การประยุกต์ใช้ขั้นตอนวิธีเชิงพันธุกรรมแบบจุลภาคสำหรับหลายวัตถุประสงค์ ในงานปฏิบัติการทางการบินในสภาวะไม่ปกติ เพื่อแก้ปัญหาการผนวกเที่ยวบินและเปลี่ยนเส้นทางบิน

เรือตรี สุทธิภูมิ เยาว์วิวัฒน์ (ร.น.)

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต
สาขาวิชาวิทยาศาสตร์คอมพิวเตอร์ ภาควิชาวิศวกรรมคอมพิวเตอร์
คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2550

APPLYING MULTI OBJECTIVE MICRO GENETIC ALGORITHM IN IRREGULAR AIRLINE OPERATION TO SOLVE FLIGHT COMBINING AND REROUTING PROBLEM

Ensign Soottipoom Yaowiwat

A Thesis Submitted in Partial Fulfillment of the Requirements

for the Degree of Master of Science Program in Computer Science

Department of Computer Engineering

Faculty of Engineering

Chulalongkorn University

Academic Year 2007

Thesis Title	APPLYING MULTI OBJECTIVE MICRO GENETIC ALGORITHM IN IRREGULAR AIRLINE OPERATION TO SOLVE FLIGHT COMBINING AND REROUTING PROBLEM
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สุทธิภูมิ เยาว์วิวัฒน์ : การประยุกต์ใช้ขั้นตอนวิธีเชิงพันธุกรรมแบบจุลภาคสำหรับหลายวัตถุประสงค์ใน งานปฏิบัติการทางการบินในสภาวะไม่ปกติ เพื่อแก้ปัญหาการผนวกเที่ยวบินและเปลี่ยนเส้นทางบิน. (APPLYING MULTI OBJECTIVE MICRO GENETIC ALGORITHM IN IRREGULAR AIRLINE OPERATION TO SOLVE FLIGHT COMBINING AND REROUTING PROBLEM) อ. ที่ปรึกษา : ดร. โปรดปราน บุณยพุกกณะ, 106 หน้า.

วิทยานิพนธ์นี้เสนอการนำขั้นตอนวิธีเชิงพันธุกรรมแบบจุลภาคสำหรับหลายวัตถุประสงค์ มาประยุกต์ใช้ในงานปฏิบัติการทางการบินในสภาวะไม่ปกติ เพื่อแก้ปัญหาการผนวกเที่ยวบินและการเปลี่ยนเส้นทางบิน แล้วทำการเปรียบเทียบประสิทธิภาพของขั้นตอนวิธีเชิงพันธุกรรมดังกล่าวกับอัลกอริทึมการขยายและการจำกัดเขต และการแก้ปัญหาโดยผู้เชี่ยวชาญงานปฏิบัติการทางการบิน

ผลที่ได้พบว่าขั้นตอนวิธีเชิงพันธุกรรมแบบจุลภาคสำหรับหลายวัตถุประสงค์สามารถให้คำตอบของปัญหาได้หลากหลายและมีคุณภาพ ทัดเทียมกับอัลกอริทึมการขยายและการจำกัดเขต แต่มีประสิทธิภาพดีกว่าการแก้ปัญหาโดยผู้เชี่ยวชาญงานปฏิบัติการทางการบิน เนื่องจากขั้นตอนวิธีเชิงพันธุกรรมดังกล่าว หาคำตอบดีสุดของปัญหาตามวิธีพาเรโตโดมิแนนซ์ และอัลกอริทึมการขยายและการจำกัดเขตถูกพัฒนาให้หาคำตอบได้มากกว่าหนึ่งคำตอบ ในขณะที่ผู้เชี่ยวชาญงานปฏิบัติการทางการบินมีขีดจำกัดในเรื่องเวลาของการค้นคำตอบ จึงทำให้คุณภาพของคำตอบที่ได้ด้อยกว่าคำตอบที่ได้จากขั้นตอนวิธีเชิงพันธุกรรมและอัลกอริทึมการขยายและการจำกัดเขต

อย่างไรก็ตาม การนำขั้นตอนวิธีเชิงพันธุกรรมแบบจุลภาคสำหรับหลายวัตถุประสงค์มาประยุกต์ใช้ในงานปฏิบัติการทางการบินในสภาวะไม่ปกติ เพื่อแก้ปัญหาการผนวกเที่ยวบินและการเปลี่ยนเส้นทางบิน จะใช้เวลาในการค้นคำตอบมากกว่าอัลกอริทึมการขยายและการจำกัดเขตเพียงเล็กน้อย

ภาควิชา วิศวกรรมคอมพิวเตอร์ ลายมือชื่อนิสิต.....
สาขาวิชา วิทยาศาสตร์คอมพิวเตอร์ ลายมือชื่ออาจารย์ที่ปรึกษา.....
ปีการศึกษา 2550

4970642321 : MAJOR COMPUTER SCIENCE

KEY WORD: Micro Genetic Algorithm / Multi Objective Optimization / Irregular Airline Operation / Flight Combining and Rerouting Problem

SOOTTIPOOM YAOWIWAT : APPLYING MULTI OBJECTIVE MICRO GENETIC ALGORITHM IN IRREGULAR AIRLINE OPERATION TO SOLVE FLIGHT COMBINING AND REROUTING PROBLEM. THESIS ADVISOR : PROADPRAN PUNYABUKKANA, Ph. D., 106 pp.

This thesis presents the application of the Multi Objective Micro Genetic Algorithm (MOMGA) in Irregular Airline Operation for solving flight combing and rerouting problems. Performance of the application was tested against applications using first Branch and Bound Algorithms then human experts.

The result denotes that MOMGA could produce varied solutions, with equal quality, as those of Branch and Bound algorithms. Also the performance of MOMGA is much better than the performance of human experts. This is because MOMGA employs the Pareto dominance based scheme in solutions deriving and the Branch and Bound algorithms was developed in order to find multiple solutions. On the other hand, the limited searching capabilities of human experts restrict finding good quality and varied solutions.

However, MOMGA took a bit more time to solve the problem than the application using Branch and Bound Algorithms.

Department Computer Engineering Student's signature.....

Field of study Computer Science Advisor's signature.....

Academic year 2007

ACKNOWLEDGEMENTS

This thesis is dedicated to my family and to all those who assisted me. Notably, I would like to express my gratitude to my thesis advisor, Proadpran Punyabukkana, Ph. D., to Chutatip Arunanondchai, and to Komsan Chotikateerakul, Deputy Director of Thai Airways Flight Operation Center, for their insight, helpfulness, and understanding, both technically and personally, throughout the period of this thesis study. I would also like to thank the thesis committee for their reviewing of this thesis.

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CHAPTER 1
INTRODUCTION

1.1 PROBLEM DOMAIN

An Irregular Airline Operation (IAO) situation occurs when a planned flight schedule is disrupted. Causes of the disruption range from bad weather, labor strike, airport or aircraft repairing, communication device failure, etc. Solutions to the IAO situations can be formulated in many fashions, such as allowing aircraft swaps, combining flights, rerouting flight segments, or some combinations thereof. We consider a specific case in which flight segments can be simultaneously combined and rerouted. Several costs associated with this change span from passengers' compensation fees, transportation fees, accommodation fees, or loss of revenue to other airlines. As there are several criteria, costs and options available, complex computation is necessary in order to reach an optimal solution. Several approaches were introduced to minimize these costs such as Linear Programming, Branch and Price, and modeling techniques, and Decision Support Systems (DSS). However Machine Learning techniques are one of the feasible approaches which can be used to solve the flight combining and rerouting problem. However they have hardly ever been applied to solve IAO problems. Machine learning techniques are considered as a class of Artificial Intelligence (AI) approaches. The next paragraphs will explore various AI techniques used to solve complicated problems.

AI offers many techniques used to solve complex problems. Those techniques include Breadth-first search, Depth-first search, Depth-limited search, Iterative deepening, Bidirectional search, First-Order Logic inference, State-Space Search, GRAPHPPLAN algorithm, Bayes' Rule, Bayesian networks, Decision Networks, Naïve Bayes models, Instance-Based Learning, Neural Networks and Reinforcement Learning.

The searching techniques are applied to solve the sensorless problems. If the agent has no sensors at all, then (as far as we know) it could be in one of several possible initial states, and each action might therefore lead to one of several possible

successor states. The First-Order Logic inference technique is applied to analyze the digital circuit's functionality, such as the correct performance and structure of the circuit. The planning technique is applied to solve the air cargo transport problem, which involves loading and unloading cargo onto and off of planes and flying it from place to place. It is also applied to solve the spare tire problem whose goal is to have a good spare tire properly mounted onto the car's axle. Statistical Learning techniques such as the Decision Tree, the Bayes' Rule, the Bayesian Network, the Naïve Bayes models, the Instance-Based Learning and the Neural Networks are applied to recognize spoken words, learn to drive an autonomous vehicle, learn to classify new astronomical structures, learn to play the world-class backgammon, learn to diagnose disease, learn to classify text and etc. Finally Evolutionary Algorithms such as Genetic Algorithms (GAs) are used to solve optimization problems [1].

According to the various techniques described earlier, the GAs are considered as the best choice to find the optimal flight combinations, whose total delay and total number of excess passengers, passengers who can not be carried by the solution flights, are minimized, in the aftermath of the irregular events. This thesis proposes the use of Multi Objective Micro Genetic Algorithms (MOMGA) to solve this flight combining and rerouting problem based on Thai Airways domestic cases.

1.2 RESEARCH OBJECTIVES

1. To introduce the MOMGA approach in the IAO problem.
2. To evaluate the MOMGA application against the performance of human experts. The evaluation criteria are provided in the research scope section.
3. To evaluate the MOMGA application against the Branch and Bound approach. The evaluation criteria are provided in the research scope section.
4. To help human controllers to solve IAO situations.

1.3 RESEARCH SCOPE

1. The flight combining and rerouting events are based only on Thai Airways domestic cases.
2. The flight combination contains only three flights.
3. The application will be implemented in Java programming language.
4. 30 test cases, from one month operation verified by Thai Airways experts, will be used to evaluate the performance of the application program and the manual approach.
5. The evaluation criteria for the MOMGA model efficiency are as follow.
   5.1 Speed used to derive optimal solutions.
   5.2 The quality of optimal solutions obtained from the model.
   5.3 Time to converge to optimal solutions.
6. The evaluation criteria for MOMGA application against those of human experts is the quality of the optimal solutions obtained from both approaches.
7. The evaluation criteria for MOMGA application against the Branch and Bound approach are as follows.
   7.1 The quality of the optimal solutions obtained from both approaches.
   7.2 The number of times that both approaches used for their fitness assignment.
8. The parameters used by the micro GA part, which will be varied for the experiment, are as follows:
   8.1 The size of the replaceable memory.
   8.2 The size of the non-replaceable memory.
   8.3 The size of the external memory.
   8.4 The micro GA population size.

1.4 RESEARCH PLAN

1. Familiarize with the IAO and the flight combining and rerouting situations.
2. Design and Implement the model.
3. Build java application program for solving flight combining and rerouting problem based on the implemented model.

4. Collect the data.
5. Evaluate the model according to the scope number 5.
6. Evaluate MOMGA application against those of human experts, according to scope number 6.
7. Evaluate MOMGA application against the Branch and Bound approach, according to scope number 7.
8. Thesis publication.

1.5 RESEARCH CONTRIBUTION

1. To introduce the MOMGA model for the flight combining and rerouting problem.
2. To evaluate the MOMGA model against that of human experts.
3. To evaluate the MOMGA model against the Brand and Bound approach.
4. To help the human controllers to solve the IAO situations.

CHAPTER 2
THEORIES AND RELATED WORKS

2.1 IRREGULAR AIRLINE OPERATION

2.1.1 Definition of Flight

Flight, in airline operation, means a trip of an aircraft traveling from one place to another place. The trip information comprises the name of the city and the time that the aircraft departs and arrives. An example of a flight detail is as follows:

TG001 BKK URT 0130 0330

Where, TG001 is flight number. BKK is the abbreviation of the departure city which is Bangkok. URT is the abbreviation of the arrival city, which is Surat Thani. The string 0130 means the aircraft departs BKK at 1.30 am and the string 0330 means the aircraft arrives URT at 3.30 am. The flight information always appears in the flight schedule.

In the aircraft rotation table used by Operation officers, the flight information mentioned earlier is encoded into the form shown in Figure 1.

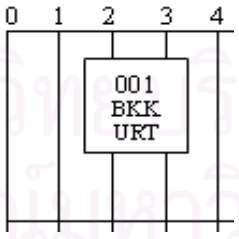

Figure 1: A flight in aircraft rotation table

2.1.2 Definition of Sector

Sector refers to the combination of more than two flights which start and end at the same city. The example of a sector is shown as follows:

BKK URT BKK

The above sector comprises the flight BKK URT and URT BKK together which means the aircraft departs BKK to URT then rests for a period of time, which is equal to ground time. Then it departs from URT to BKK. Sector does not appear in the flight schedule. Instead, it appears in the aircraft rotation table used by Operation officers. Figure 2 shows a sector in aircraft rotation table.

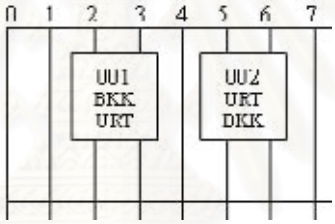

Figure 2: A sector in aircraft rotation table

The gap between each flight is called ground time. Ground time is the rest period of an aircraft before the next flight. Minimum ground time must be maintained all the time through aircraft operation.

2.1.3 Definition of Irregular Airline Operation

Irregular Airline Operation (IAO) is an operation done when the daily operations of regularly scheduled airline carriers are prone to unexpected irregularities, which develop from several factors ranging from severe weather conditions to the unavailability of eligible flight crew.

In many cases, these factors can have a significant impact on an airline's operations, resulting in substantial deviation from the planned schedule of services. According to the US department of transportation recorded on irregularities in domestic flights, the causes of irregularities can be shown as follows [2].

1. Weather – Wind, fog, thunderstorm, low cloud ceiling
2. Equipment – Air traffic radar/ computer outage
3. Runway – Unavailable because of construction, surface repair, disabled aircraft
4. Volume – Aircraft movement rate exceeds capacity of the airport at a given time
5. Other – Anything excluding the above factors

2.1.4 Strategies for IAO Problem Solving Based On Thai Airways

Thai Airways employs the following strategies to solve the IAO events.

1. Swapping the aircraft with the same fleet type

Replace the irregular aircraft with another of the same type that is available during the operational period of the irregular one.

2. Swapping the aircraft between different fleet type

The method is the same as 1, but done with different fleet type of replaced aircraft.

3. Canceling and combining flight

Cancel the flight and transfer all of the passengers to another scheduled flight. The combination may be done in one aircraft, if the capacity allows it, or in several aircraft.

4. Delaying flight

Delay the flight until the aircraft is ready.

5. Combining and rerouting flight

Combine the passengers of the sector that has the same departure and arrival city together in one aircraft. An example is combining sector BKK URT BKK with BKK UDT BKK, where BKK is the departure and arrival city of each sector. The resulting combination will be BKK URT UDT BKK. The combination means an aircraft firstly departs BKK and arrives at URT. After waiting for some period of time which is equal to ground time, the aircraft then picks the passengers up and departs URT to UDT. After that the aircraft waits again, according to the ground time, and leaves UDT to BKK.

2.1.5 Manual Approach for Flight Combining and Rerouting Based On Thai Airways

The focus of our work is to find the best possible solutions for the flight combining and rerouting problems. The manual approach for combining and rerouting used by Thai Airways is illustrated as follows.

flight	departure / arrival city	departure time	passengers			seat available of each flight			aircraft number
			1st	busi	econ	1st	busi	econ	
TG001	Bangkok Khonkaen	11.30	6	15	60	4	5	59	1
TG002	Khonkaen Bangkok	13.35	6	15	60	-	-	-	1
TG003	Bangkok Udonthani	11.45	4	5	59	6	15	60	1
TG004	Udonthani Bangkok	13.25	5	6	60	-	-	-	1
TG005	Bangkok Ubonrajthani	11.05	3	17	58	7	3	61	1
TG006	Ubonrajthani Bangkok	13.15	6	16	60	-	-	-	1

Figure 3: An example flight schedule

Suppose that flight TG001, which departs from Bangkok and arrives at Khonkaen, is interrupted (an irregular flight). For some reason that makes it unable to operate, the following steps are to be taken.

Step 1: Search throughout flight schedule for flights departing from the same city as the irregular flight. In this case, two candidate flights are found. Those candidate flights are TG003 and TG005.

Step 2: Compute the delay between the irregular flight, TG001, and each candidate flight, TG003 and TG005. The delay can be calculated by finding the time difference between a candidate flight departure time and the irregular flight departure time.

For example, the delay between TG001 and TG003 is fifteen minutes whereas there is no delay between TG001 and TG005, because TG005 departs before TG001. At this step TG005 is dismissed from the candidate set because it has already departed. Then, check whether the aircraft of the candidate flight can land at the airport of the irregular flight. If it cannot land at the airport, the candidate flight will be removed from the candidate set.

Step 3: Calculate the number of excess passengers after transferring the passengers from the irregular flight to the candidate flight. The example is transferring passengers from TG001 to TG003. The number of excess passengers can be calculated as follows:

$$EP1_c = CS1_c - IRP1_c$$

Where, $EP1_c$ = the number of excess passengers in each class, First, business and economy class.

