	Manager, Flight Operations Control Center Singapore Airlines SIN T2 01A Airmail Transit Centre P.O. Box 501 Singapore 918101	Tel: +65-654 1452 Fax: +65-653 0760 E-mail: S_Giram@singaporeair.com.sg
Mr. Andreas Trost	Senior Dispatcher Austrian NAV-Office AUA Flight Operations Building A-1300 Vienna/Airport Austria	Tel: +43 1 7007 68012 Fax: +43 5 1766-5-68012 E-mail: Andreas.Trost@aua.com

ATFM/TF/4 & BOBCAT Workshop
Appendix A to the Report

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
Mr. Owen Dell	Manager, International Operations Cathay Pacific Airways Limited International Affairs Department 9/F Central Tower, Cathay Pacific City 8 Scenic Road Hong Kong International Airport Lantau, Hong Kong, China	Tel: +852 2747 8829 Fax: +852 2141 8829 E-mail: owen_dell@cathaypacific.com
Mr. Robert J. Wong (BOBCAT Workshop)	Manager, Flight Dispatch Asia/Mid-East Lufthansa German Airlines Department, HKG OZ/O Hong Kong International Airport Hong Kong, China	Tel: +852-2769 6650 Fax: +852-2351 6075 E-mail: Robert.Wong@dlh.de
Mr. Yu Kuo Rei (BOBCAT Workshop)	Manager, Flight Despatch Flight Control Department EVA Airways Corporation 9 th Fl., 376 Hsin-nan Road Sec 1, Luchu Taoyuan Hsien 338 Chinese Taipei	Tel: +886 3 351 6362 Fax: +886 3 351 0024 E-mail: kuoreiyu@evaair.com
Mr. Henk Arends (BOBCAT Workshop)	ATM Operational Planning & Flight Support (SPL/OL) KLM Royal Dutch Airlines Department SPL/OL P.O. Box 7700 1117 ZL Schiphol Airport The Netherlands	Tel: +31-20-304 2521 Fax: +31-20-304 2529 E-mail: henk.arends@klm.com
Mr. Danny Cheung Po Keung (BOBCAT Workshop)	AM Flight Despatch Cathay Pacific Airways G/F, South Tower Cathay Pacific City 8 Scenic Road Hong Kong International Airport Lantau Island Hong Kong, China	Tel: 852-2747 2520 Fax: 852-2141 2521 E-mail: fopcpk@cathaypacific.com
Mr. Jimmy Cheung Chung Hing (BOBCAT Workshop)	Despatch Coordinator Cathay Pacific Airways G/F, South Tower Cathay Pacific City 8 Scenic Road Hong Kong International Airport Lantau Island Hong Kong, China	Tel: 852-2747 3626 Fax: 852-2215 2240 E-mail: fopchc@cathaypacific.com
Group Capt. Paramjit Singh (BOBCAT Workshop)	Instructor Tech & Training AIR INDIA Training Division Operations Department Old Airport, Santa Cruz East Mumbai 4000029 India	Tel: 022-2626 3828 Fax: 022-2615 7038 E-mail: paramjit_ahluwalia@rediffmail.com

ATFM/TF/4 & BOBCAT Workshop
Appendix A to the Report

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
Ms. Andrea G. Morgan (BOBCAT Workshop)	Dispatch Co-ordinator Flight Tech Dispatch British Airways Compass Centre (S725) P.O. Box 10 Heathrow Airport Hounslow Middlesex TW6 2JA United Kingdom	Tel: +44 (0) 20 8513 0455 Fax: +44 (0) 20 8513 0463 E-mail: andrea.g.morgan@britishairways.com
ICAO		
Mr. Andrew Tiede	Regional Officer, ATM ICAO Asia & Pacific Office P.O.Box 11 Samyaek Ladprao Bangkok – 10901 Thailand	Tel: 66-2-5378189 ext 152 Fax: 66-2-5378199 E-mail: atiede@bangkok.icao.int
Mr. Polawat Chootai	Regional Officer, ATM ICAO Asia & Pacific Office P.O.Box 11 Samyaek Ladprao Bangkok – 10901 Thailand	Tel: 66-2-5378189 ext 151 Fax: 66-2-5378199 E-mail: pchootai@bangkok.icao.int

LIST OF WORKING PAPERS (WPs) AND INFORMATION PAPERS (IPs)

WORKING PAPERS

NUMBER	AGENDA	TITLE	PRESENTED BY
WP/1	1	Provisional Agenda	Secretariat
WP/2	3	Thailand Report on Paper Trials	Thailand
WP/3	6	BOBCAT Development – Wheels Up Time (WUT) and Buffer	Thailand
WP/4	3	19 October Paper Trials Maximum Acceptable Delay (MAD) Factor	Thailand
WP/5	6	BOBCAT Development – Intermediate Gateways	Thailand
WP/6	6	BOBCAT Development – Cut-off Time	Thailand
WP/7	4	ATFM Operational Handbook	Thailand
WP/8	5	Safety Assessment for Operational Trial of BOBCAT	Secretariat
WP/9	8	ATFM/TF Task List	Secretariat
WP/10	2	Air Traffic Flow Management Task Force – Review of Terms of Reference	Secretariat
WP/11	6	Update on BOBCAT Development	Thailand
WP/12	6	Time Period for BOBCAT Operations	Thailand
WP/13	6	Alternative Solution for Aircraft Missing BOBCAT Wheels Up Time Plus Buffer	Thailand
WP/14	6	Review of AIP Supplement	Singapore
WP/15	3	User Requirements for ATFM System	IATA

INFORMATION PAPERS

NUMBER	AGENDA	TITLE	PRESENTED BY
IP/1	-	List of Working Papers (WPs) and Information Papers (IPs)	Secretariat
IP/2	10	Draft Document 9859 – ICAO Safety Management Manual	Secretariat

.....

**Terms of Reference for the Air Traffic Flow Management Task Force for the
Bay of Bengal and South Asia region (ATFM/TF)**

The Air Traffic Flow Management Task Force (ATFM/TF) will report via the BBACG to the ATM/AIS/SAR Sub Group of APANPIRG.

Objectives:

The objectives of the ATFM/TF are to:

1. To enhance and facilitate the orderly and efficient flow of air traffic across the Bay of Bengal and South Asia;
2. To minimize ground and enroute delays;
3. To maximize capacity and optimize the flow of air traffic within the area;
4. To plan for and manage future ATS workload in the light of forecast increased traffic flow within the area; and
5. To assess the economic and environmental impact of the implementation of the ATFM system.

Implementation Programme

To meet these objectives the ATFM/TF shall adopt a phased implementation programme as per the following:

Phase One: Flights planning to transit the Kabul FIR

Phase Two: Other international flights crossing the Bay of Bengal and/or South and South East Asia areas

Phase Three: Future planning for increased traffic within the Bay of Bengal and South and South East Asia areas

(Note: For the purposes of the ATFM/TF, South Asia includes India, Nepal, Pakistan and Sri Lanka).

AEROTHAI SUMMARY OF DISCUSSIONS

In relation to the Demonstration of BOBCAT capabilities by Paper Trials

(AEROTHAI premises, Bangkok, Thailand, 5 – 7 October 2005)

1. Background to Meeting:

1.1. At a Special Coordination Meeting of the ATFM/TF Project Management Team (SCM ATFM/TF PMT), held at the Singapore Aviation Academy on 10 – 11 August 2005, it was agreed that the capabilities of BOBCAT should be demonstrated via a series of desktop or paper trial simulations prior to the commencement of Operational Trials scheduled to take place on 22 December 2005.

1.2. A meeting to demonstrate the BOBCAT system by way of Paper Trials was arranged and took place at the AEROTHAI premises in Bangkok on 5 – 7 October 2005.

2. Participants:

2.1 The Paper Trial was attended by 24 participants from Malaysia, Singapore, Thailand and IATA. A complete list of participants is at **Appendix 1** to this Report.

3. Opening Remarks

3.1 Mr. Nopadol Sang-ngurn, Executive Expert with AEROTHAI welcomed all participants to Bangkok and in particular to AEROTHAI. He advised the meeting that AEROTHAI welcomed the challenge given to them in taking a major role to solve the growing issues faced by States of the Bay of Bengal area and westwards as well as the international airline community.

3.2 He assured the meeting that Thailand would play their part in the development of a robust and efficient BOBCAT system to cater for the ever increasing air traffic which is expected to fly across this portion of Asian airspace. He noted that this particular phase of the project looked at westbound aircraft transiting through the Kabul FIR during the busy night-time period and required the attention of all States concerned as well as the airlines to work in a cooperative manner. He wished the meeting every success in the paper trial demonstrations which would be a key factor in moving towards an Operational Trial of the system.

4. Discussion:

4.1 At the beginning of the Paper Trial meeting, Thailand advised that unfortunately, some of the important data requested to input to the computer had arrived very late which had in turn made it difficult to give a full assessment of the system. In addition, due to the time taken to input this data in the correct format and the necessity to add additional information to give it some semblance of uniformity with data which had been received by other concerned States, human errors were made during this process.

Day 1 proceedings

4.2 The initial paper trial on Day 1 was less than satisfactory due to the following:

- a) Some essential data was not received in sufficient time for processing; the first paper trial used only a single slot allocation for each aircraft coupled with a Maximum Acceptable Delay (MAD) of 90 minutes;
- b) To make up data across the whole route segment from departure point to the exit from Kabul FIR, manual calculations were made which, in some cases were incorrectly entered;
- c) The computer system had some “bugs” which were later eliminated;

4.3 At the conclusion of Day 1, further data was added to the programme which took into consideration one slot selection for each aircraft plus two alternative choices using a combination of different flight levels of routes.

Day 2 proceedings

4.4 Several paper trials were conducted on Day 2 using a variety of MAD factors ranging from 10 minutes to ninety minutes throughout each trial. It became obvious during the morning session that incorrect data earlier inputted was still causing unrealistic results.

4.5 Assistance was given by some of the airlines present. They provided realistic data to the system by going into their companies flight planning system and retrieving proven data. This took some time however, by the afternoon session, the programme performed more efficiently notwithstanding that another “bug” was found. At the conclusion of day two, the whole BOBCAT system was thoroughly checked, all “bugs” were eliminated and further paper trials in the evening conducted by AEROTHAI staff showed that BOBCAT was an effective tool to be trialled for Day 3 exercises.

Day 3 proceedings

4.6 Several paper trials were successfully conducted using various scenarios of routes/flight levels and MAD factor. These included Paper Trials using intermediate gateways (where several routes converge) as well as other trials where intermediate gateways were not included. Appendix B contains a sample of records conducted at these paper trials on Day 3.

4.7 The meeting noted that, although the overall delay to aircraft was lower with no intermediate gateways, there was a bunching of aircraft at the same levels with less than the required separation at the two intermediate gateways of Lucknow (LLK) and Khajuraho (KKJ). As India would need to take action to ensure that the correct separation standard was applied this would likely have a delay effect on the entry time into the Kabul FIR for the aircraft concerned which, as a result, could consequently flow onto following aircraft.

5. **Observations from the Paper Trial**

5.1 During discussions following the Paper Trials, the following observations were noted:

Wheels Up Time (WUT) Calculations

- a) There appears to be two different thoughts regarding who will make the decision on WUT. It could be assumed that WUT may differ from one airport to the next, depending on the position of aircraft gates in relation to the runway in use

Should the operators be allowed to calculate their own WUT or, due to the variables mentioned above, perhaps ATC is in a better position to do these calculations more accurately?

Whereas an airline whose home base is the airport of departure would prefer to estimate WUT based on their local knowledge, there may be other airlines that are not as environmentally familiar with the departure airport and would prefer to rely on the air traffic service provider estimate from terminal gate to entering the runway to departure. This matter should be discussed and finalized at ATFM/TF/4

WUT Buffer

- b) There was considerable discussion on this subject. Should the buffer be 2, 5 or 10 minutes? What will happen if the slot time is missed? How much delay would ATC allow?

In addition to these questions, an alternative was proposed regarding the method of calculating the WUT buffer. At present the concept of applying a 5 minute buffer to cater for short delays, be added onto the required spacing on departure has been discussed at several ATFM/TF meetings. In order to allow closer spacing between aircraft entering Kabul FIR (10 minutes no closing speed), it was suggested that this buffer could be included in the push back/taxi time calculations.

The meeting was reminded that the buffer is there to allow some flexibility for the aircraft, as well as ATC so that the WUT can be achieved without having to request another Slot time. Due to many variables during this early stage of the flight such as technical problems late passenger loadings etc, it would be reasonable to predict that many aircraft would miss their WUT if this buffer was not there. It was suggested that further discussions on these questions should be held and finalized at ATFM/TF/4.

MAD Factor

- d) Airlines appeared uncertain in how to manage their MAD factor calculations. Thailand has given an undertaking at ATFM/TF/4 to explain in more detail the management of MAD factor to assist airlines when making their slot allocation requests.

Further Paper Trials

- e) It was the view of the meeting that further paper trials should be demonstrated prior to Task Force 4. In this regard, airlines present suggested that all airlines concerned should be asked to input to this data collection by the use of a excel template which would be developed by Thailand and relayed to IATA, to send to airlines concerned. Airlines would then submit there slot allocation request as well as at least two alternative options on the template based on real flight plan data on their flights of 19 October 2005. The results of these additional trials would be sent to IATA for distribution as well as produced for discussion at ATFM/TF/4.

Westbound aircraft landing in India/Pakistan or tracking via northern India to Iran

- f) Considerable discussions centred on aircraft proceeding westwards and landing at airports in Northern India or Pakistan. Presently they are included within the BOBCAT system as they use the same BOBCAT routes for part of their flight either over the Bay of Bengal or over the Indian sub-continent. This is also the case regarding aircraft proceeding through Northern India and Pakistan to points westwards through Tehran FIR.

The question was asked as to why should these aircraft be included in BOBCAT rather than being tactically managed by India. There was no consensus on this issue therefore the meeting agreed to revisit this question at ATFM/TF/4.

Dispatcher HMI interface with BOBCAT

- g) Dispatchers present at the Paper Trials were keen to see their interface display with the ATFMU as soon as possible. They were advised that a prototype display with the ability for dispatchers to input data is expected to be available at the proposed Workshop which will be held during the course of ATFM/TF/4.

Intermediate Gateways in Indian Airspace

- h) There was some discussion on whether there was a need for intermediate gateways at Lucknow (LLK) and Khajuraho (KKJ). The meeting was advised that the reason to include these gateways was at the request of Airports Authority (AAI) of India due to the bunching of aircraft from different departure locations and using converging routes which either joined at these points or came together just prior to these positions at the same flight level. Any tactical measures taken by AAI to overcome this issue, coupled with less flight levels available through Kabul FIR (CVSM levels only), could jeopardize a slot time into the Kabul FIR to one of the affected aircraft. The meeting agreed to revisit this question at ATFM/TF/4.

6. **Summary**

6.1 It was regrettable that there were some difficulties encountered during the first day and a half of the Paper Trials due to issues described in previous paras. Nevertheless, the Trials finished on a very positive note with all concerned willing to contribute to further testing of BOBCAT during the lead-up to the ATFM/TF/4 meeting. There was general consensus that there would be considerable merit in attending the Dispatchers and Air Traffic Service providers Workshop which will be held with the ATFM/TF/4 meeting. Thailand took an undertaking to give a thorough briefing on the role of BOBCAT to the workshop, including a descriptive and manageable interface to the system for dispatchers to personally interact with during the workshop.

BOBCAT Paper Trial – AEROTHAI Premises, 5-7 October 2005

LIST OF PARTICIPANTS

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
MALAYSIA		
Mr. Lim Kim Seang	Director of KL ATCC DCA Malaysia ATC Centre Complex 47200 Subang Malaysia	Tel : +603 7846 5233 Fax : + 603 7845 6590 E-mail : limks@atsdca@gov.my
Mr. Tay Swee Boon	Deputy Director of KL ATCC DCA Malaysia ATC Centre Complex 47200 Subang Malaysia	Tel : +603 7847 3573 Fax : + 603 7847 3572 E-mail : taysboon@tm.net.my
SINGAPORE		
Mr. Kuah Kong Beng	Chief Air Traffic Control Officer Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel : +65-6541 2405 Fax : +65-6545 6516 E-mail: kuah_kong_beng@caas.gov.sg
Mr. Heng Cher Sian Edmund	Project Officer (Airspace) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel : +65-6541 2457 Fax : +65-6545 6516 E-mail: edmund_heng@caas.gov.sg
THAILAND		
Mr. Kamol Pulperm	Senior Air Transport Technical Officer Department of Civil Aviation Thailand 71 Ngarmduplee Rama 4 Rd., Bangkok 10120 Thailand	Tel : +66 2 286 8159 Fax : +66 2 286 8159 E-mail : kamol_pulperm@yahoo.com
Flying Officer Nakorn Yoonpand	Air Traffic Control Expert Department of Civil Aviation Thailand 71 Ngarmduplee Rama 4 Rd., Bangkok 10120 Thailand	Tel : +66 09 824 6955
Mr. Nopadol Sang-Ngurn	Executive Expert AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9054 Fax : +66 2 285 9488 E-mail : nopadol@aerothai.co.th

ATFM/TF/14 & BOBCAT Workshop
Appendix E to the Report

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
Mr. Tinnagorn Choowang	Air Traffic Control Manager En-route Air Traffic Management Department AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9975 Mobile : +66 09 816 6486 Fax : +66 2 285 9077 E-mail : tinnagorn.ch@aerorhai.co.th
Mr. Polawat Chootai	Air Traffic Control Manager AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 06 526 6865 Fax : +66 2 287 8155 E-mail : polawat.ch@aerorhai.co.th polawatch@gmail.com
Ms. Pongchawee Jinruang	En-route Air Traffic Control Manager AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9063 Mobile : +66 01 846 9054 Fax : +66 2 285 9490 E-mail : pongchawee.ji@aerorhai.co.th
Mr. Jirasak Netiprawat	Air Traffic Control Manager AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9469 Fax : +66 2 285 9490 E-mail : jirasak.ne@aerorhai.co.th
Mrs. Porntip Choowong	Air Traffic Control Manager AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9339 + 66 2 285 9111 Fax : +66 2 285 9077 E-mail : porntip.kr@aerorhai.co.th
Mr. Amornthep Sriwong	Air Traffic Control Manager AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9111 Fax : +66 2 285 9077 E-mail : amornthep.sr@aerorhai.co.th
Mr. Piyawut Tantimekabut	Engineer Air Traffic Services Engineering Research & Development Department Aeronautical Radio of Thailand Ltd. 102 Ngarmduplee, Tungmahamek Sathorn, Bangkok 10120 Thailand	Tel : +66-2-287 8616 Fax : +66-2-287 8620 E-mail : piyawut@aerorhai.co.th
Mr. John Richardson	ATM Consultant Aeronautical Radio of Thailand Ltd. 102 Ngarmduplee, Tungmahamek Sathorn, Bangkok 10120 Thailand	Tel : +662 287 8488 Fax : +662 285 9488 Mobile: +66-01-8242467 E-mail : jrcho282@gmail.com

ATFM/TF/14 & BOBCAT Workshop
Appendix E to the Report

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
IATA		
Mr. Soon Boon Hai	Assistant Director, Safety Operations & Infrastructure Asia/Pacific International Air Transport Association 77 Robinson Road #05-00, SIA Building Singapore 068896	Tel : +65-6239 7267 Fax : +65-6536 6267 E-mail : soonbh@iata.org
Mr. Matt Bouttell	Principal Navigation Analyst Qantas Airways Ltd. Qcc/2 203 Coward St., Mascot NSW, Australia 2020	Tel : +612 9691 1034 Fax : +612 9691 1118 E-mail: mbouttel@qantas.com.au
Mr. Michael Dietz	General Manager ATS & International Organisations Lufthansa German Airlines Dept. FRA OY-A Lufthansa Base D-60546 Frankfurt / Main Germany	Tel : +49 69 696 2217 Fax : +49 69 696 7070 E-mail : Michael.dietz@dlh.de
Mr. Danny Cheung Po Keung	Assistant Manager Flight Despatch Cathay Pacific Airways Ltd. Flight Operations Department G/F., South Tower, Cathay Pacific City 8 Scenic Road, Hong Kong International Airport Lantau Island, Hong Kong	Tel : +852 2747 2520 Fax : +852 2141 2521 E-mail : danny_cheung@cathaypacific.com
Mr. Julian K. Y. Fung	Assistant Manager Route Development Cathay Pacific Airways Ltd. International Affairs Department 9/F., Central Tower, Cathay Pacific City 8 Scenic Road, Hong Kong International Airport Lantau Island, Hong Kong	Tel : +852-2747 3818 Fax : +852-2141 3818 E-mail: julian_fung@cathaypacific.com
Mr. Giram Singh	Manager Flight Operations Control Centre Singapore SIA Airmail Transit Centre P.O. BOX 501 Singapore 91801	Tel : +65-9619 2916 Fax : +65-6543 0760 E-mail: s_giram@singaporeair.com.sg
Mr. Sim Cher Seng	Supervisor (FLT OPS Control Centre) Singapore SIA Airmail Transit Centre P.O. BOX 501 Singapore 91801 Singapore Changi Airport Singapore 819643	Tel : +65-6540 3134 Fax : +65-6543 0760 E-mail: cherseng@singaporeair.com.sg

ATFM/TF/14 & BOBCAT Workshop
Appendix E to the Report

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
Capt. Peerasak Nopananchai	Deputy Department Manager International Aviation Affairs & Development Thai Airways International Public Co., Ltd., 89 Vibhavadi Rangsit Road, Bangkok 10900 Thailand	Tel : +66 2 545 2665 Fax : +66 2 545 3849 E-mail : peerasak.n@thaiairways.com
Mr. Manoch Suesat	Head, Europe Operations Control Center Thai Airways International Public Co., Ltd., Room 225-226 East Wing, Terminal 3, London Heathrow Airport TW61LX, United Kingdom	Tel : +44 (0) 208 745 6590 Fax : +44 (0) 208 564 9854 E-mail : LHROPG@aol.com

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AC055	VIDP	CYYZ	A343	0.82	20	18:00	18:20	0:00	18:20									DI	1:00	19:20	310	AMDAR	1:30	19:50	310
19-Oct-2005	AFR147	VIDP	LFPG	A343	0.82	20	19:05	19:25	0:00	19:25									DI	1:03	20:28	350	LEMOD	2:02	21:27	350
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	20	16:05	16:25	0:15	16:40	LIMLA	0:28	17:08	300	LLK	2:55	19:35	320	DI	4:19	20:59	350	LEMOD	5:18	21:58	350
19-Oct-2005	AFR257	WSSS	LFPG	B773	0.84	20	15:20	15:40	0:16	15:56	IKULA	1:27	17:23	280	LLK	4:13	20:09	320	DI	5:34	21:30	310	LEMOD	6:28	22:24	310
19-Oct-2005	AUA2	WMKK	LOWW	B772	0.84	0	16:35	16:50	0:00	16:50	TAVUN	1:10	18:00	340	KKJ	3:49	20:39	360	DI	5:19	22:09	310	LEMOD	6:14	23:04	310
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	0	16:30	16:45	0:00	16:45	BETNO	0:25	17:10	300	KKJ	2:55	19:40	320	ROSIE	4:43	21:28	310	RANAH	5:36	22:21	310
19-Oct-2005	CLX793	VTBD	UBBB	B744	0.85	20	20:30	20:45	0:00	20:45	LIMLA	0:23	21:08	300	LLK	2:44	23:29	320	DI	4:07	0:52	350	LEMOD	5:06	1:51	350
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	20	13:40	14:00	0:00	14:00					LLK	4:16	18:16	340								
19-Oct-2005	CPA293	VHHH	LIRF	A343	0.82	20	15:55	16:15	0:00	16:15					LLK	4:25	20:40	340	ROSIE	6:09	22:24	350	RANAH	7:03	23:18	350
19-Oct-2005	CPA753	VHHH	VIDP	A330	0.82	20	15:35	15:55	0:00	15:55					LLK	4:31	20:26	380								
19-Oct-2005	DLH761	VIDP	EDDF	B744	0.83	25	20:55	21:19	0:06	21:25								DI	0:59	22:24	310	LEMOD	1:55	23:20	310	
19-Oct-2005	DLH777	WSSS	EDDF	B744	0.84	15	17:05	17:30	0:00	17:30	TAVUN	1:30	19:00	320	KKJ	4:04	21:34	320	ROSIE	5:41	23:11	310	RANAH	6:32	0:02	310
19-Oct-2005	DLH779	VTBD	EDDF	B744	0.86	15	18:55	19:17	0:00	19:17	LIMLA	0:24	19:41	320	LLK	2:45	22:02	320	DI	4:04	23:21	350	LEMOD	5:00	0:17	350
19-Oct-2005	DLH783	VTBD	EDDM	A343	0.8	20	18:10	18:34	0:18	18:52	BETNO	0:28	19:20	300	LLK	3:00	21:52	340	DI	4:24	23:16	310	LEMOD	5:22	0:14	310
19-Oct-2005	DLH789	ZGGG	EDDF	A346	0.82	30	17:30	17:53	0:10	18:03					LLK	4:14	22:17	320	DI	5:37	23:40	310	LEMOD	6:34	0:37	310
19-Oct-2005	EVA61	VTBD	LOWW	A330	0.82	20	16:15	16:35	0:18	16:53	BETNO	0:26	17:19	320	LLK	2:56	19:49	340	DI	4:21	21:14	350	LEMOD	5:20	22:13	350
19-Oct-2005	KLM804	RPLL	EHAM	B772	0.835	9	13:35	13:48	0:00	13:48					LLK	5:04	18:52	320	DI	6:26	20:14	310	LEMOD	7:22	21:10	310
19-Oct-2005	KLM810	WMKK	EHAM	B744	0.85	2	15:10	15:21	0:00	15:21	TAVUN	1:05	16:26	280	KKJ	3:39	19:00	320	ROSIE	5:14	20:35	310	RANAH	6:03	21:24	310
19-Oct-2005	KLM872	VIDP	EHAM	M11	0.822	5	19:20	19:37	0:00	19:37								ROSIE	1:15	20:52	310	RANAH	2:03	21:40	310	
19-Oct-2005	KLM878	VTBD	EHAM	B744	0.85	7	16:05	16:20	0:05	16:25	LIMLA	0:26	16:51	300	LLK	2:46	19:11	300	DI	4:06	20:31	310	LEMOD	5:00	21:25	310
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	20	15:50	16:10	0:02	16:12	TAVUN	1:07	17:19	320	KKJ	3:41	19:53	340	ROSIE	5:19	21:31	350	RANAH	6:10	22:22	350
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	40	15:50	16:10	0:19	16:29	TAVUN	0:35	17:04	320	KKJ	3:41	20:10	320	ROSIE	5:25	21:54	350	RANAH	6:15	22:44	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	40	15:59	16:19	0:36	16:55	VPL	0:34	17:29	280				ASLUM	5:29	22:24	310	CHARN	6:19	23:14	310	
19-Oct-2005	QFA1	VTBD	EGLL	B744	0.85	19	17:25	17:35	0:16	17:51	LIMLA	0:22	18:13	320	LLK	2:46	20:37	320	DI	4:08	21:59	350	LEMOD	5:03	22:54	350
19-Oct-2005	QFA5	WSSS	EDDF	B744	0.85	19	15:00	15:20	0:00	15:20	TAVUN	1:26	16:46	320	KKJ	4:00	19:20	340	ROSIE	5:36	20:56	350	RANAH	6:26	21:46	350
19-Oct-2005	RBA33	VTBD	EDDF	B763	0.80	20	13:40	13:50	0:00	13:50	LIMLA	0:26	14:16	280	LLK	2:56	16:46	300	DI	4:24	18:14	310	LEMOD	5:22	19:12	310
19-Oct-2005	SIA026	WSSS	EDDF	B744	0.85	10	15:50	16:10	0:05	16:15	VPL	0:56	17:11	280				ASLUM	5:50	22:05	350	CHARN	6:42	22:57	350	
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	10	15:20	15:40	0:00	15:40	IKULA	1:26	17:06	280	LLK	4:13	19:53	320	DI	5:33	21:13	310	LEMOD	6:29	22:09	310
19-Oct-2005	SIA324	WSSS	EHAM	B772	0.83	10	15:45	16:05	0:00	16:05	VPL	0:58	17:03	320				ASLUM	6:01	22:06	390	CHARN	6:56	23:01	390	
19-Oct-2005	SIA334	WSSS	LFPG	B744	0.85	10	15:40	16:00	0:00	16:00	VPL	0:56	16:56	280				ASLUM	5:50	21:50	350	CHARN	6:42	22:42	350	
19-Oct-2005	SIA352	WSSS	ECKH	B772	0.83	20	17:00	17:20	0:20	17:40	IKULA	1:29	19:09	340	LLK	4:27	22:07	340	ROSIE	6:10	23:50	350	RANAH	7:03	0:43	350
19-Oct-2005	THA910	VTBD	EGLL	B744	0.86	20	18:10	18:30	0:04	18:34	LIMLA	0:23	18:57	320	LLK	2:48	21:22	340	DI	4:13	22:47	350	AMDAR	5:10	23:44	350
19-Oct-2005	THA920	VTBD	EDDF	B744	0.86	20	16:45	17:05	0:11	17:16	LIMLA	0:23	17:39	320	LLK	2:48	20:04	340	DI	4:13	21:29	350	AMDAR	5:10	22:26	350
19-Oct-2005	THA930	VTBD	LFPG	B744	0.86	20	17:05	17:25	0:06	17:31	LIMLA	0:23	17:54	320	LLK	2:48	20:19	340	DI	4:13	21:44	350	AMDAR	5:10	22:41	350
19-Oct-2005	THA944	VTBD	LIRF	B743	0.84	40	17:20	17:40	0:00	17:40	BETNO	0:22	18:02	300	KKJ	2:46	20:26	320	ROSIE	4:22	22:02	310	RANAH	5:13	22:53	310
19-Oct-2005	THA960	VTBD	ESSA	B744	0.86	20	18:10	18:30	0:19	18:49	LIMLA	0:23	19:12	320	LLK	2:48	21:37	340	DI	4:13	23:02	350	AMDAR	5:10	23:59	350
19-Oct-2005	THA970	VTBD	LSZH	A346	0.82	20	17:30	17:50	0:15	18:05	LIMLA	0:25	18:30	320	LLK	2:59	21:04	340	DI	4:27	22:32	350	LEMOD	5:25	23:30	350

