



*International Civil Aviation Organization*

**Third Meeting of the Bay of Bengal and South Asia Air Traffic Flow  
Management Task Force (ATFM/TF/3)**

Bangkok, Thailand, 6 September – 9 September 2005

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**Agenda Item 2: Review Outcomes of ATFM/TF/2 and SCM BOB PMT**

**PROGRESS REPORT ON BOBCAT DEVELOPMENT**

(Presented by Thailand)

**SUMMARY**

The purpose of this working paper is to advise the meeting of the continuing progress of work being undertaken by AEROTHAI in the development and enhancement of BOBCAT as a result of outcomes arising from the ATFM/TF/2 and SCM BOB PMT meetings, in preparation for planned desktop paper trials at the end of September 2005 and an Operational Trial of BOBCAT scheduled to commence on AIRAC Date 22 December 2005.

**1. INTRODUCTION**

1.1 The meeting would recall that extensive discussions have taken place on ATFM matters through two Task Force meetings as well as three Special Coordination meetings since January 2005. All meetings have been well represented by most States concerned, ICAO and IATA to discuss and propose a mechanism for the development and implementation of a suitable air traffic flow management system to cater for the westbound night-time rush period through the Kabul FIR.

1.2 It should also be noted that ATFM/TF/2 were presented with an AEROTHAI detailed Concept of Operations for the Bay of Bengal Cooperative ATFM Advisory System (BOBCAT). The meeting considered available options for the conduct of an ATFM Operational Trial in accordance with Phase One of ATFM across the Bay of Bengal and South Asia. In this regard, the meeting noted Thailand's readiness to proceed to an operational trial and accordingly, requested Thailand to continue to develop BOBCAT to this stage in close cooperation with concerned States and IATA.

1.3 At the Special Coordination Meeting on ATFM held in Singapore on 10-11 August 2005, considerable progress was achieved in defining the rules to be used in the development of BOBCAT. It was also agreed at this meeting that Thailand should use initiative and judgment in developing BOBCAT and to then demonstrate the capabilities of BOBCAT via paper trials. This decision was taken in order to permit Thailand to make decisions and select certain parameters to move forward in the development of BOBCAT. Subsequently, the Task Force members would assess the suitability of the decisions/parameters so selected via the paper trial process and consider changes to the parameters if warranted. Accordingly, the meeting requested Thailand to continue with the development of BOBCAT on this basis, noting that the outcomes of the December operational trial would also be formally assessed by the Task Force.

## **2. DISCUSSION**

### **Conduct of a Paper Trial on BOBCAT**

2.1 The meeting should note it was not until ATFM/TF/2 (Delhi 28 June-1 July) that AEROTHAI was requested to continue the development of BOBCAT. At the SCM meeting in Singapore on 10-11 August 2005 AEROTHAI was also requested to initiate a paper trial, the results of which to be brought to this meeting for evaluation. The SCM meeting was advised that AEROTHAI would do their best to comply but could not guarantee a result in the short time frame to do this complex work. Unfortunately it has not been possible to realize this request nevertheless, core components of the system will be ready for the Paper Trial by the last week of September or first week of October 2005.

2.2 Taking into consideration the mandate given to AEROTHAI mentioned in paragraph 1.3 above, paper trials will simulate various requirements, to give a wide range of results depending on what parameters are included in the BOBCAT system. This will allow airlines and States to examine the output of these trials and assist with agreed decisions on the rules to be employed. These parameters will include or may not include some of the following:

- a) where required, build-in Mach Number Technique requirements;
- b) due to crossing route limitations during this peak period, FL300 will not to be submitted by dispatchers in the slot allocation request out of Singapore, Malaysia and Thailand by aircraft utilizing the northwest parallel route system across the Bay of Bengal during the BOBCAT period;
- c) the effect on designating intermediate gateways on certain ATS routes to assist traffic flow across the Indian sub-continent;
- d) the use of departure levels as well as CVSM entry levels into Kabul FIR; and,
- e) the use of wheels-up times submitted by dispatchers in the slot allocation process by BOBCAT plus random use of +5 minutes as a delay buffer; and,
- f) The requirement to insert Maximum Acceptable Delay (MAD) in slot allocation requests.