$CS1_c$ = the number of available seats in each class of candidate flight.

$IRP1_c$ = the number of passengers in each class of irregular flight.

Subscript c denotes each class of the seat or passenger, First, business and economy class.

For example, the number of excess passengers after combining the passengers from TG001 to TG003 is 0, because the number of passengers in each class of TG001 is equal to the number of seats available of its own class in TG003. If $EP1_c$ is more than or equal to -3, then do step 4. Otherwise, If $EP1_c$ is less than -3 then terminate the routine and go to step 8.

Step 4: Search through the flight schedule for the flight whose departure city is the same as the arrival city of the irregular flight, for example TG002. Then check whether the aircraft of the candidate flight can land at the airport of the irregular flight. If it cannot land at the airport, the candidate flight will be removed from the candidate set. After that, calculate the number of excess passengers after transferring the passengers from the flight searched to the candidate flight.

Step 5: Calculate the number of excess passengers for each class at the arrival city of the irregular flight, after transferring passengers from TG002 to TG003. The calculation can be done using the following equation.

$$EP2_c = CS1_c - IRP2_c$$

Where, $EP2_c$= the number of excess passengers in each class after transferring the passengers from the flight searched, in step 4, to the candidate flight.

$CS1_c$ = the number of available seats in each class of candidate flight derived from step 3.

$IRP2_c$ = the number of passengers in each class of the flight obtained from step 4.

If $EP2_c$ is more than or equal to -3, then do step 6. Otherwise, if $EP2_c$ is less than -3, then terminate the routine and go to step 8.

Step 6: Search through the flight schedule for the flight whose departure city is the same as the arrival city of the candidate flight, for example TG004. Then calculate the number of excess passengers after transferring the passengers from the flight searched to the candidate flight, for example from TG004 to TG003.

Step 7: Calculate the number of excess passengers for each class at the arrival city of the candidate flight, after transferring passengers from TG004 to TG003. The calculation can be done using the following equation.

$$EP3_c = CP2_c - CP3_c$$

Where, $EP3_c$= the number of excess passengers in each class after transferring the passengers from the flight searched, in step 6, to the candidate flight.

$CP2_c$ = the number of passengers in each class of the candidate flight, TG003.

$CP3_c$ = the number of passengers in each class of the flight obtained from step 6.

If $EP3_c$ is more than or equal to -3, then the selected candidate flight is added to the solution set. Otherwise, if $EP3_c$ is less than -3, terminate the routine and go to step 8.

Step 8: apply step 2 - 7 to another candidate flight.

2.1.6 Limitation of the Manual Approach

Even though the routine is commonly used, some significant short-comings of the routine have been found. The first short coming is that the total delay of the schedule, after combining and rerouting the flight, is usually not taken into account because it takes too much time for humans to compute. The total delay of the schedule is illustrated in Figure 4a and 4b.

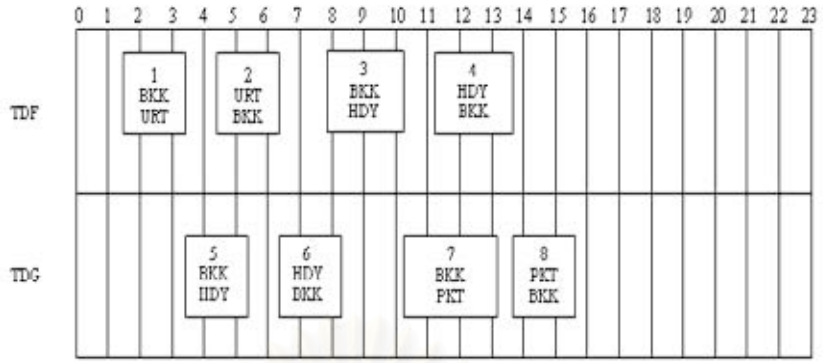

Figure 4: The original aircraft rotation table

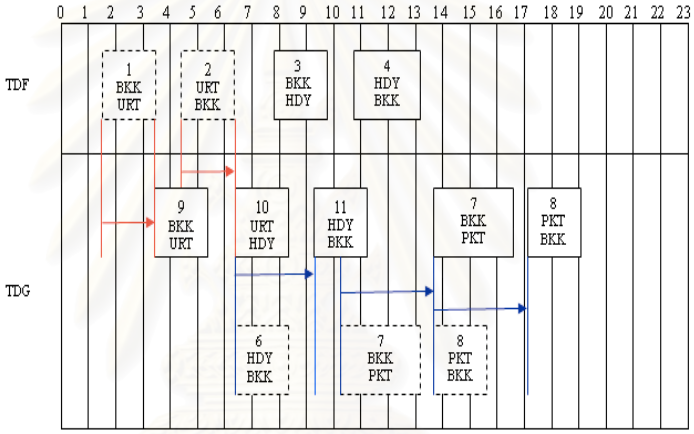

Figure 5: A new aircraft rotation table after combining and rerouting the flight

Figure 4 and 5 indicate the simulated aircraft rotation table based on Thai Airways domestic event. The row of each table represents an aircraft operation. String TDF and TDG are aircraft tail numbers or their ID, whereas the column represents each hour of a day. Figure 4 is the original schedule before the aircraft TDF was disrupted. Figure 5 is a new schedule after combining and rerouting the flights. The original flights that have been delayed are shown in the dashed boxes.

For illustration purpose, suppose the aircraft TDF was disrupted at 0130. For this reason flight number 1, BKK-URT, and flight number 2, URT-BKK, could not be flown.

Note that, in IAO, if any flights in a sector cannot be flown by a particular aircraft, then the whole sector will not be flown by that aircraft. A solution to the disrupted event is to combine the sector BKK-URT-BKK flown by the aircraft TDF with the sector BKK-HDY-BKK flown by the aircraft TDG. The resulting combination will be BKK-URT-HDY-BKK which was flown by the aircraft TDG.

A consequence of combining and rerouting the flights that usually occurs, is passengers' delay. The red arrows in the table indicate the delay of the original flights flown by the aircraft TDF. For example flight number 1 was delayed from 0130 to 0330, which is the departure time of flight number 9. The blue arrows indicate the delay of the original flights flown by the aircraft TDG. For example flight number 6 was delayed from 0620 to 0910, which is the departure time of flight number 11. The total delay of the schedule is the sum of the delay of all flights in the schedule, after combining and rerouting the flights.

The second one is the limitation of searching, through the candidate space, imposed on human capability. For this reason, the routine does not guarantee an optimal solution. To overcome the mentioned shortcoming, computer applications based on the following techniques are used in the IAO.

2.1.7 Mathematical Techniques for IAO Problem Solving

This section will discuss various techniques for solving the IAO situations. The techniques include Linear Programming (LP), Branch and Price, and Network Modeling.

1. Linear Programming

In LP, IAO problems can be formulated by defining the objective function [3], which generally has the form of the cost of the alternatives of the solution, such as the cost of the new route after rerouting for the Irregularity. The constraint functions are normally the constraints of legal sector, duty period, maintenance period etc. LP seeks

for the solutions by minimizing the objective functions according to the constraint functions. The minimization can be done in several manners. Those practices are the simplex method, the cutting plane method and the duality method. The LP is commonly used as a core technique in many IAO problem solving techniques such as Branch and Price, the modeling technique, and the decision support systems.

The advantage of the LP is that it can represent a complex feature of the problem by a set of mathematical equations. Hence the optimal solution of the problem can be obtained from those equations.

Although the LP approach can be used to seek for the optimal solutions, there are some limitations posted behind the method. Those limitations are firstly a difficulty of formulating a correct objective and constraint functions. Secondly solving those equations are not easy, both manually and electronically. Thirdly, solving the wrong objective and constraint functions is subjected to incorrect solutions. Fourthly the LP is not suitable for large-scale problems because its computational time will be very expensive [3].

2. Branch and Price

Branch and Price in column-generation scheme is applied to solve the IAO problem by optimizing the LP relaxation problem called the restricted master problem. Then the branch and bound search tree is used to obtain the integer solution, because the solution derived from the restricted master problem is not necessary integer.

After that, the column generation scheme is employed at each node of the tree. The Branch and Price approach is normally used in the aircraft routing problems such as in operational aircraft maintenance routing [3].

Because the Branch and Price approach utilizes the LP to solve the IAO problem, the advantages and the disadvantages of this approach is the same that of the LP.

3. Network modeling

The Network modeling technique simply translates the IAO problem into graph representation in order to help human controllers to understand and solve the IAO problem. For example each node might represent various states of an aircraft such as flight departure, wheel-off, wheel-on, flight arrival and aircraft ready. Each node is attached with the time that each event occurrs. The arcs represent the activities that occur between the states such as the activities between flight departure and wheel-off [4].

The examples of the network modeling approach are the model for projecting flight delays during the irregular operation conditions [4] and the multiple fleet aircraft schedule recovery following hub closures [5].

Most of the network modeling techniques provides only the network models used for human controllers' decision making without solution deriving. Hence the optimal solution cannot be obtained from these techniques.

2.2 GENETIC ALGORITHMS

Genetic Algorithms provide a learning method motivated by an analogy to biological evolution. Rather than search from general-to-specific hypotheses, or from simple-to-complex, GAs generate successor hypotheses by repeatedly mutating and recombining parts of the best currently known hypotheses. At each step, a collection of hypotheses called the current population is updated by replacing some fraction of the population by offspring of the most fit current hypotheses. The process forms a generate-and-test beam-search of hypotheses, in which variants of the best current hypotheses are most likely to be considered next. The popularity of GAs is motivated by a number of factors including:

1. Evolution is known to be a successful, robust method for adaptation within biological systems.
2. GAs can search spaces of hypotheses containing complex interacting parts, where the impact of each part on overall hypothesis fitness may be difficult to model.
3. Genetic algorithms are easily parallelized and can take advantage of the decreasing costs of powerful computer hardware.

The problem addressed by GAs is to search a space of candidate hypotheses to identify the best hypothesis. In GAs the “best hypothesis” is defined as the one that optimizes a predefined numerical measure for the problem at hand, called the hypothesis fitness. For example, if the learning task is the problem of approximating an unknown function, given training examples of its input and output, then fitness could be defined as the accuracy of the hypothesis over this training data. Hypotheses in GAs are often represented by bit strings, so that they can be easily manipulated by genetic operators such as mutation and crossover.

The population of GAs, such as a hypothesis, can be evolved to an optimal one through the genetic operators such as mutation and crossover. It is expected that the quality of the current population can be improved through the selection and genetic operators. The basic crossover operators are Single-point crossover, Two-point crossover and Uniform crossover. The following diagram illustrates those basic crossover and mutation operators [6].

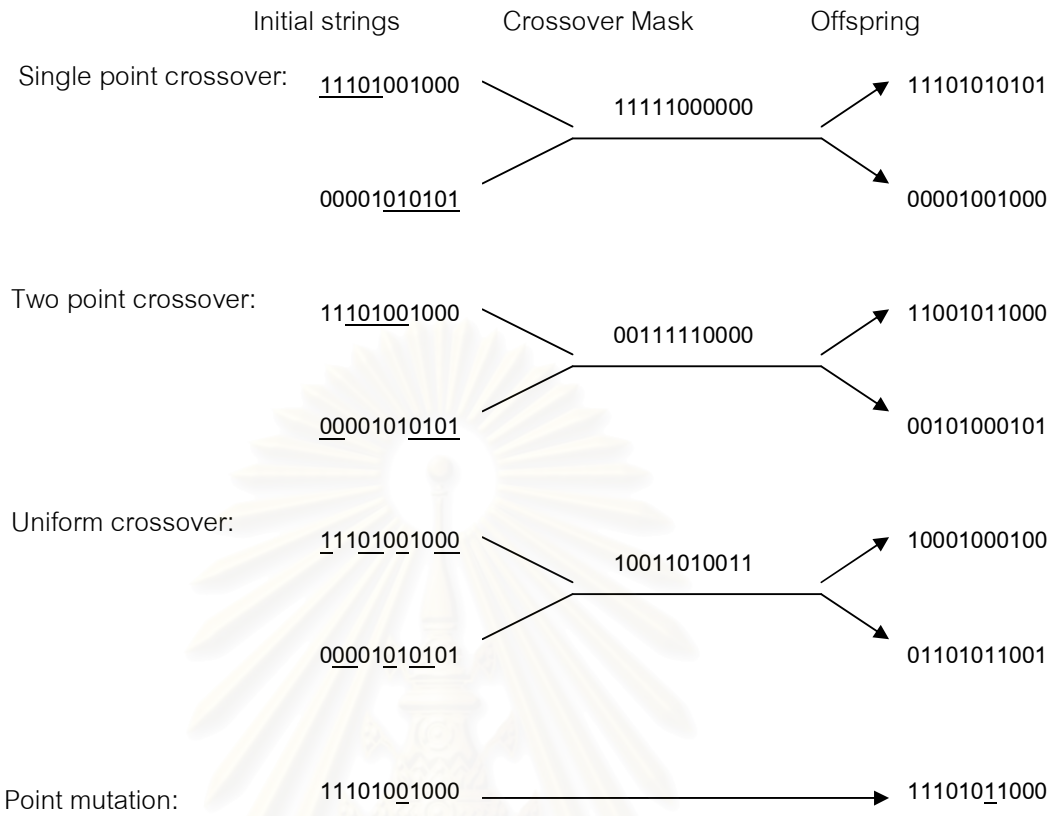

Figure 6: Genetic Operators

The following diagram is the simple GAs flow chart.

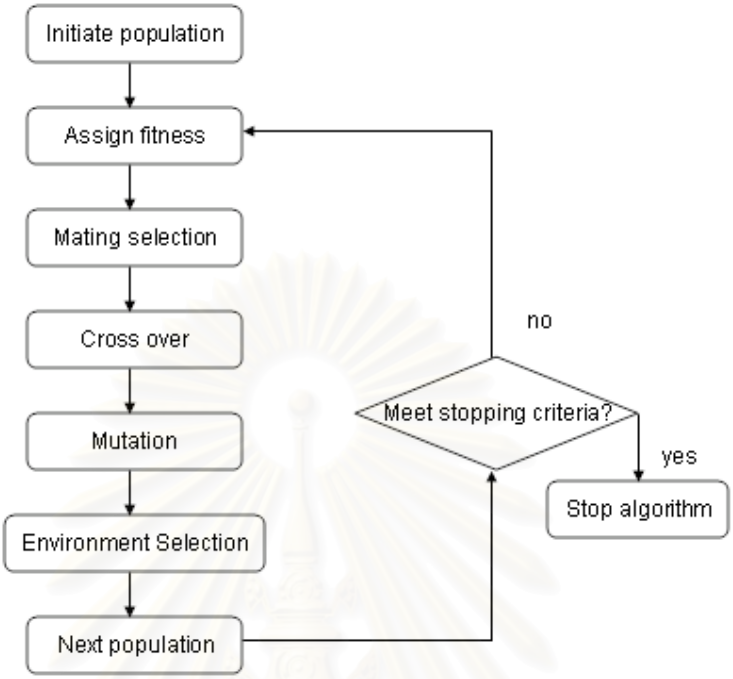

Figure 7: Genetic Algorithms

In real world, the GAs have been applied to many optimization problems of very large space such as the circuit layout problem, the robot control process problem, the learning Artificial Neural Network problem, the job-shop scheduling problem and etc.

2.3 MICRO GENETIC ALGORITHMS

The term micro-genetic algorithm (micro-GA) refers to a small-population genetic algorithm with reinitialization. The concept was proposed by some theoretical results obtained by Goldberg, according to which a population size of 3 was sufficient to converge, regardless of the chromosomic length. The process introduced by Goldberg was to start with a small randomly generated population, then apply to it the genetic operators until reaching nominal convergence (e.g., when all the individuals have their genotypes either identical or very similar), and then to generate a new population by transferring the best

individuals of the converged population to the new one. The remaining individuals would be randomly generated [7].

2.4 MULTI OBJECTIVE OPTIMIZATION

Multi objective optimization (also called multi criteria optimization, multi performance or vector optimization) can be defined as the problem of finding a vector of decision variables which satisfies constraints and optimizes a vector function whose elements represent the objective functions. These functions form a mathematical description of performance criteria which are usually in conflict with each other. Hence, the term optimization means finding such a solution which would give the values of all the objective functions acceptable to the designer. Formally, we can state it as follows [8].

Find the vector $x = [x_1, x_2,..., x_n]^T$, which will satisfy the m inequality constraints: $g_i(x) \geq 0$, i = 1,2,...,m. The p equality constraints $h_i(x) = 0$, i = 1,2,...,p and optimizes the vector function $f(x) = [f_1(x), f_2(x),..., f_k(x)]^T$ where $X = [x_1, x_2,..., x_n]^T$ is the vector of decision variables. The set of optimal solutions in the decision space X is in general denoted as the Pareto set (X^*) and we denote its image in objective space as Pareto front ($Y^* = f(X^*)$).