Not Allocated Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	10	20:20	20:35		20:35									DI	1:05	21:40	350	LEMOD	2:06	22:41	350
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	0	20:20	20:35		20:35									ROSIE	1:21	21:56	350	RANAH	2:17	22:52	390
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	1	17:20	17:36		17:36	LIMLA	0:24	18:00	320	LLK	2:49	20:25	320	DI	4:12	21:48	350	AMDAR	5:02	22:38	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	0	17:20	17:34		17:34	BETNO	0:24	17:58	320	LLK	2:50	20:24	320	DI	4:13	21:47	350	AMDAR	5:03	22:37	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	5	17:20	17:40		17:40	LIMLA	0:24	18:04	280	LLK	2:46	20:26	280	DI	4:08	21:48	350	AMDAR	4:57	22:37	350
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	2	14:55	15:07		15:07	IKULA	1:20	16:27	280	LLK	4:07	19:14	320	DI	5:27	20:34	310	LEMOD	6:22	21:29	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	6	14:55	15:07		15:07	TAVUN	1:05	16:12	280	KKJ	3:59	19:06	320	ROSIE	5:34	20:41	310	RANAH	6:23	21:30	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	3	14:55	15:07		15:07	TAVUN	1:05	16:12	280	KKJ	3:59	19:06	320	DI	5:27	20:34	310	AMDAR	6:14	21:21	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	10	15:59	16:19		16:19	TAVUN	1:08	17:27	280	KKJ	3:41	20:00	320	ROSIE	5:18	21:37	310	RANAH	6:18	22:37	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	15	15:59	16:19		16:19	VPL	0:35	16:54	320					ASLUM	5:29	21:48	350	CHARN	6:19	22:38	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	19	14:55	15:15		15:15	TAVUN	1:26	16:41	320	KKJ	4:00	19:15	340	DI	5:30	20:45	350	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	19	14:55	15:15		15:15	TAVUN	1:25	16:40	320	KKJ	3:58	19:13	320	DI	5:29	20:44	310	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.82	19	14:55	15:15		15:15	TAVUN	1:26	16:41	280	KKJ	4:01	19:16	320	DI	5:32	20:47	350	LEMOD	6:30	21:45	350
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	15	17:20	17:35		17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	DI	4:17	21:52	310	AMDAR	5:06	22:41	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	15	17:20	17:35		17:35	LIMLA	0:28	18:03	300	LLK	2:54	20:29	320	DI	4:18	21:53	310	LEMOD	5:14	22:49	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	0	17:20	17:35		17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	ROSIE	4:43	22:18	350	RANAH	5:35	23:10	350
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	10	15:45	16:05		16:05	IKULA	1:26	17:31	320	LLK	4:09	20:14	320	DI	5:30	21:35	310	LEMOD	6:26	22:31	310
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	20	15:45	16:05		16:05	VPL	0:56	17:01	280					ASLUM	5:50	21:55	350	CHARN	6:42	22:47	350
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	30	15:45	16:05		16:05	IKULA	1:26	17:31	280	LLK	4:08	20:13	320	ROSIE	5:47	21:52	310	RANAH	6:37	22:42	310
19-Oct-2005	THA950	VTBD	EKCH	B744	0.86	20	18:20	18:40		18:40	BETNO	0:23	19:03	320	LLK	2:48	21:28	340	DI	4:10	22:50	350	AMDAR	4:58	23:38	350

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AC055	VIDP	CYYZ	A343	0.82	20	18:00	18:20	0:00	18:20									DI	1:00	19:20	310	AMDAR	1:30	19:50	310
19-Oct-2005	AFR147	VIDP	LFPG	A343	0.82	20	19:05	19:25	0:00	19:25									DI	1:03	20:28	350	LEMOD	2:02	21:27	350
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	20	16:05	16:25	0:15	16:40	LIMLA	0:28	17:08	300	LLK	2:55	19:35	320	DI	4:19	20:59	350	LEMOD	5:18	21:58	350
19-Oct-2005	AFR257	WSSS	LFPG	B773	0.84	20	15:20	15:40	0:16	15:56	IKULA	1:27	17:23	280	LLK	4:13	20:09	320	DI	5:34	21:30	310	LEMOD	6:28	22:24	310
19-Oct-2005	AUA2	WMKK	LOWW	B772	0.84	0	16:35	16:50	0:00	16:50	TAVUN	1:10	18:00	340	KKJ	3:49	20:39	360	DI	5:19	22:09	310	LEMOD	6:14	23:04	310
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	0	20:20	20:35	0:00	20:35									ROSIE	1:21	21:56	350	RANAH	2:17	22:52	390
19-Oct-2005	CLX793	VTBD	UBBB	B744	0.85	20	20:30	20:45	0:00	20:45	LIMLA	0:23	21:08	300	LLK	2:44	23:29	320	DI	4:07	0:52	350	LEMOD	5:06	1:51	350
19-Oct-2005	CPA293	VHHH	LIRF	A343	0.82	20	15:55	16:15	0:00	16:15					LLK	4:25	20:40	340	ROSIE	6:09	22:24	350	RANAH	7:03	23:18	350
19-Oct-2005	DLH761	VIDP	EDDF	B744	0.83	25	20:55	21:19	0:06	21:25									DI	0:59	22:24	310	LEMOD	1:55	23:20	310
19-Oct-2005	DLH777	WSSS	EDDF	B744	0.84	15	17:05	17:30	0:00	17:30	TAVUN	1:30	19:00	320	KKJ	4:04	21:34	320	ROSIE	5:41	23:11	310	RANAH	6:32	0:02	310
19-Oct-2005	DLH779	VTBD	EDDF	B744	0.86	15	18:55	19:17	0:00	19:17	LIMLA	0:24	19:41	320	LLK	2:45	22:02	320	DI	4:04	23:21	350	LEMOD	5:00	0:17	350
19-Oct-2005	DLH783	VTBD	EDDM	A343	0.8	20	18:10	18:34	0:00	18:34	BETNO	0:28	19:02	300	LLK	3:00	21:34	340	DI	4:24	22:58	310	LEMOD	5:22	23:56	310
19-Oct-2005	DLH789	ZGGG	EDDF	A346	0.82	30	17:30	17:53	0:00	17:53					LLK	4:14	22:07	320	DI	5:37	23:30	310	LEMOD	6:34	0:27	310
19-Oct-2005	EVA61	VTBD	LOWW	A330	0.82	20	16:15	16:35	0:18	16:53	BETNO	0:26	17:19	320	LLK	2:56	19:49	340	DI	4:21	21:14	350	LEMOD	5:20	22:13	350
19-Oct-2005	KLM804	RPLL	EHAM	B772	0.835	9	13:35	13:48	0:00	13:48					LLK	5:04	18:52	320	DI	6:26	20:14	310	LEMOD	7:22	21:10	310
19-Oct-2005	KLM810	WMKK	EHAM	B744	0.85	2	15:10	15:21	0:00	15:21	TAVUN	1:05	16:26	280	KKJ	3:39	19:00	320	ROSIE	5:14	20:35	310	RANAH	6:03	21:24	310
19-Oct-2005	KLM872	VIDP	EHAM	M11	0.822	5	19:20	19:37	0:00	19:37									ROSIE	1:15	20:52	310	RANAH	2:03	21:40	310
19-Oct-2005	KLM878	VTBD	EHAM	B744	0.85	7	16:05	16:20	0:05	16:25	LIMLA	0:26	16:51	300	LLK	2:46	19:11	300	DI	4:06	20:31	310	LEMOD	5:00	21:25	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	10	15:59	16:19	0:00	16:19	TAVUN	1:08	17:27	280	KKJ	3:41	20:00	320	ROSIE	5:18	21:37	310	RANAH	6:18	22:37	310
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	40	15:50	16:10	0:00	16:10	TAVUN	0:35	16:45	320	KKJ	3:41	19:51	320	ROSIE	5:25	21:35	350	RANAH	6:15	22:25	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	40	15:59	16:19	0:36	16:55	VPL	0:34	17:29	280				ASLUM	5:29	22:24	310	CHARN	6:19	23:14	310	
19-Oct-2005	QFA1	VTBD	EGLL	B744	0.85	19	17:25	17:35	0:16	17:51	LIMLA	0:22	18:13	320	LLK	2:46	20:37	320	DI	4:08	21:59	350	LEMOD	5:03	22:54	350
19-Oct-2005	QFA5	WSSS	EDDF	B744	0.85	19	15:00	15:20	0:14	15:34	TAVUN	1:26	17:00	320	KKJ	4:00	19:34	340	ROSIE	5:36	21:10	350	RANAH	6:26	22:00	350
19-Oct-2005	RBA33	VTBD	EDDF	B763	0.80	20	13:40	13:50	0:00	13:50	LIMLA	0:26	14:16	280	LLK	2:56	16:46	300	DI	4:24	18:14	310	LEMOD	5:22	19:12	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	15	17:20	17:35	0:00	17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	DI	4:17	21:52	310	AMDAR	5:06	22:41	310
19-Oct-2005	SIA026	WSSS	EDDF	B744	0.85	10	15:50	16:10	0:05	16:15	VPL	0:56	17:11	280				ASLUM	5:50	22:05	350	CHARN	6:42	22:57	350	
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	10	15:20	15:40	0:00	15:40	IKULA	1:26	17:06	280	LLK	4:13	19:53	320	DI	5:33	21:13	310	LEMOD	6:29	22:09	310
19-Oct-2005	SIA324	WSSS	EHAM	B772	0.83	10	15:45	16:05	0:00	16:05	VPL	0:58	17:03	320				ASLUM	6:01	22:06	390	CHARN	6:56	23:01	390	
19-Oct-2005	SIA334	WSSS	LFPG	B744	0.85	10	15:40	16:00	0:00	16:00	VPL	0:56	16:56	280				ASLUM	5:50	21:50	350	CHARN	6:42	22:42	350	
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	30	15:45	16:05	0:26	16:31	IKULA	1:26	17:57	280	LLK	4:08	20:39	320	ROSIE	5:47	22:18	310	RANAH	6:37	23:08	310
19-Oct-2005	SIA352	WSSS	ECKH	B772	0.83	10	17:00	17:20	0:00	17:20	IKULA	1:29	18:49	340	LLK	4:18	21:38	340	ROSIE	6:01	23:21	350	RANAH	6:54	0:14	350
19-Oct-2005	THA910	VTBD	EGLL	B744	0.86	20	18:10	18:30	0:19	18:49	LIMLA	0:23	19:12	320	LLK	2:48	21:37	340	DI	4:13	23:02	350	AMDAR	5:10	23:59	350
19-Oct-2005	THA920	VTBD	EDDF	B744	0.86	20	16:45	17:05	0:11	17:16	LIMLA	0:23	17:39	320	LLK	2:48	20:04	340	DI	4:13	21:29	350	AMDAR	5:10	22:26	350
19-Oct-2005	THA930	VTBD	LFPG	B744	0.86	20	17:05	17:25	0:06	17:31	LIMLA	0:23	17:54	320	LLK	2:48	20:19	340	DI	4:13	21:44	350	AMDAR	5:10	22:41	350
19-Oct-2005	THA944	VTBD	LIRF	B743	0.84	40	17:20	17:40	0:00	17:40	BETNO	0:22	18:02	300	KKJ	2:46	20:26	320	ROSIE	4:22	22:02	310	RANAH	5:13	22:53	310
19-Oct-2005	THA960	VTBD	ESSA	B744	0.86	20	18:10	18:30	0:04	18:34	LIMLA	0:23	18:57	320	LLK	2:48	21:22	340	DI	4:13	22:47	350	AMDAR	5:10	23:44	350
19-Oct-2005	THA970	VTBD	LSZH	A346	0.82	20	17:30	17:50	0:15	18:05	LIMLA	0:25	18:30	320	LLK	2:59	21:04	340	DI	4:27	22:32	350	LEMOD	5:25	23:30	350

Not Requiring Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	20	13:40	14:00		14:00					LLK	4:16	18:16	340								
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	20	13:40	14:00		14:00					LLK	4:17	18:17	360								
19-Oct-2005	CPA753	VHHH	VIDP	A330	0.82	20	15:35	15:55		15:55					LLK	4:31	20:26	380								

Not Allocated Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	5	16:30	16:45		16:45	LIMLA	0:27	17:12	300	LLK	2:58	19:43	320	DI	4:23	21:08	310	LEMOD	5:21	22:06	310
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	0	16:30	16:45		16:45	BETNO	0:25	17:10	300	KKJ	2:55	19:40	320	ROSIE	4:43	21:28	310	RANAH	5:36	22:21	310
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	1	17:20	17:36		17:36	LIMLA	0:24	18:00	320	LLK	2:49	20:25	320	DI	4:12	21:48	350	AMDAR	5:02	22:38	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	0	17:20	17:34		17:34	BETNO	0:24	17:58	320	LLK	2:50	20:24	320	DI	4:13	21:47	350	AMDAR	5:03	22:37	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	5	17:20	17:40		17:40	LIMLA	0:24	18:04	280	LLK	2:46	20:26	280	DI	4:08	21:48	350	AMDAR	4:57	22:37	350
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	2	14:55	15:07		15:07	IKULA	1:20	16:27	280	LLK	4:07	19:14	320	DI	5:27	20:34	310	LEMOD	6:22	21:29	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	6	14:55	15:07		15:07	TAVUN	1:05	16:12	280	KKJ	3:59	19:06	320	ROSIE	5:34	20:41	310	RANAH	6:23	21:30	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	3	14:55	15:07		15:07	TAVUN	1:05	16:12	280	KKJ	3:59	19:06	320	DI	5:27	20:34	310	AMDAR	6:14	21:21	310
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	20	15:50	16:10		16:10	TAVUN	1:07	17:17	320	KKJ	3:41	19:51	340	ROSIE	5:19	21:29	350	RANAH	6:10	22:20	350
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	40	15:50	16:10		16:10	VPL	0:35	16:45	280					ASLUM	5:31	21:41	310	CHARN	6:21	22:31	310
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	19	14:55	15:15		15:15	TAVUN	1:26	16:41	320	KKJ	4:00	19:15	340	DI	5:30	20:45	350	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	19	14:55	15:15		15:15	TAVUN	1:25	16:40	320	KKJ	3:58	19:13	320	DI	5:29	20:44	310	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.82	19	14:55	15:15		15:15	TAVUN	1:26	16:41	280	KKJ	4:01	19:16	320	DI	5:32	20:47	350	LEMOD	6:30	21:45	350
19-Oct-2005	THA950	VTBD	EKCH	B744	0.86	20	18:20	18:40		18:40	BETNO	0:23	19:03	320	LLK	2:48	21:28	340	DI	4:10	22:50	350	AMDAR	4:58	23:38	350

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AC055	VIDP	CYYZ	A343	0.82	30	18:00	18:20	0:00	18:20									DI	1:00	19:20	310	AMDAR	1:30	19:50	310
19-Oct-2005	AFR147	VIDP	LFPG	A343	0.82	15	19:05	19:25	0:00	19:25									DI	1:03	20:28	350	LEMOD	2:02	21:27	350
19-Oct-2005	AFR257	WSSS	LFPG	B773	0.84	30	15:20	15:40	0:00	15:40	VPL	0:56	16:36	280					ASLUM	5:51	21:31	310	CHARN	6:42	22:22	310
19-Oct-2005	AUA2	WMKK	LOWW	B772	0.84	15	16:35	16:50	0:00	16:50	TAVUN	1:10	18:00	340	KKJ	3:49	20:39	360	DI	5:19	22:09	310	LEMOD	6:14	23:04	310
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	15	16:30	16:45	0:00	16:45	LIMLA	0:27	17:12	300	LLK	2:58	19:43	320	DI	4:23	21:08	310	LEMOD	5:21	22:06	310
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	30	20:20	20:35	0:00	20:35									ROSIE	1:21	21:56	350	RANAH	2:17	22:52	390
19-Oct-2005	CLX793	VTBD	UBBB	B744	0.85	15	20:30	20:45	0:00	20:45	LIMLA	0:23	21:08	300	LLK	2:44	23:29	320	DI	4:07	0:52	350	LEMOD	5:06	1:51	350
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	15	13:40	14:00	0:00	14:00					LLK	4:16	18:16	340								
19-Oct-2005	CPA293	VHHH	LIRF	A343	0.82	15	15:55	16:15	0:00	16:15					LLK	4:25	20:40	340	ROSIE	6:09	22:24	350	RANAH	7:03	23:18	350
19-Oct-2005	CPA753	VHHH	VIDP	A330	0.82	30	15:35	15:55	0:00	15:55					LLK	4:31	20:26	380								
19-Oct-2005	DLH761	VIDP	EDDF	B744	0.83	15	20:55	21:19	0:06	21:25									DI	0:59	22:24	310	LEMOD	1:55	23:20	310
19-Oct-2005	DLH777	WSSS	EDDF	B744	0.84	15	17:05	17:30	0:00	17:30	TAVUN	1:30	19:00	320	KKJ	4:04	21:34	320	ROSIE	5:41	23:11	310	RANAH	6:32	0:02	310
19-Oct-2005	DLH779	VTBD	EDDF	B744	0.86	15	18:55	19:17	0:06	19:23	LIMLA	0:24	19:47	320	LLK	2:45	22:08	320	DI	4:04	23:27	350	LEMOD	5:00	0:23	350
19-Oct-2005	DLH783	VTBD	EDDM	A343	0.8	15	18:10	18:34	0:01	18:35	BETNO	0:28	19:03	300	LLK	3:00	21:35	340	DI	4:24	22:59	310	LEMOD	5:22	23:57	310
19-Oct-2005	DLH789	ZGGG	EDDF	A346	0.83	20	17:30	17:53	0:14	18:07					LLK	4:13	22:20	340	DI	5:36	23:43	350	LEMOD	6:35	0:42	350
19-Oct-2005	EVA61	VTBD	LOWW	A330	0.82	30	16:15	16:35	0:00	16:35	BETNO	0:26	17:01	320	LLK	2:56	19:31	340	DI	4:21	20:56	350	LEMOD	5:20	21:55	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	30	17:20	17:40	0:24	18:04	LIMLA	0:24	18:28	280	LLK	2:46	20:50	280	DI	4:08	22:12	350	AMDAR	4:57	23:01	350
19-Oct-2005	KLM804	RPLL	EHAM	B772	0.835	15	13:35	13:48	0:00	13:48					LLK	5:04	18:52	320	DI	6:26	20:14	310	LEMOD	7:22	21:10	310
19-Oct-2005	KLM810	WMKK	EHAM	B744	0.85	15	15:10	15:21	0:00	15:21	TAVUN	1:05	16:26	280	KKJ	3:39	19:00	320	ROSIE	5:14	20:35	310	RANAH	6:03	21:24	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	15	14:55	15:07	0:12	15:19	IKULA	1:20	16:39	280	LLK	4:07	19:26	320	DI	5:27	20:46	310	LEMOD	6:22	21:41	310
19-Oct-2005	KLM872	VIDP	EHAM	M11	0.822	20	19:20	19:37	0:00	19:37									ROSIE	1:15	20:52	310	RANAH	2:03	21:40	310
19-Oct-2005	KLM878	VTBD	EHAM	B744	0.85	15	16:05	16:20	0:05	16:25	LIMLA	0:26	16:51	300	LLK	2:46	19:11	300	DI	4:06	20:31	310	LEMOD	5:00	21:25	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	15	15:59	16:19	0:06	16:25	TAVUN	1:08	17:33	280	KKJ	3:41	20:06	320	ROSIE	5:18	21:43	310	RANAH	6:18	22:43	310
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	15	15:50	16:10	0:00	16:10	TAVUN	0:35	16:45	320	KKJ	3:41	19:51	320	ROSIE	5:25	21:35	350	RANAH	6:15	22:25	350
19-Oct-2005	QFA1	VTBD	EGLL	B744	0.85	15	17:25	17:35	0:14	17:49	LIMLA	0:22	18:11	320	LLK	2:46	20:35	320	DI	4:08	21:57	350	LEMOD	5:03	22:52	350
19-Oct-2005	QFA5	WSSS	EDDF	B744	0.85	15	15:00	15:20	0:14	15:34	TAVUN	1:26	17:00	320	KKJ	4:00	19:34	340	ROSIE	5:36	21:10	350	RANAH	6:26	22:00	350
19-Oct-2005	RBA33	VTBD	EDDF	B763	0.80	15	13:40	13:50	0:00	13:50	LIMLA	0:26	14:16	280	LLK	2:56	16:46	300	DI	4:24	18:14	310	LEMOD	5:22	19:12	310
19-Oct-2005	SIA026	WSSS	EDDF	B744	0.85	15	15:50	16:10	0:05	16:15	VPL	0:56	17:11	280					ASLUM	5:50	22:05	350	CHARN	6:42	22:57	350
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	15	15:20	15:40	0:12	15:52	IKULA	1:26	17:18	280	LLK	4:13	20:05	320	DI	5:33	21:25	310	LEMOD	6:29	22:21	310
19-Oct-2005	SIA324	WSSS	EHAM	B772	0.83	15	15:45	16:05	0:00	16:05	VPL	0:58	17:03	320					ASLUM	6:01	22:06	390	CHARN	6:56	23:01	390
19-Oct-2005	SIA334	WSSS	LFPG	B744	0.85	30	15:40	16:00	0:00	16:00	VPL	0:56	16:56	280					ASLUM	5:50	21:50	350	CHARN	6:42	22:42	350
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	15	15:45	16:05	0:06	16:11	IKULA	1:26	17:37	320	LLK	4:09	20:20	320	DI	5:30	21:41	310	LEMOD	6:26	22:37	310
19-Oct-2005	SIA352	WSSS	ECKH	B772	0.83	30	17:00	17:20	0:18	17:38	IKULA	1:29	19:07	340	LLK	4:27	22:05	340	ROSIE	6:10	23:48	350	RANAH	7:03	0:41	350
19-Oct-2005	THA910	VTBD	EGLL	B744	0.86	30	18:10	18:30	0:00	18:30	BETNO	0:23	18:53	320	KKJ	2:47	21:17	340	ROSIE	4:22	22:52	350	RANAH	5:11	23:41	350
19-Oct-2005	THA920	VTBD	EDDF	B744	0.86	15	16:45	17:05	0:00	17:05	LIMLA	0:23	17:28	320	LLK	2:48	19:53	340	DI	4:13	21:18	350	AMDAR	5:10	22:15	350
19-Oct-2005	THA930	VTBD	LFPG	B744	0.86	15	17:05	17:25	0:00	17:25	LIMLA	0:23	17:48	320	LLK	2:48	20:13	340	DI	4:13	21:38	350	AMDAR	5:10	22:35	350
19-Oct-2005	THA944	VTBD	LIRF	B743	0.84	30	17:20	17:40	0:05	17:45	BETNO	0:22	18:07	300	KKJ	2:46	20:31	320	ROSIE	4:22	22:07	310	RANAH	5:13	22:58	310
19-Oct-2005	THA950	VTBD	EKCH	B744	0.86	30	18:20	18:40	0:22	19:02	BETNO	0:23	19:25	320	LLK	2:48	21:50	340	DI	4:10	23:12	350	AMDAR	4:58	0:00	350
19-Oct-2005	THA960	VTBD	ESSA	B744	0.86	15	18:10	18:30	0:02	18:32	LIMLA	0:23	18:55	320	LLK	2:48	21:20	340	DI	4:13	22:45	350	AMDAR	5:10	23:42	350
19-Oct-2005	THA970	VTBD	LSZH	A346	0.82	15	17:30	17:50	0:13	18:03	LIMLA	0:25	18:28	320	LLK	2:59	21:02	340	DI	4:27	22:30	350	LEMOD	5:25	23:28	350

Not Allocated Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	15	16:05	16:25		16:25	LIMLA	0:28	16:53	300	LLK	2:55	19:20	320	DI	4:19	20:44	350	LEMOD	5:18	21:43	350
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	30	16:05	16:25		16:25	BETNO	0:26	16:51	300	LLK	2:55	19:20	320	ROSIE	4:37	21:02	310	RANAH	5:28	21:53	350
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	15	15:50	16:10		16:10	TAVUN	1:07	17:17	320	KKJ	3:41	19:51	340	ROSIE	5:19	21:29	350	RANAH	6:10	22:20	350
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	30	15:50	16:10		16:10	VPL	0:35	16:45	280					ASLUM	5:31	21:41	310	CHARN	6:21	22:31	310
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	15	15:59	16:19		16:19	TAVUN	1:07	17:26	320	KKJ	3:40	19:59	320	ROSIE	5:59	22:18	350	RANAH	6:16	22:35	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	30	15:59	16:19		16:19	VPL	0:34	16:53	280					ASLUM	5:29	21:48	310	CHARN	6:19	22:38	310
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	15	14:55	15:15		15:15	TAVUN	1:26	16:41	320	KKJ	4:00	19:15	340	DI	5:30	20:45	350	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	20	14:55	15:15		15:15	TAVUN	1:25	16:40	320	KKJ	3:58	19:13	320	DI	5:29	20:44	310	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.82	30	14:55	15:15		15:15	TAVUN	1:26	16:41	280	KKJ	4:01	19:16	320	DI	5:32	20:47	350	LEMOD	6:30	21:45	350
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	15	17:20	17:35		17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	DI	4:17	21:52	310	AMDAR	5:06	22:41	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	20	17:20	17:35		17:35	LIMLA	0:28	18:03	300	LLK	2:54	20:29	320	DI	4:18	21:53	310	LEMOD	5:14	22:49	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	30	17:20	17:35		17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	ROSIE	4:43	22:18	350	RANAH	5:35	23:10	350