2.3 With regard to 2.2 f) above, there are various issues which need to be taken into account on this particular matter. This item will be presented for discussion in a separate working paper submitted to the meeting.

### **Discussions between India and Thailand on BOBCAT**

2.4 The meeting would recall at ATFM/TF/2 that India raised various concerns which occur within their airspace by aircraft operating during this period. As a result the meeting agreed that there were a number of unique and important operational issues that would need to be discussed between India and Thailand in close coordination and on a partnership basis in preparation for the implementation of the ATFM operational trial. In this regard the meeting encouraged both States to enter into special coordination and liaison activities to resolve these matters. It was requested that the parties routinely report progress in these matters to the ATFM/TF.

2.5 In this regard, the meeting is advised that India and Thailand have had email correspondence on various matters which include the following requests to the Task Force meeting:

- a) One of the EMARSSH Principles states that, “as much as possible planning of ATS trunk routes will be on the basis that each route is laterally separated from each other”. It was agreed that this Principle implied that aircraft should flight plan to remain on a parallel route and not change from one to the other

otherwise the concept of parallel routes is lost. Any change to this procedure should only occur if initiated tactically by ATC. In other words, if a movement from one route to another does not interfere with other traffic on the second route and, in addition, does not affect another aircraft's ETO at a Kabul gateway, such a move may be tactically processed by ATC.

***Note:** Aircraft should flight plan on the parallel route system. If requesting a change to another route, this would only be permitted subject to no disruption to other aircraft proceeding along this route.*

- b) "intermediate gates" are proposed as follows.

- i) P628/G792 - RK
- ii) L759/L333/L750 - TIGER
- iii) M770, P646, L507, A201, B345, to A466/N644 - LLK

***Note:** it is suggested that, based on 15 minutes spacing over this position, other converging points east of LLK would be catered for as well as entry to Kabul FIR.*

- c) aircraft not transiting Kabul FIR but using portions of Northern India/Pakistan routes used by Kabul traffic (via Delhi - G452 to Zahedan) spaced at 10 minutes over LLK with aircraft transiting Kabul FIR.

***Note:** It is considered that tactical management (radar) could be used by India/Pakistan if this spacing is not sufficient.*

- d) Aircraft out of India and Pakistan airports may flight plan to enter Kabul FIR at any level. Notwithstanding this rule, if these aircraft flight plan at FL280, they will have a higher priority than aircraft departing airports east of India requesting FL280. Conversely, if aircraft out of India and Pakistan airports flight plan at levels above FL280, they will have a lower priority than aircraft departing airports east of India at these higher level.

***Note:** This was discussed and agreed to at the SCM in Singapore earlier this month.*

- e) spacing of aircraft at Kabul entry gates will be programmed by BOBCAT at 15 minutes.

#### **BOBCAT Design Parameters**

2.6 The meeting is advised that there will be no limitations in an aircraft's slot request on the number of routes or levels. It is assumed that there would be no more than 10 preferences submitted in one slot request.

2.7 Airline Dispatchers will be requested to input a Maximum Acceptable Delay (MAD) for all options within one slot request. It is assumed that the acceptable delay would be no more than 99 minutes.

2.8 Whereas RVSM flight levels will be selected for en-route positions, CVSM flight levels will be selected by dispatchers for gates entering Kabul FIR.

2.9 There will be 5-minute wheels up buffer time allocated in addition to the required spacing between aircraft on departure. MNT will be taken into account in addition to the 5-minute wheels-up time buffer when required.