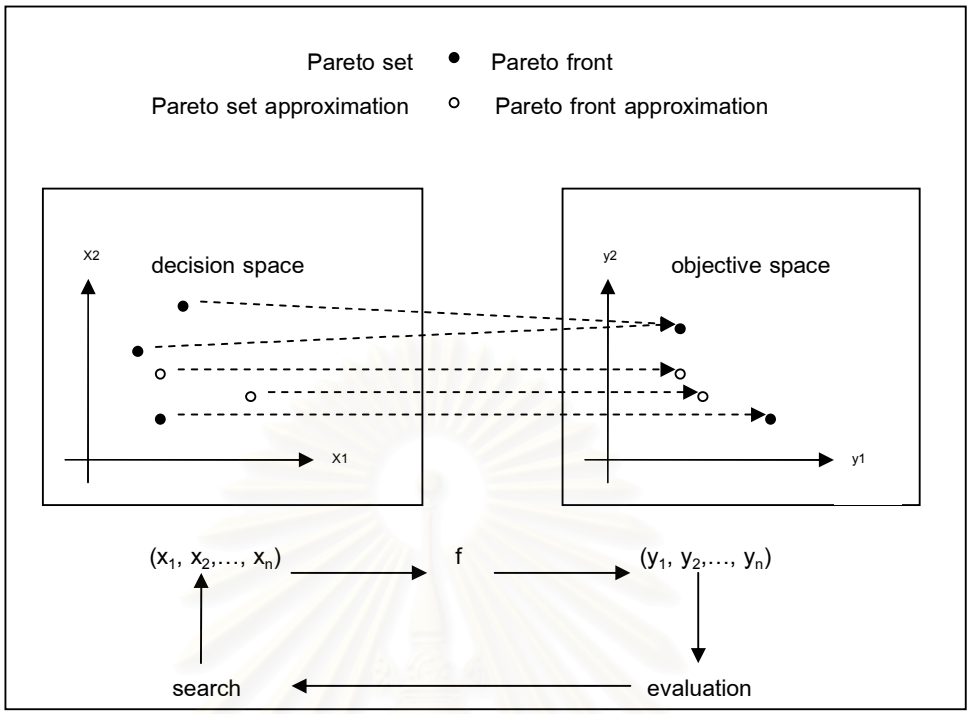

Figure 8: mapping from decision space to objective space

2.5 MULTI OBJECTIVE EVOLUTIONARY ALGORITHMS

Generating the Pareto set can be computationally expensive and is often unfeasible, because the complexity of the underlying application prevents exact methods from being applicable. For this reason, a number of stochastic search strategies such as evolutionary algorithms, Tabu search, simulated annealing, and ant colony optimization have been developed: they usually do not guarantee to identify optimal trade-offs but try to find a good approximation, i.e., a set of solutions whose objective vectors are (hopefully) not too far away from the optimal objective vectors.

Roughly speaking, a general stochastic search algorithm consists of three parts: i) a working memory that contains the currently considered solution candidates, ii) a selection module, and iii) a variation module. A selection module consists of a mating part and on environmental part. Mating selection aims at picking promising solutions for variation and usually is performed in a randomized fashion. In contrast, environmental selection determines which of the previously stored solutions and the newly created ones

are kept in the internal memory. The variation module takes a set of solutions and systematically or randomly modifies these solutions in order to generate potentially better solutions. In summary, an iteration of a stochastic optimizer includes the consecutive steps mating selection, variation, and environmental selection; this cycle may be repeated until a certain stopping criterion is fulfilled.

Many stochastic search strategies have been originally designed for single-objective optimization and therefore consider only one solution at a time, i.e., the working memory contains just a single solution. As a consequence, no mating selection is necessary and variation is performed by modifying the current solution candidate. In contrast, an evolutionary algorithm is characterized by three features which are;

1. A set of solution candidates is maintained.
2. A mating selection process is performed on this set.
3. Several solutions may be combined in terms of recombination to generate new solutions.

By analogy to natural evolution, the solution candidates are called individuals, and the set of solution candidates is called the population. Each individual represents a possible solution, i.e., a decision vector, to the problem at hand; however, an individual is not a decision vector but rather encodes it based on an appropriate representation [9].

Basically the MOEAs have very similar algorithms as of the traditional GAs, see Figure 3. However, unlike GAs, MOEAs have more than one objective functions. For this reason their fitness assignment scheme is different from the traditional GAs. There are three ways of assigning fitness to each individual in the MOEAs. Those methods are aggregation base, criterion base and dominance base.

1. Aggregation base

This approach is built on the traditional techniques for generating trade-off surfaces by aggregating the objectives into a single parameterized objective function.

The parameters of this function are systematically varied during the optimization run in order to find a set of non dominated solutions instead of a single trade-off solution [9].

2. Criterion base

Criterion-based methods switch between the objectives during the selection phase. Each time an individual is chosen for reproduction, potentially a different objective will decide which member of the population will be copied into the mating pool [9].

3. Pareto Dominance base

This method calculates an individual's fitness on the basis of the Pareto dominance [10], and different ways of exploiting the partial order on the population. The following diagram indicates tradeoff surface for two objective functions in the dominance base fitness assignment.

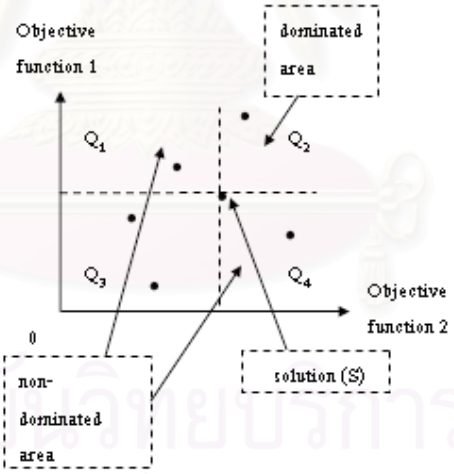

Figure 9: Pareto-dominance based scheme

Most MOEAs try to maintain population diversity within the current Pareto set approximation by incorporating the density information into the selection process: the greater the density of individuals in its neighborhood, the greater an individual's chance of being selected is decreased. This issue is closely related to the estimation of the

probability density functions in statistics, and the methods used in MOEAs can be classified according to the categories for techniques in the statistical density estimation [11]. Those techniques are the Kernel function, the nearest neighbor approach and the Histogram methods [11].

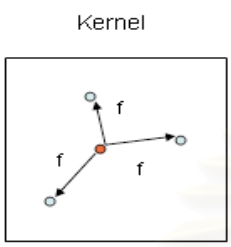

Figure 10: Kernel Function

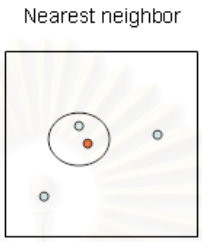

Figure 11: Nearest neighbor

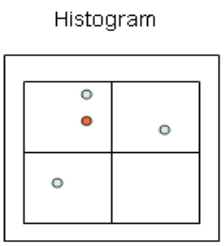

Figure12: Histogram

2.6 RELATED WORKS

Several methodologies used to solve IAO problems have been created for a decade. Those approaches are Linear Programming, Branch and Price, Network Modeling and Decision Support System (DSS). In an early period of the decade, the Decision Support Systems were widely employed in many airline companies. The first example is a decision support framework for airline flight cancellations and delays at United Airlines. The solution procedure of the application is minimum-cost network flow problem [12].

The second one is the application of the integration of computer science and operational research in decision support systems for airline system operations control. The application integrates real-time flight following, aircraft routing, maintenance, crew management, gate assignment and flight planning with dynamic aircraft rescheduling and fleet re-routing algorithms for irregular operations. The algorithms involve the LP problem solving. The system was developed on the distributed desktop UNIX workstation, networked through Ethernet and X Windows Motif graphical user interface [12].

The third one is a decision support framework for handling schedule perturbations which incorporate concepts published by United Airlines. The framework is based on a

basic schedule perturbation model constructed as a dynamic network from which several perturbed network models are established for scheduling following the irregularities. The authors formulate pure network flow problems and solved them using network simplex method and Lagrangian relaxation with subgradient methods [12].

The fourth one is the Inconvenienced Passenger Rebooking System, developed by Delta Airline, that allows the airline to notify passengers about flight cancellations or delays, and aids in passenger flow recommendations. The fifth one is the Resource Management Operation Control (ROC) database/graphical display system developed by Garuda Airlines, Indonesia. The system is used for monitoring actual operations [2].

Apart from the DSS, the Network modeling techniques are also widely used. The first example of the Network modeling technique is the three multi-commodity network-type models for determining a recovery schedule for all aircraft operated by a large carrier following a hub closure. The model contains three types of networks. The first one is a pure network with side constraints, whereas the second one is a generalized network, and the third one is a pure network with side constraints in which the time horizon is discretized [5]. The second example is the model for projecting flight delays during irregular operation conditions to support on-time performance of airlines schedule. The model can be derived by transforming the flight scheduled to a network in which each node represents the various states of the aircraft such as flight departure, wheel-off, wheel-on, flight arrival and aircraft ready. Each node is attached with the time that each event occurred. The arcs represent the activities between each state such as the activities between flight departures [4].

Even the network modeling techniques are widely used; they still have an important limitation. The limitation is its inability to solve the complex optimization problem. The modeling techniques are constructed to ease the human controller's decision making but they cannot obtain the optimal solutions for the IAO problem. For this reason, the Branch and Price approach was proposed to overcome the shortcoming of the previous DSS systems and the network modeling techniques. An example of the Branch and Price approach is a column-generation scheme to solve operational aircraft maintenance by

optimizing LP relaxation problem called the restricted master problem and using branch and bound search tree to obtain the integer solution. The column generation scheme then is employed at each node of the tree [3].

Even the LP, the Branch and Price, the Modeling technique and the decision support systems are globally utilized, there are some limitations posted behind those methods. Those limitations comprise firstly a difficulty of formulating correct objective and constraint functions for LP approach and a difficulty of solving them, both manually and electronically. Also, solving wrong objective and constraint functions is subjected to incorrect solution. Secondly most of the modeling techniques provide only the network model for human controllers whereas solution deriving is neglected.

According to some difficulties posted by the LP-based approaches and the limitations of network modeling techniques, the MOEAs are introduced to solve IAO events. MOEAs overcome the traditional LP in various issues. For example it has minimum requirements regarding the problem formulation; objectives can be easily added, removed, or modified. Also the MOEAs produce more optimal solutions than the LP does. Furthermore the MOEAs have been demonstrated in various applications that evolutionary algorithms are able to tackle highly complex problems and therefore they can be seen as an approach complementary to traditional methods such as integer linear programming [13].

The first attempt, so far, of applying MOEAs to IAO situations has been observed since 2006. Tung, L. et al proposed the Applications of MOEAs to Airline Disruption Management. [14]. Even though the model could obtain the optimal solutions, some limitations were found. The First limitation is the aggregation sum of the two objective functions. Delay and swap cost, and misconnection penalty cannot be used to observe the tradeoff between the amount of the delay and the swap cost of the solutions. Hence some good quality solutions may be discarded. The second one is that the best convergence curve did not seem to converge within a given time. This may be due to the loss of optimal solutions during evolution.

Due to the fact that IAO problem needs to be solved in real time, the MOEAs should be designed to support this issue. Even if the approach could solve the IAO problem effectively, there are chances to reduce its computational time. Those chances are to eliminate the fitness assignment and ranking of the initial population, whose size is very large. That means the population size will be reduced to a small number and the fitness assignment will be done immediately before the selection process, whereas fitness ranking is neglected. The concept described earlier can be accomplished by utilizing the micro GA. Also, applying bias to the crossover operator and utilizing constraint violation search may help to solve the problem better. Those concepts were implemented in the MOMGA model.

CHAPTER 3
RESEARCH METHODOLOGY

The following methodologies were taken in order to achieve the objectives of this research.

1. Familiarize with the IAO and the flight combining and rerouting situations.
2. Formulate the IAO problem as an optimization problem
3. Collect and Prepare data
4. Design MOMGA model according to the optimization problem.
5. Build java application for MOMGA model.
6. Evaluate MOMGA application.
7. Build java application for Branch and Bound approach.
8. Evaluate the MOMGA application against that of the human experts.
9. Evaluate the MOMGA application against the Branch and Bound approach.

3.1 IAO FAMILIARIZATION

One month training at Thai Airways Flight Operation Center was taken in order to learn how experts solve IAO cases manually.

3.2 PROBLEM FORMULATION

The flight combining and rerouting problem, based on Thai Airways cases, can be formulated as the following optimization problem.

Minimize

$$TD = \sum_{i=1}^{m} \sum_{j=1}^{n} (Y_{i,j} - X_{i,j})$$

$$EP = \sum_{i=2}^{3} (PF_{i-1} - SF_i) + \sum_{i=2}^{3} (PB_{i-1} - SB_i) + \sum_{i=2}^{3} (PE_{i-1} - SE_i)$$

Subject to

$$\sum_{k=1}^{o} \sum_{l=1}^{p} (AP_k - AC_l) \neq 0$$

$$\sum_{i=1}^{m} \sum_{j=1}^{n} (Y_{i,j} - X_{i,j}) > 0$$

$$\sum_{i=1}^{m} \sum_{j=1}^{n} (Y_{i,j} - X_{i,j}) < 600$$

$$\sum_{i=1}^{m} \sum_{j=1}^{n-1} C_{i,j} = 0$$

$$\sum_{i=2}^{3} (PF_{i-1} - SF_i) + \sum_{i=2}^{3} (PB_{i-1} - SB_i) + \sum_{i=2}^{3} (PE_{i-1} - SE_i) < 16$$

Where

TD = the total delay of the schedule.

$Y_{i,j}$ = A new departure time of a flight.

$X_{i,j}$ = the original departure time of a flight.

EP = the number of the total excess passengers of a flight combination.

PF_{i-1} = the number of the first class passengers of flight i-1.

SF_i = the number of the available first class seats of flight i.

PB_{i-1} = the number of the business class passengers of flight i-1.

SB_i = the number of the available business class seats of flight i.

PE_{i-1} = the number of the economy class passengers of flight i-1.

SE_i = the number of the available economy class seats of flight i.

AP_k = the airport code of airport k.

AC_l = the aircraft code of aircraft l.

$C_{i,j}$ = the misconnected flight cost.

M = the number of aircraft.

N = the number of flights in every course.

o = the number of irregular airports.

p = the number of candidate aircraft.

subscript i = a specific aircraft.

subscript j = a specific flight.

subscript k = airport code at airport k.

subscript l = aircraft code of aircraft l.

3.3 DATA COLLECTION AND PREPARATION

Data used in all experiments of this research are daily flight data of August 2007 obtained from Thai Airways. They are shown as Figure m-n, see APPENDIX. Each flight in the daily flight data contains 17 attributes. Each attribute is represented by a row. The definitions in each row show the detail of daily flight data as indicated below.

Table 1: Parameters definition

column	definition
1	flight ID
2	departed city
3	arrival city
4	departed time
5	arrival time
6	The number of first class passengers

7	The number of business class passengers
8	The number of economy class passengers
9	departed airport
10	airport code
11	The number of first class available seat
12	The number of business class available seat
13	The number of economy class available seat
14	aircraft code
15	aircraft ID
16	aircraft type
17	city code

3.4 DESIGNING MOMGA MODEL

The MOMGA model is designed to find new routes and flight combinations whose total delay of the schedule, objective function (1), and the numbers of excess passengers, objective function (2), are minimized whereas various constraints are maintained. Constraint (3) ensures that the candidate aircraft can be landed on the irregular airport .Constraint (4) insures that the solution candidate flights can not depart earlier than irregular flights. Constraint (5) ensures that the solutions obtained from the model have the total delay of less than 600 minutes. Constraint (6) assures that misconnection flights will never occur. Constraint (7) certifies that the number of total excess passengers of the solution flights will not exceed 16 passengers. The following section describes the MOMGA model in detail.

3.4.1 Chromosome Representation

flight	departed/arrival city	departure time	passengers		. .
TG001	Bangkok Khonkaen	11.30	6	15	60
TG002	Khonkaen Bangkok	13.35	6	15	60
TG003	Bangkok Udonthani	11.45	4	5	59
	.				

Figure 13: An example flight data

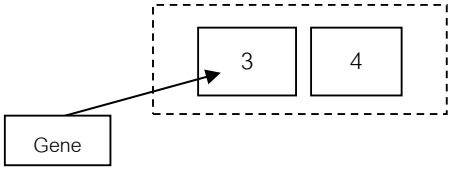

Figure 14: Chromosome representation

Figure 12 shows the encoded chromosome of the MOMGA model. Each gene represents the flight ID of the candidate flight appearing in figure 11.

3.4.2 MOMGA architecture

The MOMGA architecture has been adopted from the model proposed by Carlos, A. et al [15]. However the extensions added to the model which are apart from his work are violation search, micro GA population control and bias crossover. The architecture comprises three important types of memories. They are Replaceable, Non-replaceable and External memory. Replaceable and Non-replaceable memories are population pools used to provide the initial population for the micro GA. The population residing in Replaceable memory will be replaced by non-dominated solutions over time. For this reason the global convergence can be developed. On the other hand the Non-replaceable memory can not be changed over time in order to provide the population diversity for the initial population of the micro GA. The External memory is used as a memory to store the non-dominated solutions at each nominal convergence.