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AC055	VIDP	CYYZ	A343	0.82	30	18:00	18:20	0:00	18:20									DI	1:00	19:20	310	AMDAR	1:30	19:50	310
19-Oct-2005	AFR147	VIDP	LFPG	A343	0.82	15	19:05	19:25	0:00	19:25									DI	1:03	20:28	350	LEMOD	2:02	21:27	350
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	30	16:05	16:25	0:08	16:33	BETNO	0:26	16:59	300	LLK	2:55	19:28	320	ROSIE	4:37	21:10	310	RANAH	5:28	22:01	350
19-Oct-2005	AFR257	WSSS	LFPG	B773	0.84	30	15:20	15:40	0:00	15:40	VPL	0:56	16:36	280					ASLUM	5:51	21:31	310	CHARN	6:42	22:22	310
19-Oct-2005	AUA2	WMKK	LOWW	B772	0.84	15	16:35	16:50	0:01	16:51	TAVUN	1:10	18:01	340	KKJ	3:49	20:40	360	DI	5:19	22:10	310	LEMOD	6:14	23:05	310
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	15	16:30	16:45	0:00	16:45	LIMLA	0:27	17:12	300	LLK	2:58	19:43	320	DI	4:23	21:08	310	LEMOD	5:21	22:06	310
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	30	20:20	20:35	0:00	20:35									ROSIE	1:21	21:56	350	RANAH	2:17	22:52	390
19-Oct-2005	CLX793	VTBD	UBBB	B744	0.85	15	20:30	20:45	0:00	20:45	LIMLA	0:23	21:08	300	LLK	2:44	23:29	320	DI	4:07	0:52	350	LEMOD	5:06	1:51	350
19-Oct-2005	CPA293	VHHH	LIRF	A343	0.82	15	15:55	16:15	0:00	16:15									LLK	4:25	20:40	340	ROSIE	6:09	22:24	350
19-Oct-2005	DLH761	VIDP	EDDF	B744	0.83	15	20:55	21:19	0:07	21:26									DI	0:59	22:25	310	LEMOD	1:55	23:21	310
19-Oct-2005	DLH777	WSSS	EDDF	B744	0.84	15	17:05	17:30	0:00	17:30	TAVUN	1:30	19:00	320	KKJ	4:04	21:34	320	ROSIE	5:41	23:11	310	RANAH	6:32	0:02	310
19-Oct-2005	DLH779	VTBD	EDDF	B744	0.86	15	18:55	19:17	0:01	19:18	LIMLA	0:24	19:42	320	LLK	2:45	22:03	320	DI	4:04	23:22	350	LEMOD	5:00	0:18	350
19-Oct-2005	DLH783	VTBD	EDDM	A343	0.8	15	18:10	18:34	0:00	18:34	BETNO	0:28	19:02	300	LLK	3:00	21:34	340	DI	4:24	22:58	310	LEMOD	5:22	23:56	310
19-Oct-2005	DLH789	ZGGG	EDDF	A346	0.82	15	17:30	17:53	0:00	17:53									LLK	4:14	22:07	320	DI	5:37	23:30	310
19-Oct-2005	EVA61	VTBD	LOWW	A330	0.82	30	16:15	16:35	0:00	16:35	BETNO	0:26	17:01	320	LLK	2:56	19:31	340	DI	4:21	20:56	350	LEMOD	5:20	21:55	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	30	17:20	17:40	0:20	18:00	LIMLA	0:24	18:24	280	LLK	2:46	20:46	280	DI	4:08	22:08	350	AMDAR	4:57	22:57	350
19-Oct-2005	KLM804	RPLL	EHAM	B772	0.835	15	13:35	13:48	0:00	13:48									LLK	5:04	18:52	320	DI	6:26	20:14	310
19-Oct-2005	KLM810	WMKK	EHAM	B744	0.85	15	15:10	15:21	0:00	15:21	TAVUN	1:05	16:26	280	KKJ	3:39	19:00	320	ROSIE	5:14	20:35	310	RANAH	6:03	21:24	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	15	14:55	15:07	0:12	15:19	IKULA	1:20	16:39	280	LLK	4:07	19:26	320	DI	5:27	20:46	310	LEMOD	6:22	21:41	310
19-Oct-2005	KLM872	VIDP	EHAM	M11	0.822	20	19:20	19:37	0:00	19:37									ROSIE	1:15	20:52	310	RANAH	2:03	21:40	310
19-Oct-2005	KLM878	VTBD	EHAM	B744	0.85	15	16:05	16:20	0:05	16:25	LIMLA	0:26	16:51	300	LLK	2:46	19:11	300	DI	4:06	20:31	310	LEMOD	5:00	21:25	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	15	15:59	16:19	0:00	16:19	TAVUN	1:08	17:27	280	KKJ	3:41	20:00	320	ROSIE	5:18	21:37	310	RANAH	6:18	22:37	310
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	15	15:50	16:10	0:00	16:10	TAVUN	1:07	17:17	320	KKJ	3:41	19:51	340	ROSIE	5:19	21:29	350	RANAH	6:10	22:20	350
19-Oct-2005	QFA1	VTBD	EGLL	B744	0.85	15	17:25	17:35	0:10	17:45	LIMLA	0:22	18:07	320	LLK	2:46	20:31	320	DI	4:08	21:53	350	LEMOD	5:03	22:48	350
19-Oct-2005	QFA5	WSSS	EDDF	B744	0.85	15	15:00	15:20	0:00	15:20	TAVUN	1:26	16:46	320	KKJ	4:00	19:20	340	ROSIE	5:36	20:56	350	RANAH	6:26	21:46	350
19-Oct-2005	RBA33	VTBD	EDDF	B763	0.80	15	13:40	13:50	0:00	13:50	LIMLA	0:26	14:16	280	LLK	2:56	16:46	300	DI	4:24	18:14	310	LEMOD	5:22	19:12	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	15	17:20	17:35	0:03	17:38	LIMLA	0:27	18:05	300	LLK	2:53	20:31	320	DI	4:17	21:55	310	AMDAR	5:06	22:44	310
19-Oct-2005	SIA026	WSSS	EDDF	B744	0.85	15	15:50	16:10	0:05	16:15	VPL	0:56	17:11	280					ASLUM	5:50	22:05	350	CHARN	6:42	22:57	350
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	15	15:20	15:40	0:12	15:52	IKULA	1:26	17:18	280	LLK	4:13	20:05	320	DI	5:33	21:25	310	LEMOD	6:29	22:21	310
19-Oct-2005	SIA324	WSSS	EHAM	B772	0.83	15	15:45	16:05	0:00	16:05	VPL	0:58	17:03	320					ASLUM	6:01	22:06	390	CHARN	6:56	23:01	390
19-Oct-2005	SIA334	WSSS	LFPG	B744	0.85	30	15:40	16:00	0:00	16:00	VPL	0:56	16:56	280					ASLUM	5:50	21:50	350	CHARN	6:42	22:42	350
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	15	15:45	16:05	0:05	16:10	IKULA	1:26	17:36	320	LLK	4:09	20:19	320	DI	5:30	21:40	310	LEMOD	6:26	22:36	310
19-Oct-2005	SIA352	WSSS	ECKH	B772	0.83	15	17:00	17:20	0:00	17:20	IKULA	1:29	18:49	340	LLK	4:18	21:38	340	ROSIE	6:01	23:21	350	RANAH	6:54	0:14	350
19-Oct-2005	THA910	VTBD	EGLL	B744	0.86	15	18:10	18:30	0:00	18:30	LIMLA	0:23	18:53	320	LLK	2:48	21:18	340	DI	4:13	22:43	350	AMDAR	5:10	23:40	350
19-Oct-2005	THA920	VTBD	EDDF	B744	0.86	15	16:45	17:05	0:00	17:05	LIMLA	0:23	17:28	320	LLK	2:48	19:53	340	DI	4:13	21:18	350	AMDAR	5:10	22:15	350
19-Oct-2005	THA930	VTBD	LFPG	B744	0.86	15	17:05	17:25	0:00	17:25	LIMLA	0:23	17:48	320	LLK	2:48	20:13	340	DI	4:13	21:38	350	AMDAR	5:10	22:35	350
19-Oct-2005	THA944	VTBD	LIRF	B743	0.84	30	17:20	17:40	0:00	17:40	BETNO	0:22	18:02	300	KKJ	2:46	20:26	320	ROSIE	4:22	22:02	310	RANAH	5:13	22:53	310
19-Oct-2005	THA950	VTBD	EKCH	B744	0.86	30	18:20	18:40	0:17	18:57	BETNO	0:23	19:20	320	LLK	2:48	21:45	340	DI	4:10	23:07	350	AMDAR	4:58	23:55	350
19-Oct-2005	THA960	VTBD	ESSA	B744	0.86	30	18:10	18:30	0:00	18:30	BETNO	0:22	18:52	320	KKJ	2:47	21:17	340	ROSIE	4:22	22:52	350	RANAH	5:11	23:41	350
19-Oct-2005	THA970	VTBD	LSZH	A346	0.82	15	17:30	17:50	0:09	17:59	LIMLA	0:25	18:24	320	LLK	2:59	20:58	340	DI	4:27	22:26	350	LEMOD	5:25	23:24	350

Not Requiring Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	15	13:40	14:00		14:00					LLK	4:16	18:16	340								
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	30	13:40	14:00		14:00					LLK	4:17	18:17	360								
19-Oct-2005	CPA753	VHHH	VIDP	A330	0.82	30	15:35	15:55		15:55					LLK	4:31	20:26	380								

Not Allocated Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	15	15:50	16:10		16:10	TAVUN	0:35	16:45	320	KKJ	3:41	19:51	320	ROSIE	5:25	21:35	350	RANAH	6:15	22:25	350
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	30	15:50	16:10		16:10	VPL	0:35	16:45	280					ASLUM	5:29	21:39	310	CHARN	6:19	22:29	310
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	15	15:59	16:19		16:19	TAVUN	1:07	17:26	320	KKJ	3:40	19:59	320	ROSIE	5:59	22:18	350	RANAH	6:16	22:35	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	30	15:59	16:19		16:19	VPL	0:34	16:53	280					ASLUM	5:29	21:48	310	CHARN	6:19	22:38	310
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	15	14:55	15:15		15:15	TAVUN	1:26	16:41	320	KKJ	4:00	19:15	340	DI	5:30	20:45	350	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	20	14:55	15:15		15:15	TAVUN	1:25	16:40	320	KKJ	3:58	19:13	320	DI	5:29	20:44	310	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.82	30	14:55	15:15		15:15	TAVUN	1:26	16:41	280	KKJ	4:01	19:16	320	DI	5:32	20:47	350	LEMOD	6:30	21:45	350

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AC055	VIDP	CYYZ	A343	0.82	20	18:00	18:20	0:00	18:20									DI	1:00	19:20	310	AMDAR	1:30	19:50	310
19-Oct-2005	AFR147	VIDP	LFPG	A343	0.82	20	19:05	19:25	0:00	19:25									DI	1:03	20:28	350	LEMOD	2:02	21:27	350
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	20	16:05	16:25	0:15	16:40	LIMLA	0:28	17:08	300	LLK	2:55	19:35	320	DI	4:19	20:59	350	LEMOD	5:18	21:58	350
19-Oct-2005	AFR257	WSSS	LFPG	B773	0.84	20	15:20	15:40	0:00	15:40	VPL	0:56	16:36	280					ASLUM	5:51	21:31	310	CHARN	6:42	22:22	310
19-Oct-2005	AUA2	WMKK	LOWW	B772	0.84	20	16:35	16:50	0:00	16:50	TAVUN	1:10	18:00	340	KKJ	3:49	20:39	360	DI	5:19	22:09	310	LEMOD	6:14	23:04	310
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	20	16:30	16:45	0:12	16:57	LIMLA	0:27	17:24	300	LLK	2:58	19:55	320	DI	4:23	21:20	310	LEMOD	5:21	22:18	310
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	20	20:20	20:35	0:13	20:48									ROSIE	1:21	22:09	350	RANAH	2:17	23:05	390
19-Oct-2005	CLX793	VTBD	UBBB	B744	0.85	20	20:30	20:45	0:00	20:45	LIMLA	0:23	21:08	300	LLK	2:44	23:29	320	DI	4:07	0:52	350	LEMOD	5:06	1:51	350
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	20	13:40	14:00	0:00	14:00					LLK	4:16	18:16	340								
19-Oct-2005	CPA293	VHHH	LIRF	A343	0.82	20	15:55	16:15	0:00	16:15					LLK	4:25	20:40	340	ROSIE	6:09	22:24	350	RANAH	7:03	23:18	350
19-Oct-2005	CPA753	VHHH	VIDP	A330	0.82	20	15:35	15:55	0:00	15:55					LLK	4:31	20:26	380								
19-Oct-2005	DLH761	VIDP	EDDF	B744	0.83	20	20:55	21:19	0:06	21:25									DI	0:59	22:24	310	LEMOD	1:55	23:20	310
19-Oct-2005	DLH777	WSSS	EDDF	B744	0.84	20	17:05	17:30	0:00	17:30	TAVUN	1:30	19:00	320	KKJ	4:04	21:34	320	ROSIE	5:41	23:11	310	RANAH	6:32	0:02	310
19-Oct-2005	DLH779	VTBD	EDDF	B744	0.86	20	18:55	19:17	0:00	19:17	LIMLA	0:24	19:41	320	LLK	2:45	22:02	320	DI	4:04	23:21	350	LEMOD	5:00	0:17	350
19-Oct-2005	DLH783	VTBD	EDDM	A343	0.8	20	18:10	18:34	0:18	18:52	BETNO	0:28	19:20	300	LLK	3:00	21:52	340	DI	4:24	23:16	310	LEMOD	5:22	0:14	310
19-Oct-2005	DLH789	ZGGG	EDDF	A346	0.82	20	17:30	17:53	0:10	18:03					LLK	4:14	22:17	320	DI	5:37	23:40	310	LEMOD	6:34	0:37	310
19-Oct-2005	EVA61	VTBD	LOWW	A330	0.82	20	16:15	16:35	0:18	16:53	BETNO	0:26	17:19	320	LLK	2:56	19:49	340	DI	4:21	21:14	350	LEMOD	5:20	22:13	350
19-Oct-2005	KLM804	RPLL	EHAM	B772	0.835	20	13:35	13:48	0:00	13:48					LLK	5:04	18:52	320	DI	6:26	20:14	310	LEMOD	7:22	21:10	310
19-Oct-2005	KLM810	WMKK	EHAM	B744	0.85	20	15:10	15:21	0:00	15:21	TAVUN	1:05	16:26	280	KKJ	3:39	19:00	320	ROSIE	5:14	20:35	310	RANAH	6:03	21:24	310
19-Oct-2005	KLM872	VIDP	EHAM	M11	0.822	20	19:20	19:37	0:10	19:47									DI	0:59	20:46	310	LEMOD	1:55	21:42	310
19-Oct-2005	KLM878	VTBD	EHAM	B744	0.85	20	16:05	16:20	0:05	16:25	LIMLA	0:26	16:51	300	LLK	2:46	19:11	300	DI	4:06	20:31	310	LEMOD	5:00	21:25	310
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	20	15:50	16:10	0:02	16:12	TAVUN	1:07	17:19	320	KKJ	3:41	19:53	340	ROSIE	5:19	21:31	350	RANAH	6:10	22:22	350
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	20	15:50	16:10	0:19	16:29	TAVUN	0:35	17:04	320	KKJ	3:41	20:10	320	ROSIE	5:25	21:54	350	RANAH	6:15	22:44	350
19-Oct-2005	QFA1	VTBD	EGLL	B744	0.85	20	17:25	17:35	0:16	17:51	LIMLA	0:22	18:13	320	LLK	2:46	20:37	320	DI	4:08	21:59	350	LEMOD	5:03	22:54	350
19-Oct-2005	QFA5	WSSS	EDDF	B744	0.85	20	15:00	15:20	0:00	15:20	TAVUN	1:26	16:46	320	KKJ	4:00	19:20	340	ROSIE	5:36	20:56	350	RANAH	6:26	21:46	350
19-Oct-2005	RBA33	VTBD	EDDF	B763	0.80	20	13:40	13:50	0:00	13:50	LIMLA	0:26	14:16	280	LLK	2:56	16:46	300	DI	4:24	18:14	310	LEMOD	5:22	19:12	310
19-Oct-2005	SIA026	WSSS	EDDF	B744	0.85	20	15:50	16:10	0:05	16:15	VPL	0:56	17:11	280					ASLUM	5:50	22:05	350	CHARN	6:42	22:57	350
19-Oct-2005	SIA324	WSSS	EHAM	B772	0.83	20	15:45	16:05	0:00	16:05	VPL	0:58	17:03	320					ASLUM	6:01	22:06	390	CHARN	6:56	23:01	390
19-Oct-2005	SIA334	WSSS	LFPG	B744	0.85	20	15:40	16:00	0:00	16:00	VPL	0:56	16:56	280					ASLUM	5:50	21:50	350	CHARN	6:42	22:42	350
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	20	15:45	16:05	0:02	16:07	IKULA	1:26	17:33	320	LLK	4:09	20:16	320	DI	5:30	21:37	310	LEMOD	6:26	22:33	310
19-Oct-2005	SIA352	WSSS	ECKH	B772	0.83	20	17:00	17:20	0:20	17:40	IKULA	1:29	19:09	340	LLK	4:27	22:07	340	ROSIE	6:10	23:50	350	RANAH	7:03	0:43	350
19-Oct-2005	THA910	VTBD	EGLL	B744	0.86	20	18:10	18:30	0:04	18:34	LIMLA	0:23	18:57	320	LLK	2:48	21:22	340	DI	4:13	22:47	350	AMDAR	5:10	23:44	350
19-Oct-2005	THA920	VTBD	EDDF	B744	0.86	20	16:45	17:05	0:11	17:16	LIMLA	0:23	17:39	320	LLK	2:48	20:04	340	DI	4:13	21:29	350	AMDAR	5:10	22:26	350
19-Oct-2005	THA930	VTBD	LFPG	B744	0.86	20	17:05	17:25	0:06	17:31	LIMLA	0:23	17:54	320	LLK	2:48	20:19	340	DI	4:13	21:44	350	AMDAR	5:10	22:41	350
19-Oct-2005	THA944	VTBD	LIRF	B743	0.84	20	17:20	17:40	0:00	17:40	BETNO	0:22	18:02	300	KKJ	2:46	20:26	320	ROSIE	4:22	22:02	310	RANAH	5:13	22:53	310
19-Oct-2005	THA960	VTBD	ESSA	B744	0.86	20	18:10	18:30	0:19	18:49	LIMLA	0:23	19:12	320	LLK	2:48	21:37	340	DI	4:13	23:02	350	AMDAR	5:10	23:59	350
19-Oct-2005	THA970	VTBD	LSZH	A346	0.82	20	17:30	17:50	0:15	18:05	LIMLA	0:25	18:30	320	LLK	2:59	21:04	340	DI	4:27	22:32	350	LEMOD	5:25	23:30	350

Not Allocated Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	20	17:20	17:36		17:36	LIMLA	0:24	18:00	320	LLK	2:49	20:25	320	DI	4:12	21:48	350	AMDAR	5:02	22:38	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	20	17:20	17:34		17:34	BETNO	0:24	17:58	320	LLK	2:50	20:24	320	DI	4:13	21:47	350	AMDAR	5:03	22:37	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	20	17:20	17:40		17:40	LIMLA	0:24	18:04	280	LLK	2:46	20:26	280	DI	4:08	21:48	350	AMDAR	4:57	22:37	350
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	20	14:55	15:07		15:07	IKULA	1:20	16:27	280	LLK	4:07	19:14	320	DI	5:27	20:34	310	LEMOD	6:22	21:29	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	20	14:55	15:07		15:07	TAVUN	1:05	16:12	280	KKJ	3:59	19:06	320	ROSIE	5:34	20:41	310	RANAH	6:23	21:30	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	20	14:55	15:07		15:07	TAVUN	1:05	16:12	280	KKJ	3:59	19:06	320	DI	5:27	20:34	310	AMDAR	6:14	21:21	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	20	15:59	16:19		16:19	TAVUN	1:08	17:27	280	KKJ	3:41	20:00	320	ROSIE	5:18	21:37	310	RANAH	6:18	22:37	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	20	15:59	16:19		16:19	VPL	0:35	16:54	320				ASLUM	5:29	21:48	350	CHARN	6:19	22:38	350	
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	20	15:59	16:19		16:19	TAVUN	1:07	17:26	320	KKJ	3:40	19:59	320	ROSIE	5:59	22:18	350	RANAH	6:16	22:35	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	20	15:59	16:19		16:19	VPL	0:34	16:53	280				ASLUM	5:29	21:48	310	CHARN	6:19	22:38	310	
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	20	14:55	15:15		15:15	TAVUN	1:26	16:41	320	KKJ	4:00	19:15	340	DI	5:30	20:45	350	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	20	14:55	15:15		15:15	TAVUN	1:25	16:40	320	KKJ	3:58	19:13	320	DI	5:29	20:44	310	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.82	20	14:55	15:15		15:15	TAVUN	1:26	16:41	280	KKJ	4:01	19:16	320	DI	5:32	20:47	350	LEMOD	6:30	21:45	350
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	20	17:20	17:35		17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	DI	4:17	21:52	310	AMDAR	5:06	22:41	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	20	17:20	17:35		17:35	LIMLA	0:28	18:03	300	LLK	2:54	20:29	320	DI	4:18	21:53	310	LEMOD	5:14	22:49	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	20	17:20	17:35		17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	ROSIE	4:43	22:18	350	RANAH	5:35	23:10	350
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	20	15:20	15:40		15:40	IKULA	1:26	17:06	280	LLK	4:13	19:53	320	DI	5:33	21:13	310	LEMOD	6:29	22:09	310
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	20	15:20	15:40		15:40	IKULA	1:26	17:06	280	LLK	4:08	19:48	320	DI	5:29	21:09	310	LEMOD	6:24	22:04	310
19-Oct-2005	THA950	VTBD	EKCH	B744	0.86	20	18:20	18:40		18:40	BETNO	0:23	19:03	320	LLK	2:48	21:28	340	DI	4:10	22:50	350	AMDAR	4:58	23:38	350

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AC055	VIDP	CYYZ	A343	0.82	20	18:00	18:20	0:00	18:20									DI	1:00	19:20	310	AMDAR	1:30	19:50	310
19-Oct-2005	AFR147	VIDP	LFPG	A343	0.82	20	19:05	19:25	0:00	19:25									DI	1:03	20:28	350	LEMOD	2:02	21:27	350
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	20	16:05	16:25	0:15	16:40	LIMLA	0:28	17:08	300	LLK	2:55	19:35	320	DI	4:19	20:59	350	LEMOD	5:18	21:58	350
19-Oct-2005	AFR257	WSSS	LFPG	B773	0.84	20	15:20	15:40	0:00	15:40	VPL	0:56	16:36	280					ASLUM	5:51	21:31	310	CHARN	6:42	22:22	310
19-Oct-2005	AUA2	WMKK	LOWW	B772	0.84	20	16:35	16:50	0:00	16:50	TAVUN	1:10	18:00	340	KKJ	3:49	20:39	360	DI	5:19	22:09	310	LEMOD	6:14	23:04	310
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	20	16:30	16:45	0:12	16:57	LIMLA	0:27	17:24	300	LLK	2:58	19:55	320	DI	4:23	21:20	310	LEMOD	5:21	22:18	310
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	20	20:20	20:35	0:13	20:48									ROSIE	1:21	22:09	350	RANAH	2:17	23:05	390
19-Oct-2005	CLX793	VTBD	UBBB	B744	0.85	20	20:30	20:45	0:00	20:45	LIMLA	0:23	21:08	300	LLK	2:44	23:29	320	DI	4:07	0:52	350	LEMOD	5:06	1:51	350
19-Oct-2005	CPA293	VHHH	LIRF	A343	0.82	20	15:55	16:15	0:00	16:15					LLK	4:25	20:40	340	ROSIE	6:09	22:24	350	RANAH	7:03	23:18	350
19-Oct-2005	DLH761	VIDP	EDDF	B744	0.83	20	20:55	21:19	0:06	21:25									DI	0:59	22:24	310	LEMOD	1:55	23:20	310
19-Oct-2005	DLH777	WSSS	EDDF	B744	0.84	20	17:05	17:30	0:00	17:30	TAVUN	1:30	19:00	320	KKJ	4:04	21:34	320	ROSIE	5:41	23:11	310	RANAH	6:32	0:02	310
19-Oct-2005	DLH779	VTBD	EDDF	B744	0.86	20	18:55	19:17	0:00	19:17	LIMLA	0:24	19:41	320	LLK	2:45	22:02	320	DI	4:04	23:21	350	LEMOD	5:00	0:17	350
19-Oct-2005	DLH783	VTBD	EDDM	A343	0.8	20	18:10	18:34	0:00	18:34	BETNO	0:28	19:02	300	LLK	3:00	21:34	340	DI	4:24	22:58	310	LEMOD	5:22	23:56	310
19-Oct-2005	DLH789	ZGGG	EDDF	A346	0.82	20	17:30	17:53	0:00	17:53					LLK	4:14	22:07	320	DI	5:37	23:30	310	LEMOD	6:34	0:27	310
19-Oct-2005	EVA61	VTBD	LOWW	A330	0.82	20	16:15	16:35	0:18	16:53	BETNO	0:26	17:19	320	LLK	2:56	19:49	340	DI	4:21	21:14	350	LEMOD	5:20	22:13	350
19-Oct-2005	KLM804	RPLL	EHAM	B772	0.835	20	13:35	13:48	0:00	13:48					LLK	5:04	18:52	320	DI	6:26	20:14	310	LEMOD	7:22	21:10	310
19-Oct-2005	KLM810	WMKK	EHAM	B744	0.85	20	15:10	15:21	0:00	15:21	TAVUN	1:05	16:26	280	KKJ	3:39	19:00	320	ROSIE	5:14	20:35	310	RANAH	6:03	21:24	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	20	14:55	15:07	0:12	15:19	IKULA	1:20	16:39	280	LLK	4:07	19:26	320	DI	5:27	20:46	310	LEMOD	6:22	21:41	310
19-Oct-2005	KLM872	VIDP	EHAM	M11	0.822	20	19:20	19:37	0:00	19:37									ROSIE	1:15	20:52	310	RANAH	2:03	21:40	310
19-Oct-2005	KLM878	VTBD	EHAM	B744	0.85	20	16:05	16:20	0:05	16:25	LIMLA	0:26	16:51	300	LLK	2:46	19:11	300	DI	4:06	20:31	310	LEMOD	5:00	21:25	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	20	15:59	16:19	0:00	16:19	TAVUN	1:08	17:27	280	KKJ	3:41	20:00	320	ROSIE	5:18	21:37	310	RANAH	6:18	22:37	310
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	20	15:50	16:10	0:02	16:12	TAVUN	1:07	17:19	320	KKJ	3:41	19:53	340	ROSIE	5:19	21:31	350	RANAH	6:10	22:22	350
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	20	15:50	16:10	0:19	16:29	TAVUN	0:35	17:04	320	KKJ	3:41	20:10	320	ROSIE	5:25	21:54	350	RANAH	6:15	22:44	350
19-Oct-2005	QFA1	VTBD	EGLL	B744	0.85	20	17:25	17:35	0:16	17:51	LIMLA	0:22	18:13	320	LLK	2:46	20:37	320	DI	4:08	21:59	350	LEMOD	5:03	22:54	350
19-Oct-2005	QFA5	WSSS	EDDF	B744	0.85	20	15:00	15:20	0:00	15:20	TAVUN	1:26	16:46	320	KKJ	4:00	19:20	340	ROSIE	5:36	20:56	350	RANAH	6:26	21:46	350
19-Oct-2005	RBA33	VTBD	EDDF	B763	0.80	20	13:40	13:50	0:00	13:50	LIMLA	0:26	14:16	280	LLK	2:56	16:46	300	DI	4:24	18:14	310	LEMOD	5:22	19:12	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	20	17:20	17:35	0:00	17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	DI	4:17	21:52	310	AMDAR	5:06	22:41	310
19-Oct-2005	SIA026	WSSS	EDDF	B744	0.85	20	15:50	16:10	0:05	16:15	VPL	0:56	17:11	280					ASLUM	5:50	22:05	350	CHARN	6:42	22:57	350
19-Oct-2005	SIA324	WSSS	EHAM	B772	0.83	20	15:45	16:05	0:00	16:05	VPL	0:58	17:03	320					ASLUM	6:01	22:06	390	CHARN	6:56	23:01	390
19-Oct-2005	SIA334	WSSS	LFPG	B744	0.85	20	15:40	16:00	0:00	16:00	VPL	0:56	16:56	280					ASLUM	5:50	21:50	350	CHARN	6:42	22:42	350
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	20	15:45	16:05	0:02	16:07	IKULA	1:26	17:33	320	LLK	4:09	20:16	320	DI	5:30	21:37	310	LEMOD	6:26	22:33	310
19-Oct-2005	SIA352	WSSS	ECKH	B772	0.83	20	17:00	17:20	0:00	17:20	IKULA	1:29	18:49	340	LLK	4:18	21:38	340	ROSIE	6:01	23:21	350	RANAH	6:54	0:14	350
19-Oct-2005	THA910	VTBD	EGLL	B744	0.86	20	18:10	18:30	0:19	18:49	LIMLA	0:23	19:12	320	LLK	2:48	21:37	340	DI	4:13	23:02	350	AMDAR	5:10	23:59	350
19-Oct-2005	THA920	VTBD	EDDF	B744	0.86	20	16:45	17:05	0:11	17:16	LIMLA	0:23	17:39	320	LLK	2:48	20:04	340	DI	4:13	21:29	350	AMDAR	5:10	22:26	350
19-Oct-2005	THA930	VTBD	LFPG	B744	0.86	20	17:05	17:25	0:06	17:31	LIMLA	0:23	17:54	320	LLK	2:48	20:19	340	DI	4:13	21:44	350	AMDAR	5:10	22:41	350
19-Oct-2005	THA944	VTBD	LIRF	B743	0.84	20	17:20	17:40	0:00	17:40	BETNO	0:22	18:02	300	KKJ	2:46	20:26	320	ROSIE	4:22	22:02	310	RANAH	5:13	22:53	310
19-Oct-2005	THA960	VTBD	ESSA	B744	0.86	20	18:10	18:30	0:04	18:34	LIMLA	0:23	18:57	320	LLK	2:48	21:22	340	DI	4:13	22:47	350	AMDAR	5:10	23:44	350
19-Oct-2005	THA970	VTBD	LSZH	A346	0.82	20	17:30	17:50	0:15	18:05	LIMLA	0:25	18:30	320	LLK	2:59	21:04	340	DI	4:27	22:32	350	LEMOD	5:25	23:30	350