### BOBCAT Software Development Progress

2.10 The meeting should note that User Interface design is well under way and will be completed within the first two weeks of September. Core components of BOBCAT software will be ready for Paper Trials at the end of September/first week of October. The entire BOBCAT software will be ready for integration with the hardware by the end of October/first week of November.

2.11 Hardware will be integrated with the software no later than end of November. The entire BOBCAT System will be thoroughly tested in-house before acceptance prior to the Operational Trials scheduled for 22 December 2005.

### BOBCAT System Hardware Procurement

2.12 BOBCAT system architecture was finalized as of 30 August 2005, with the system architecture diagram included as Figure 1 below. The hardware procurement process has begun with hardware delivery expected by second half of October/first half of November 2005. After hardware delivery, integration testing between BOBCAT hardware and software will progress as planned.

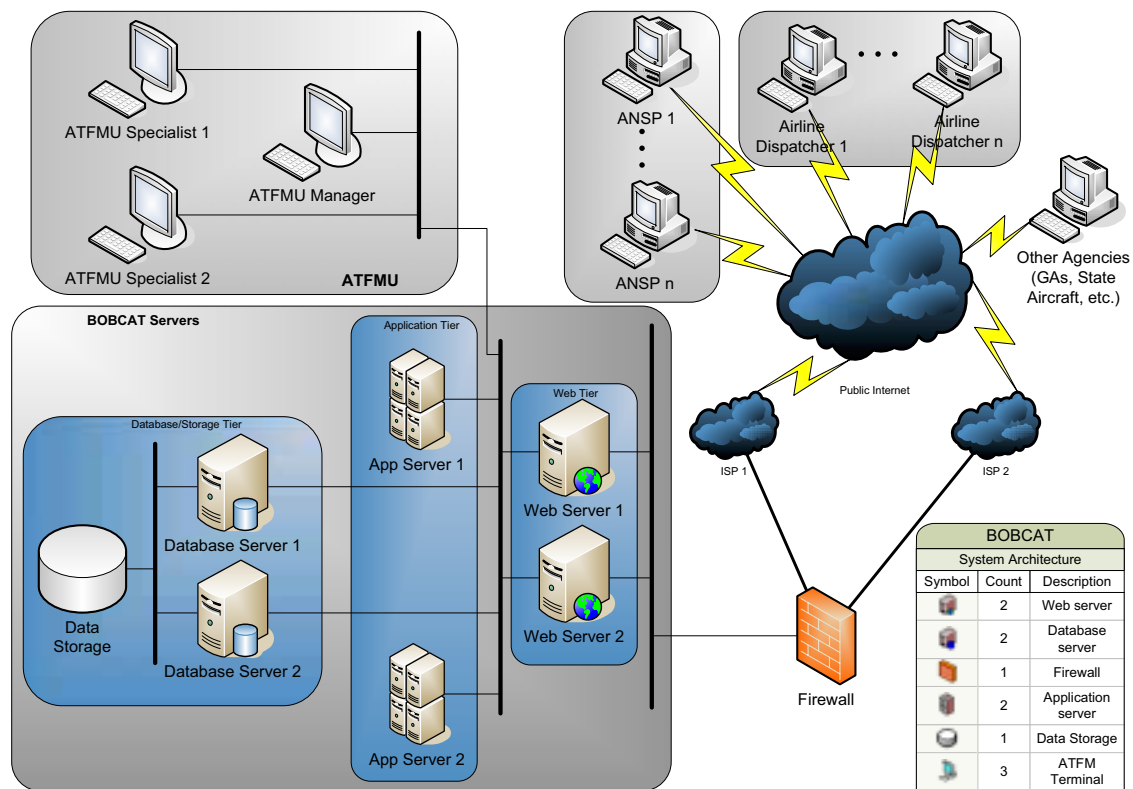


Figure 1 BOCAT System Architecture

### **Security Considerations for BOBCAT**

2.13 In order to ensure that aircraft operational information submitted to BOBCAT is authentic, the meeting is advised that the system will be so designed so that dispatchers will only be able to submit requests for aircraft they are responsible for. Prior to the Operational Trial, airline companies are required to complete a designated form listing other airlines which they have made arrangement to perform dispatching duties on their behalf and send to the manager of the ATFMU for registration.