The algorithm starts with random generating population to fill the replaceable and non-replaceable memory. After that, four individuals randomly selected from those memories are initialized for the micro GA part. Then the Violation Search process is employed to find out constraint violated solutions. The solutions violating the constraints are diminished immediately from the population set. The number of surviving individuals is then checked against the micro GA population size. If the number of the population is less than the population size, then the algorithm reinitializes more initial population for the micro GA part. This routine continues until the initial population size of the micro GA is more than or equal to the population size. If the number is more than the population size, the two best

solutions are selected; based on the non-dominance criteria and two other solutions are uniformly selected accordingly. After that, the four solutions are used as the initial population for the micro GA part. Then those initialized populations will be tournament selected and assigned crossover and mutation operators respectively. After each operation, violation breaking is also checked and solutions violating the constraints will be removed from the population set.

Those processes mentioned earlier continue running until the nominal convergence, the number of iterations in micro GA part, is reached. Since the nominal convergence is reached, the best solution is greedily selected, based on the non-dominance criteria, and added to the External and Replaceable memory if it is not dominated by any solution residing in the memories. If the External memory is overloaded, the algorithm will create a density region, and each individual will be added to a particular region. Then every region is assigned a density value, which is the number of population in that region. The region whose density is less crowded than the threshold is more preferable for an individual entering into the External memory.

3.4.3 Genetic Operator

Two types of genetic operators are included in the model. They are one point crossover and mutation. The algorithm uses tournament selection to select two chromosomes and assigns the crossover operator to the dominated ones. After crossover, a randomly selected chromosome is selected and mutated. The following picture indicates the crossover operator.

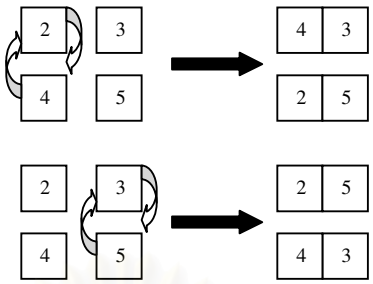

Figure 15: Crossover operator

Notice that there is bias in the above crossover operator. The crossover is only applied to the genes having the same column. If they are not crossed within the same column, the chance of misconnection is increased. Hence the chance of converging to optimal solution will decrease.

3.4.4 Constraint Violation Search

Every candidate solution is checked to see whether it breaks constraints (4) – (7). Any solution contravening those constraints will be eliminated from the solution set. The benefit of the constraint violation search is that the constraint violated solutions can be eliminated before the selection process to find the best solution that occurs.

3.4.5 Dominance Selection

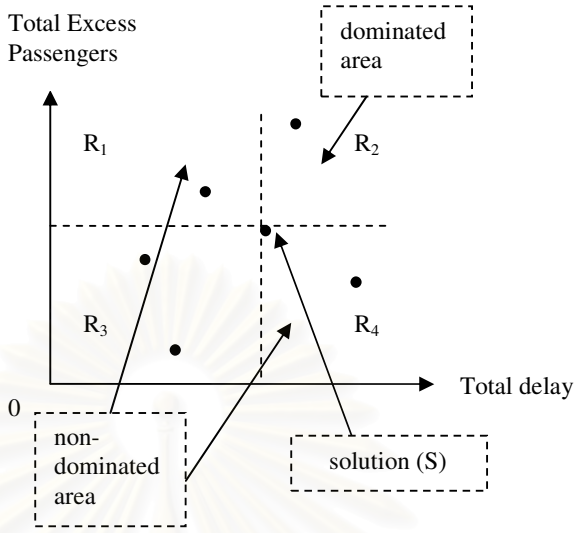

Figure 16: Trade-off surface

Figure 16 denotes the trade-off surface, based on Pareto-dominance, used by the decision maker to find out desirable solutions. In multi-objective minimization problem base on the Pareto dominance, solution in R_1, Region 1, and R_4 are equally preferable to the solution S, They are non-dominated by S, whereas solution in R_2 is less preferable than S because both of its objective function values are more than the ones that S has. It is dominated by S. On the other hand, solutions in R_3 dominate S because both of their objective functions values are less than S [15]. The MOMGA model utilizes the mentioned scheme to select individuals for reproduction. The model applies greedy selection to find the best solution based on Pareto dominance.

3.4.6 Elitism

The model applies the dominance based selection to choose the best two solutions for the next generation of the micro GA part whereas the other two are uniformly selected. The best solution in every nominal convergence is added into the External memory and the Replaceable memory, if it is not dominated by any solution residing in them. The approach ensures that non-dominated solutions will survive to the next generation [13].

3.4.7 Convergence

By utilizing elitism scheme in 5.6, as the time runs on, the solution will be converged to the true Pareto front, the non-dominated optimal solution [13].

3.4.8 Diversity Preservation

To assure that the non-dominated solutions obtained are diverse, duplicate detection and density check methods are applied in the model. If the non-dominated solution entering to the External memory is the duplication of the one residing in the memory, that solution will not be kept in the memory. Furthermore when the memory size is full, the tradeoff surface will be divided into 25 regions. The solution just entering the memory is allocated a region. The solution entering to the memory whose region has density exceeding the threshold is diminished from the region. By applying those two methods, solutions obtained can be diverse [8]. The density region is illustrated as follow.

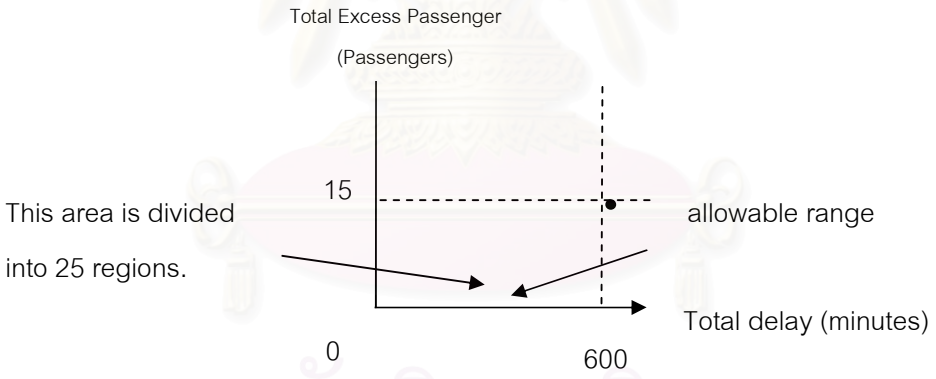

Figure 17: Density region

The algorithm described earlier is re-executed until the termination criterion is reached.

The following diagram shows the architecture of MOMGA.

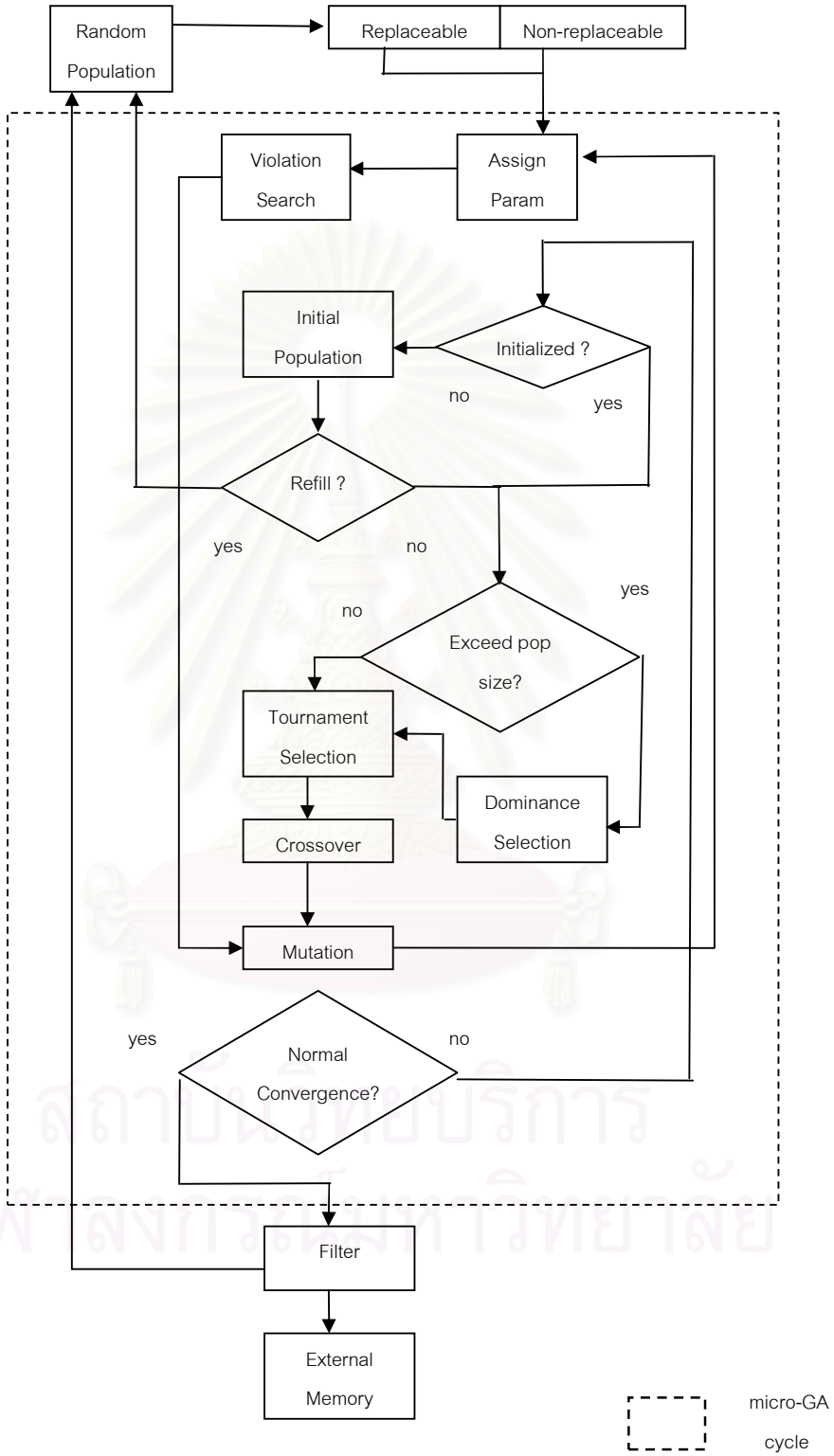

Figure 18: MOMGA architecture

3.5 IMPLEMENTING JAVA APPLICATION FOR MOMGA MODEL

MOMGA model was implemented in JAVA as shown in the class diagram below.

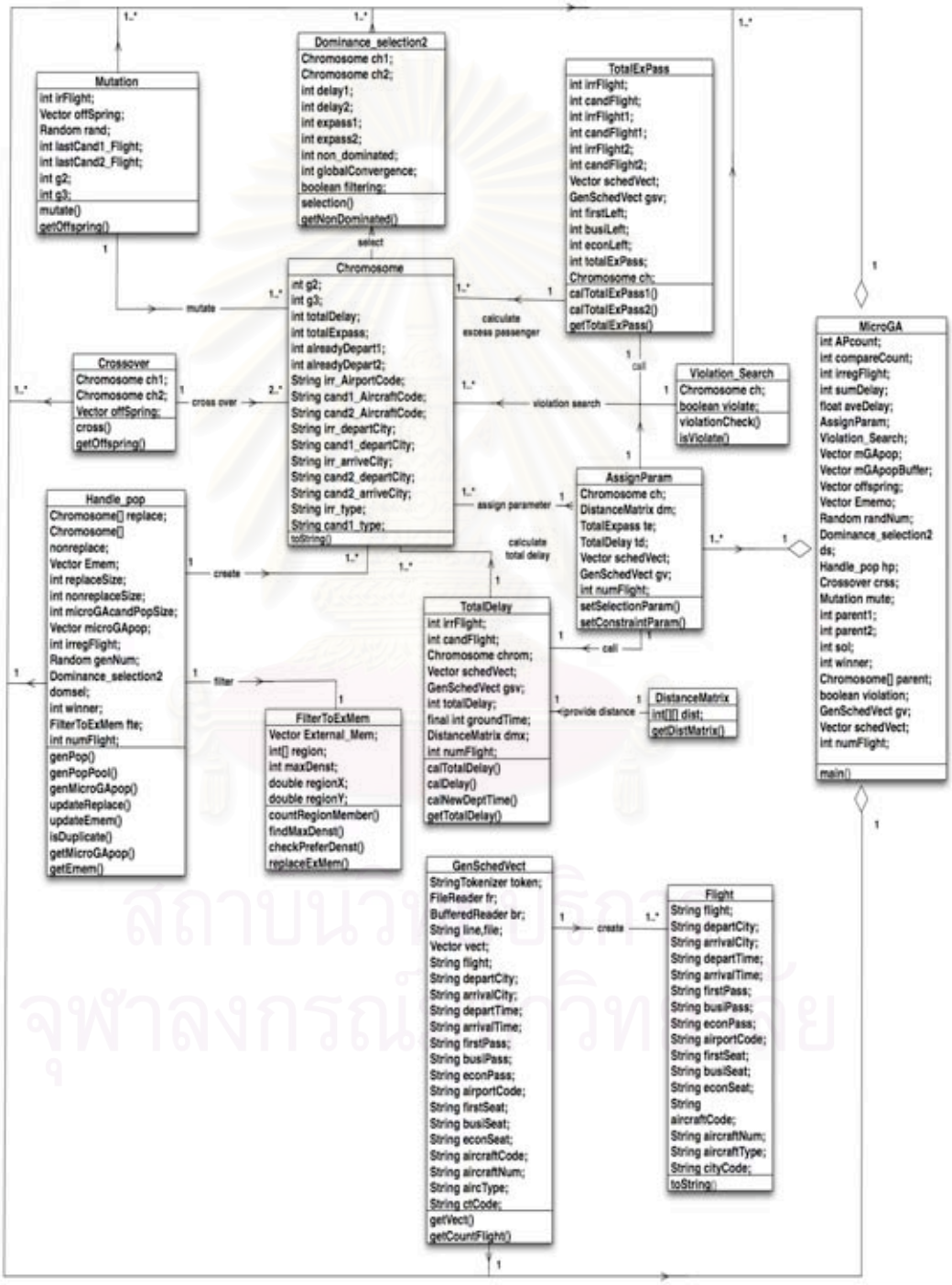

Figure 19: MOMGA class diagram

3.6 EVALUATION OF MOMGA CONVERGENCE BEHAVIOR

The objective of this evaluation is to observe whether the model could converge to optimal solutions or not, and in what generations did the optimal solutions occurred. Five daily flight data were taken as a test set in order to observe model convergence behavior. The following table shows the test set.

Table 2: Test cases for convergence behavior experiment

Flight data on	Irregular flight
2/8/2007	TG1010
5/8/2007	TG1022
10/8/2007	TG1132
15/8/2007	TG1044
29/8/2007	TG1022

Each irregular case was solved by the application five times. The parameters of the application set at run time are shown below.

Replaceable memory size = 100 individuals

Non-replaceable memory size = 500 individuals

External memory size = 50

Number of GA loops = 200 rounds

Number of micro GA loops = 10 rounds

Micro GA population size = 4 individuals

Average total delays of all solutions produced from each irregular case are calculated. Then they will be plotted against their date of occurrence in order to observe the application convergence behavior.

3.7 STUDYING IMPACT OF VARYING SOME PARAMETERS ON SOLUTIONS PRODUCED BY MOMGA

The aim of this experiment is to observe the solutions produced when some parameters of the model are changed.

Table 3: Parameters to be varied

Parameters	Values to be tested
Replaceable memory size	5, 50, 100, 250, 500
Non-replaceable memory size	5, 50, 100, 250, 500
External memory	5, 10, 20, 30, 50
Micro GA population size	1, 2, 3, 4, 5
Number of micro GA loops	1, 2, 5, 10
Number of GA loops	50,100,200,300

According to the experiment, all parameters of the model are set as indicated in 3.5 except the varied one. Three daily flight data shown in Table 4 will be used by the model to observe the solutions produced as one of its parameters changed.

Table 4: Test cases for parameters varying experiment

Flight data on	Irregular flight
2/8/2007	TG1010
5/8/2007	TG1022
10/8/2007	TG1132

3.8 IMPLEMENTING JAVA APPLICATION FOR BRANCH AND BOUND APPROACH

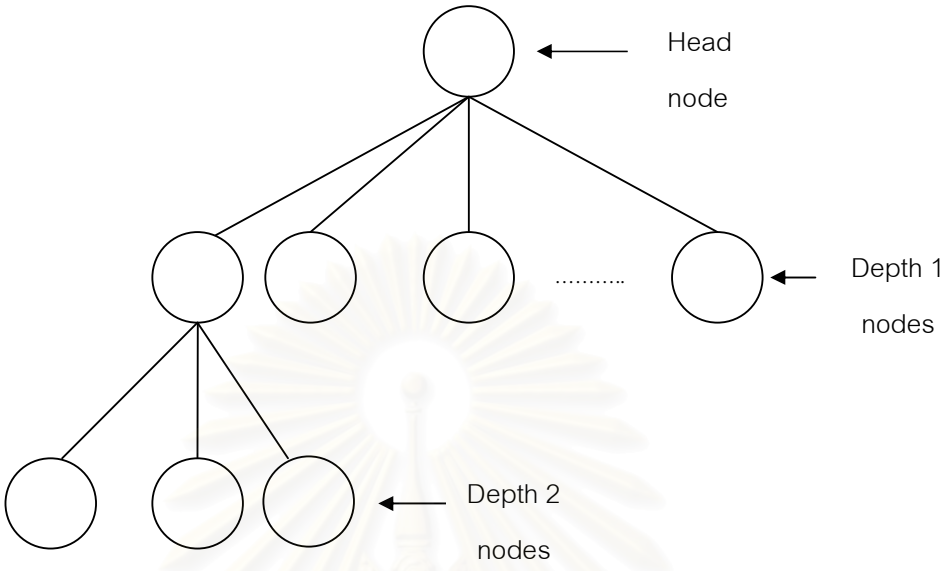

Figure 20: Branch and Bound application search tree

The Branch and Bound application was created in order to solve flight combining and rerouting problems. The lower bound of each depth 1 node was calculated by finding the sum of total delay and total excess passengers of the flight contained in the head node (the irregular flight) and the flight contained in that particular node. The upper bound was obtained by calculating the minimum value of the sum of total delay and total excess passengers searched from the irregular flight, the flight in that particular node and the flight in its descendent nodes. In depth 2 nodes, upper and lower bound, have the same value. That means there is no further branching in depth 2 nodes or more total delay and excess passengers to be included. The overall algorithm and its JAVA application architecture were presented in Figure 19 and 20.