Not Requiring Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	20	13:40	14:00		14:00					LLK	4:16	18:16	340								
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	20	13:40	14:00		14:00					LLK	4:17	18:17	360								
19-Oct-2005	CPA753	VHHH	VIDP	A330	0.82	20	15:35	15:55		15:55					LLK	4:31	20:26	380								

Not Allocated Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	20	17:20	17:36		17:36	LIMLA	0:24	18:00	320	LLK	2:49	20:25	320	DI	4:12	21:48	350	AMDAR	5:02	22:38	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	20	17:20	17:34		17:34	BETNO	0:24	17:58	320	LLK	2:50	20:24	320	DI	4:13	21:47	350	AMDAR	5:03	22:37	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	20	17:20	17:40		17:40	LIMLA	0:24	18:04	280	LLK	2:46	20:26	280	DI	4:08	21:48	350	AMDAR	4:57	22:37	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	20	15:59	16:19		16:19	TAVUN	1:07	17:26	320	KKJ	3:40	19:59	320	ROSIE	5:59	22:18	350	RANAH	6:16	22:35	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	20	15:59	16:19		16:19	VPL	0:34	16:53	280					ASLUM	5:29	21:48	310	CHARN	6:19	22:38	310
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	20	14:55	15:15		15:15	TAVUN	1:26	16:41	320	KKJ	4:00	19:15	340	DI	5:30	20:45	350	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	20	14:55	15:15		15:15	TAVUN	1:25	16:40	320	KKJ	3:58	19:13	320	DI	5:29	20:44	310	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.82	20	14:55	15:15		15:15	TAVUN	1:26	16:41	280	KKJ	4:01	19:16	320	DI	5:32	20:47	350	LEMOD	6:30	21:45	350
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	20	15:20	15:40		15:40	IKULA	1:26	17:06	280	LLK	4:13	19:53	320	DI	5:33	21:13	310	LEMOD	6:29	22:09	310
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	20	15:20	15:40		15:40	IKULA	1:26	17:06	280	LLK	4:08	19:48	320	DI	5:29	21:09	310	LEMOD	6:24	22:04	310
19-Oct-2005	THA950	VTBD	EKCH	B744	0.86	20	18:20	18:40		18:40	BETNO	0:23	19:03	320	LLK	2:48	21:28	340	DI	4:10	22:50	350	AMDAR	4:58	23:38	350

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AC055	VIDP	CYYZ	A343	0.82	30	18:00	18:20	0:00	18:20									DI	1:00	19:20	310	AMDAR	1:30	19:50	310
19-Oct-2005	AFR147	VIDP	LFPG	A343	0.82	30	19:05	19:25	0:00	19:25									DI	1:03	20:28	350	LEMOD	2:02	21:27	350
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	30	16:05	16:25	0:15	16:40	LIMLA	0:28	17:08	300	LLK	2:55	19:35	320	DI	4:19	20:59	350	LEMOD	5:18	21:58	350
19-Oct-2005	AFR257	WSSS	LFPG	B773	0.84	30	15:20	15:40	0:00	15:40	VPL	0:56	16:36	280					ASLUM	5:51	21:31	310	CHARN	6:42	22:22	310
19-Oct-2005	AUA2	WMKK	LOWW	B772	0.84	30	16:35	16:50	0:00	16:50	TAVUN	1:10	18:00	340	KKJ	3:49	20:39	360	DI	5:19	22:09	310	LEMOD	6:14	23:04	310
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	30	16:30	16:45	0:12	16:57	LIMLA	0:27	17:24	300	LLK	2:58	19:55	320	DI	4:23	21:20	310	LEMOD	5:21	22:18	310
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	30	20:20	20:35	0:13	20:48									ROSIE	1:21	22:09	350	RANAH	2:17	23:05	390
19-Oct-2005	CLX793	VTBD	UBBB	B744	0.85	30	20:30	20:45	0:00	20:45	LIMLA	0:23	21:08	300	LLK	2:44	23:29	320	DI	4:07	0:52	350	LEMOD	5:06	1:51	350
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	30	13:40	14:00	0:00	14:00					LLK	4:16	18:16	340								
19-Oct-2005	CPA293	VHHH	LIRF	A343	0.82	30	15:55	16:15	0:00	16:15					LLK	4:25	20:40	340	ROSIE	6:09	22:24	350	RANAH	7:03	23:18	350
19-Oct-2005	CPA753	VHHH	VIDP	A330	0.82	30	15:35	15:55	0:00	15:55					LLK	4:31	20:26	380								
19-Oct-2005	DLH761	VIDP	EDDF	B744	0.83	30	20:55	21:19	0:06	21:25									DI	0:59	22:24	310	LEMOD	1:55	23:20	310
19-Oct-2005	DLH777	WSSS	EDDF	B744	0.84	30	17:05	17:30	0:00	17:30	TAVUN	1:30	19:00	320	KKJ	4:04	21:34	320	ROSIE	5:41	23:11	310	RANAH	6:32	0:02	310
19-Oct-2005	DLH779	VTBD	EDDF	B744	0.86	30	18:55	19:17	0:00	19:17	LIMLA	0:24	19:41	320	LLK	2:45	22:02	320	DI	4:04	23:21	350	LEMOD	5:00	0:17	350
19-Oct-2005	DLH783	VTBD	EDDM	A343	0.8	30	18:10	18:34	0:17	18:51	BETNO	0:28	19:19	300	LLK	3:00	21:51	340	DI	4:24	23:15	310	LEMOD	5:22	0:13	310
19-Oct-2005	DLH789	ZGGG	EDDF	A346	0.82	30	17:30	17:53	0:10	18:03					LLK	4:14	22:17	320	DI	5:37	23:40	310	LEMOD	6:34	0:37	310
19-Oct-2005	EVA61	VTBD	LOWW	A330	0.82	30	16:15	16:35	0:18	16:53	BETNO	0:26	17:19	320	LLK	2:56	19:49	340	DI	4:21	21:14	350	LEMOD	5:20	22:13	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	30	17:20	17:36	0:29	18:05	LIMLA	0:24	18:29	320	LLK	2:49	20:54	320	DI	4:12	22:17	350	AMDAR	5:02	23:07	350
19-Oct-2005	KLM804	RPLL	EHAM	B772	0.835	30	13:35	13:48	0:00	13:48					LLK	5:04	18:52	320	DI	6:26	20:14	310	LEMOD	7:22	21:10	310
19-Oct-2005	KLM810	WMKK	EHAM	B744	0.85	30	15:10	15:21	0:00	15:21	TAVUN	1:05	16:26	280	KKJ	3:39	19:00	320	ROSIE	5:14	20:35	310	RANAH	6:03	21:24	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	30	14:55	15:07	0:29	15:36	TAVUN	1:05	16:41	280	KKJ	3:59	19:35	320	ROSIE	5:34	21:10	310	RANAH	6:23	21:59	310
19-Oct-2005	KLM872	VIDP	EHAM	M11	0.822	30	19:20	19:37	0:10	19:47									DI	0:59	20:46	310	LEMOD	1:55	21:42	310
19-Oct-2005	KLM878	VTBD	EHAM	B744	0.85	30	16:05	16:20	0:05	16:25	LIMLA	0:26	16:51	300	LLK	2:46	19:11	300	DI	4:06	20:31	310	LEMOD	5:00	21:25	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	30	15:59	16:19	0:25	16:44	TAVUN	1:08	17:52	280	KKJ	3:41	20:25	320	ROSIE	5:18	22:02	310	RANAH	6:18	23:02	310
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	30	15:50	16:10	0:02	16:12	TAVUN	1:07	17:19	320	KKJ	3:41	19:53	340	ROSIE	5:19	21:31	350	RANAH	6:10	22:22	350
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	30	15:50	16:10	0:19	16:29	TAVUN	0:35	17:04	320	KKJ	3:41	20:10	320	ROSIE	5:25	21:54	350	RANAH	6:15	22:44	350
19-Oct-2005	QFA1	VTBD	EGLL	B744	0.85	30	17:25	17:35	0:16	17:51	LIMLA	0:22	18:13	320	LLK	2:46	20:37	320	DI	4:08	21:59	350	LEMOD	5:03	22:54	350
19-Oct-2005	QFA5	WSSS	EDDF	B744	0.85	30	15:00	15:20	0:00	15:20	TAVUN	1:26	16:46	320	KKJ	4:00	19:20	340	ROSIE	5:36	20:56	350	RANAH	6:26	21:46	350
19-Oct-2005	RBA33	VTBD	EDDF	B763	0.80	30	13:40	13:50	0:00	13:50	LIMLA	0:26	14:16	280	LLK	2:56	16:46	300	DI	4:24	18:14	310	LEMOD	5:22	19:12	310
19-Oct-2005	SIA026	WSSS	EDDF	B744	0.85	30	15:50	16:10	0:05	16:15	VPL	0:56	17:11	280					ASLUM	5:50	22:05	350	CHARN	6:42	22:57	350
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	30	15:20	15:40	0:24	16:04	IKULA	1:26	17:30	280	LLK	4:13	20:17	320	DI	5:33	21:37	310	LEMOD	6:29	22:33	310
19-Oct-2005	SIA324	WSSS	EHAM	B772	0.83	30	15:45	16:05	0:00	16:05	VPL	0:58	17:03	320					ASLUM	6:01	22:06	390	CHARN	6:56	23:01	390
19-Oct-2005	SIA334	WSSS	LFPG	B744	0.85	30	15:40	16:00	0:00	16:00	VPL	0:56	16:56	280					ASLUM	5:50	21:50	350	CHARN	6:42	22:42	350
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	30	15:45	16:05	0:25	16:30	VPL	0:56	17:26	280					ASLUM	5:50	22:20	350	CHARN	6:42	23:12	350
19-Oct-2005	SIA352	WSSS	ECKH	B772	0.83	30	17:00	17:20	0:28	17:48	IKULA	1:29	19:17	340	LLK	4:18	22:06	340	ROSIE	6:01	23:49	350	RANAH	6:54	0:42	350
19-Oct-2005	THA910	VTBD	EGLL	B744	0.86	30	18:10	18:30	0:18	18:48	LIMLA	0:23	19:11	320	LLK	2:48	21:36	340	DI	4:13	23:01	350	AMDAR	5:10	23:58	350
19-Oct-2005	THA920	VTBD	EDDF	B744	0.86	30	16:45	17:05	0:11	17:16	LIMLA	0:23	17:39	320	LLK	2:48	20:04	340	DI	4:13	21:29	350	AMDAR	5:10	22:26	350
19-Oct-2005	THA930	VTBD	LFPG	B744	0.86	30	17:05	17:25	0:06	17:31	LIMLA	0:23	17:54	320	LLK	2:48	20:19	340	DI	4:13	21:44	350	AMDAR	5:10	22:41	350
19-Oct-2005	THA944	VTBD	LIRF	B743	0.84	30	17:20	17:40	0:24	18:04	BETNO	0:22	18:26	300	KKJ	2:46	20:50	320	ROSIE	4:22	22:26	310	RANAH	5:13	23:17	310
19-Oct-2005	THA960	VTBD	ESSA	B744	0.86	30	18:10	18:30	0:00	18:30	BETNO	0:22	18:52	320	KKJ	2:47	21:17	340	ROSIE	4:22	22:52	350	RANAH	5:11	23:41	350
19-Oct-2005	THA970	VTBD	LSZH	A346	0.82	30	17:30	17:50	0:29	18:19	LIMLA	0:25	18:44	320	LLK	2:59	21:18	340	DI	4:27	22:46	350	LEMOD	5:25	23:44	350

Not Allocated Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	30	15:59	16:19		16:19	TAVUN	1:07	17:26	320	KKJ	3:40	19:59	320	ROSIE	5:59	22:18	350	RANAH	6:16	22:35	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	30	15:59	16:19		16:19	VPL	0:34	16:53	280					ASLUM	5:29	21:48	310	CHARN	6:19	22:38	310
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	30	14:55	15:15		15:15	TAVUN	1:26	16:41	320	KKJ	4:00	19:15	340	DI	5:30	20:45	350	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	30	14:55	15:15		15:15	TAVUN	1:25	16:40	320	KKJ	3:58	19:13	320	DI	5:29	20:44	310	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.82	30	14:55	15:15		15:15	TAVUN	1:26	16:41	280	KKJ	4:01	19:16	320	DI	5:32	20:47	350	LEMOD	6:30	21:45	350
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	30	17:20	17:35		17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	DI	4:17	21:52	310	AMDAR	5:06	22:41	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	30	17:20	17:35		17:35	LIMLA	0:28	18:03	300	LLK	2:54	20:29	320	DI	4:18	21:53	310	LEMOD	5:14	22:49	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	30	17:20	17:35		17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	ROSIE	4:43	22:18	350	RANAH	5:35	23:10	350
19-Oct-2005	THA950	VTBD	EKCH	B744	0.86	30	18:20	18:40		18:40	BETNO	0:23	19:03	320	LLK	2:48	21:28	340	DI	4:10	22:50	350	AMDAR	4:58	23:38	350

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AC055	VIDP	CYYZ	A343	0.82	30	18:00	18:20	0:00	18:20									DI	1:00	19:20	310	AMDAR	1:30	19:50	310
19-Oct-2005	AFR147	VIDP	LFPG	A343	0.82	30	19:05	19:25	0:00	19:25									DI	1:03	20:28	350	LEMOD	2:02	21:27	350
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	30	16:05	16:25	0:15	16:40	LIMLA	0:28	17:08	300	LLK	2:55	19:35	320	DI	4:19	20:59	350	LEMOD	5:18	21:58	350
19-Oct-2005	AFR257	WSSS	LFPG	B773	0.84	30	15:20	15:40	0:00	15:40	VPL	0:56	16:36	280					ASLUM	5:51	21:31	310	CHARN	6:42	22:22	310
19-Oct-2005	AUA2	WMKK	LOWW	B772	0.84	30	16:35	16:50	0:13	17:03	TAVUN	1:10	18:13	340	KKJ	3:49	20:52	360	DI	5:19	22:22	310	LEMOD	6:14	23:17	310
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	30	16:30	16:45	0:12	16:57	LIMLA	0:27	17:24	300	LLK	2:58	19:55	320	DI	4:23	21:20	310	LEMOD	5:21	22:18	310
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	30	20:20	20:35	0:13	20:48									ROSIE	1:21	22:09	350	RANAH	2:17	23:05	390
19-Oct-2005	CLX793	VTBD	UBBB	B744	0.85	30	20:30	20:45	0:00	20:45	LIMLA	0:23	21:08	300	LLK	2:44	23:29	320	DI	4:07	0:52	350	LEMOD	5:06	1:51	350
19-Oct-2005	CPA293	VHHH	LIRF	A343	0.82	30	15:55	16:15	0:00	16:15					LLK	4:25	20:40	340	ROSIE	6:09	22:24	350	RANAH	7:03	23:18	350
19-Oct-2005	DLH761	VIDP	EDDF	B744	0.83	30	20:55	21:19	0:19	21:38									DI	0:59	22:37	310	LEMOD	1:55	23:33	310
19-Oct-2005	DLH777	WSSS	EDDF	B744	0.84	30	17:05	17:30	0:00	17:30	TAVUN	1:30	19:00	320	KKJ	4:04	21:34	320	ROSIE	5:41	23:11	310	RANAH	6:32	0:02	310
19-Oct-2005	DLH779	VTBD	EDDF	B744	0.86	30	18:55	19:17	0:00	19:17	LIMLA	0:24	19:41	320	LLK	2:45	22:02	320	DI	4:04	23:21	350	LEMOD	5:00	0:17	350
19-Oct-2005	DLH783	VTBD	EDDM	A343	0.8	30	18:10	18:34	0:00	18:34	BETNO	0:28	19:02	300	LLK	3:00	21:34	340	DI	4:24	22:58	310	LEMOD	5:22	23:56	310
19-Oct-2005	DLH789	ZGGG	EDDF	A346	0.82	30	17:30	17:53	0:00	17:53					LLK	4:14	22:07	320	DI	5:37	23:30	310	LEMOD	6:34	0:27	310
19-Oct-2005	EVA61	VTBD	LOWW	A330	0.82	30	16:15	16:35	0:18	16:53	BETNO	0:26	17:19	320	LLK	2:56	19:49	340	DI	4:21	21:14	350	LEMOD	5:20	22:13	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	30	17:20	17:36	0:29	18:05	LIMLA	0:24	18:29	320	LLK	2:49	20:54	320	DI	4:12	22:17	350	AMDAR	5:02	23:07	350
19-Oct-2005	KLM804	RPLL	EHAM	B772	0.835	30	13:35	13:48	0:00	13:48					LLK	5:04	18:52	320	DI	6:26	20:14	310	LEMOD	7:22	21:10	310
19-Oct-2005	KLM810	WMKK	EHAM	B744	0.85	30	15:10	15:21	0:00	15:21	TAVUN	1:05	16:26	280	KKJ	3:39	19:00	320	ROSIE	5:14	20:35	310	RANAH	6:03	21:24	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	30	14:55	15:07	0:12	15:19	IKULA	1:20	16:39	280	LLK	4:07	19:26	320	DI	5:27	20:46	310	LEMOD	6:22	21:41	310
19-Oct-2005	KLM872	VIDP	EHAM	M11	0.822	30	19:20	19:37	0:25	20:02									DI	0:59	21:01	310	LEMOD	1:55	21:57	310
19-Oct-2005	KLM878	VTBD	EHAM	B744	0.85	30	16:05	16:20	0:05	16:25	LIMLA	0:26	16:51	300	LLK	2:46	19:11	300	DI	4:06	20:31	310	LEMOD	5:00	21:25	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	30	15:59	16:19	0:00	16:19	TAVUN	1:08	17:27	280	KKJ	3:41	20:00	320	ROSIE	5:18	21:37	310	RANAH	6:18	22:37	310
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	30	15:50	16:10	0:02	16:12	TAVUN	1:07	17:19	320	KKJ	3:41	19:53	340	ROSIE	5:19	21:31	350	RANAH	6:10	22:22	350
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	30	15:50	16:10	0:19	16:29	TAVUN	0:35	17:04	320	KKJ	3:41	20:10	320	ROSIE	5:25	21:54	350	RANAH	6:15	22:44	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	30	15:59	16:19	0:24	16:43	TAVUN	1:07	17:50	320	KKJ	3:40	20:23	320	ROSIE	5:59	22:42	350	RANAH	6:16	22:59	350
19-Oct-2005	QFA1	VTBD	EGLL	B744	0.85	30	17:25	17:35	0:16	17:51	LIMLA	0:22	18:13	320	LLK	2:46	20:37	320	DI	4:08	21:59	350	LEMOD	5:03	22:54	350
19-Oct-2005	QFA5	WSSS	EDDF	B744	0.85	30	15:00	15:20	0:00	15:20	TAVUN	1:26	16:46	320	KKJ	4:00	19:20	340	ROSIE	5:36	20:56	350	RANAH	6:26	21:46	350
19-Oct-2005	RBA33	VTBD	EDDF	B763	0.80	30	13:40	13:50	0:00	13:50	LIMLA	0:26	14:16	280	LLK	2:56	16:46	300	DI	4:24	18:14	310	LEMOD	5:22	19:12	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	30	17:20	17:35	0:15	17:50	LIMLA	0:27	18:17	300	LLK	2:53	20:43	320	DI	4:17	22:07	310	AMDAR	5:06	22:56	310
19-Oct-2005	SIA026	WSSS	EDDF	B744	0.85	30	15:50	16:10	0:05	16:15	VPL	0:56	17:11	280					ASLUM	5:50	22:05	350	CHARN	6:42	22:57	350
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	30	15:20	15:40	0:24	16:04	IKULA	1:26	17:30	280	LLK	4:13	20:17	320	DI	5:33	21:37	310	LEMOD	6:29	22:33	310
19-Oct-2005	SIA324	WSSS	EHAM	B772	0.83	30	15:45	16:05	0:00	16:05	VPL	0:58	17:03	320					ASLUM	6:01	22:06	390	CHARN	6:56	23:01	390
19-Oct-2005	SIA334	WSSS	LFPG	B744	0.85	30	15:40	16:00	0:00	16:00	VPL	0:56	16:56	280					ASLUM	5:50	21:50	350	CHARN	6:42	22:42	350
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	30	15:45	16:05	0:17	16:22	IKULA	1:26	17:48	320	LLK	4:09	20:31	320	DI	5:30	21:52	310	LEMOD	6:26	22:48	310
19-Oct-2005	SIA352	WSSS	ECKH	B772	0.83	30	17:00	17:20	0:00	17:20	IKULA	1:29	18:49	340	LLK	4:18	21:38	340	ROSIE	6:01	23:21	350	RANAH	6:54	0:14	350
19-Oct-2005	THA910	VTBD	EGLL	B744	0.86	30	18:10	18:30	0:18	18:48	LIMLA	0:23	19:11	320	LLK	2:48	21:36	340	DI	4:13	23:01	350	AMDAR	5:10	23:58	350
19-Oct-2005	THA920	VTBD	EDDF	B744	0.86	30	16:45	17:05	0:11	17:16	LIMLA	0:23	17:39	320	LLK	2:48	20:04	340	DI	4:13	21:29	350	AMDAR	5:10	22:26	350
19-Oct-2005	THA930	VTBD	LFPG	B744	0.86	30	17:05	17:25	0:06	17:31	LIMLA	0:23	17:54	320	LLK	2:48	20:19	340	DI	4:13	21:44	350	AMDAR	5:10	22:41	350
19-Oct-2005	THA944	VTBD	LIRF	B743	0.84	30	17:20	17:40	0:00	17:40	BETNO	0:22	18:02	300	KKJ	2:46	20:26	320	ROSIE	4:22	22:02	310	RANAH	5:13	22:53	310
19-Oct-2005	THA960	VTBD	ESSA	B744	0.86	30	18:10	18:30	0:05	18:35	BETNO	0:22	18:57	320	KKJ	2:47	21:22	340	ROSIE	4:22	22:57	350	RANAH	5:11	23:46	350
19-Oct-2005	THA970	VTBD	LSZH	A346	0.82	30	17:30	17:50	0:29	18:19	LIMLA	0:25	18:44	320	LLK	2:59	21:18	340	DI	4:27	22:46	350	LEMOD	5:25	23:44	350

Not Allocated Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	30	13:40	14:00		14:00					LLK	4:16	18:16	340								
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	30	13:40	14:00		14:00					LLK	4:17	18:17	360								
19-Oct-2005	CPA753	VHHH	VIDP	A330	0.82	30	15:35	15:55		15:55					LLK	4:31	20:26	380								
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	30	14:55	15:15		15:15	TAVUN	1:26	16:41	320	KKJ	4:00	19:15	340	DI	5:30	20:45	350	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	30	14:55	15:15		15:15	TAVUN	1:25	16:40	320	KKJ	3:58	19:13	320	DI	5:29	20:44	310	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.82	30	14:55	15:15		15:15	TAVUN	1:26	16:41	280	KKJ	4:01	19:16	320	DI	5:32	20:47	350	LEMOD	6:30	21:45	350
19-Oct-2005	THA950	VTBD	EKCH	B744	0.86	30	18:20	18:40		18:40	BETNO	0:23	19:03	320	LLK	2:48	21:28	340	DI	4:10	22:50	350	AMDAR	4:58	23:38	350

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AC055	VIDP	CYYZ	A343	0.82	60	18:00	18:20	0:00	18:20									DI	1:00	19:20	310	AMDAR	1:30	19:50	310
19-Oct-2005	AFR147	VIDP	LFPG	A343	0.82	60	19:05	19:25	0:06	19:31									ROSIE	1:19	20:50	310	RANAH	2:10	21:41	310
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	60	16:05	16:25	0:21	16:46	LIMLA	0:28	17:14	300	LLK	2:55	19:41	320	DI	4:19	21:05	350	LEMOD	5:18	22:04	350
19-Oct-2005	AFR257	WSSS	LFPG	B773	0.84	60	15:20	15:40	0:46	16:26	IKULA	1:27	17:53	280	LLK	4:13	20:39	320	DI	5:34	22:00	310	LEMOD	6:28	22:54	310
19-Oct-2005	AUA2	WMKK	LOWW	B772	0.84	60	16:35	16:50	0:06	16:56	TAVUN	1:10	18:06	340	KKJ	3:49	20:45	360	DI	5:19	22:15	310	LEMOD	6:14	23:10	310
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	60	16:30	16:45	0:18	17:03	LIMLA	0:27	17:30	300	LLK	2:58	20:01	320	DI	4:23	21:26	310	LEMOD	5:21	22:24	310
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	60	20:20	20:35	0:51	21:26									DI	1:05	22:31	350	LEMOD	2:06	23:32	350
19-Oct-2005	CLX793	VTBD	UBBB	B744	0.85	60	20:30	20:45	0:00	20:45	LIMLA	0:23	21:08	300	LLK	2:44	23:29	320	DI	4:07	0:52	350	LEMOD	5:06	1:51	350
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	60	13:40	14:00	0:00	14:00					LLK	4:16	18:16	340								
19-Oct-2005	CPA293	VHHH	LIRF	A343	0.82	60	15:55	16:15	0:00	16:15					LLK	4:25	20:40	340	ROSIE	6:09	22:24	350	RANAH	7:03	23:18	350
19-Oct-2005	CPA753	VHHH	VIDP	A330	0.82	60	15:35	15:55	0:00	15:55					LLK	4:31	20:26	380								
19-Oct-2005	DLH761	VIDP	EDDF	B744	0.83	60	20:55	21:19	0:27	21:46									DI	0:59	22:45	310	LEMOD	1:55	23:41	310
19-Oct-2005	DLH777	WSSS	EDDF	B744	0.84	60	17:05	17:30	0:00	17:30	TAVUN	1:30	19:00	320	KKJ	4:04	21:34	320	ROSIE	5:41	23:11	310	RANAH	6:32	0:02	310
19-Oct-2005	DLH779	VTBD	EDDF	B744	0.86	60	18:55	19:17	0:25	19:42	LIMLA	0:24	20:06	320	LLK	2:45	22:27	320	DI	4:04	23:46	350	LEMOD	5:00	0:42	350
19-Oct-2005	DLH783	VTBD	EDDM	A343	0.8	60	18:10	18:34	0:47	19:21	BETNO	0:28	19:49	300	LLK	3:00	22:21	340	DI	4:24	23:45	310	LEMOD	5:22	0:43	310
19-Oct-2005	DLH789	ZGGG	EDDF	A346	0.82	60	17:30	17:53	0:00	17:53					LLK	4:14	22:07	320	DI	5:37	23:30	310	LEMOD	6:34	0:27	310
19-Oct-2005	EVA61	VTBD	LOWW	A330	0.82	60	16:15	16:35	0:24	16:59	BETNO	0:26	17:25	320	LLK	2:56	19:55	340	DI	4:21	21:20	350	LEMOD	5:20	22:19	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	60	17:20	17:36	0:59	18:35	LIMLA	0:24	18:59	320	LLK	2:49	21:24	320	DI	4:12	22:47	350	AMDAR	5:02	23:37	350
19-Oct-2005	KLM804	RPLL	EHAM	B772	0.835	60	13:35	13:48	0:00	13:48					LLK	5:04	18:52	320	DI	6:26	20:14	310	LEMOD	7:22	21:10	310
19-Oct-2005	KLM810	WMKK	EHAM	B744	0.85	60	15:10	15:21	0:00	15:21	TAVUN	1:05	16:26	280	KKJ	3:39	19:00	320	ROSIE	5:14	20:35	310	RANAH	6:03	21:24	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	60	14:55	15:07	0:12	15:19	IKULA	1:20	16:39	280	LLK	4:07	19:26	320	DI	5:27	20:46	310	LEMOD	6:22	21:41	310
19-Oct-2005	KLM872	VIDP	EHAM	M11	0.822	60	19:20	19:37	0:25	20:02									DI	0:59	21:01	310	LEMOD	1:55	21:57	310
19-Oct-2005	KLM878	VTBD	EHAM	B744	0.85	60	16:05	16:20	0:05	16:25	LIMLA	0:26	16:51	300	LLK	2:46	19:11	300	DI	4:06	20:31	310	LEMOD	5:00	21:25	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	60	15:59	16:19	0:20	16:39	TAVUN	1:08	17:47	280	KKJ	3:41	20:20	320	ROSIE	5:18	21:57	310	RANAH	6:18	22:57	310
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	60	15:50	16:10	0:35	16:45	TAVUN	1:07	17:52	320	KKJ	3:41	20:26	340	ROSIE	5:19	22:04	350	RANAH	6:10	22:55	350
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	60	15:50	16:10	0:14	16:24	TAVUN	0:35	16:59	320	KKJ	3:41	20:05	320	ROSIE	5:25	21:49	350	RANAH	6:15	22:39	350
19-Oct-2005	QFA1	VTBD	EGLL	B744	0.85	60	17:25	17:35	0:33	18:08	LIMLA	0:22	18:30	320	LLK	2:46	20:54	320	DI	4:08	22:16	350	LEMOD	5:03	23:11	350
19-Oct-2005	QFA5	WSSS	EDDF	B744	0.85	60	15:00	15:20	0:28	15:48	TAVUN	1:26	17:14	320	KKJ	4:00	19:48	340	ROSIE	5:36	21:24	350	RANAH	6:26	22:14	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	60	14:55	15:15	0:00	15:15	TAVUN	1:26	16:41	320	KKJ	4:00	19:15	340	DI	5:30	20:45	350	LEMOD	6:25	21:40	350
19-Oct-2005	RBA33	VTBD	EDDF	B763	0.80	60	13:40	13:50	0:00	13:50	LIMLA	0:26	14:16	280	LLK	2:56	16:46	300	DI	4:24	18:14	310	LEMOD	5:22	19:12	310
19-Oct-2005	SIA026	WSSS	EDDF	B744	0.85	60	15:50	16:10	0:05	16:15	VPL	0:56	17:11	280					ASLUM	5:50	22:05	350	CHARN	6:42	22:57	350
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	60	15:20	15:40	0:30	16:10	IKULA	1:26	17:36	280	LLK	4:13	20:23	320	DI	5:33	21:43	310	LEMOD	6:29	22:39	310
19-Oct-2005	SIA324	WSSS	EHAM	B772	0.83	60	15:45	16:05	0:00	16:05	VPL	0:58	17:03	320					ASLUM	6:01	22:06	390	CHARN	6:56	23:01	390
19-Oct-2005	SIA334	WSSS	LFPG	B744	0.85	60	15:40	16:00	0:00	16:00	VPL	0:56	16:56	280					ASLUM	5:50	21:50	350	CHARN	6:42	22:42	350
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	60	15:45	16:05	0:55	17:00	IKULA	1:26	18:26	320	LLK	4:09	21:09	320	DI	5:30	22:30	310	LEMOD	6:26	23:26	310
19-Oct-2005	SIA352	WSSS	ECKH	B772	0.83	60	17:00	17:20	0:58	18:18	IKULA	1:29	19:47	340	LLK	4:18	22:36	340	ROSIE	6:01	0:19	350	RANAH	6:54	1:12	350
19-Oct-2005	THA910	VTBD	EGLL	B744	0.86	60	18:10	18:30	0:00	18:30	BETNO	0:23	18:53	320	KKJ	2:47	21:17	340	ROSIE	4:22	22:52	350	RANAH	5:11	23:41	350
19-Oct-2005	THA920	VTBD	EDDF	B744	0.86	60	16:45	17:05	0:17	17:22	LIMLA	0:23	17:45	320	LLK	2:48	20:10	340	DI	4:13	21:35	350	AMDAR	5:10	22:32	350
19-Oct-2005	THA930	VTBD	LFPG	B744	0.86	60	17:05	17:25	0:12	17:37	LIMLA	0:23	18:00	320	LLK	2:48	20:25	340	DI	4:13	21:50	350	AMDAR	5:10	22:47	350
19-Oct-2005	THA944	VTBD	LIRF	B743	0.84	60	17:20	17:40	0:19	17:59	BETNO	0:22	18:21	300	KKJ	2:46	20:45	320	ROSIE	4:22	22:21	310	RANAH	5:13	23:12	310
19-Oct-2005	THA960	VTBD	ESSA	B744	0.86	60	18:10	18:30	0:48	19:18	LIMLA	0:23	19:41	320	LLK	2:48	22:06	340	DI	4:13	23:31	350	AMDAR	5:10	0:28	350
19-Oct-2005	THA970	VTBD	LSZH	A346	0.82	60	17:30	17:50	0:59	18:49	LIMLA	0:25	19:14	320	LLK	2:59	21:48	340	DI	4:27	23:16	350	LEMOD	5:25	0:14	350