2.14 The meeting should also note that each dispatcher or each ACC would have thier own set of usernames and passwords to operate the BOBCAT system. This provision is to ensure security of the system. In such circumstances where there is a change of authorized personnel within an organization, the current username/password would be removed and a new username/password would then be added if required. Any change to username/password will be formally notified to the Manager of the ATFMU.

### **Establishment of the Air Traffic Flow Management Unit (ATFMU)**

2.15 AEROTHAI has commenced planning and development of the ATFMU which is to be located either in or alongside the Bangkok ACC. The En-route Air Traffic Management Department will be responsible for the manning and efficient operation of ATFMU.

#### ATFMU staffing and hours of operation

2.16 It is proposed that there will be three positions established in the ATFMU. The proposed operating hours of the ATFMU are between 0800UTC and 2359UTC (discussion and agreement required by ATFM/TF/3 meeting). This should fulfil flight planning requirements for all aircraft requesting slot times to enter Kabul FIR from 1900UTC and be clear of Kabul FIR by 2359UTC.

2.17 The 3 nominated positions are as follows:

- a) ATFMU manager who will have overall responsibility for ATFMU operations;
- b) ATFMU I position responsible for BOBCAT operations; and,
- c) ATFMU II position responsible for coordination with airline dispatchers, other imputers to BOBCAT (GA operators etc) and ANSPs involved

2.18 In addition, a technician, qualified and trained on the BOBCAT facilities will be available during the operating hours of the ATFMU.

2.19 The role and responsibilities of these positions will be detailed in the ATFM Handbook when published.

#### ATFMU Facilities

2.20 It is proposed that the unit will contain the following facilities:

- a) 1 ATFM terminal for each ATFMU position;
- b) 1 additional desktop computer (internet access) for office use
- c) 2 telephone lines with IDD capability
- d) 1 Printer
- e) 2 fax machines with IDD capability

- f) 1 AFTN/ATN terminal (VTBBZDZX)

Training Program

Theory of BOBCAT – role and responsibilities	31-Oct-05	2-Nov-05
BOBCAT practical simulation exercises using ATFMU systems	7-Nov-05	11-Nov-05
Continuous training during BOBCAT system testing	14-Nov-05	9-Dec-05
Evaluation and rating in BOBCAT procedures and management	13-Dec-05	16-Dec-05
Final operational review/briefing prior to Operational Trial	19-Dec-05	21-Dec-05

### 3. SUMMARY

3.1 Unlike other en-route air traffic flow management systems, some aircraft operate from their departure points to the entry gates to Kabul FIR through more than 10 FIRs which have various spacing requirements depending on their CNS capability. Each of these concerned ANSPs has a role to play to make BOBCAT or any other ATFM system a success.

3.2 BOBCAT is being designed for present day traffic as well as the capacity to handle predicted traffic increases in the not too distant future. It will have the capability to appropriately meter aircraft through allocated gates from departure points which are one to seven hours away from entry points into Kabul FIR.

3.3 Once Operational Trials are initiated, in the light of actual aircraft operations, fine tuning of BOBCAT may be required. This can be achieved without any disruption to the ongoing service to the airlines concerned.

3.4 The meeting is reminded that cooperation by all concerned is the key to success of this or any other ATFM project. This cooperation should then allow BOBCAT to move forward to cover Phase 2 and 3 of the ATFM project.

### 4. ACTION BY THE MEETING

4.1 The meeting is invited to:

- a) Review and discuss the contents of the working paper;
- b) Note the ongoing work of India and Thailand in addressing issues of mutual concern and agree with the proposals put forward in this working paper;
- c) Continue to work with towards an Operational Trail commencing on 22 December 2005

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