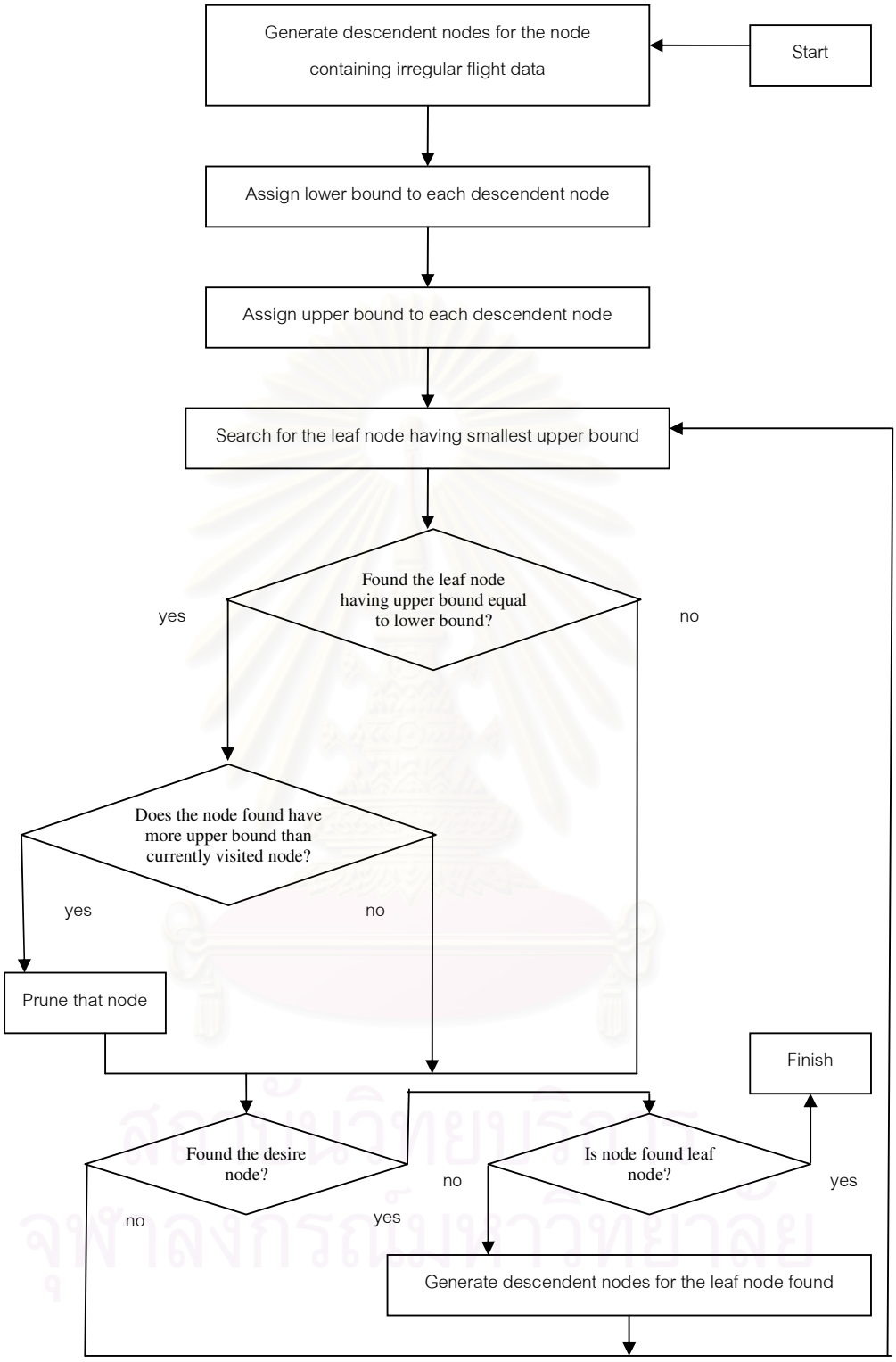

Figure 21: Branch and Bound approach flow chart

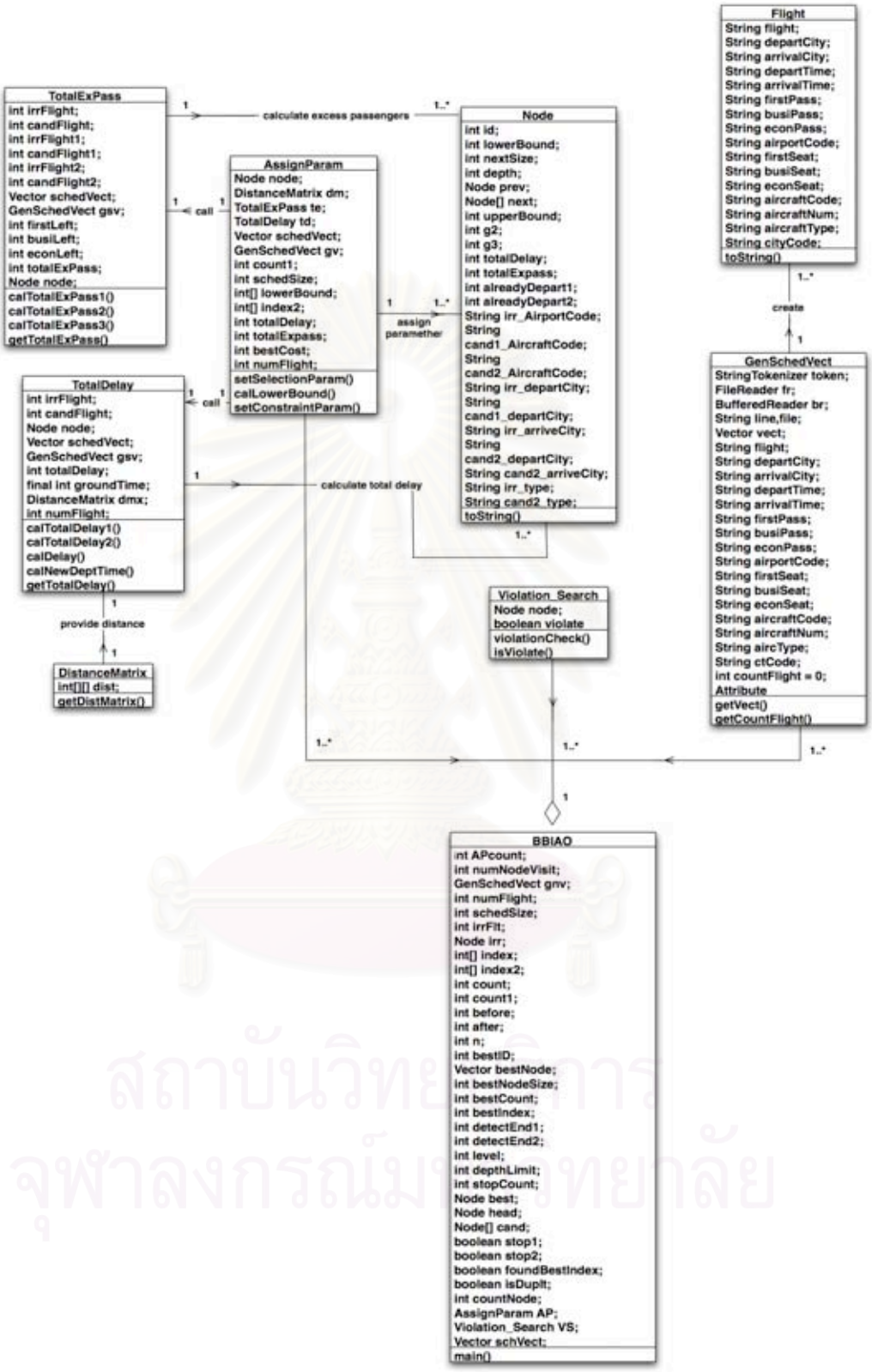

Figure 22: Branch and Bound approach class diagram

3.9 EXPERIMENT ON PERFORMANCE OF MOMGA MODEL AGAINST MANUAL APPROACH DONE BY HUMAN EXPERTS

The objective of this experiment is to observe the quality of solutions produced by both approaches. Test cases shown in Table 23 will be run by the model in order to obtain the result.

3.10 EXPERIMENT ON PERFORMANCE OF MOMGA MODEL AGAINST BRANCH AND BOUND APPROACH

The goals of this experiment are to observe the quality, the amount of solutions produced and execution time of both approaches. The parameters of MOMGA application set in this experiment are the same as appeared in 3.5. Test cases shown in Table 23 will be solved by the model in order to gain the result.

CHAPTER 4
RESULT ANALYSIS

This chapter provides result analysis of the experiments conducted in this research. Those experiments were mentioned in 3.6, 3.7, 3.9, and 3.10.

4.1 RESULTS ON EVALUATION OF MOMGA CONVERGENCE BEHAVIOR

The result of the experiment stated in 3.6, Figure 25 – 49, showed that after the application ran 200 rounds of GA, it tended to converge to a particular value of average total delay of the solutions for each irregular case. That means the same solutions were produced every five test runs on each case. This convergence behavior of the model always occurred through five test runs on each test case. Therefore the convergence property of the model exists.

Thirty one test cases, according to Table 23, were taken into the application in order to find their optimal solutions. After 200 epochs of GA, the application could produce the solutions for each irregular case as displayed in Table 24. Also because it was proved that the application convergence behavior happened at 200^{th} generation of GA so the solutions obtained in Table 24 are optimal solutions for each irregular case.

The solution of each irregular case appearing in Table 24 is represented by 3 segments of 4 digit numbers such as 1002-1205-1206. Each 4 digit numbers represented flight ID. For this reason the solution 1002-1205-1206 is the sequence of flight TG1002, TG1205 and TG 1206. The details of each flight shown in the solution can be seen in daily flight data, Figure 50 – 80.

4.2 RESULTS ON STUDYING IMPACT OF VARYING SOME PARAMETERS ON SOLUTIONS PRODUCED BY MOMGA

The results of the experiment mentioned in 3.7 are represented by the following tables. Each column of the table indicates the number of optimal solutions produced from its daily flight data at particular value of the changing parameters. The first rows of the tables show the varying values of the parameter of interest.

4.2.1 Varying Replaceable memory size

According to Table 5, 6 and 7, it is observed that the application could generate all of the solutions when the Replaceable memory size is more than or equal to 100. Also, as the Replaceable memory size was increased, the number of solutions produced increased as well. The details of the solutions created can be seen in Table 24.

Table 5: Test result of varying Replaceable memory size on flight data of 2/08/07

5	50	100	250	500
1	3	3	3	3
1	3	3	3	3
3	3	3	3	3
2	2	3	3	3
3	2	3	3	3

Table 6: Test result of varying Replaceable memory size on flight data of 5/08/07

5	50	100	250	500
2	3	3	3	3
3	3	3	3	3
1	2	3	3	3
2	3	3	3	3
3	2	3	3	3

Table 7: Test result of varying Replaceable memory size on flight data of 10/08/07

5	50	100	250	500
3	2	3	3	3
1	3	3	3	3
2	2	3	3	3
2	3	3	3	3
3	3	3	3	3

4.2.2 Varying Non-replaceable memory size

According to Table 8, 9 and 10, it is observed that the application could generate all of the solutions when the Non-replaceable memory size is equal to 500. Also, as the Non-replaceable memory size was increased, the number of solutions produced increased as well. The details of the solutions created can be seen in Table 24.

Table 8: Test result of varying Non-replaceable memory size on flight data of 2/08/07

5	50	100	250	500
1	1	2	2	3
2	3	3	3	3
2	2	2	3	3
3	2	2	2	3
2	1	2	3	3

Table 9: Test result of varying Non-replaceable memory size on flight data of 5/08/07

5	50	100	250	500
2	1	2	3	3
1	3	2	3	3
2	2	3	3	3
1	1	2	2	3
2	2	1	2	3

Table 10: Test result of varying Non-replaceable memory size on flight data of 10/08/07

5	50	100	250	500
1	1	3	3	3
2	3	2	3	3
1	2	2	2	3
2	2	2	3	3
2	1	2	2	3

4.2.3 Varying External memory size

According to Table 11, 12 and 13, it is observed that the number of solutions produced from varying External memory size was almost never changed. The details of the solutions created can be seen in Table 24.

Table 11: Test result of varying External memory size on flight data of 2/08/07

5	10	20	30	50
3	3	3	3	3
3	3	3	3	3
3	3	3	3	3
3	3	3	3	3
3	2	3	3	3

Table 12: Test result of varying External memory size on flight data of 5/08/07

5	10	20	30	50
3	3	3	3	3
3	2	3	3	3
3	3	3	3	3
3	3	3	3	3
2	3	3	3	3

Table 13: Test result of varying External memory size on flight data of 10/08/07

5	10	20	30	50
3	3	3	3	3
2	3	3	3	3
3	3	3	3	2
3	2	3	3	3
3	3	3	2	3

4.2.4 Varying Micro GA population size

According to Table 14, 15 and 16, it is observed that the application could generate all of the solutions when the Micro GA population size is more than or equal to 4. Also, as the Micro GA population size was increased the number of solutions

produced increased as well. The details of the solutions created can be seen in Table 24.

Table 14: Test result of varying Micro GA population size on flight data of 2/08/07

1	2	3	4	5
1	3	3	3	3
2	2	3	3	3
2	3	3	3	3
3	3	3	3	3
3	2	2	3	3

Table 15: Test result of varying Micro GA population size on flight data of 5/08/07

1	2	3	4	5
2	2	3	3	3
1	3	3	3	3
3	3	2	3	3
2	2	3	3	3
2	3	3	3	3

Table 16: Test result of varying Micro GA population size on flight data of 10/08/07

1	2	3	4	5
3	3	3	3	3
3	3	3	3	3
2	3	2	3	3
1	3	3	3	3
2	2	3	3	3

4.2.5 Varying Micro GA loop

According to Table 17, 18 and 19, it is observed that the application could generate all of the solutions when the Micro GA loop is equal to 10. Also, as the Micro GA loop was increased the number of solutions produced increased as well. The details of the solutions created can be seen in Table 24.

Table 17: Test result of varying Micro GA loop on flight data of 2/08/07

1	2	5	10
1	2	3	3
2	1	3	3
2	2	2	3
1	3	3	3
2	2	2	3

Table 18: Test result of varying Micro GA loop on flight data of 5/08/07

1	2	5	10
2	1	3	3
1	2	3	3
1	2	3	3
2	1	2	3
2	3	2	3

Table 19: Test result of varying Micro GA loop on flight data of 10/08/07

1	2	5	10
1	3	2	3
1	1	2	3
2	2	3	3
1	2	3	3
2	1	3	3

4.2.6 Varying GA loop

According to Table 20, 21 and 22, it is observed that the application could generate all of the solutions when the GA loop is more than or equal to 200. Also, as the GA loop was increased the number of solutions produced increased as well. The details of the solutions created can be seen in Table 24.

Table 20: Test result of varying GA loop on flight data of 2/08/07

50	100	200	300
1	3	3	3
2	3	3	3
2	2	3	3
2	2	3	3
2	3	3	3

Table 21: Test result of varying GA loop on flight data of 5/08/07

50	100	200	300
2	2	3	3
2	3	3	3
2	3	3	3
1	3	3	3
2	2	3	3

Table 22: Test result of varying GA loop on flight data of 10/08/07

50	100	200	300
1	3	3	3
1	2	3	3
2	3	3	3
2	3	3	3
2	2	3	3

The reason for increasing in the Replaceable memory, the Non-replaceable memory, the micro GA population size, the GA loop and the micro GA loop leading to the increasing number of optimal solutions, is because, as the values of those parameters increased, chances of the occurrence of optimal solutions also increased.

The reason that External memory size did not affect the number of optimal solutions produced, is because External memory was not involved in the evolution process. Instead it is just an external storage used to keep non-dominated solutions only.

4.3 RESULTS ON EXPERIMENT ON PERFORMANCE OF MOMGA MODEL AGAINST MANUAL APPROACH DONE BY HUMAN EXPERTS

According to the result of the experiment stated in 3.9, it was found that the application could produce more solutions than human experts could, see Figure 21. This is simply because the application utilized the Pareto dominance scheme to solve the problem, whereas the human experts only searched for the best single solution.