Not Allocated Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	30	15:59	16:19		16:19	TAVUN	1:07	17:26	320	KKJ	3:40	19:59	320	ROSIE	5:59	22:18	350	RANAH	6:16	22:35	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	30	15:59	16:19		16:19	VPL	0:34	16:53	280					ASLUM	5:29	21:48	310	CHARN	6:19	22:38	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	60	17:20	17:35		17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	DI	4:17	21:52	310	AMDAR	5:06	22:41	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	60	17:20	17:35		17:35	LIMLA	0:28	18:03	300	LLK	2:54	20:29	320	DI	4:18	21:53	310	LEMOD	5:14	22:49	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	60	17:20	17:35		17:35	LIMLA	0:27	18:02	300	LLK	2:53	20:28	320	ROSIE	4:43	22:18	350	RANAH	5:35	23:10	350
19-Oct-2005	THA950	VTBD	EKCH	B744	0.86	60	18:20	18:40		18:40	BETNO	0:23	19:03	320	LLK	2:48	21:28	340	DI	4:10	22:50	350	AMDAR	4:58	23:38	350

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	AC055	VIDP	CYYZ	A343	0.82	60	18:00	18:20	0:00	18:20									DI	1:00	19:20	310	AMDAR	1:30	19:50	310
19-Oct-2005	AFR147	VIDP	LFPG	A343	0.82	60	19:05	19:25	0:00	19:25									DI	1:03	20:28	350	LEMOD	2:02	21:27	350
19-Oct-2005	AFR171	VTBD	LFPG	A343	0.82	60	16:05	16:25	0:15	16:40	LIMLA	0:28	17:08	300	LLK	2:55	19:35	320	DI	4:19	20:59	350	LEMOD	5:18	21:58	350
19-Oct-2005	AFR257	WSSS	LFPG	B773	0.84	60	15:20	15:40	0:40	16:20	IKULA	1:27	17:47	280	LLK	4:13	20:33	320	DI	5:34	21:54	310	LEMOD	6:28	22:48	310
19-Oct-2005	AUA2	WMKK	LOWW	B772	0.84	60	16:35	16:50	0:30	17:20	TAVUN	1:10	18:30	340	KKJ	3:49	21:09	360	DI	5:19	22:39	310	LEMOD	6:14	23:34	310
19-Oct-2005	AUA26	VTBD	LOWW	B763	0.79	60	16:30	16:45	0:12	16:57	LIMLA	0:27	17:24	300	LLK	2:58	19:55	320	DI	4:23	21:20	310	LEMOD	5:21	22:18	310
19-Oct-2005	AUA34	VIDP	LOWW	A343	0.78	60	20:20	20:35	0:09	20:44									ROSIE	1:21	22:05	350	RANAH	2:17	23:01	390
19-Oct-2005	CLX793	VTBD	UBBB	B744	0.85	60	20:30	20:45	0:00	20:45	LIMLA	0:23	21:08	300	LLK	2:44	23:29	320	DI	4:07	0:52	350	LEMOD	5:06	1:51	350
19-Oct-2005	CPA293	VHHH	LIRF	A343	0.82	60	15:55	16:15	0:00	16:15					LLK	4:25	20:40	340	ROSIE	6:09	22:24	350	RANAH	7:03	23:18	350
19-Oct-2005	DLH761	VIDP	EDDF	B744	0.83	60	20:55	21:19	0:57	22:16									DI	0:59	23:15	310	LEMOD	1:55	0:11	310
19-Oct-2005	DLH777	WSSS	EDDF	B744	0.84	60	17:05	17:30	0:00	17:30	TAVUN	1:30	19:00	320	KKJ	4:04	21:34	320	ROSIE	5:41	23:11	310	RANAH	6:32	0:02	310
19-Oct-2005	DLH779	VTBD	EDDF	B744	0.86	60	18:55	19:17	0:21	19:38	LIMLA	0:24	20:02	320	LLK	2:45	22:23	320	DI	4:04	23:42	350	LEMOD	5:00	0:38	350
19-Oct-2005	DLH783	VTBD	EDDM	A343	0.8	60	18:10	18:34	0:00	18:34	BETNO	0:28	19:02	300	LLK	3:00	21:34	340	DI	4:24	22:58	310	LEMOD	5:22	23:56	310
19-Oct-2005	DLH789	ZGGB	EDDF	A346	0.82	60	17:30	17:53	0:00	17:53					LLK	4:14	22:07	320	DI	5:37	23:30	310	LEMOD	6:34	0:27	310
19-Oct-2005	EVA61	VTBD	LOWW	A330	0.82	60	16:15	16:35	0:18	16:53	BETNO	0:26	17:19	320	LLK	2:56	19:49	340	DI	4:21	21:14	350	LEMOD	5:20	22:13	350
19-Oct-2005	FIN092	VTBD	EFHK	MD11	0.83	60	17:20	17:36	0:29	18:05	LIMLA	0:24	18:29	320	LLK	2:49	20:54	320	DI	4:12	22:17	350	AMDAR	5:02	23:07	350
19-Oct-2005	KLM804	RPLL	EHAM	B772	0.835	60	13:35	13:48	0:00	13:48					LLK	5:04	18:52	320	DI	6:26	20:14	310	LEMOD	7:22	21:10	310
19-Oct-2005	KLM810	WMKK	EHAM	B744	0.85	60	15:10	15:21	0:00	15:21	TAVUN	1:05	16:26	280	KKJ	3:39	19:00	320	ROSIE	5:14	20:35	310	RANAH	6:03	21:24	310
19-Oct-2005	KLM836	WSSS	EHAM	B744	0.85	60	14:55	15:07	0:12	15:19	IKULA	1:20	16:39	280	LLK	4:07	19:26	320	DI	5:27	20:46	310	LEMOD	6:22	21:41	310
19-Oct-2005	KLM872	VIDP	EHAM	M11	0.822	60	19:20	19:37	0:25	20:02									DI	0:59	21:01	310	LEMOD	1:55	21:57	310
19-Oct-2005	KLM878	VTBD	EHAM	B744	0.85	60	16:05	16:20	0:05	16:25	LIMLA	0:26	16:51	300	LLK	2:46	19:11	300	DI	4:06	20:31	310	LEMOD	5:00	21:25	310
19-Oct-2005	MAS02	WMKK	EGLL	B744	0.85	60	15:59	16:19	0:00	16:19	TAVUN	1:08	17:27	280	KKJ	3:41	20:00	320	ROSIE	5:18	21:37	310	RANAH	6:18	22:37	310
19-Oct-2005	MAS06	WMKK	EDDF	B744	0.86	60	15:50	16:10	0:21	16:31	TAVUN	1:07	17:38	320	KKJ	3:41	20:12	340	ROSIE	5:19	21:50	350	RANAH	6:10	22:41	350
19-Oct-2005	MAS16	WMKK	EHAM	B744	0.86	60	15:50	16:10	0:00	16:10	TAVUN	0:35	16:45	320	KKJ	3:41	19:51	320	ROSIE	5:25	21:35	350	RANAH	6:15	22:25	350
19-Oct-2005	MAS22	WMKK	LOWW	B744	0.86	30	15:59	16:19	0:27	16:46	TAVUN	1:07	17:53	320	KKJ	3:40	20:26	320	ROSIE	5:59	22:45	350	RANAH	6:16	23:02	350
19-Oct-2005	QFA1	VTBD	EGLL	B744	0.85	60	17:25	17:35	0:16	17:51	LIMLA	0:22	18:13	320	LLK	2:46	20:37	320	DI	4:08	21:59	350	LEMOD	5:03	22:54	350
19-Oct-2005	QFA5	WSSS	EDDF	B744	0.85	60	15:00	15:20	0:14	15:34	TAVUN	1:26	17:00	320	KKJ	4:00	19:34	340	ROSIE	5:36	21:10	350	RANAH	6:26	22:00	350
19-Oct-2005	RBA33	VTBD	EDDF	B763	0.80	60	13:40	13:50	0:00	13:50	LIMLA	0:26	14:16	280	LLK	2:56	16:46	300	DI	4:24	18:14	310	LEMOD	5:22	19:12	310
19-Oct-2005	SAS972	VTBD	EKCH	A343	0.82	60	17:20	17:35	0:32	18:07	LIMLA	0:27	18:34	300	LLK	2:53	21:00	320	DI	4:17	22:24	310	AMDAR	5:06	23:13	310
19-Oct-2005	SIA026	WSSS	EDDF	B744	0.85	60	15:50	16:10	0:05	16:15	VPL	0:56	17:11	280					ASLUM	5:50	22:05	350	CHARN	6:42	22:57	350
19-Oct-2005	SIA322	WSSS	EGLL	B744	0.85	60	15:20	15:40	0:24	16:04	IKULA	1:26	17:30	280	LLK	4:13	20:17	320	DI	5:33	21:37	310	LEMOD	6:29	22:33	310
19-Oct-2005	SIA324	WSSS	EHAM	B772	0.83	60	15:45	16:05	0:00	16:05	VPL	0:58	17:03	320					ASLUM	6:01	22:06	390	CHARN	6:56	23:01	390
19-Oct-2005	SIA334	WSSS	LFPG	B744	0.85	60	15:40	16:00	0:00	16:00	VPL	0:56	16:56	280					ASLUM	5:50	21:50	350	CHARN	6:42	22:42	350
19-Oct-2005	SIA346	WSSS	LSZH	B744	0.85	60	15:45	16:05	0:34	16:39	IKULA	1:26	18:05	320	LLK	4:09	20:48	320	DI	5:30	22:09	310	LEMOD	6:26	23:05	310
19-Oct-2005	SIA352	WSSS	ECKH	B772	0.83	60	17:00	17:20	0:00	17:20	IKULA	1:29	18:49	340	LLK	4:18	21:38	340	ROSIE	6:01	23:21	350	RANAH	6:54	0:14	350
19-Oct-2005	THA910	VTBD	EGLL	B744	0.86	60	18:10	18:30	0:44	19:14	LIMLA	0:23	19:37	320	LLK	2:48	22:02	340	DI	4:13	23:27	350	AMDAR	5:10	0:24	350
19-Oct-2005	THA920	VTBD	EDDF	B744	0.86	60	16:45	17:05	0:11	17:16	LIMLA	0:23	17:39	320	LLK	2:48	20:04	340	DI	4:13	21:29	350	AMDAR	5:10	22:26	350
19-Oct-2005	THA930	VTBD	LFPG	B744	0.86	60	17:05	17:25	0:06	17:31	LIMLA	0:23	17:54	320	LLK	2:48	20:19	340	DI	4:13	21:44	350	AMDAR	5:10	22:41	350
19-Oct-2005	THA944	VTBD	LIRF	B743	0.84	60	17:20	17:40	0:51	18:31	LIMLA	0:24	18:55	300	LLK	2:48	21:19	320	DI	4:11	22:42	350	LEMOD	5:07	23:38	350
19-Oct-2005	THA960	VTBD	ESSA	B744	0.86	60	18:10	18:30	0:29	18:59	LIMLA	0:23	19:22	320	LLK	2:48	21:47	340	DI	4:13	23:12	350	AMDAR	5:10	0:09	350
19-Oct-2005	THA970	VTBD	LSZH	A346	0.82	60	17:30	17:50	0:40	18:30	LIMLA	0:25	18:55	320	LLK	2:59	21:29	340	DI	4:27	22:57	350	LEMOD	5:25	23:55	350

Not Requiring Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	60	13:40	14:00		14:00					LLK	4:16	18:16	340								
19-Oct-2005	CPA037	VHHH	VIDP	B744	0.84	60	13:40	14:00		14:00					LLK	4:17	18:17	360								
19-Oct-2005	CPA753	VHHH	VIDP	A330	0.82	60	15:35	15:55		15:55					LLK	4:31	20:26	380								

Not Allocated Slots

Date	Callsign	Dept	Dest	Type	Mach	MAD	ETD	WUT	Delay	AWUT	WP1	ET1	ETO1	FL1	WP2	ET2	ETO2	FL2	WP3	ET3	ETO3	FL3	WP4	ET4	ETO4	FL4
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	60	14:55	15:15		15:15	TAVUN	1:26	16:41	320	KKJ	4:00	19:15	340	DI	5:30	20:45	350	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.85	60	14:55	15:15		15:15	TAVUN	1:25	16:40	320	KKJ	3:58	19:13	320	DI	5:29	20:44	310	LEMOD	6:25	21:40	350
19-Oct-2005	QFA9	WSSS	EGLL	B744	0.82	60	14:55	15:15		15:15	TAVUN	1:26	16:41	280	KKJ	4:01	19:16	320	DI	5:32	20:47	350	LEMOD	6:30	21:45	350
19-Oct-2005	THA950	VTBD	EKCH	B744	0.86	60	18:20	18:40		18:40	BETNO	0:23	19:03	320	LLK	2:48	21:28	340	DI	4:10	22:50	350	AMDAR	4:58	23:38	350

ATFM/TF/4 & BOBCAT Workshop
Appendix G to the Report

WORKING COPY OF

Bay of Bengal and South Asia ATFM Users Handbook



Version 2.0

10 November 2005

TABLE OF CONTENTS

Page

INTRODUCTION

References

Purpose and Scope

Area of ATFM Operation

Document Management

Changes to the ATFM Handbook

Amendment Record

PART I – ATFM BUSINESS RULES

I-1 Section Heading

I-1.1 Sub section heading

I-1.2 Sub section heading

I-2 Section Heading

I-2.1 Sub section heading

I-2.2 Sub section heading

I-3 Section Heading

I-3.1 Sub section heading

PART II – ATFM SYSTEM TOOL & OPERATIONS

II-1 Introduction

II-1.1 Sub section heading

II-1.2 Sub section heading

II-2 Airline Dispatchers

II-2.1 Sub section heading

II-2.2 Sub section heading

II-3 Air Navigation Service Providers

II-3.1 Sub section heading

II-4 ATFM Unit

II-4.1 Sub section heading

PART III – CONTINGENCY ARRANGEMENTS

III-1 Section Heading

III-1.1 Sub section heading

III-1.2 Sub section heading

III-2 Section Heading

III-2.1 Sub section heading

III-2.2 Sub section heading

ANNEXES

A-1 Request for Change (RFC) Form

B-1 xxx

INTRODUCTION

References

Annex 11	Air Traffic Services
Doc 4444	Procedures for Air Navigation Services – Air Traffic Management
Doc 9673	Basic Air Navigation Plan – Asia and Pacific Regions
Doc 9750	Global Air Navigation Plan for CNS/ATM Systems
Doc 9426	ATS Planning Manual

Purpose and Scope

As per ICAO Annex 11 Chapter 3.7.5, an ATFM service shall be implemented for airspace where air traffic demand at times exceeds or is expected to exceed the declared capacity of the air traffic services concerned.

Further, Annex 11 recommends that an ATFM service should be implemented on the basis of a regional air navigation agreement or through a multilateral agreement, which should make provision for common procedures.

Doc 4444 (PANS-ATM) Chapter 3.2.1.5 states that “*Detailed procedures governing the provision of the ATFM measures, and service within a region or area should be prescribed in a regional ATFM manual or handbook*”.

Accordingly, the purpose of this Handbook is to provide in one document, the procedures for the operation of the Bay of Bengal and South Asia ATFM service, which have been developed through the effective use of Collaborative Decision Making between the States and airspace users concerned.

Area of ATFM Operation

Except where specified elsewhere in this Handbook, the ATFM service within the Bay of Bengal and South Asia shall include those portions of airspace and routes which are defined in Section **XX** and that are contained within the following Flight Information Regions:

- Bangkok
- Chennai
- Colombo
- Delhi
- Dhaka
- Jakarta
- Kabul
- Karachi
- Kathmandu
- Kolkata
- Kuala Lumpur
- Lahore
- Mumbai
- Singapore
- Yangon

Document Management

Arrangement of the Manual

The ATFM Handbook has been divided into three parts, with Part I covering the ATFM Business Rules, Part II concerned with the operation of the ATFM system tools and functionality and Part III covering Contingency Arrangements.

Control of the Manual

This Handbook is controlled, edited and produced by the ***[insert name of ATFM coordination authority]***, which operates under the auspices of the ICAO Bay of Bengal ATS Coordination Group (BBACG).

The Editor for the Bay of Bengal and South Asia ATFM Handbook is:

Ron Rigney
Chairman, Bay of Bengal ATFM Task Force
Airservices Australia
Tel: +61 7 3866 3487
Fax: +61 7 3866 3402
Email: ron.rigney@airservicesaustralia.com

Validity

The date of application of this Edition number **1.0** is [insert date] and this manual shall not be used operationally before that date.

Changes to the ATFM Handbook

The ATFM Handbook will usually be updated once per year. However intervening amendments may be issued in conjunction with relevant State AIC and AIP documents.

Whenever a user identifies a need for a change to this Handbook, a Request for Change Form (RFC) should be completed and submitted to the Editor. A copy of the RFC Form is shown at **Annex A**.

Amendment Record

Version / Amendment Number	Date	Amended by	Comments
1.0	DD MM 2005		This is the original version

PART I – ATFM BUSINESS RULES

I-1 Overview

I-1.1 Sub section heading

I-1.2 Sub section heading

I-2 Objectives

I-2.1 Sub section heading

I-2.2 Sub section heading

I-3 Area of Operations

I-3.1 Sub section heading

I-4 Hours of Operations

I-5 Responsibilities

PART II – ATFM SYSTEM TOOL & OPERATIONS

BOBCAT System

II-1 Description of BOBCAT System

II-1.1 System Overview

II-1.2 BOBCAT Waypoints

BOBCAT Operations

II-2 Operating Principles

II-2.1 Sub section heading

II-3 ATFM Unit

II-3.1 Sub section heading

1. Procedure for ATFM Manager Slot Allocation Result Review and Approval
2. Cooperation with ANSP in modifying availability of Flight Levels at waypoint and/or spacing at waypoints
3. Procedure for Assignment of Slot Request Privilege for Dispatcher Organization in order to submit slot request on behalf of an airline operator
4. Procedure for Assignment of User Login to Dispatcher Organization and ANSP personnel
5. Procedure for Password Reset
6. Procedure for Slot Request Submission on behalf of Airline Dispatchers
7. Procedure for Slot Request Modification on behalf of Airline Dispatchers
8. Procedures for Allocating delay necessary for aircraft unable to meet WUT
9. Guideline on Password Security

II-3.2 Sub section heading

II-4 Airline Operators

Procedure for Procuring and Removing Login and Password

Procedure for Resetting Password

Guideline on Submitting Slot Request Prior to Cutoff Time

Submitting Slot Requests

Concept of Route Track and Flight Level Choice

Responsibility of requesting proper times

Saving Slot Request into Templates

Viewing Previously Submitted Slot Requests
Modifying Previously Submitted Slot Requests
Guideline on Viewing Slot Allocation
Guideline Requesting new Slot Allocation
Viewing Free Slot
Changing Slot Allocation
Guideline on Submitting Slot Request After Cutoff Time
Guideline on Password Security

II-4.1 Sub section heading

II-5 Air Navigation Service Providers

II-5.1 ACC Responsibilities

Procedure for Cooperation with ATFMU in metering waypoint spacing and availability of flight levels at waypoints
Procedure for Cooperation with ATFMU in allocating delay to aircraft unable to meet WUT assigned
Procedure for Procuring and Removing Login and Password
Procedure for Resetting Password
Guideline on Viewing Slot Allocation Results
Guideline on Password Security

II-5.2 Control Tower responsibilities

II-5.2.1 Priority of aircraft movement operating under BOBCAT Rules

Sequencing of departing aircraft from each airport – endeavour to give priority to aircraft operating to BOBCAT slot allocation system

Ensure that there is no impediment to aircraft subject to BOBCAT slot allocation during the taxiing phase

Ensure that other aircraft not subject to BOBCAT slot allocation do not affect the Wheels-Up Time of aircraft operating under a BOBCAT slot allocation.

Note other aircraft not involved in BOB CAT could affect WUT of Bobcat aircraft – prioritisation of bobcat.

II-5.2.2 Aircraft unable to meet Wheels Up Time

If it becomes known that an aircraft operating to a BOBCAT WUT is not going to make the allocated time, then:

TWR to advise ACC in order for ATFMU to make new slot

TWR to keep ATFMU informed via ACC of any other abnormality which could affect aircraft operations under BOBCAT.

PART III – CONTINGENCY ARRANGEMENTS

III-1 Section Heading

III-1.1 Sub section heading

2. Emergency Procedures

- a. Level of Service Failure
 - 1. Short Term – < 2 hr
 - 2. Medium Term – 2-24 hr
 - 3. Long Term – > 24 hr
- b. “Degraded Mode Operations”
 - 1. Fax Usage Procedure
 - 2. Telephone Usage Procedure
- c. BOBCAT Web Server Failure
 - 1. Single Server
 - 2. Dual Server
 - 3. Complete Failure
 - 4. Reporting Arrangements
- d. BOBCAT Application Server Failure
 - 1. Single Server
 - 2. Dual Server
 - 3. Complete Failure
 - 4. Reporting Arrangements
- e. BOBCAT Database Server Failure
 - 1. Single Server
 - 2. Dual Server
 - 3. Complete Failure
 - 4. Reporting Arrangements
- f. BOBCAT Servers Internet Link Failure
 - 1. Alternate Facility
 - 2. Business Resumption Plan
 - 3. Reporting Arrangements
- g. ATFMU System Failure
 - 1. Alternate Facility
 - 2. Business Resumption Plan
 - 3. Reporting Arrangements
- h. Airline Operators Facility Failure
 - 1. Alternative Facility
 - 2. Business Resumption Plan
 - 3. Reporting Arrangements
- i. Airline Operators Link Failure
 - 1. Alternative Facility
 - 2. Business Resumption Plan
 - 3. Reporting Arrangements
- j. ANSP Facility Failure
 - 1. Alternative Facility
 - 2. Business Resumption Plan
 - 3. Reporting Arrangements
- k. ANSP Link Failure

1. Alternative Facility
2. Business Resumption Plan
3. Reporting Arrangements

III-1.2 Sub section heading

III-2 Section Heading

III-2.1 Sub section heading

III-2.2 Sub section heading

III-3 Section Heading

III-3.1 Sub section heading

Request For Change formRFC Nr:

To be used whenever requesting a change to any part of the ATFM Handbook. This form may be photocopied as required.

1. SUBJECT:			
2. REASON FOR CHANGE:			
3. DESCRIPTION OF PROPOSAL: [attach additional pages if necessary]			
4. REFERENCE(S):			
5. PERSON INITIATING:			DATE:
ORGANISATION:			
TEL/FAX/EMAIL:			

6. CONSULTATION Organisation	Name	RESPONSE DUE BY DATE: Agree/Disagree	Date

7. ACTION REQUIRED:	
8. EDITOR	DATE REC'D:
9. FEEDBACK PASSED	DATE:

Safety Assessment Hazard Log

Operational Trial Implementation of Bay of Bengal Cooperative Traffic Flow Management System (BOBCAT)

The Bay of Bengal Cooperative Traffic Flow Management System (BOBCAT) is not intended nor designed to “control” aircraft or relieve any of the traffic separation responsibilities of the ATS providers concerned. ATS providers retain full responsibility for all ATS functions, including air traffic collision avoidance. In accordance with Phase One of the ATFM system implementation planning for the Bay of Bengal being coordinated by the Air Traffic Flow Management Task Force (ATFM/TF) of the ICAO Bay of Bengal ATS Coordination Group (BBACG), the purpose of BOBCAT was to regulate, by the calculation and distribution of wheels up and gateway slot times, the flow of westbound air traffic departing airports from East Asia, South-East Asia and South Asia and which had planned to transit the Kabul FIR between the hours of 2000 and 2400 UTC daily.

The BOBCAT was an advisory system which did not have executive control of aircraft. Nevertheless, BOBCAT would provide scheduling information for aircraft departures and, if the system did not perform to design expectations, this could lead to traffic congestion. However, in no case would erroneous advisory information from BOBCAT be expected to lead to breakdown of required ATS separation as ATS providers retained responsibility for tactical ATS and traffic management. In this context, the Air Traffic Flow Management Task Force undertook a safety assessment hazard identification activity in preparation for an operational trial of BOBCAT. The following seven hazards and associated mitigators were identified during the hazard identification activities.

	Hazard No 1
Description:	Non-standard, incorrect or corrupt data leading to erroneous advisory information.
Remarks:	The BOBCAT is a computerized system with user access via the public internet. This hazard identifies the possibility of incorrect data being presented to or utilized by BOBCAT, resulting in erroneous advisory information being promulgated by BOBCAT.

Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) Hardware – The BOBCAT Concept of Operations includes details of system hardware architecture which incorporates contemporary firewall protection to ensure no unauthorized access is obtained, in particular to application and database servers. 3) Software – incorporates checking algorithms to ensure aircraft can not be scheduled at the same gateway fix at the same time and at the same flight level. 4) Paper Trial – Paper trials/simulations of full functionality of BOBCAT prior to operational trial comprises validation exercises in order to identify data errors and other issues. 5) ATFMU – Structured training programme for ATFMU staff to ensure recognition of non-normal data configurations, and a “reasonableness” check of gateway allocation lists is conducted by ATFMU staff prior to the list being published to users. 6) ATS Unit – The ATS Units adjacent to or controlling gateway fixes would identify situations where traffic was inappropriately sequenced and provide tactical ATS intervention. 7) Shadow/Ghost Operations – Implementation of operational trial will utilize staged implementation of BOBCAT. Stage one (7 day period) would require full functionality and user input, but slots generated would not be issued to aircraft. Facilitates testing of databases and procedures under operational conditions. Stage 2 commences live operations only provided Stage 1 operations are acceptable. 8) Computer based training package for BOBCAT operations and interactive web board (i.e. discussion page) will be provided on BOBCAT web site.
--------------------	---

	Hazard No 2
Description:	Errors or bugs in software updates leading to erroneous advisory information.
Remarks:	This hazard identifies concerns in respect of major software changes or other major equipment changes which could result in introduction of catastrophic software threats.
Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) Hardware – The BOBCAT Concept of Operations includes details of system hardware architecture which includes duplicated systems throughout enabling redundancy , allows one system to be non operational whilst duplicated system carries the load. 3) Bay of Bengal and South Asia ATFM Handbook includes requirements and procedures for major software updates. Significant system and software changes to be reviewed by suitable oversight authority e.g. Air Traffic Flow Management Task Force, Bay of Bengal ATS Coordination Group, AEROTHAI Senior Engineering Staff prior to implementation 4) Paper trial and shadow/ghost operations provide intensive testing of software.
	Hazard No 3
Description:	Hardware or networking failures or incompatibilities leading to absence of advisory information or promulgation of erroneous advisory information.

ATFM/TF/4 & BOBCAT Workshop
Appendix H to the Report

Remarks:	Hardware and/or hardware networking problems/public internet failures may create a situation where BOBCAT goes off line without warning, leading to an absence of data or erroneous data presentation to users due lack of update capability.
Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) Hardware – The BOBCAT Concept of Operations includes details of system hardware architecture which includes duplicated systems throughout enabling redundancy of hardware without compromising entire BOBCAT system. 3) Software configuration includes time/date stamp of slot allocation list and other time bound pages. 4) Bay of Bengal and South Asia ATFM Handbook includes requirements and procedures for internet outage, including manual procedures for contact with ATFMU via telephone, AFTN and fax to allow gateway allocation list to be updated and gateway allocations issued. 5) ATFMU staffing includes provision for technician qualified and trained on all BOBCAT facilities to be on duty during hours of operation of ATFMU. 6) Paper trial and shadow/ghost operations provide intensive testing of system. Shadow/ghost operations allow testing of hardware and networked system under operational conditions.
	Hazard No 4
Description:	Inadequate or inappropriate information entered into the system by users leading to erroneous advisory information.

ATFM/TF/4 & BOBCAT Workshop
Appendix H to the Report

Remarks:	BOBCAT would have a large number of users, particularly dispatchers from many airlines, interacting with the system. Potential for the “wrong” information to be entered, leading to consequential erroneous data being promulgated by BOBCAT.
Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) Two day BOBCAT Workshop (9 & 10 November 2005) for airline dispatchers and affected ATS officers conducted during ATFM/TF/4 meeting (7 – 11 November 2005). 3) Bay of Bengal and South Asia ATFM Handbook includes comprehensive requirements and procedures for users of the system. 4) Structured training programme for ATFMU staff to ensure recognition of non-normal data configurations, and a “reasonableness” check of slot allocation lists is conducted by ATFMU staff prior to the list being published to users. 5) BOBCAT software makes extensive use of simplified menus for user selection of data input, limited choices in each menu for routes, levels etc, no ability for users to vary menus or input data other than what is contained in the menus. 6) BOBCAT Concept of Operations includes provisions for security of user access to BOBCAT. Access only via password to authorized users with written approval from ATFMU manager. 7) Computer based training package for BOBCAT operations and interactive web board (i.e. discussion page) will be provided on BOBCAT web site.
Hazard No 5	
Description:	Unforeseen changes in airspace operational status leads to sudden reduction in airspace capacity.

ATFM/TF/4 & BOBCAT Workshop
Appendix H to the Report

Remarks:	If the airspace operational status changes without due notification e.g. sudden non-availability of an ATS route, it will take some time before BOBCAT can reschedule slots if the sudden change in status occurs prior to the publication of the nightly slot allocation list. If the change in airspace operational status occurs after the slot allocation list has been published, BOBCAT is unable to assist.
Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) Sudden changes in operational status that occur prior to the cut off time for the calculation and promulgation of the gateway allocation list can be managed by BOBCAT, e.g. a route that is suddenly not available is removed from the route selections available to users. Users that have already selected the route that is no longer available would be allocated one of their other preferences that did not include this route. 3) In circumstances where the change in operational occurs after the gateway allocation list has already been promulgated would require ATS providers to tactically manage the situation in accordance with ATS contingency plans/procedures.
Hazard No 6	
Description:	Industry does not comply with agreed wheels up and/or gateway fix times leading to congestion and un-flowed traffic sequence.
Remarks:	Inadvertent or willful non compliance by Industry with published wheels up and/or gateway fix times would lead to schedule conflicts at gateway fixes.

ATFM/TF/4 & BOBCAT Workshop
Appendix H to the Report

Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) ICAO PANS ATM (Doc 4444) includes provisions at paragraph 7.8.1 which place responsibility on pilot and operator to ensure that aircraft is ready to taxi in time to meet ATFM requirements. 3) Implementation of flow management provided by BOBCAT is as a result of collaborative arrangements between Bay of Bengal ATS providers and IATA, including IATA member airlines. Industry consultation/liaison with/by IATA and ICAO Regional Office provides increased communications and agreement between users and ATS providers. 4) AIP Supplement agreed by users and issued by involved States requires compliance by users with gateway slots allocated by BOBCAT. AIP Supplement will highlight importance of meeting allocated slot times. 5) BOBCAT software includes tracking/ reporting capability will be used to identify users that habitually do not comply. ATFMU will contact these users to advise of non compliance and ascertain remediation proposed by users. 6) Bay of Bengal and South Asia ATFM Handbook includes comprehensive requirements and procedures for users of the system, including provision for non participating aircraft and coordination activities required in the event of a missed slot. 7) Two day BOBCAT Workshop (9 & 10 November 2005) for airline dispatchers and affected ATS officers conducted during ATFM/TF/4 meeting (7 – 11 November 2005).
Hazard No 7	
Description:	ATS Units do not comply with agreed wheels up and/or gateway fix times leading to congestion and un-flowed traffic sequence.

ATFM/TF/4 & BOBCAT Workshop
Appendix H to the Report

Remarks:	Inadvertent or willful non compliance by ATS Units with published wheels up and/or gateway fix times would lead to schedule conflicts at gateway fixes.
Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) ICAO PANS ATM (Doc 4444) includes provisions at paragraph 7.8.1 which enable adjustments to be made to sequence of departing aircraft in respect of aircraft subject to ATFM requirements. 3) Implementation of flow management provided by BOBCAT is as a result of collaborative arrangements between Bay of Bengal ATS providers and IATA, including IATA member airlines. Industry consultation/liaison with/by IATA and ICAO Regional Office provides increased communications and agreement between users and ATS providers. 4) Downstream ATS Units will be required to tactically manage non compliances from upstream ATS Units. 5) AIP Supplement agreed by users and issued by involved States requires compliance by users with gateway slots allocated by BOBCAT. AIP Supplement will highlight importance of meeting allocated slot times. 6) BOBCAT software includes tracking/ reporting capability will be used to identify ATS Units that habitually do not comply. ATFMU will contact these ATS Units to advise of non compliance and ascertain remediation proposed by ATS Units. 7) Bay of Bengal and South Asia ATFM Handbook includes comprehensive requirements and procedures for users of the system, including provision for non participating aircraft and coordination activities required in the event of a missed slot. 8) Two day BOBCAT Workshop (9 & 10 November 2005) for airline dispatchers and affected ATS officers conducted during ATFM/TF/4 meeting (7 – 11 November 2005).

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

BASIC USER REQUIREMENT STATEMENT FOR BOBCAT SLOT ALLOCATION PROGRAMME PHASE I

1.0 ISSUE:

1.1 “The westbound traffic flows across the Bay of Bengal to Europe is a difficult traffic flow for both air traffic control and airlines during the peak traffic periods. The reason being, there is no air traffic management programme in place that looks at the total flow with a game plan to ensure that all traffic will fit through the known bottlenecks of the system. Air traffic controllers clear flights from airports such as Singapore, Kuala Lumpur and Bangkok that joins onto competing parallel tracks from a single-track perspective only. They have no idea how they will fit in the big picture as traffic converges through India, Pakistan and Afghanistan. A successful evening event from their point of view is few ground delays. For the airlines and ATC from “down the line” departing airports, such as Delhi and Islamabad, the midnight rush is an exercise of frustration as most, if not all, of the slots are already taken by departures from Singapore, Kuala Lumpur and Bangkok¹”.

1.2 “The problem is that these uncoordinated departures do not always fit. Consequently, airlines continue to be surprised en route with expensive re-routes to circumnavigate around Afghanistan – mainly because they don’t fit into the restrictive flow into Afghanistan. Usually such reroutes result in technical stops to take on additional fuel, meaning that besides the considerable extra expense of an unplanned landing, passengers will miss connections to their final destinations¹.”

2.0 BOBCAT PARTICIPANTS:

2.1 IATA requests that all flights operating westbound on G792/B466/V390, L750 and N644/A466 that enter into the Kabul FIR between the hours of 2000-2359 UTC must participate in the BOBCAT slot allocation programme in order to be guaranteed a slot into Afghanistan.

2.2 Note: *The BOBCAT Slot Allocation Programme requirement should be promulgated by Afghanistan and Pakistan NOTAMs.*

2.3 Note: *Flights that do not choose to participate in the BOBCAT slot allocation programme during this time frame must be delayed or rerouted if their flight into Afghanistan conflicts with participating flights.*

3.0 DEFINITION OF BOBCAT ENTRY FIXES (GATES) INTO AFGHANISTAN

3.1 For G792: Kandahar (KN); FL310 and FL350

3.2 For L750: Zhob (ZB); FL280*, FL310 and FL350

3.3 For N644/A466: Dera Ismail Khan (DI); FL280*, FL310 and FL350

*NOTE: *Departing aircraft from India and Pakistan must be given priority for FL280 during the initial round of slot allocations issued by BOBCAT.*

¹ Quote from IATA Working Paper to APANPIRG/15 (Agenda Item 2) titled “The Need to Manage the Traffic Flows across the Bay of Bengal to Europe”

4.0 LONGITUDINAL SEPARATION OF SLOTS

4.1 Slots are to be defined by ATC longitudinal separation minimum plus an additional buffer to allow flights to meet their slots. Therefore, for the current 10 minutes longitudinal separation required by Afghanistan the slots are defined as:

10 minutes longitudinal separation + “X” minutes buffer

4.2 Since Asia departures to Europe are late at night with very little domestic traffic at departure airports that could contribute to ground delays, it is recommended that BOBCAT starts with 15-minute slots (10 minutes longitudinal separation + 5 minutes buffer) and then review departure times and aircrafts ability to meet gateway estimates and then adjust the “X” factor as required.

4.3 Note that the “X” factor is the time allowed for the aircraft to enter into the gateway fix. The following tables define the slots and the crossing times required by aircraft.

4.3.1

Slot segment	Aircraft’s Slot (Must cross gateway at this time)	BOBCAT ATM Slot (System dimension)
1	2000 – 2005 UTC	2000 – 2015 UTC
2	2015 – 2020 UTC	2015 – 2030 UTC
3	2030 – 2035 UTC	2030 – 2045 UTC
Etc.	Etc.	Etc.

4.3.2 A more expanded rendition of assigned slots with entry requirements is as follows:

Slot number	Aircraft’s Slot (Must cross gateway at this time)	BOBCAT ATM Slot (System dimension)
KN-1	2000 – 2005 UTC at FL310	2000 – 2015 UTC at FL310
KN-2	2000 – 2005 UTC at FL350	2000 – 2015 UTC at FL350
ZB-1	2000 – 2005 UTC at FL280	2000 – 2015 UTC at FL280
ZB-2	2000 – 2005 UTC at FL310	2000 – 2015 UTC at FL310
ZB-3	2000 – 2005 UTC at FL350	2000 – 2015 UTC at FL350
DI-1	2000 – 2005 UTC at FL280	2000 – 2015 UTC at FL280
DI-2	2000 – 2005 UTC at FL310	2000 – 2015 UTC at FL310
DI-3	2000 – 2005 UTC at FL350	2000 – 2015 UTC at FL350
KN-3	2015 – 2020 UTC at FL310	2015 – 2030 UTC at FL310
KN-4	2015 – 2020 UTC at FL350	2015 – 2030 UTC at FL350
ZB-3	2015 – 2020 UTC at FL280	2015 – 2030 UTC at FL280
ZB-4	2015 – 2020 UTC at FL310	2015 – 2030 UTC at FL310
ZB-5	2015 – 2020 UTC at FL350	2015 – 2030 UTC at FL350
DI-3	2015 – 2020 UTC at FL280	2015 – 2030 UTC at FL280
DI-4	2015 – 2020 UTC at FL310	2015 – 2030 UTC at FL310
DI-5	2015 – 2020 UTC at FL350	2015 – 2030 UTC at FL350
KN-5	2030 – 2035 UTC at FL350	2030 – 2045 UTC at FL350
Etc	Etc	Etc

Note: This table is for illustration only and is assuming that all aircraft are flying at same speed and will have same longitudinal spacing exiting Afghanistan. This table also assumes that A466 and N644 are treated as a single route within Kabul FIR.

5.0 BOBCAT SLOT ALLOCATION

5.1 Airlines bid for BOBCAT slots per BOBCAT Concept of Operation (Draft Version 2.1) section 3 Theory of Operations. Departing aircraft from India and Pakistan must be given priority for FL280. It should be noted that initial cut-off time to allow for first slot allocation process needs to be defined.

6.0 PROPOSED DEPARTURE TIMES AND TIME TO GATEWAY

6.1 The User requirements for BOBCAT phase I is for a simple system designed to allocate slots based on airline estimates. This means that:

- a) Airlines are responsible for their own estimates based on known upper winds and route of flight per flight plan,
- b) BOBCAT (phase I) does not require an upper winds system plain and therefore does not calculate en route times from departure to gateway.
- c) Airlines will amend their proposed departure time based on the slot assigned by BOBCAT and known upper winds. (The advised WUT will be used by ATC as a guide to facilitate the departure of the flight to enable it to meet the slot time)

7.0 INABILITY TO MEET SLOT TIME

7.1 If for some reason an aircraft cannot meet its slot time it must inform ATC and obtain a new slot from BOBCAT. There should be two ways available for pilots to obtain a new slot:

- a) Requirement: By contacting ATC (tower control if aircraft is on ground and ACC if aircraft is en route) with a new slot time request. ATC will then obtain a new slot from BOBCAT and if the pilot accepts the new slot ATC will then issue a new ATC clearance as required.
- b) Optional: By contacting company, who will obtain a new slot from BOBCAT. Pilot will then advise ATC of the new slot and ATC will then issue a new ATC clearance as required.

7.2 Therefore BOBCAT system must be continuously up to date with available slots and accessible by ATC and users during the period that ATFM is in force.

DRAFT AIP SUPPLEMENT

IMPLEMENTATION OF AN OPERATIONAL TRIAL OF AIR TRAFFIC FLOW MANAGEMENT (ATFM) OVER BAY OF BENGAL, SOUTH ASIA AND PAKISTAN THROUGH KABUL FIR

1 Introduction

- 1.1 The ICAO (Asia/Pacific) Region within the Bay of Bengal, South Asia and Pakistan airspace will be implementing an integrated Air Traffic Flow Management (ATFM) service to manage westbound air traffic transiting through the Kabul FIR by satisfying minimum spacing requirements at established gate way points. This decision was taken during the Special Coordination Group-BBACG meeting in January 2005.
- 1.2 The objectives of the ATFM service are as follows:
- a) Reduction in ground and en-route delays
 - b) Maximise capacity and optimum flow of air traffic within the area
 - c) An informed choice of routing and flight level selection
 - d) To plan for and manage future ANSPs workload in the light of forecast increased traffic flow within the area

2 Scope

2.1 Identification of ATS Routes

- 2.1.1 Effective on 16 March 2006, the operational trials of the ATFM system will be implemented. Westbound flights intending to transit through the Kabul FIR on ATS routes A466, L750, N644 and V390/G792 from FL280 to FL390 inclusive between 2000UTC and 2400UTC shall participate in the operational trials of the ATFM system.
- 2.1.2 Flights intending to utilize the following routes and/or waypoints shall participate in the operational trials of the ATFM system.
- a) VPL P628
 - b) TAVUN L759
 - c) IKULA M770
 - d) BETNO P646
 - e) LIMLA L507

- f) LUCKNOW VOR/DME (LLK)
- g) KHAJURAHO VOR/DME (KKJ)
- h) ASLUM G792 CHARN
- i) ROSIE L750 RANAH
- j) D I KHAN VOR/DME (DI) N644 LEMOD
- k) D I KHAN VOR/DME (DI) A466 AMDAR

3 Provision of ATFM Services

- 3.1 The ATFM service is advisory in nature and will be provided by the Bay of Bengal Co-operative Air Traffic Flow Management Advisory System (BOBCAT) of Aeronautical Radio of Thailand.
- 3.2 The BOBCAT will be responsible for the ATFM activities within the Bay of Bengal and South Asia areas and will be supported by the Air Traffic Flow Management Unit (ATFMU) in Bangkok and the ANSPs in the FIRs concerned.
- 3.3 The ATFMU will operate from 0800UTC to 2400UTC daily for westbound flights and the contact details are as follows:

BOBCAT ATFMU

Telephone:

ATFN: VTBBZDZX

E-mail:

Fax:

- 3.4 Aircraft Operators and ANSPs are required to have a basic set of computer capable to connect to BOBCAT website www.bobcat.aero via the internet that satisfies the following minimum requirements:
 - a) A Personal Computer of any operating system with the following characteristics;
 - i) Processor: minimum CPU clock speed of 150 MHz
 - ii) Operating System: Any that operates one of the following web browsers (i.e. Windows 2000/XP, Linux, Unix, or Mac OS)

- iii) RAM: 64 MB or larger (depending on operation system)
Harddisk Space: minimum of 500 MB or larger (depending on operating system)
- iv) Monitor Display Resolution: Minimum of 800 x 600 pixels
- v) Web Browser: Internet Explorer 5.5 or newer, Mozilla 1.0 or newer, Mozilla Firefox 1.0 or newer, Netscape 7 or newer
Internet Connection : 56 Kbps Modem or faster Internet connection

4 ATFM Operating Procedures

4.1 Slot Allocation Process

4.1.1 Slot allocation processing are divided into 3 phases, namely the 'Pre-cut-off' phase, 'Slot allocation processing and slot distribution' phase and the 'Post-cut-off' phase.

a) Pre-cut-off phase (between 0800 - 1200 UTC)

To will allow the airline operators to submit the slot request and/or amend its slot request in the system by 1200UTC. At this state all flights concerned are required to submit the slot request through the BOBCAT system by log-in to www.bobcat.aero and fill in the necessary information as required.

b) Slot allocation processing and slot distribution phase (between 1201 - 1300 UTC)

BOBCAT will process the slot allocation; generate slot allocation and distribute them to all parties concerned.

c) Post-cut-off phase (between 1301 - 2400 UTC)

Aircraft operators can;

- i) View the slot allocation result for flight planning purposes
- ii) Cancel the assigned slot
- iii) Request for change of slot allocation to the another available slot

Flights that were not allocated a slot or could not submit the slot requests prior to the cut-off time will be able to search and submit their request to BOBCAT.

- 4.1.2 ANSPs in the FIRs concerned will be able to view the allocation results by logging-in to www.bobcat.aero and access the appropriate screen for ATM planning purpose in the post-cut-off phase.
- 4.1.3 Aircraft operators should submit their flight plan after the slot allocation. Operators should address flight plan and related ATS messages (FPL, DLA, CNL, CHG) to ATFMU via AFTN address 'VTBBZDZX', in addition to the normal addressees.
- 4.2 Pre-flight Procedures
 - 4.2.1 Pilot in Command (PIC) shall be kept informed of the ATFM slot allocation and flight profile as allocated by the BOBCAT system through their operators.
 - 4.2.2 It is the operators' responsibility to ensure that the flight will meet the assigned wheels-up-time (AWUT).
 - 4.2.3 The PIC shall arrange to take-off as close as possible to the AWUT.
 - 4.2.4 The PIC shall include the AWUT during the request for ATC clearance.
 - 4.2.5 If the circumstance indicates that the occurred delay is unavoidable to meet the AWUT, a new slot should be obtained by the most expeditious means (flight dispatcher or ANSPs).
- 4.3 ANSP Role and Responsibility
 - 4.3.1 Flight with slot allocation should be given the priority for take off over other departure.
 - 4.3.2 AWUT shall be included as part of the ATC clearance.
 - 4.3.3 ANSPs should assist the PIC to coordinate for a new slot allocation with the ATFMU in the event that the aircraft is unable to meet the AWUT.
 - 4.3.4 Standard taxiing time or any changes for the departure aerodromes should be forwarded to the ATFMU as a guide for operators to plan for their WUT.
 - 4.3.5 NOTAMs regarding any planned activities (eg, reservation of airspace/closure of airspace, non-availability of routes, etc) shall be forwarded to the ATFMU.
 - 4.3.6 ATS messages (eg. DEP, CNL) for flights participating in the ATFM shall be forwarded to ATFMU by the relevant ANSPs.

5 Procedures for Operations of Special Flights Exempted from ATFM

- 5.1 Westbound flights transiting through the Kabul FIR on ATS routes A466, L750, N644 and V390 from FL280 to FL390 inclusive between 2000UTC and 2400UTC shall participate in the operational trials of the ATFM system except for the following flights:
- a) Humanitarian or medical flights
 - b) State aircraft with Head of State onboard
- 5.2 Flights exempted from ATFM shall indicate the exemption in their flight plan (Field 18 – STS-ATFM EXMP).
- 5.3 ANSPs should forward the flight plan information to the ATFMU.

6 Contingency Procedures

- 6.1 In the event of total system failure to the BOBCAT, ATFMU shall notify all parties concerned. Once this notification is received from ATFMU, the ATFM procedures will not be applicable during that period.
- 6.2 In the event that communication link failure between ANSPs and BOBCAT, the following means shall be used;
- a) AFTN : VTBBZDZX
 - b) Fax :
 - c) Email :

7 Address of Bangkok Air Traffic Flow Management Unit (ATFMU)

- 7.1 Where necessary, the Bangkok ATFMU may be contacted as follows;

Bangkok Air Traffic Flow Management Unit
Telephone : 662285
Fax :
AFTN : VTBBZDZX
Email : atfm@aerothai.co.th

8 ATFM Handbook

- 8.1 All detailed information in respect of the air traffic flow management operations mentioned above and other pertinent information have been included in the Bay of Bengal and South Asia ATFM Handbook and are available at www.bobcat.aero
- 8.2 ANSPs and Operators shall ensure that they are conversant with the procedures given in the Bay of Bengal and South Asia ATFM Handbook.

Other possible remarks:

- 1. Flights departing from India, Pakistan shall have priority for FL280
- 2. NPDC procedures in the BOB in the ATFM routes
- 3. RVSM Non-compliance flights
- 4. ATFM Incidents
- 5. Trigger NOTAM 2 weeks before operational trial

ATFM/TF/4 & BOBCAT Workshop
Appendix K to the Report

TASK LIST FOR THE IMPLEMENTATION OF AN ATFM ADVISORY SYSTEM TRIAL IN THE BAY OF BENGAL (VERSION 3.0)

ID	Task Name	Start Date	Finish Date	Completion Date	Action By	Resource Names/Remarks
1.0	Operational Issues					
1.1	Identify Operational Needs		17 Jan 2006		Task Force	
1.2	Co-ordinate and update Operational Concept		17 Jan 2006		Task Force	
1.3	Define ATFM airspace/States involved		9 Sep 2005		Task Force, States	Include in AIP Supplement
1.4	Define data collection plan	1 May 2005			IATA, Airlines ANSPs, AEROTHAI	Regional data captured Apr 05; India provided additional data 9 – 15 May 2005, 5-7 October and 19 October paper trials. Further paper trial proposed for 15 - 21 December 2005
1.5	Examine the operational factors and workload associated with implementation	22 Apr 2005			States, AEROTHAI	
1.6	Determine required ATFM tools		1 Jul 2005		AEROTHAI, Task Force	AEROTHAI BOBCAT system to commence ATFM operational trial by 16 March 2006
1.7	Develop, coordinate and submit necessary international and regional documentation					Refer to ATM/AIS/SAR/SG for guidance/advice on multi-lateral agreements required.
2.0	Develop ATFM Operations Manual and Procedures	1 Jul 2005	17 Jan 2006			
2.1	Develop ATFMU procedures		17 Jan 2006		AEROTHAI, Task Force	
2.2	Develop ATS Unit(s) procedures		17 Jan 2006		AEROTHAI, Task Force	
2.3	Develop Airline procedures		17 Jan 2006		Task Force, IATA	
2.4	Develop contingency procedures		17 Jan 2006		Task Force	(e.g ATFM system/comm. outage)
3.0	Establishment of an ATFMU					
3.1	Determine operating hours, manning and equipment requirements		17 Jan 2006		AEROTHAI, Task Force	

ATFM/TF/4 & BOBCAT Workshop
Appendix K to the Report

ID	Task Name	Start Date	Finish Date	Completion Date	Action By	Resource Names/Remarks
3.2	Coordination and communications requirements with ATS Unit(s) and Airlines	1 July 2005	17 Jan 2006		AEROTHAI	
3.3	Assess workload and procedures for ATFMU and Airlines		17 Jan 2006		AEROTHAI	
4.0	Financial considerations					
4.1	Determine funding arrangements for operation of ATFM service					Not required for trial – will be discussed prior to acceptance of ATFM system
5.0	Determination of Communication and Interface links					
5.1	Establishment of communication/interface links between ATFMU and ATS Unit(s)	1 Jul 2005	15 Dec 2005		AEROTHAI	Further discussions at ATFM/TF/4
5.2	Establishment of communication/interface links between ATFMU and Airlines	1 Jul 2005	15 Dec 2005		AEROTHAI	Further discussions at ATFM/TF/4
6.0	Complete coordination with adjoining States and Industry organisations					
6.1	Publish AIC on the ATFM trial	1 Jul 2005	4 Aug 2005		States	AIC issued Thailand and, Malaysia, India & Singapore during September 2005. Query Pakistan?
6.2	Publish necessary AIP Supplement		19 Jan 2006		States	
6.3	Publish Trigger NOTAM		2 Mar 2006		States	7 days prior to implementation of shadow operations
7.0	SMS requirements as per Annex 11		17 Jan 2006		Task Force	Satisfy requirements of ATFM against Annex 11 SMS

ATFM/TF/4 & BOBCAT Workshop
Appendix K to the Report

ID	Task Name	Start Date	Finish Date	Completion Date	Action By	Resource Names/Remarks
8.0	Training					
8.1	Conduct training for Air Traffic Controllers and Airline Dispatchers	9 Nov 2005	15 Mar 2006		ATSPs, AEROTHAI	
8.2	Information dissemination to Airlines		31 Jan 2006		Task Force	ATFM Handbook
9.0	Perform system verification					
9.1	Conduct verification of ATFM system tool		28 Feb 2006		AEROTHAI, Users	
9.2	Conduct and review paper exercise		17 Jan 2006		Task Force	Paper Trial 15 -21 December
10.0	Decision for the commencement of operational trial					
10.1	Prepare and apply objective assessment criteria		17 Jan 2006		Task Force, IATA, AEROTHAI	How delays are measured and recorded? Do the functions of the system tools meet users' requirement? Prepare solutions for A/C missing the WUT and /or SLOTS
10.2	Review all factors affecting implementation decision		17 Jan 2006		Task Force, AEROTHAI, IATA	
10.3	Declare full operational trial capability		17 Jan 2006		AEROTHAI, Task Force, Regional Office	
11.0	Post implementation review of operational trial					
11.1	Prepare and apply objective assessment criteria		4 Apr 2006		AEROTHAI, IATA,Users. Task Force	How delays are measured and recorded? Do the functions of the system meet the users' requirement? What are the feed back from pilots?