Moreover, many irregular cases could not be solved by the manual approaches, see Table 25, because of the following reason. Many flight solutions contained departed cities that were not in the same region as those of the irregular flights. Therefore, human expert ignored flight combining and rerouting strategies and looked for other strategies instead.

Also, from observing the value of total delay and total excess passengers of the solutions from Table 25 and 24, some solutions produced from the human experts were dominated by the solutions generated from the application. Besides, there is none of the solutions created from human experts dominating the solutions generated from the application. This is because human experts searched for the solutions that only have the same direction as the irregular one. That means better quality solutions were neglected if they were in different direction flights.

For those reasons, it was proved that the application could produce more solutions with better quality than those of the human experts manual approach in every irregular case.

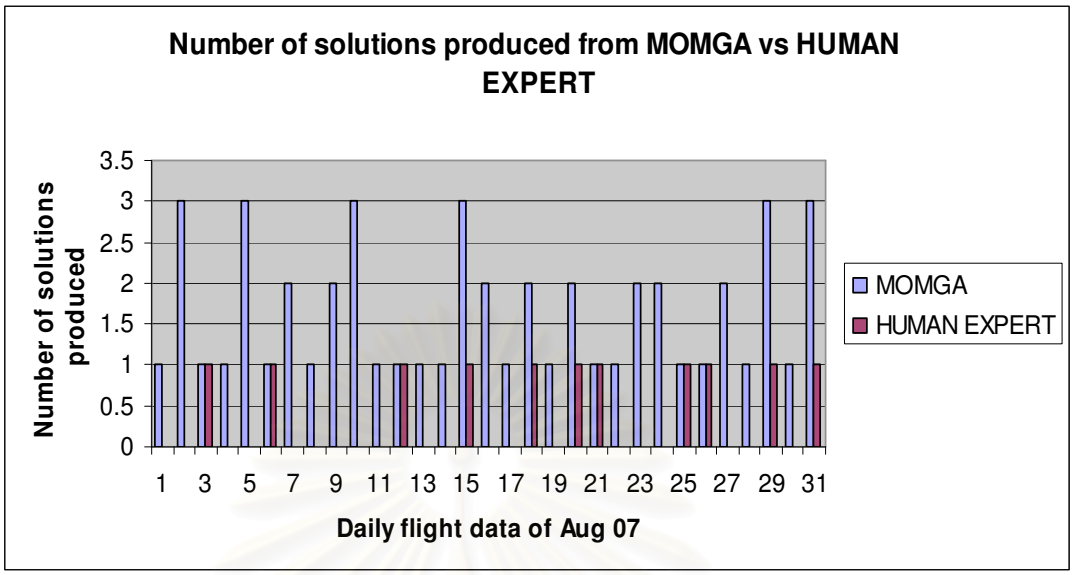

Figure 23: Graph showing the number of solutions produced from MOMGA against those of Human Experts

4.4 RESULTS OF EXPERIMENT ON PERFORMANCE OF MOMGA MODEL AGAINST BRANCH AND BOUND APPROACH

According to the result of the experiment stated in 3.10, it was found that the execution time the MOMGA application used to solve most of the irregular case was more than that of the Branch and Bound approach, see Figure 22. This is because the MOMGA application performed fitness assignments more frequent than the Branch and Bound approach, see Figure 23. The reason that the MOMGA application performed fitness assignments more frequent than the Branch and Bound approach is because MOMGA performed fitness assignments every time its offspring were generated whereas every relevance nodes of the Branch and Bound approach were created only once the algorithm started.

However some results showed that, in two irregular cases, Branch and Bound approach take more execution time to solve the cases than that of MOMGA. This is because Branch and Bound application took more searching time than MOMGA in those cases. MOMGA took less searching time than Branch and Bound approach in

those two cases because MOMGA employs random search in which solutions may be found in a few generations whereas Branch and Bound application had to visit a lot of nodes, in sequence order, before the solutions were found. Even though reduction in GA rounds of each test run might decrease the number of fitness assignments, the number of GA rounds could not be declined below 200 epochs. This is because the convergence behavior of the model always exists at around the 200th generation. Therefore 200 rounds of GA run, which was set for this experiment, could not be reduced.

The number of solutions produced in every case from the MOMGA application is equal to the Branch and Bound approach ones. This is because the MOMGA application employed Pareto dominance scheme and the Branch and Bound approach was developed for multi solution searching. Also it worth noticing that the solutions produced from both approaches is non-dominated to each others. This means they produced equal quality solutions.

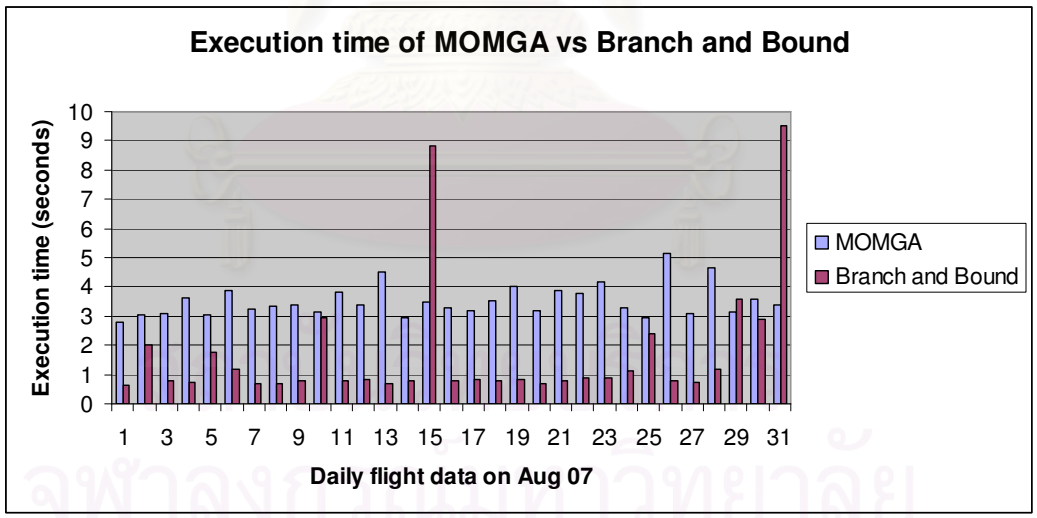

Figure 24: Graph showing the execution time of MOMGA against that of Branch and Bound

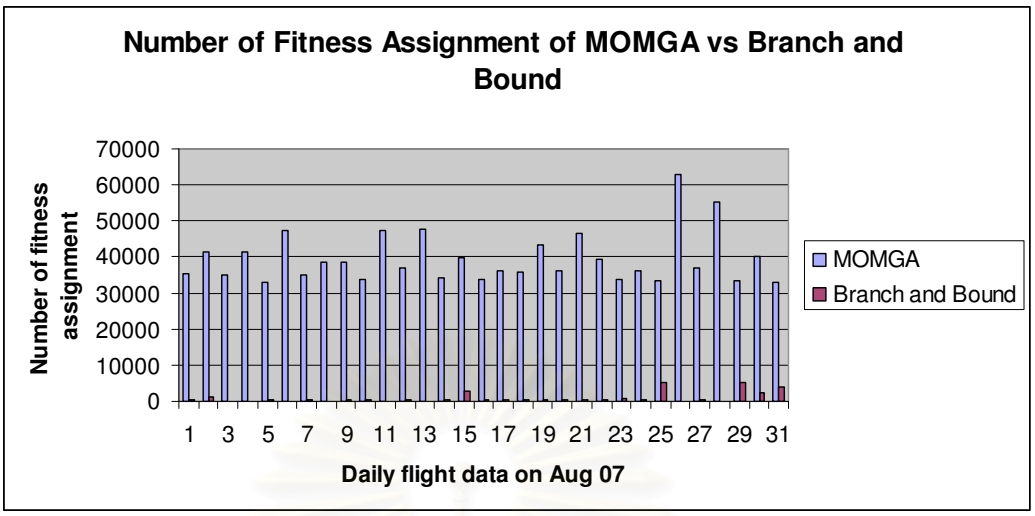

Figure 25: Graph showing the number of fitness assignments of MOMGA against those of Branch and Bound

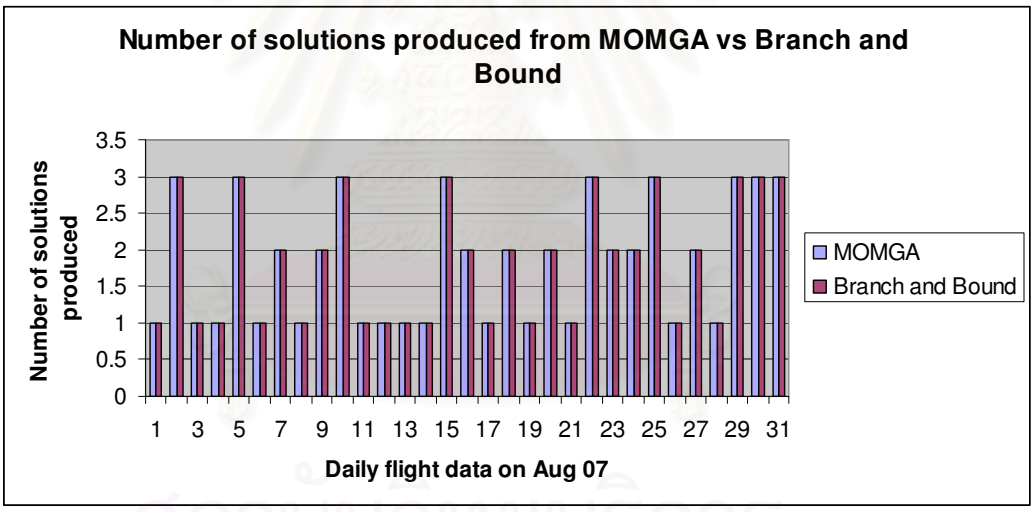

Figure 26: Graph showing the number of solutions produced from MOMGA against those of Branch and Bound

CHAPTER 5
CONCLUSION & FURTHER RESEARCH DIRECTION

5.1 CONCLUSION

This thesis presents the application of Multi Objective Micro Genetic Algorithms (MOMGA) in Irregular Airline Operation for solving flight combing and rerouting problem. Performance of the application was tested against those of the Branch and Bound Algorithm and of human experts.

The result denotes that MOMGA could produce varied solutions, with equal quality, as of Branch and Bound algorithm. Also the performance of MOMGA is much better than the performance of human experts. This is because MOMGA employs Pareto dominance based scheme in solution deriving and the Branch and Bound algorithm was developed in order to find multiple solutions. On the other hand, the limited searching capabilities of human experts restrict finding good quality and varied solutions.

Moreover, it was found that increasing in the Replaceable memory, the Non-replaceable memory, the micro GA population size, the GA loop and the micro GA loop led to the increased number of optimal solutions. This is because as the values of those parameters increased, chances of the occurrence of optimal solutions also increased. It is also observed that External memory size did not affect the number of optimal solutions produced. This is because External memory was not involved in the evolution process. Instead, it is just an external storage used to keep non-dominated solutions only.

5.2 FURTHER RESEARCH DIRECTION

1. Other algorithms, apart from the Branch and Bound, may be created and tested against the MOMGA application.
2. The scope of this research may be extended to international cases.

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APPENDICES

Table 23: Test cases of 31 irregular flights

Flight data on	Irregular flight
1/8/2007	TG1002
2/8/2007	TG1010
3/8/2007	TG1014
4/8/2007	TG102
5/8/2007	TG1022
6/8/2007	TG1030
7/8/2007	TG1002
8/8/2007	TG1010
9/8/2007	TG1022
10/8/2007	TG1132
11/8/2007	TG1140
12/8/2007	TG1030
13/8/2007	TG196
14/8/2007	TG1010
15/8/2007	TG1044
16/8/2007	TG1022
17/8/2007	TG1132
18/8/2007	TG1002
19/8/2007	TG116
20/8/2007	TG1002
21/8/2007	TG1030
22/8/2007	TG196
23/8/2007	TG1022
24/8/2007	TG1132
25/8/2007	TG1233
26/8/2007	TG201
27/8/2007	TG1010
28/8/2007	TG1140
29/8/2007	TG1002
30/8/2007	TG196
31/8/2007	TG1253

Table 24: Optimal solutions for each irregular case

Date	Irregular flight	Solutions	Total delay	Total Excess Passengers
1/8/2007	TG1002	1002-1205-1206	260	0
2/8/2007	TG1010	1010-1245-1234	495	6
		1010-1116-1234	505	2
		1010-1116-1117	320	13
3/8/2007	TG1014	1014-1046-1047	225	0
4/8/2007	TG102	102-249-202	465	0
5/8/2007	TG1022	1022-1245-1246	270	4
		1022-1116-1117	310	0
		1022-1245-1011	225	12
6/8/2007	TG1030	1030-1014-1015	180	0
7/8/2007	TG1002	1002-1205-1206	260	0
		1002-1044-1133	255	7
8/8/2007	TG1010	1010-1245-1246	280	0
9/8/2007	TG1022	1022-1245-1117	385	1
		1022-1245-1011	225	9
10/8/2007	TG1132	1132-1044-1045	395	1
		1132-1044-1214	525	0
		1132-1044-1254	335	15
11/8/2007	TG1140	1140-1014-1015	155	9
12/8/2007	TG1030	1030-1046-1047	335	0
13/8/2007	TG196	196-1117-126	135	12
14/8/2007	TG1010	1010-1245-1246	280	0
15/8/2007	TG1044	1044-1022-1117	470	12

		1044-1233-1117	505	9
		1044-1022-1023	305	15
16/8/2007	TG1022	1022-1116-1011	235	2
		1022-1245-1011	225	3
17/8/2007	TG1132	1132-1044-1045	395	0
18/8/2007	TG1002	1002-1044-1133	255	1
		1002-1044-1045	305	0
19/8/2007	TG116	116-223-218	450	0
20/8/2007	TG1002	1002-1044-1045	305	0
		1002-1044-1254	265	4
21/8/2007	TG1030	1030-1014-1015	180	0
22/8/2007	TG196	196-1117-116	45	0
		196-1117-1124	100	0
		196-1117-126	135	0
23/8/2007	TG1022	1022-1245-1011	225	6
		1022-1245-1117	385	0
24/8/2007	TG1132	1132-1205-1254	310	0
		1132-1205-1206	290	1
25/8/2007	TG1233	1233-1245-1246	205	0
		1233-1116-1117	305	0
		1233-1116-1011	365	2
26/8/2007	TG201	201-249-250	80	0
27/8/2007	TG1010	1010-1116-1117	320	6
		1010-1116-1234	505	2
28/8/2007	TG1140	1140-1014-1015	155	4
29/8/2007	TG1002	1002-1213-1045	330	0

		1002-1044-1133	255	4
		1002-1044-1045	305	2
30/8/2007	TG196	196-1117-116	45	0
		196-1117-1124	100	0
		196-1117-126	135	0
31/8/2007	TG1253	1253-1205-1206	190	14
		1253-1213-1117	555	0
		1253-1205-1117	555	0

Table 25: Optimal Solutions obtained from each approach

Date	Irregular case	MOMGA	Branch and Bound	Human expert
1/8/2007	TG1002	1002-1205-1206	1002-1205-1206	No solution
2/8/2007	TG1010	1010-1245-1234	1010-1116-1117	No solution
		1010-1116-1234		
		1010-1116-1117		
3/8/2007	TG1014	1014-1046-1047	1014-1046-1047	1014-1046-1047
4/8/2007	TG102	102-249-202	102-249-202	No solution
5/8/2007	TG1022	1022-1245-1246	1022-1245-1246	No solution
		1022-1116-1117		
		1022-1245-1011		
6/8/2007	TG1030	1030-1014-1015	1030-1014-1015	1030-1014-1015
7/8/2007	TG1002	1002-1205-1206	1002-1205-1206	1002-1044-1045
		1002-1044-1133		
8/8/2007	TG1010	1010-1245-1246	1010-1245-1246	No solution
9/8/2007	TG1022	1022-1245-1117	1022-1245-1117	No solution
		1022-1245-1011		
10/8/2007	TG1132	1132-1044-1045	1132-1044-1045	No solution
		1132-1044-1214		
		1132-1044-1254		

11/8/2007	TG1140	1140-1014-1015	1140-1014-1015	No solution
12/8/2007	TG1030	1030-1046-1047	1030-1046-1047	1030-1046-1047
13/8/2007	TG196	196-1117-126	196-1117-126	No solution
14/8/2007	TG1010	1010-1245-1246	1010-1245-1246	No solution
15/8/2007	TG1044	1044-1022-1117	1044-1022-1023	1044-1022-1023
		1044-1233-1117		
		1044-1022-1023		
16/8/2007	TG1022	1022-1116-1011	1022-1116-1117	No solution
		1022-1245-1011		
17/8/2007	TG1132	1132-1044-1045	1132-1044-1045	No solution
18/8/2007	TG1002	1002-1044-1133	1002-1044-1133	1002-1044-1045
		1002-1044-1045		
19/8/2007	TG116	116-223-218	116-223-218	No solution
20/8/2007	TG1002	1002-1044-1045	1002-1044-1254	1002-1044-1045
		1002-1044-1254		
21/8/2007	TG1030	1030-1014-1015	1030-1014-1015	1030-1014-1015
22/8/2007	TG196	196-1117-116	196-1117-116	No solution
23/8/2007	TG1022	1022-1245-1011	1022-1245-1117	No solution
		1022-1245-1117		
24/8/2007	TG1132	1132-1205-1254	1132-1205-1206	No solution
		1132-1205-1206		
25/8/2007	TG1233	1233-1245-1246	1233-1245-1246	1233-1245-1246
26/8/2007	TG201	201-249-250	201-249-250	201-249-250

27/8/2007	TG1010	1010-1116-1117	1010-1116-1117	No solution
		1010-1116-1234		
28/8/2007	TG1140	1140-1014-1015	1140-1014-1015	No solution
29/8/2007	TG1002	1002-1213-1045	1002-1044-1133	1002-1044-1045
		1002-1044-1133		
		1002-1044-1045		
30/8/2007	TG196	196-1117-116	196-1117-116	No solution
31/8/2007	TG1253	1253-1205-1206	1253-1205-1206	1253-1205-1206
		1253-1213-1117		
		1253-1205-1117		

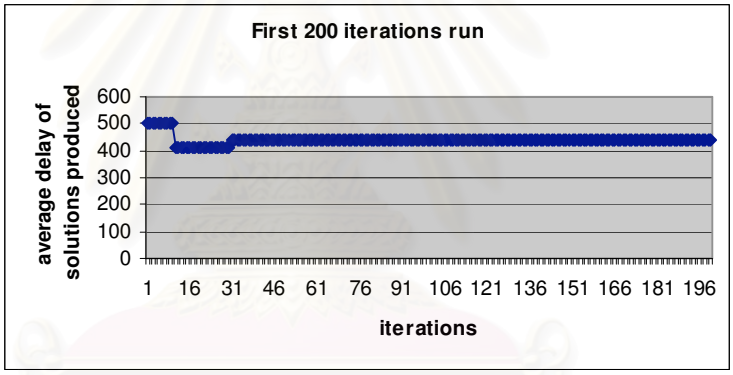


Figure 27: First 200 rounds run on daily flight data of 2/8/07

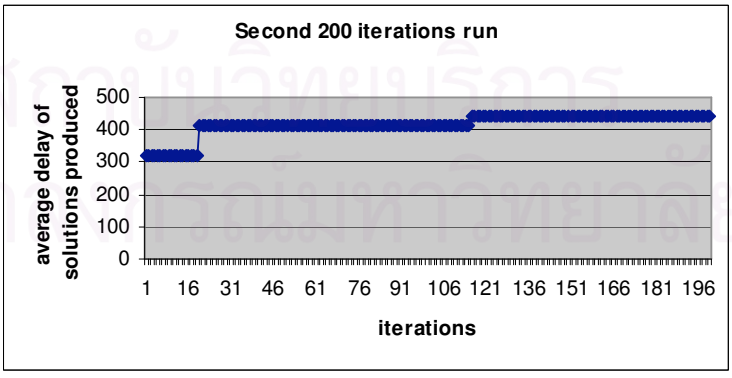


Figure 28: Second 200 rounds run on daily flight data of 2/8/07

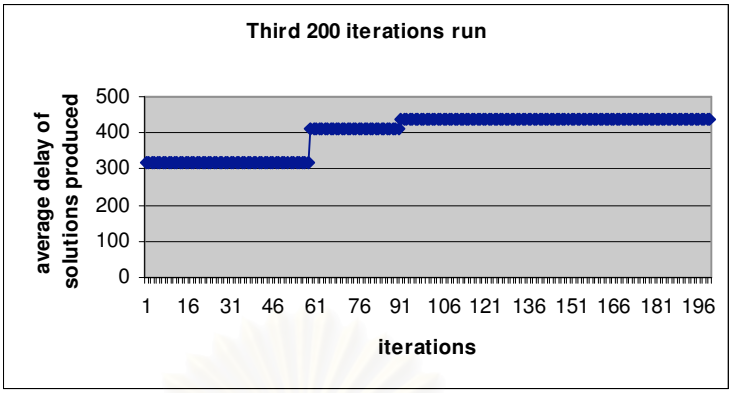


Figure 29: Third 200 rounds run on daily flight data of 2/8/07

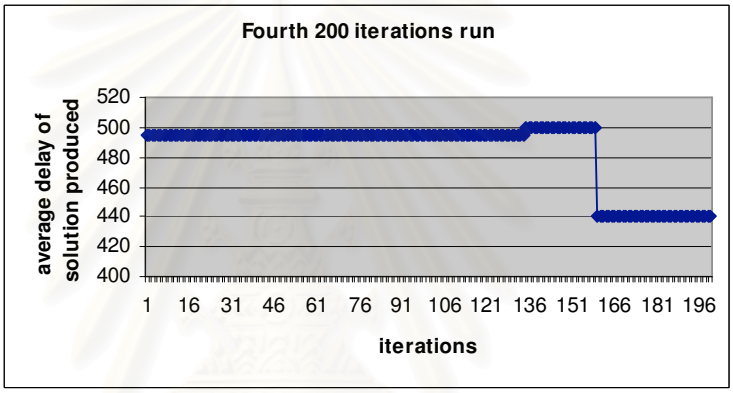


Figure 30: Fourth 200 rounds run on daily flight data of 2/8/07

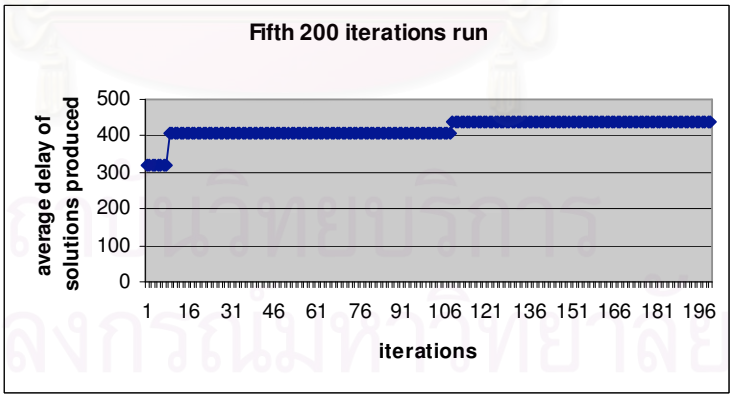


Figure 31: Fifth 200 rounds run on daily flight data of 2/8/07

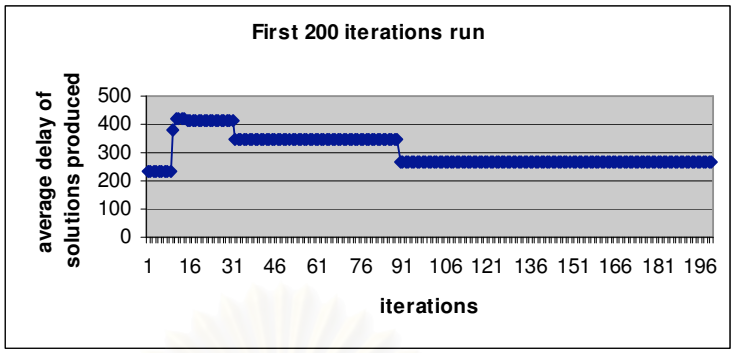


Figure 32: First 200 rounds run on daily flight data of 5/8/07

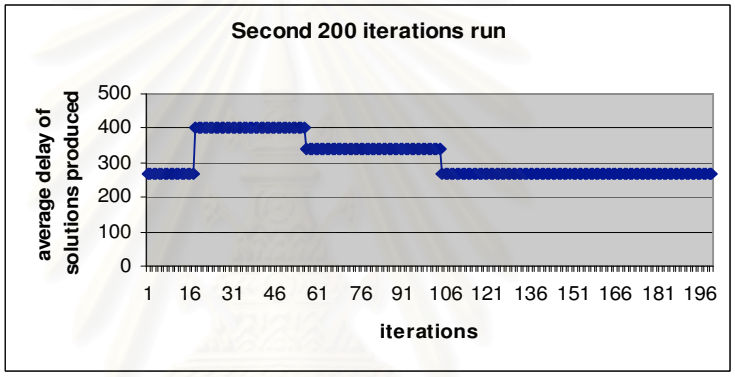


Figure 33: Second 200 rounds run on daily flight data of 5/8/07

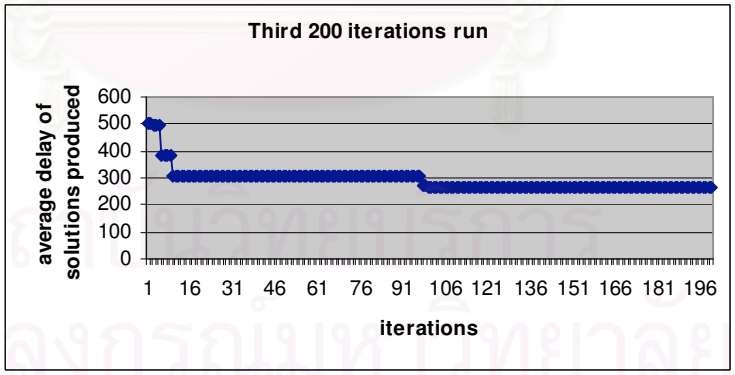


Figure 34: Third 200 rounds run on daily flight data of 5/8/07

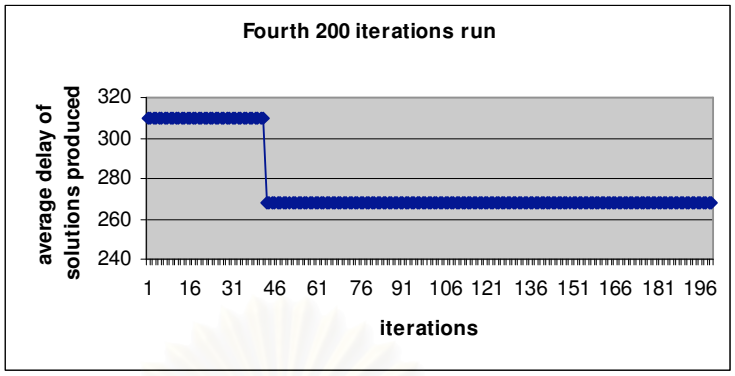


Figure 35: Fourth 200 rounds run on daily flight data of 5/8/07

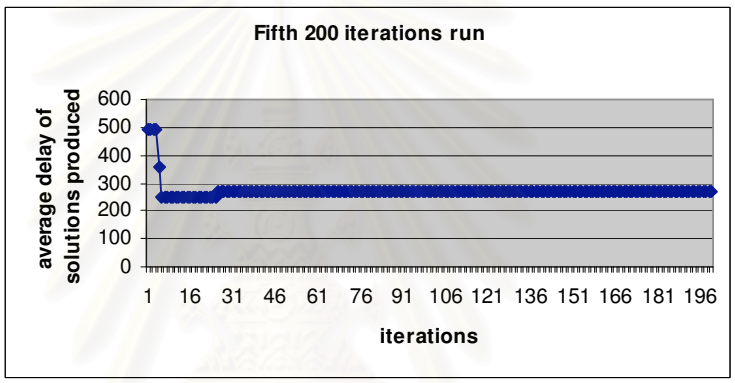


Figure 36: Fifth 200 rounds run on daily flight data of 5/8/07

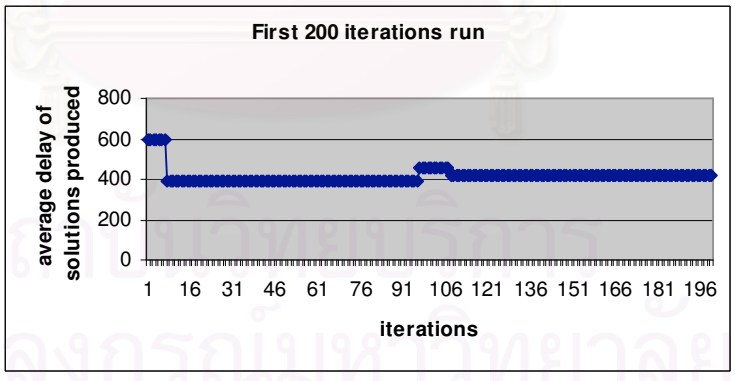


Figure 37: First 200 rounds run on daily flight data of 10/8/07

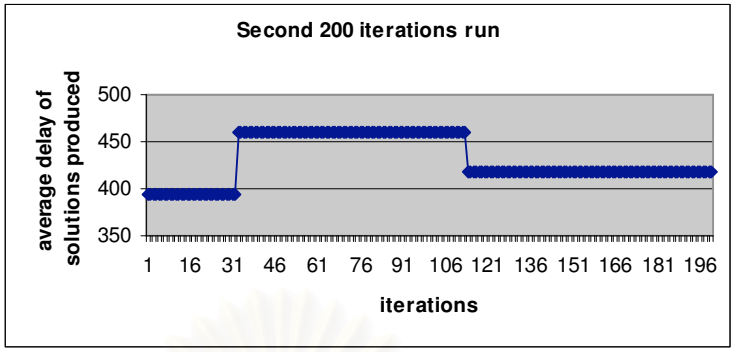


Figure 38: Second 200 rounds run on daily flight data of 10/8/07

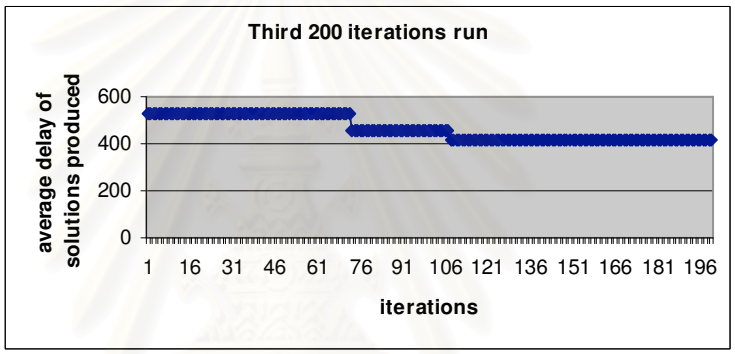


Figure 39: Third 200 rounds run on daily flight data of 10/8/07

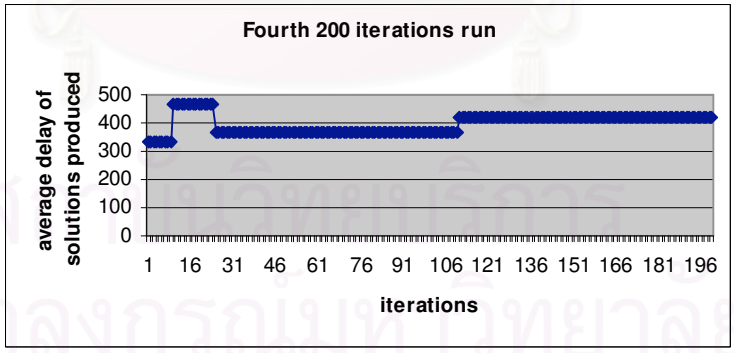


Figure 40: Fourth 200 rounds run on daily flight data of 10/8/07

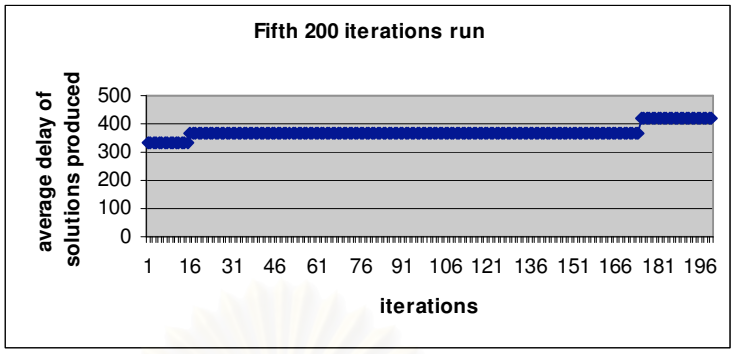


Figure 41: Fifth 200 rounds run on daily flight data of 10/8/07

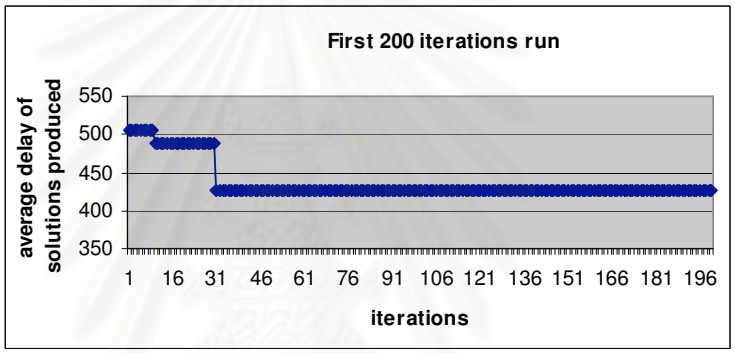


Figure 42: First 200 rounds run on daily flight data of 15/8/07

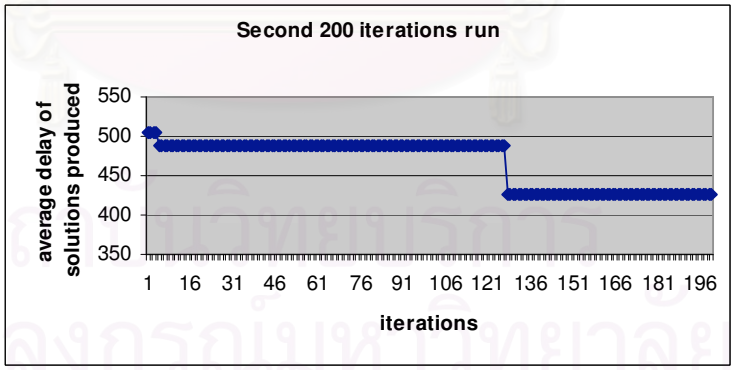


Figure 43: Second 200 rounds run on daily flight data of 15/8/07

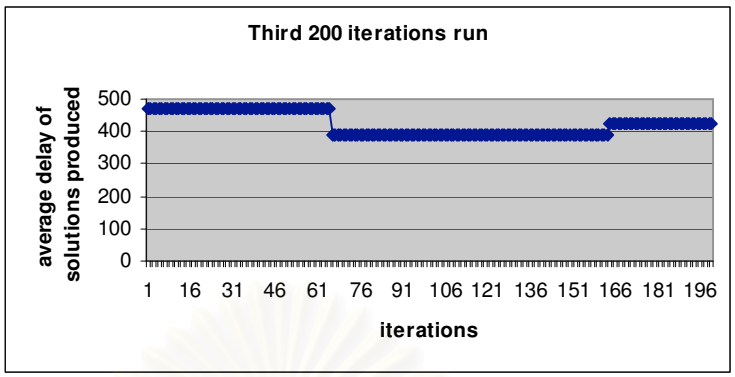


Figure 44: Third 200 rounds run on daily flight data of 15/8/07

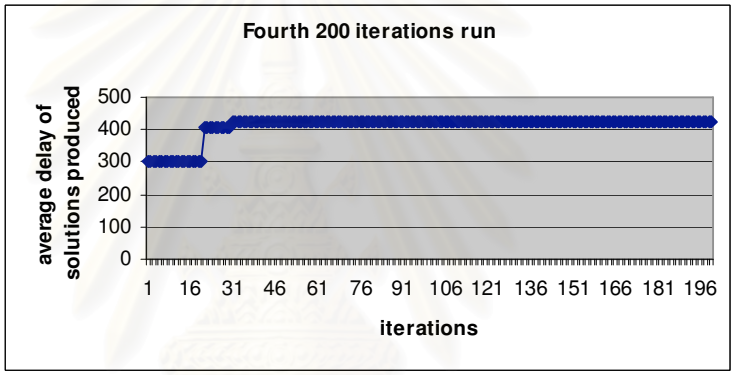


Figure 45: Fourth 200 rounds run on daily flight data of 15/8/07

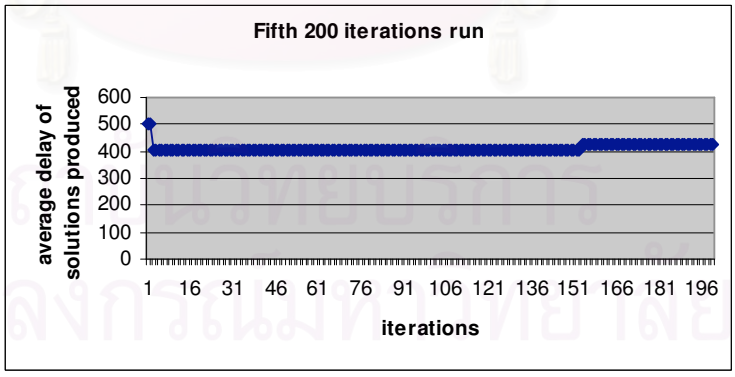


Figure 46: Fifth 200 rounds run on daily flight data of 15/8/07

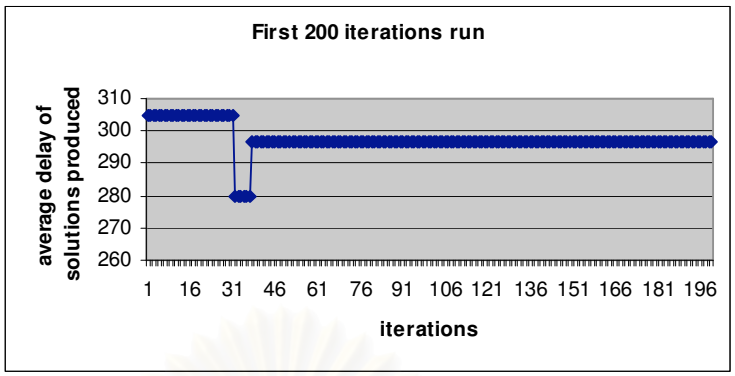


Figure 47: First 200 rounds run on daily flight data of 29/8/07

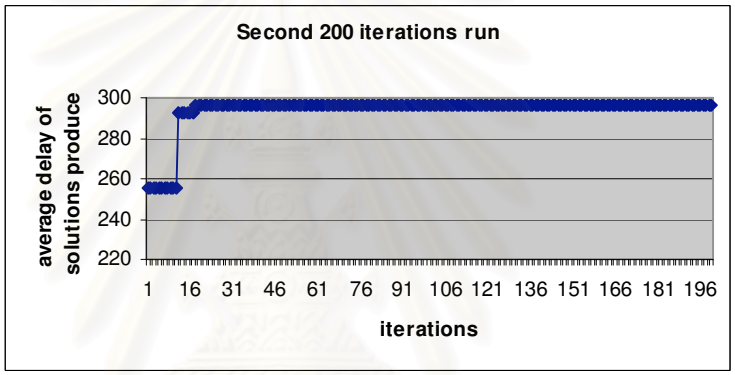


Figure 48: Second 200 rounds run on daily flight data of 29/8/07

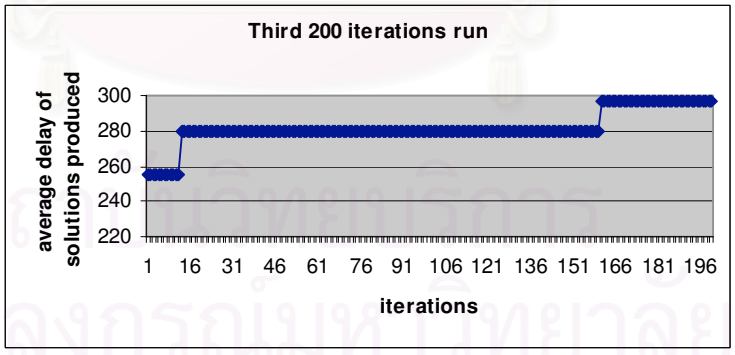


Figure 49: Third 200 rounds run on daily flight data of 29/8/07

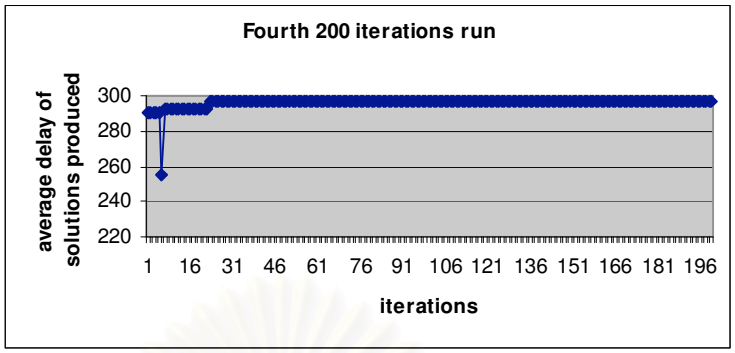


Figure 50: Fourth 200 rounds run on daily flight data of 29/8/07

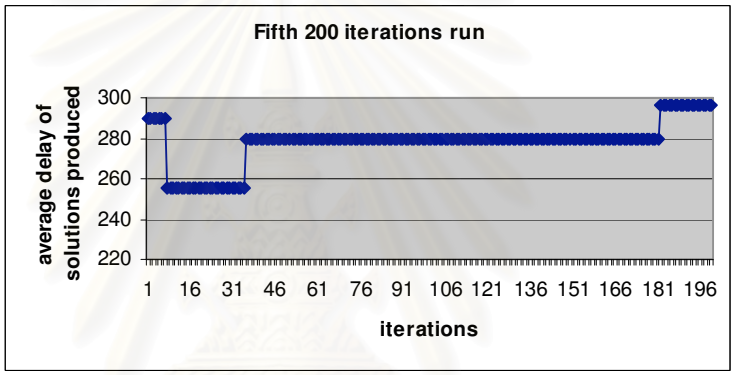


Figure 51: Fifth 200 rounds run on daily flight data of 29/8/07

TG1002	DMK	UTH	2.25	3.30	0	7	48	DMK	S	0	5	89	S	TDK	734	1							
TG1003	UTH	DMK	4.10	5.10	0	8	85	UTH	S	0	4	52	S	TDK	734	1							
TG1010	DMK	UTH	6.20	7.25	0	4	95	DMK	S	0	8	42	S	TDK	734	1							
TG1011	UTH	DMK	8.05	9.05	0	12	69	UTH	S	0	0	68	S	TDK	734	1							
TG1014	DMK	UTH	11.0	12.05	0	9	76	DMK	S	0	3	61	S	TDF	734	1							
TG1015	UTH	DMK	12.45	13.45	0	4	120	UTH	S	0	8	17	S	TDF	734	1							
TG102	BKK	CNX	0.45	1.55	0	2	108	BKK	S	0	44	93	S	TAW	AB7	9							
TG1021	UBP	DMK	0.45	1.50	0	0	2	UBP	S	0	12	135	S	TDJ	734	2							
TG1022	DMK	UBP	6.25	7.30	0	11	91	DMK	S	0	1	46	S	TDJ	734	2							
TG1023	UBP	DMK	8.10	9.15	0	2	12	UBP	S	0	10	125	S	TDJ	734	2							
TG103	CNX	BKK	2.45	3.55	0	36	60	CNX	S	0	10	141	S	TAW	AB7	9							
TG1030	DMK	UBP	10.05	11.10	0	9	75	DMK	S	0	3	62	S	TDK	734	2							
TG1031	UBP	DMK	11.50	12.55	0	2	11	UBP	S	0	10	126	S	TDK	734	2							