ATFM/TF/4 & BOBCAT Workshop
Appendix K to the Report

ID	Task Name	Start Date	Finish Date	Completion Date	Action By	Resource Names/Remarks
11.2	Carry out post implementation review	5 Apr 2006			AEROTHAI, IATA, Users. Task Force	Compare the Pre and Post Implementation delays, Review overall practicality of the system by users Review the methodology of ATSPs / ATFMU coordination for A/C missing WUT and/or SLOTS
12.0	Decision to proceed to full implementation of ATFM Phase One for Bay of Bengal using BOBCAT system				Regional Office, Task Force, IATA, AEROTHAI	
13.0	Monitor System Performance					
13.1	Perform follow-on monitoring	9 Mar 2006			AEROTHAI	

BOBCAT

ATFM/TF/4 & BOBCAT Workshop Appendix L to the Report

Presented by **AEROTHAI** 

Agenda



- Session 1: Introduction
- Session 2: Airline Dispatchers – Theory
- Session 3: Airline Dispatchers – Practical
- Session 4: ANSPs

BOBCAT

Session 1: Introduction

ATFM/TF/4

**BOBCAT Workshop
9-10 November 2005**

Presented by **AEROTHAI** 

Introduction

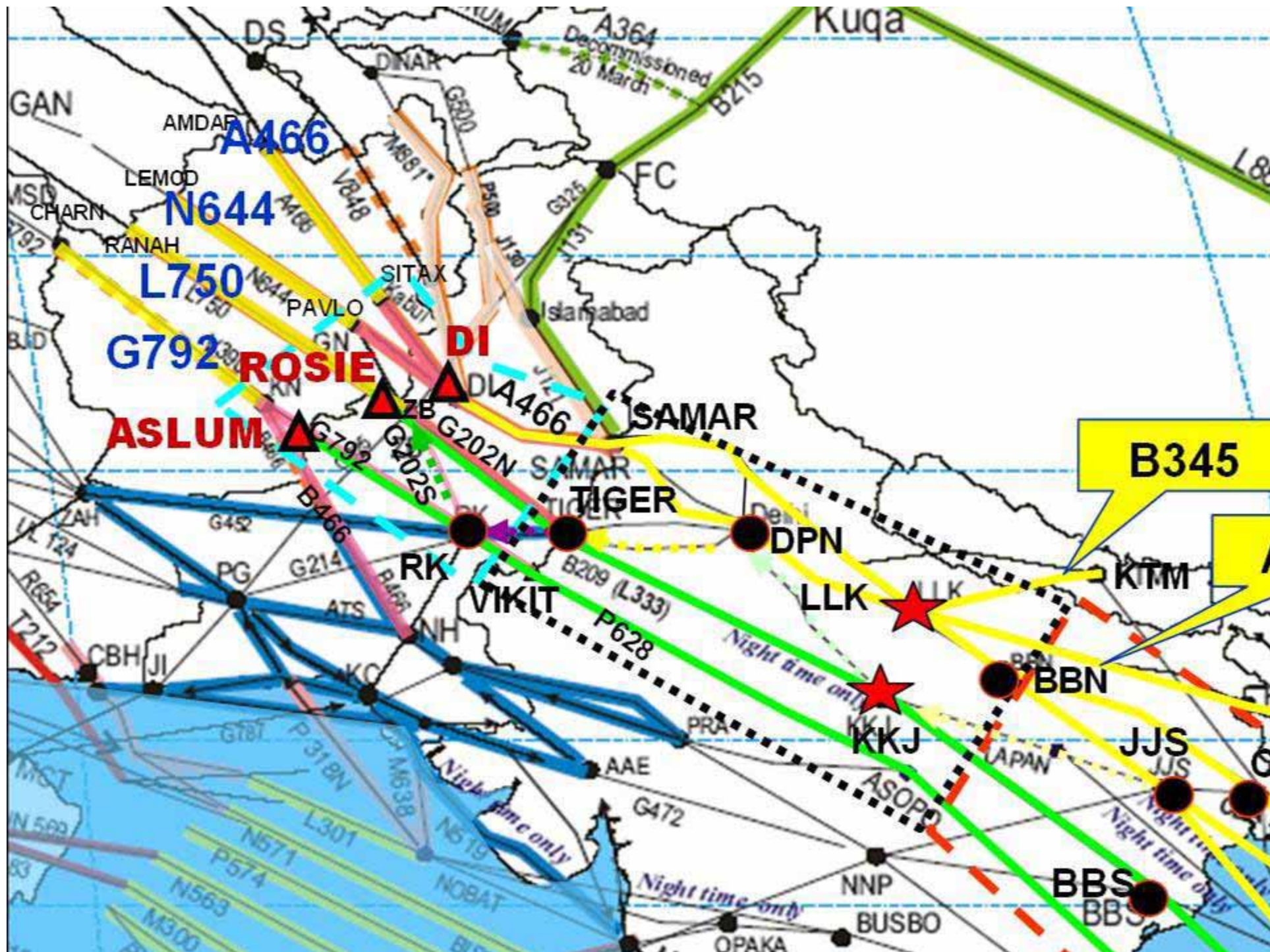


- What does BOBCAT stand for?
 - **Bay Of Bengal Cooperative Air Traffic Flow Management Advisory System**
 - Developed by AEROTHAI in close coordination with ICAO ATFM/TF, concerned states and airlines through IATA

Why BOBCAT?



- Kabul FIR Access
 - Military operations
 - ATC Staffing
 - EMARSSH Route Structure
 - RVSM Transition to CVSM
- Westbound Night Time Traffic
 - Congestion has been causing diversion and tech stops
- Increasing Traffic
 - Strong growth in Southeast Asia, South Asia and China



What is BOBCAT?

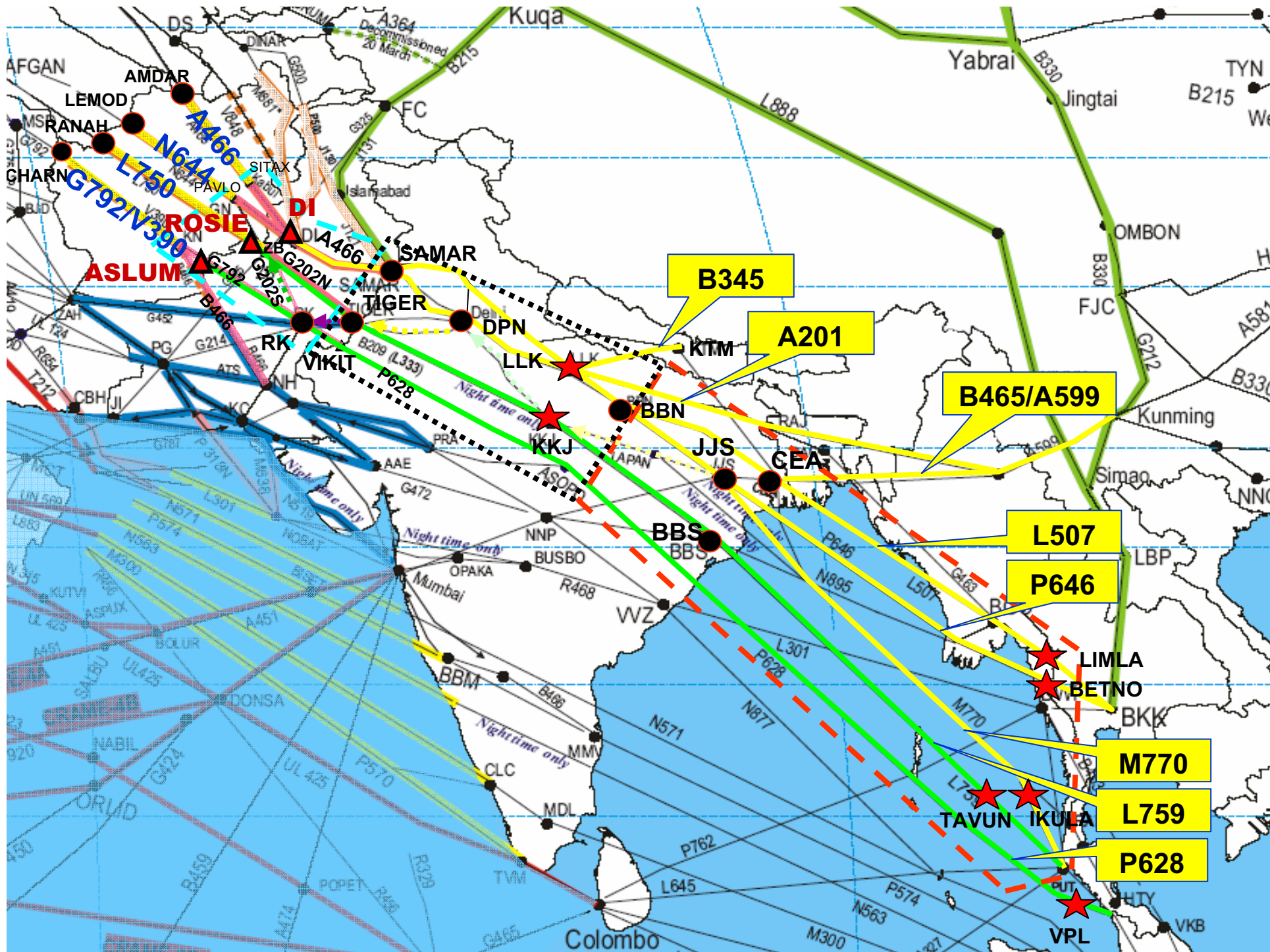


- Advisory Flow Management Tool for both airline users and ANSPs
 - Assists in the provision of a safe and orderly flow of aircraft through Kabul FIR for westbound aircraft during the busy night time period
- Does not separate aircraft
 - Still responsibility of ANSPs
 - Advisory tool only

What is BOBCAT?



- Space aircraft to achieve a harmonized flow from departure point through Kabul FIR
- Area of BOBCAT Operation
 - Area encompassing ATS routes from the east coast of the Bay of Bengal through the Northern part of India and Pakistan into the Kabul FIR
 - 11 FIRs which could have an impact on Kabul FIR entry time





Objectives and Benefits

- Minimizes conflicts in transit to Kabul FIR
 - Several choke points en route
- Provides sufficient aircraft spacing in order to avoid rerouting causing tech stops
- Provides operators with an overall picture of all aircraft planning to transit Kabul FIR during BOBCAT period

A hexagonal inset image showing the interior of an air traffic control tower. Two controllers are visible at their consoles, which are equipped with multiple computer monitors displaying flight data. The room has a professional, technical atmosphere with focused lighting.

Achieving Objectives

- Arranges departures from various airports
- Spaces aircraft over known choke points
- Allows operators and ANSPs to view details of all flights planning to transit Kabul FIR



How BOBCAT Works?

- Interactive Web-Based system between dispatchers and ATFMU
- Provide information to ANSPs regarding wheels up and ETOs at significant positions to assist en route ACC in planning traffic sequence

Are You Affected?



- Your flights travel through Kabul FIR between 2000 – 2400 UTC?
- Your flights travel through the affected routes like flights going through Kabul FIR at the time above?
- If the answer is yes on either one, you are most likely affected, and that's why you are here!



Operational Time Period

- Aircraft traffic through Kabul FIR between 2000 – 2400 UTC
- Cut-off Time for slot request submission for initial slot allocation at 1200 UTC
- Major Departure Airports
 - WSSS 1330 – 1730 UTC
 - WMKK, WMKP 1400 – 1800 UTC
 - VTBD, VTBU, VTSP 1430 – 1830 UTC

Tentative Waypoints



- Entry Waypoints into Flow Management Area
 - LLK (A201/B345)
 - BETNO (P646)
 - LIMLA (L507)
 - IKULA (L759)
 - TAVUN (M770)
 - VPL (P628)
- Intermediate Waypoints within Flow Management Area
 - Lucknow (LLK)
 - Khajuraho (KKJ)
- Kabul FIR Entry Waypoints
 - DI Khan (DI) – A466/N644
 - ROSIE – L750
 - ASLUM – G792/V390
- Kabul FIR Exit Waypoints
 - AMDAR (A466)
 - LEMOD (N644)
 - RANAH (L750)
 - CHARN (G792/V390)



BOBCAT Methodology (1)

- Dispatchers submit slot request to BOBCAT
 - Several options for each request
 - Levels
 - Routes
 - Maximum Acceptable Delay (MAD)
 - Requests to be submitted before a cut-off time
- BOBCAT allocates slots to requesting aircraft and notifies responsible dispatchers of allocation results



BOBCAT Methodology (2)

- Dispatchers view their slot allocations as well as detail of other aircraft's slots
 - Also shows spare slots on the allocation list
 - If dissatisfied with their selection, can select from spare slots shown on the list
 - First-Come, First-Served
- ANSPs view slot allocation list customized for their information
 - Tower for Wheels-Up Time
 - ACC for ETO's at selected waypoints

Equipments Needed



- Personal Computer
 - Minimum clock speed: 150 MHz
 - Operating system: Windows 2000/XP, Linux, Unix, Mac OS or any that supports web browsers
 - Memory: 128 MB of RAM or larger (OS dependent)
 - Display Resolution: 1024 x 768 pixels or higher
 - Web Browsers:
 - Internet Explorer 5.5 or newer
 - Mozilla 1.0 or newer
 - Mozilla Firefox 1.0 or newer
 - Netscape 7 or newer
- Internet connection: 56kbps modem access or faster

Q & A

Presented by **AEROTHAI** 

BOBCAT

Session 2: Airline Dispatchers – Theory

ATFM/TF/4

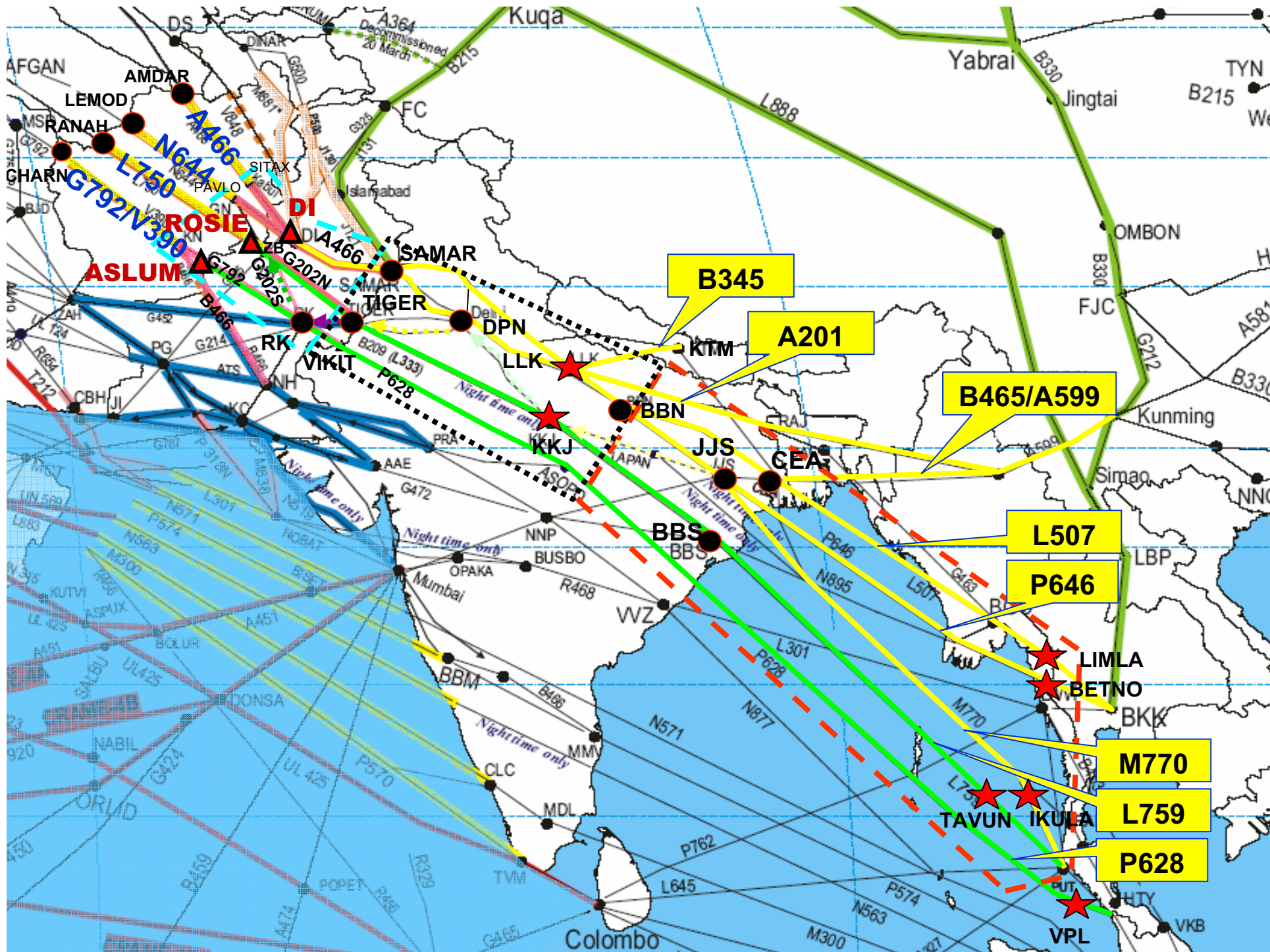
**BOBCAT Workshop
9-10 November 2005**

Presented by **AEROTHAI** 



Airline Dispatcher Session

- Route and Flight Level Profile Choice
- Maximum Acceptable Delay
- Username, Password and Slot Request Submission Authorizations
- Submitting Slot Request
- Slot Allocation Result

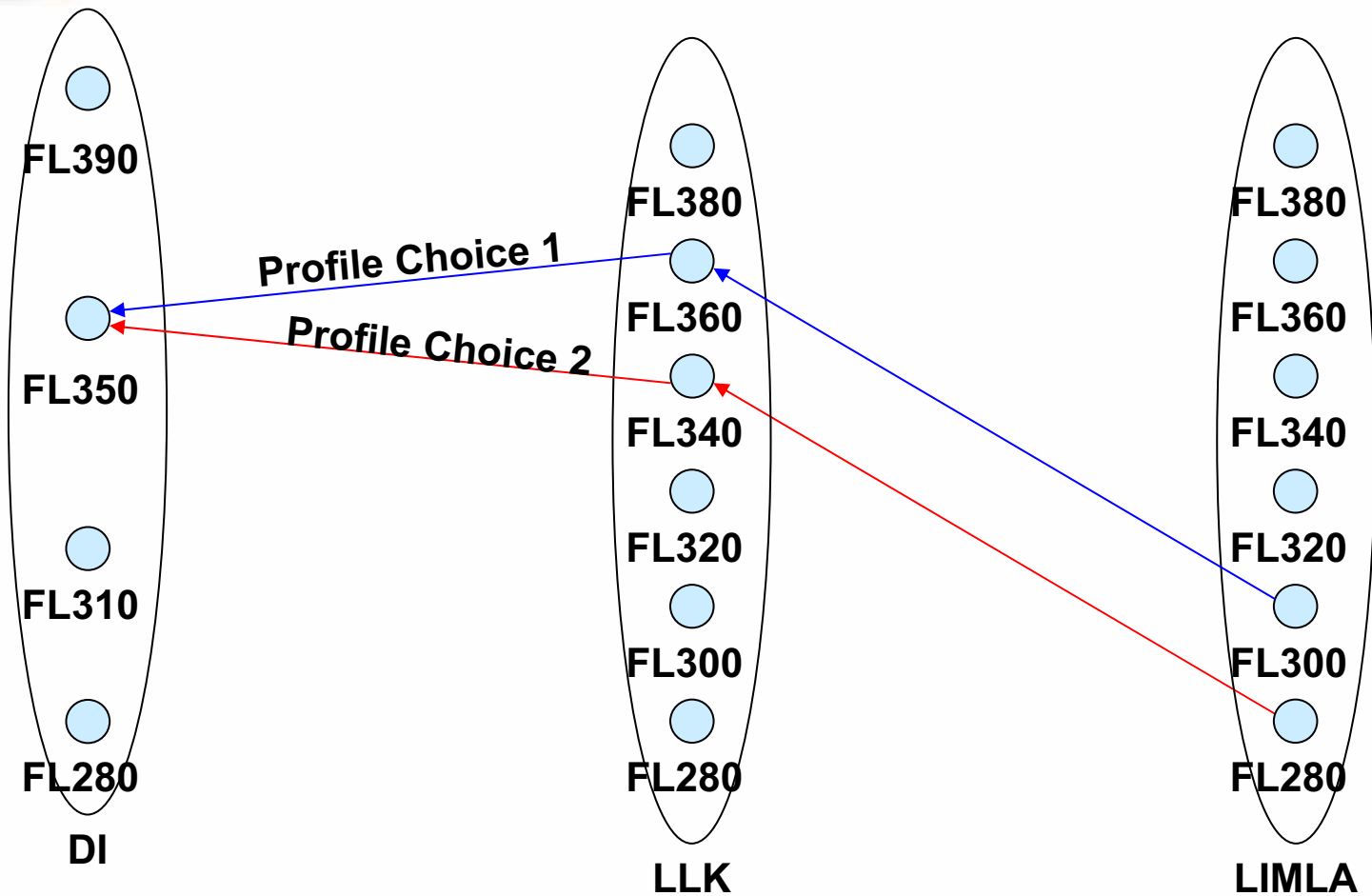




Route and Level Choice

- BOBCAT allows flexible number of route choices for each request containing
 - BOBCAT Waypoint selection
 - ETO at BOBCAT Waypoints
- Within each route choice, flexible number of flight level choices are also available containing:
 - Flight Level at each BOBCAT Waypoint

Flight Level Profile





Maximum Acceptable Delay

- Maximum delay a flight can tolerate for each route and level combination
- Current advised limit is 99 minutes



Slot Request Permission

- Airlines submit a form to BOBCAT authorizing a dispatcher organization to submit slot request on their behalf
- Change of authorized dispatcher organization can also be done through similar form, signed and submitted to ATFMU
- Once an airline authorizes a dispatcher organization to submit slot request on his behalf, the airline waives its right to submit its own slot requests



Username and Password

- Dispatcher Organization submits a form containing list of new BOBCAT user containing:
 - Proposed Username
 - Full Name
 - Email contact information
- ATFMU creates new usernames with automatically generated password
- New username/password will be e-mailed to new BOBCAT user



Username and Password

- New BOBCAT user logs into BOBCAT and changes his password to his own password
 - BOBCAT only stores a digest of the password
 - New password will be known by BOBCAT user alone
- BOBCAT user is responsible for keeping his username and password to himself
- Actions by a BOBCAT user will be logged and can be tracked based on his username



Change of User Listing

- Dispatcher Organization completes a form changing list of BOBCAT user containing:
 - Information of user to be removed
 - Username
 - Full Name and contact information
 - Information of new user to be added
 - Proposed Username
 - Full Name and contact information

BOBCAT

Session 2: Airline Dispatchers – Practical

ATFM/TF/4

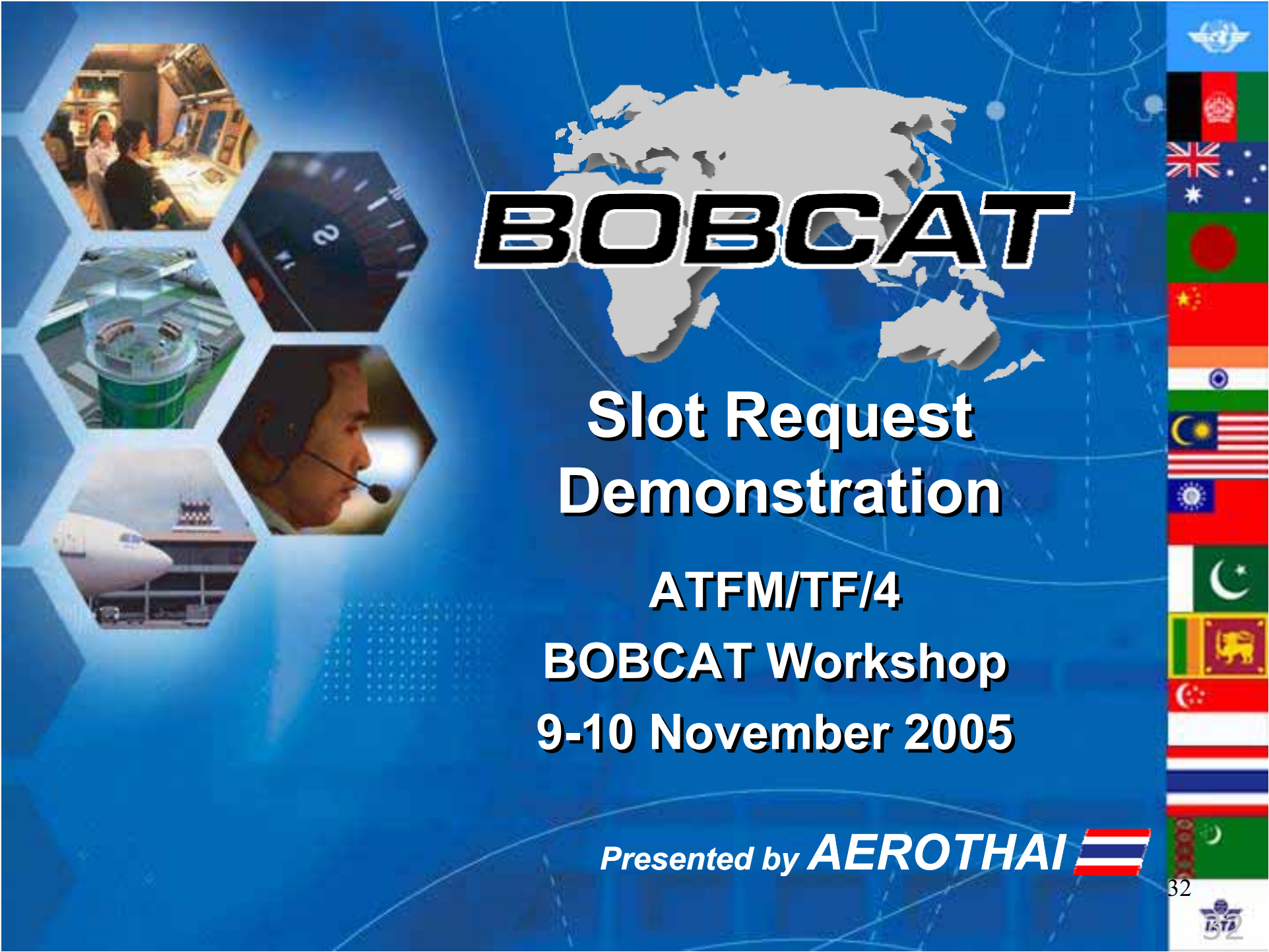
**BOBCAT Workshop
9-10 November 2005**

Presented by **AEROTHAI** 



Submitting Slot Request

- Dispatcher submits slot request to BOBCAT containing:
 - Aircraft information
 - Wheels Up Time (WUT) based on suggested taxi time at airports to be published on BOBCAT site
 - Route choices
 - Level choices
- Slot request can be modified after submission as long as cut-off time has not arrived including
 - Re-ordering of route choice
 - Re-ordering of level choices
 - Any parameter changes



BOBCAT

Slot Request Demonstration

ATFM/TF/4

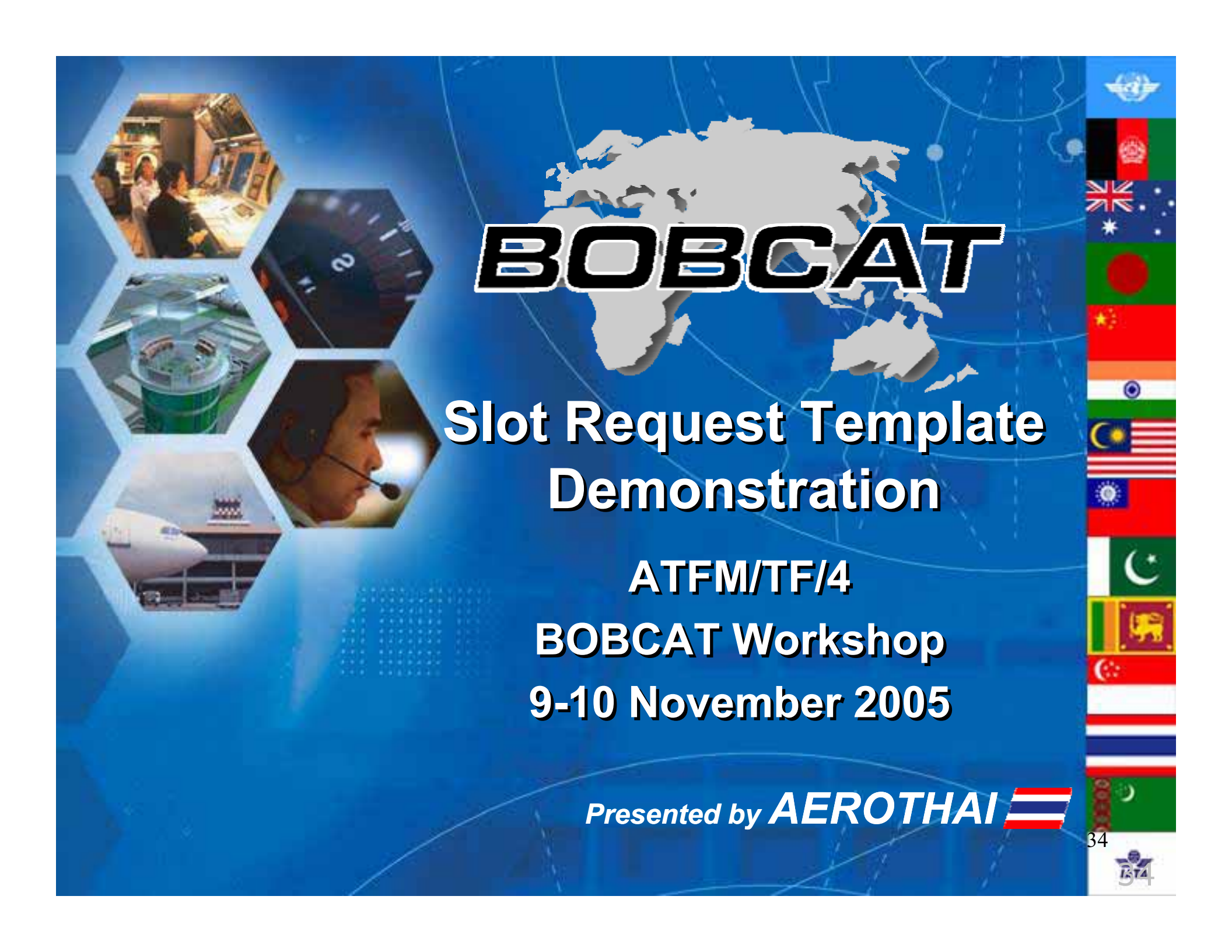
**BOBCAT Workshop
9-10 November 2005**

Presented by **AEROTHAI** 



Slot Request Template

- Slot Request can be saved as a template for later use
- Slot Request Template can be named for each username
- Each template will be shared by BOBCAT users of the same Dispatcher Organization



BOBCAT

Slot Request Template Demonstration

ATFM/TF/4

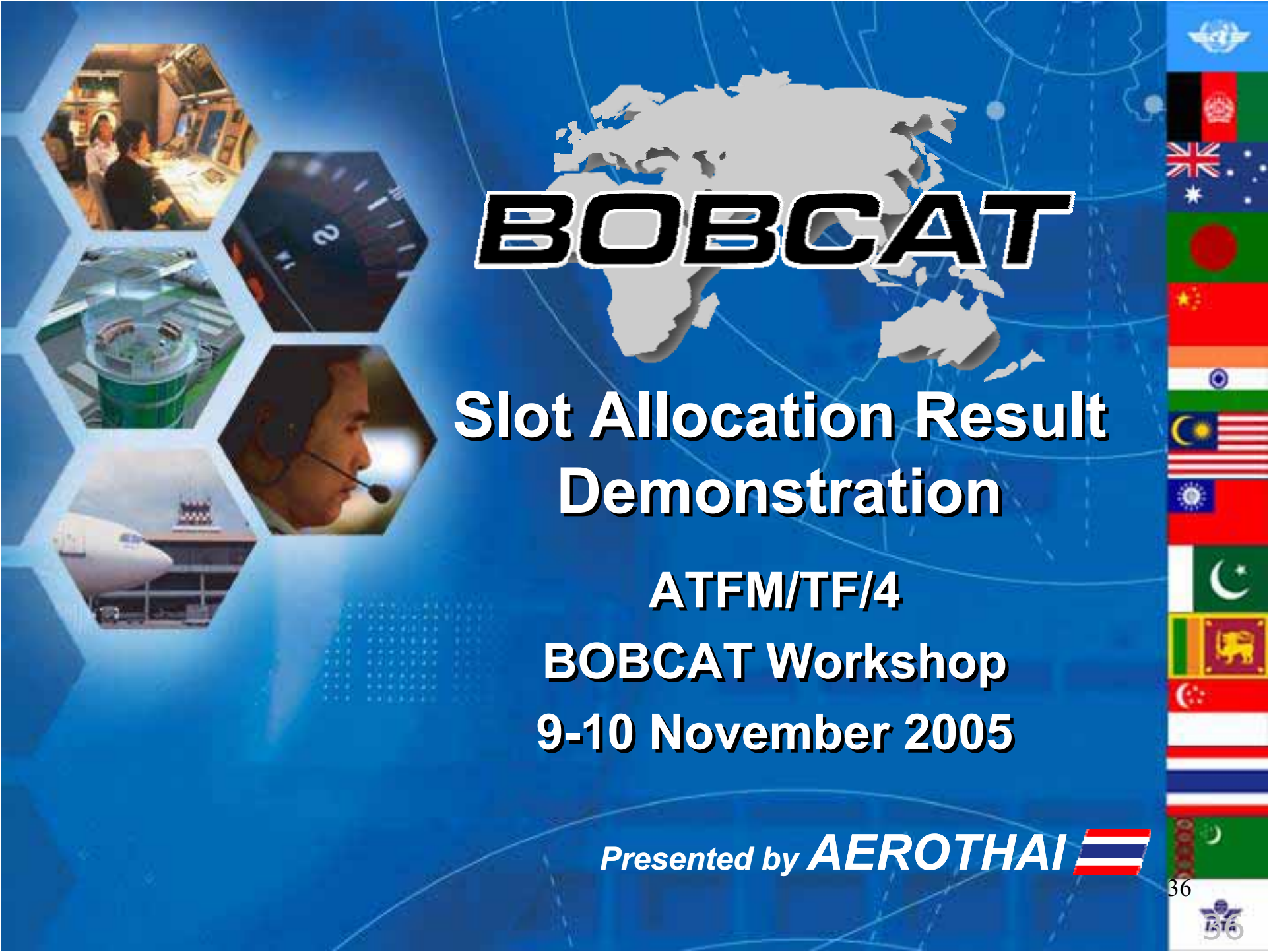
**BOBCAT Workshop
9-10 November 2005**

Presented by **AEROTHAI** 



Slot Allocation Result

- Once slot allocation is completed, e-mail message will be generated and sent to related dispatchers
- Dispatchers can login to view slot allocation result



BOBCAT

Slot Allocation Result Demonstration

ATFM/TF/4

**BOBCAT Workshop
9-10 November 2005**

Presented by **AEROTHAI** 



View Free Slot

- Once allocation has been completed, dispatchers can view free slot information
- Dispatchers need to submit:
 - BOBCAT Waypoints to view free slot
 - Cruising mach number

BOBCAT

**View Free Slots
Demonstration**

ATFM/TF/4

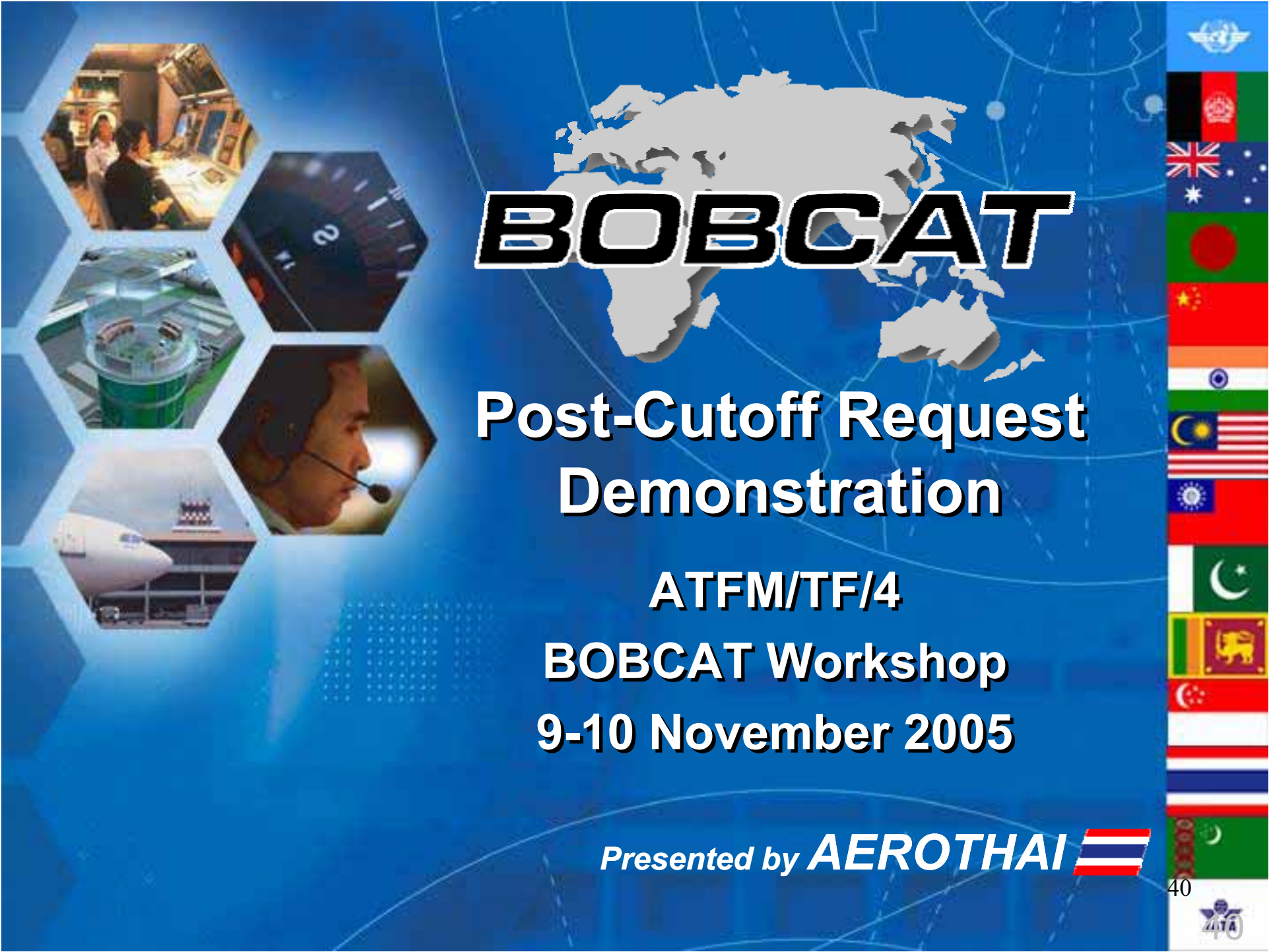
**BOBCAT Workshop
9-10 November 2005**

Presented by **AEROTHAI** 



Request after Cutoff Time

- Dispatcher submit request like before cutoff time
- Only difference is that he only needs to submit one combination of route choice, flight level choice and MAD
- Slot will be allocated on a first-come first-served basis
- Dispatchers will shortly receive allocation with confirmation e-mail



BOBCAT

Post-Cutoff Request Demonstration

ATFM/TF/4

**BOBCAT Workshop
9-10 November 2005**

Presented by **AEROTHAI** 

Q & A

Presented by **AEROTHAI** 

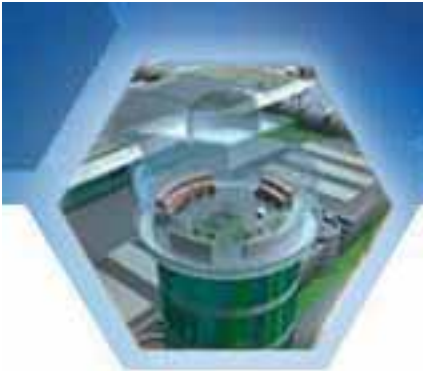
BOBCAT

Session 3: ANSPs

ATFM/TF/4

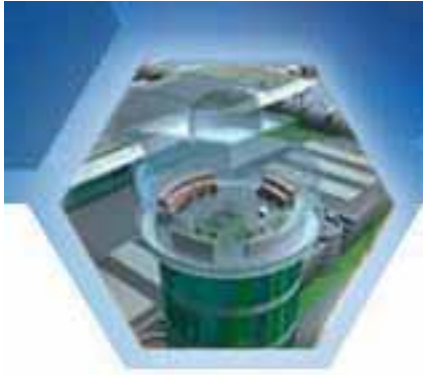
**BOBCAT Workshop
9-10 November 2005**

Presented by **AEROTHAI** 



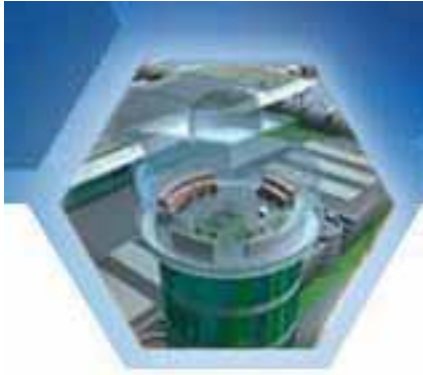
ANSP Session

- Username and Password
- Viewing Slot Allocation Result
- Customizing Slot Allocation Result
- Wheels Up Time and Flow Buffer
- Mach Number Technique



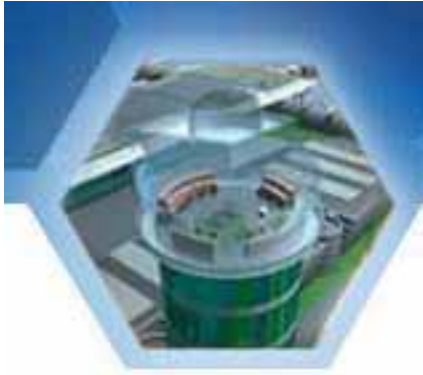
Username and Password

- ANSP submits a form containing list of new BOBCAT user containing:
 - Proposed Username
 - Full Name
 - Email contact information
- ATFMU creates new usernames with automatically generated password
- New username/password will be e-mailed to new BOBCAT user



Username and Password

- New BOBCAT user logs into BOBCAT and changes his password to his own password
 - BOBCAT only stores a digest of the password
 - New password will be known by BOBCAT user alone
- BOBCAT user is responsible for keeping his username and password to himself
- Actions by a BOBCAT user will be logged and can be tracked based on his username



Change of User Listing

- ANSP completes a form changing list of BOBCAT user containing:
 - Information of user to be removed
 - Username
 - Full Name and contact information
 - Information of new user to be added
 - Proposed Username
 - Full Name and contact information



Viewing Slot Allocation

- ANSP user can login and view slot allocation result based on:
 - Departure Airport
 - Waypoint
- Slot Allocation result will automatically refresh itself periodically



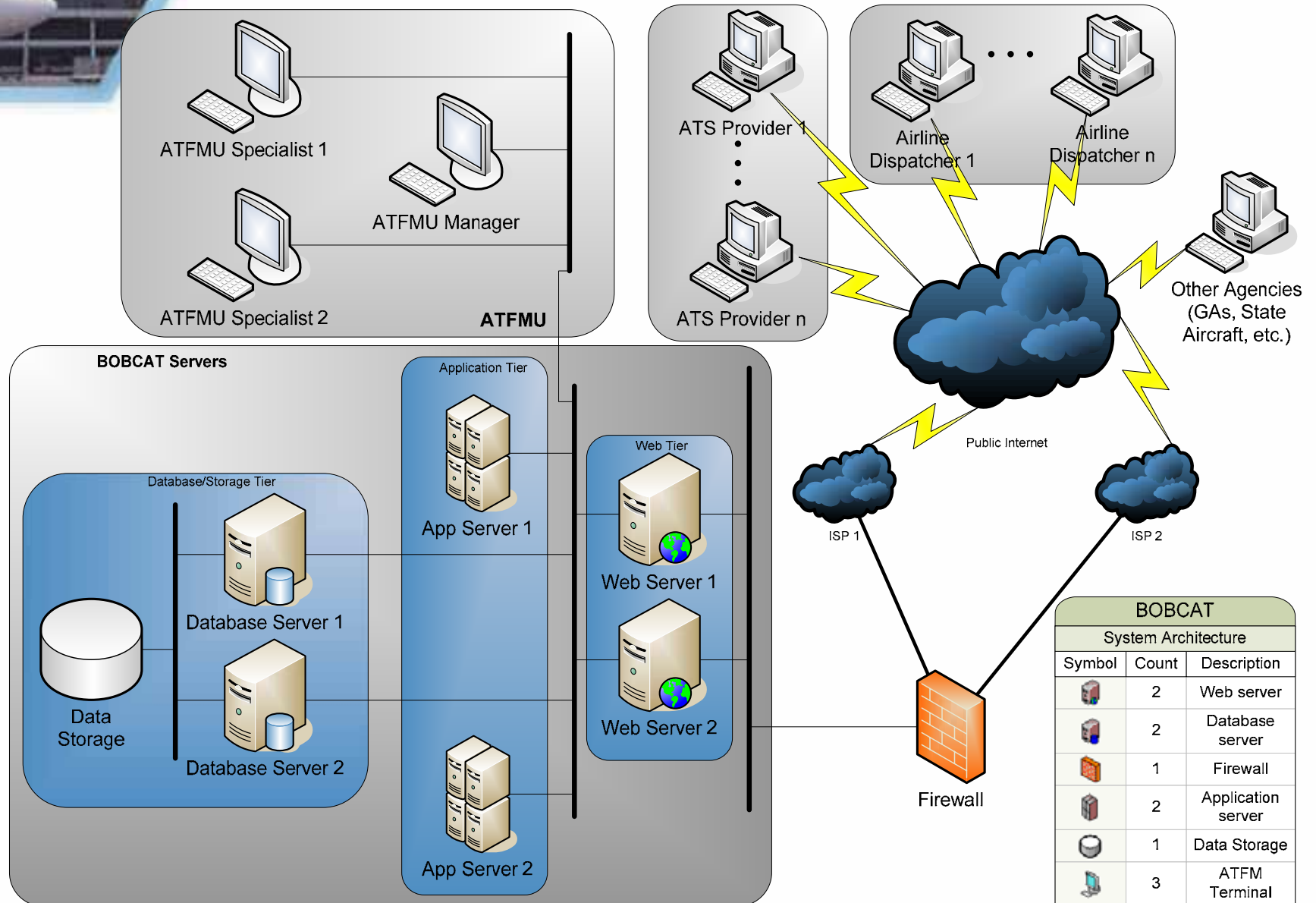
Customizing Result Views

- ANSP user can save a default view of slot allocation result based on:
 - Departure Airport(s)
 - Waypoint(s)
- Default view is saved for each BOBCAT username

Q & A

Presented by **AEROTHAI** 

BOBCAT System Architecture



Thank You!

BOBCAT
Flow Management Advisory System

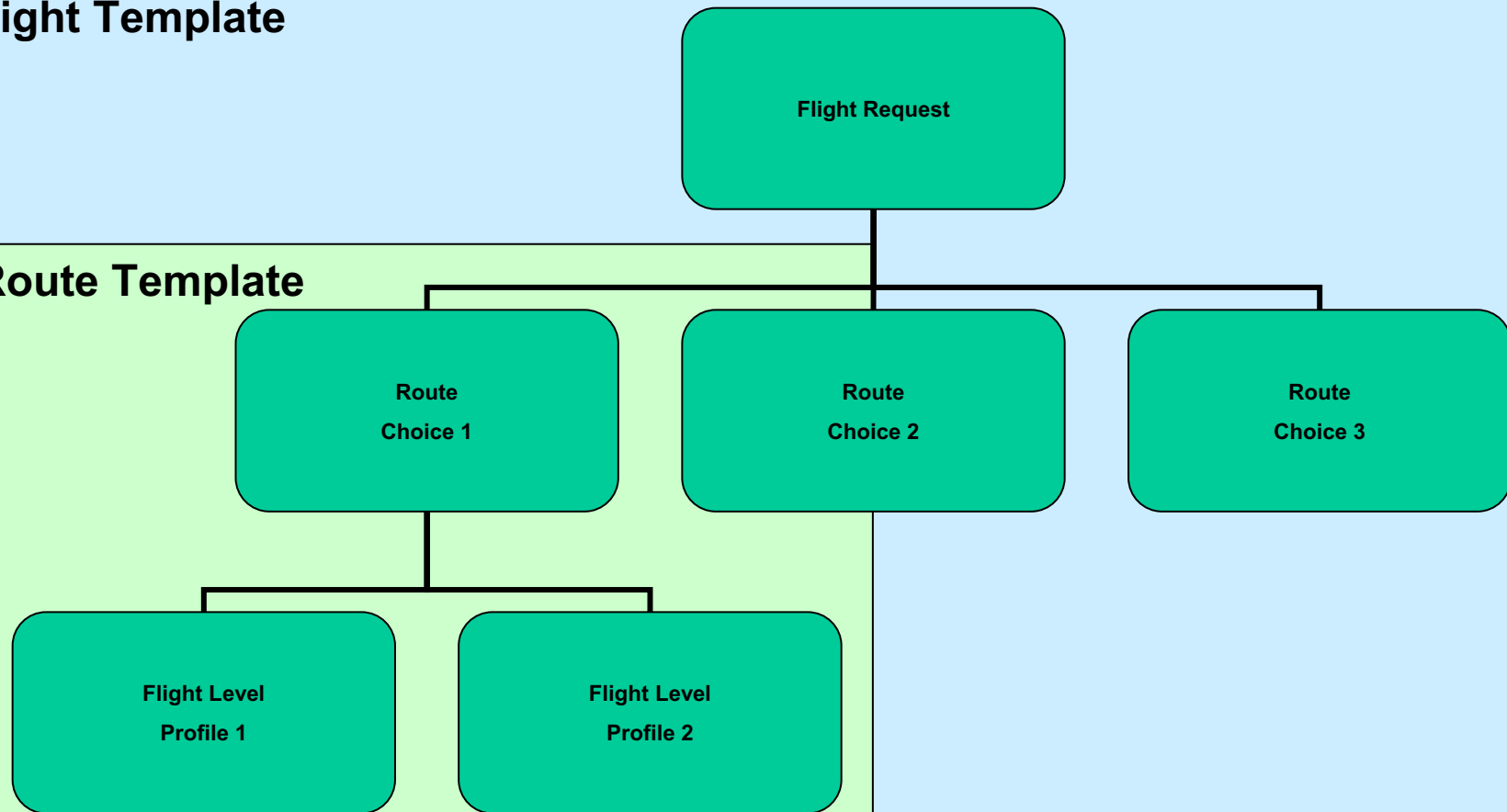
Development Team

Presented by **AEROTHAI** 

Flight/Route Template

Flight Template

Route Template



BOBCAT

Session 5:

ANSP

Role and Responsibility

**ATFM/TF/4 & BOBCAT Workshop
Appendix M to the Report**

Presented by **AEROTHAI** 



Role and Responsibility

- Update related information from BOBCAT system
- Assist departure flight with slot allocation to meet their Allocated WUT (AWUT) plus Flow Buffer
 - Advance planning
 - Analyze traffic situation
 - Priority



Role and Responsibility

- Coordinate with ATFMU for new slot allocation or new AWUT as technical issue arises on the maneuvering area
- Notify Practical Standard Taxi Time information to BOBCAT
 - Update when the operational standard taxi time value is changed due to some reason



ANSP Arrangement

- Practical Standard Taxi Time
 - Ideal: Standard Taxi Time
 - Average standard taxi time from the gates to the threshold.
 - Practical Standard Taxi Time:
 - Standard taxi time + ATC operational buffer
 - Published in BOBCAT system for airline usage
 - Airline Operator Standard Taxi Time:
 - AO operational buffer + Practical Standard Taxi Time
+ETD = EWUT



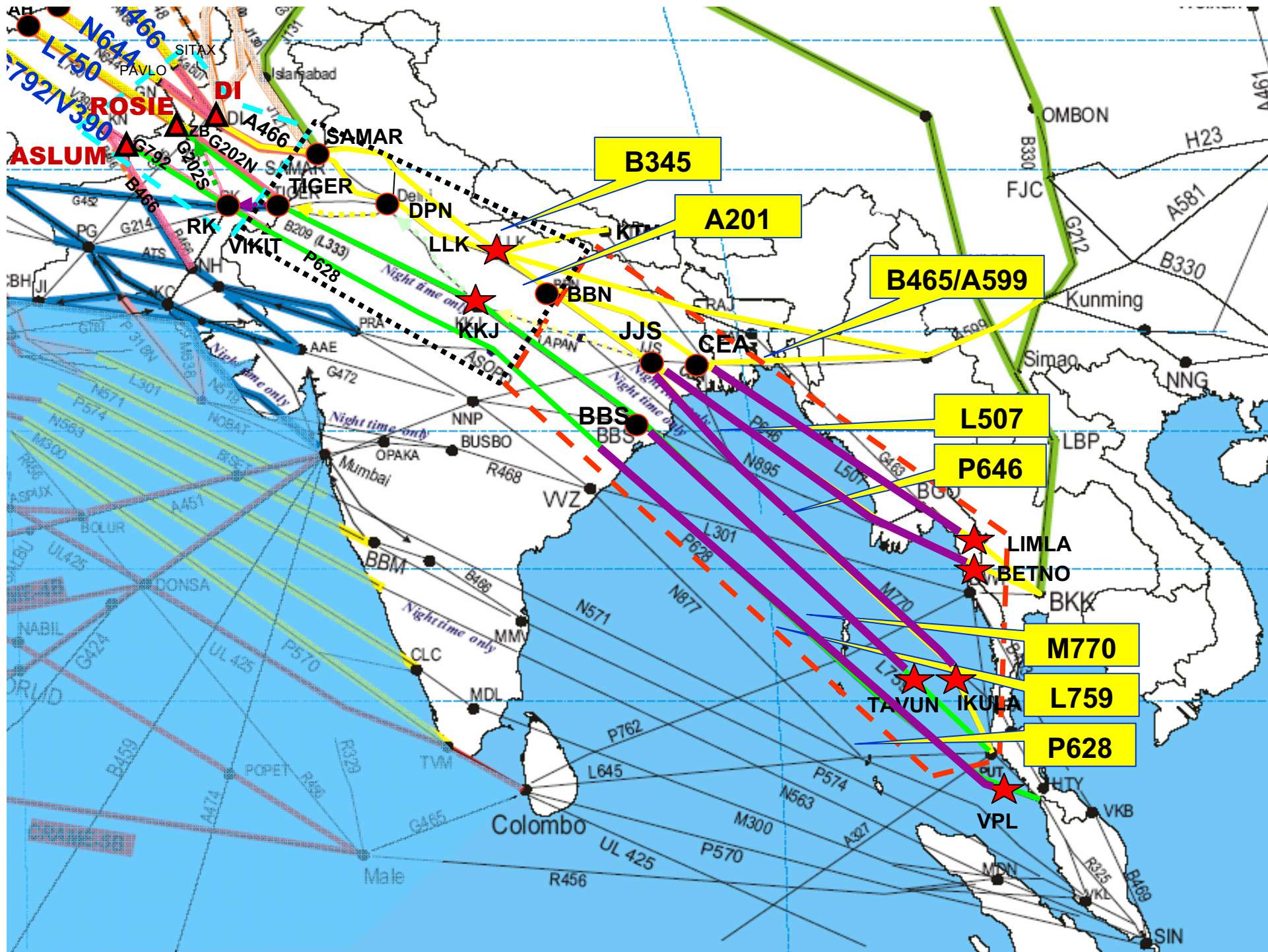
ANSP Arrangement

- Flow Buffer
 - A given buffer time to improve flexibility of ATC and pilots operation during flight departure due to several reasons e.g.
 - Unexpected situation; weather
 - Management of flights having same WUT from the same airport



ANSP Arrangement

- MNT application in the system
 - Reduce system's waypoints
 - Ensure spacing exist over the Indian subcontinent
 - MNT value application;
 - 5-10 minute for preceding faster aircraft
 - 10 minute+ for the faster in the back
 - 2 hours flying time table (+2)
 - + additional 5 minutes flow buffer





ANSP arrangement

- Flight Priority
 - Flight having slot allocation should have a priority on the departure time than the others
- Clearance Delivery Procedure
 - To verify the AWUT
 - ATC and/or Pilot verify the AWUT on the CDC phase
 - ATC to analyze traffic situation



ANSP arrangement

- Management of flight departing out of the slotted window ($AWUT+5$)
 - Should the new slot be allocated for the small amount of time different from $AWUT + \text{Flow Buffer}$
 - Consideration
 - Feasible for flights with longer flying time
 - BOBCAT Entry Waypoint
 - Management and Coordination difficulty beyond entry waypoint



ANSP arrangement

- How much time value the ATC/pilot could absorb from departure point to the entry gate?
 - Elapsed Time
 - Route structure; straight or indirect route
 - Application
 - Earlier departure; Speed + RTA or vectoring
 - Late departure; Speed + RTA + direct track

Q & A

Presented by **AEROTHAI** 

Thank You!

BOBCAT
Flow Management Advisory System

Development Team

Presented by **AEROTHAI** 