TG104	BKK	CNX	3.30	4.40	0	0	65	BKK	S	0	46	136	S	TAF	AB7	9							
TG1041	KKC	DMK	0.50	1.45	0	9	77	KKC	S	0	3	60	S	TDK	734	0							
TG1044	DMK	KKC	4.20	5.15	0	12	137	DMK	S	0	34	64	S	TAD	AB7	0							
TG1045	KKC	DMK	6.0	6.55	0	3	101	KKC	S	0	43	100	S	TAD	AB7	0							
TG1046	DMK	KKC	12.15	13.10	0	6	157	DMK	S	0	40	44	S	TAD	AB7	0							
TG1047	KKC	DMK	13.55	14.50	0	44	93	KKC	S	0	2	108	S	TAD	AB7	0							
TG110	BKK	CNX	5.30	6.40	0	11	107	BKK	S	0	35	94	S	TAW	AB7	9							
TG1107	CNX	DMK	1.40	2.50	0	46	185	CNX	S	0	0	16	S	TAA	AB7	9							
TG111	CNX	BKK	7.30	8.40	0	6	141	CNX	S	0	40	60	S	TAW	AB7	9							
TG1116	DMK	CNX	8.0	9.10	0	24	189	DMK	S	0	22	12	S	TAA	AB7	9							
TG1117	CNX	DMK	9.55	11.05	0	34	75	CNX	S	0	12	126	S	TAA	AB7	9							
TG1124	DMK	CNX	14.35	15.45	0	40	116	DMK	S	0	6	85	S	TAE	AB7	9							
TG1132	DMK	CEI	2.15	3.35	0	3	110	DMK	S	0	9	27	S	TDF	734	10							
TG1133	CEI	DMK	4.20	5.40	0	10	87	CEI	S	0	2	50	S	TDF	734	10							
TG1140	DMK	CEI	11.0	12.20	0	37	78	DMK	S	0	9	123	S	TAF	AB7	10							
TG1141	CEI	DMK	13.05	14.20	0	17	70	CEI	S	0	29	131	S	TAF	AB7	10							
TG116	BKK	CNX	10.15	11.25	0	24	100	BKK	S	0	25	239	S	TKB	773	9							
TG1160	DMK	PHS	23.05	24.0	0	2	84	DMK	S	0	10	53	S	TDK	734	11							
TG1161	PHS	DMK	0.40	1.25	0	12	113	PHS	S	0	0	24	S	TDF	734	11							
TG1164	DMK	PHS	13.40	14.35	0	12	60	DMK	S	0	0	77	S	TDK	734	11							
TG1165	PHS	DMK	15.15	16.0	0	0	135	PHS	S	0	12	2	S	TDK	734	11							
TG117	CNX	BKK	12.15	13.25	0	9	75	CNX	S	0	40	264	S	TKB	773	9							
TG1200	HKT	DMK	8.35	10.0	0	24	9	HKT	S	0	22	192	S	TAF	AB7	6							
TG1204	HKT	DMK	2.25	3.50	0	14	183	HKT	S	0	32	18	S	TAE	AB7	6							
TG1205	DMK	HKT	3.40	5.0	0	4	79	DMK	S	0	42	122	S	TAA	AB7	6							
TG1206	HKT	DMK	5.45	7.10	0	36	44	HKT	S	0	10	157	S	TAA	AB7	6							
TG1213	DMK	HKT	5.35	6.55	0	8	78	DMK	S	0	38	123	S	TAE	AB7	6							
TG1214	HKT	DMK	7.40	9.05	0	11	4	HKT	S	0	35	197	S	TAE	AB7	6							
TG1221	DMK	HKT	12.30	13.50	0	17	156	DMK	S	0	29	45	S	TAA	AB7	6							
TG1232	HDY	DMK	1.20	2.50	0	26	116	HDY	S	0	20	85	S	TAD	AB7	3							
TG1233	DMK	HDY	6.40	8.10	0	2	118	DMK	S	0	10	19	S	TDF	734	3							
TG1234	HDY	DMK	8.50	10.20	0	1	50	HDY	S	0	11	87	S	TDF	734	3							
TG1235	DMK	HDY	10.0	11.30	0	27	31	DMK	S	0	19	170	S	TAE	AB7	3							
TG1236	HDY	DMK	12.15	13.45	0	31	82	HDY	S	0	15	119	S	TAE	AB7	3							
TG1245	DMK	KBV	7.45	9.05	0	6	48	DMK	S	0	40	153	S	TAD	AB7	8							
TG1246	KBV	DMK	9.50	11.10	0	2	176	KBV	S	0	44	25	S	TAD	AB7	8							
TG125	CNX	BKK	0.0	1.10	0	34	88	CNX	S	0	12	113	S	TAF	AB7	9							
TG1253	DMK	URT	2.35	3.50	0	4	125	DMK	S	0	8	12	S	TDJ	734	4							
TG1254	URT	DMK	4.30	5.40	0	5	94	URT	S	0	7	43	S	TDJ	734	4							
TG126	BKK	CNX	12.0	13.10	0	15	201	BKK	S	0	15	78	S	TJH	772	9							
TG127	CNX	BKK	14.0	15.10	0	27	86	CNX	S	0	3	193	S	TJH	772	9							
TG1273	DMK	URT	10.05	11.20	0	7	12	DMK	S	0	5	125	S	TDJ	734	4							
TG1274	URT	DMK	12.0	13.10	0	1	15	URT	S	0	11	122	S	TDJ	734	4							
TG129	CNX	HKT	5.50	7.45	0	38	3	CNX	S	0	8	198	S	TAF	AB7	6							
TG130	BKK	CEI	6.45	8.05	0	42	36	BKK	S	0	4	165	S	TAY	AB7	10							
TG131	CEI	BKK	8.55	10.10	0	22	120	CEI	S	0	24	81	S	TAY	AB7	10							
TG194	CNX	HGN	3.10	3.45	0	0	15	CNX	S	0	0	51	S	TRB	AT7	9							
TG195	HGN	CNX	4.05	4.40	0	0	11	HGN	S	0	0	55	S	TRB	AT7	9							
TG196	CNX	HGN	9.10	9.45	0	0	13	CNX	S	0	0	53	S	TRB	AT7	9							
TG197	HGN	CNX	10.05	10.40	0	0	40	HGN	S	0	0	26	S	TRB	AT7	9							
TG201	BKK	HKT	0.50	2.10	0	23	175	BKK	S	0	27	150	S	TGO	744	6							
TG202	HKT	BKK	3.0	4.25	0	14	249	HKT	S	0	36	76	S	TGO	744	6							
TG203	BKK	HKT	0.20	1.40	0	7	30	BKK	S	0	39	171	S	TAE	AB7	6							
TG213	BKK	HKT	7.05	8.25	0	1	183	BKK	S	0	45	18	S	TAS	AB6	6							
TG214	HKT	BKK	9.15	10.40	0	30	124	HKT	S	0	16	77	S	TAS	AB6	6							
TG217	BKK	HKT	9.0	10.20	0	12	69	BKK	S	0	38	256	S	TGO	744	6							
TG218	HKT	BKK	11.25	12.50	0	25	147	HKT	S	0	25	178	S	TGO	744	6							
TG223	BKK	HKT	11.20	12.40	0	35	173	BKK	S	0	15	152	S	TGM	744	6							
TG224	HKT	BKK	13.50	15.15	0	39	237	HKT	S	0	11	88	S	TGM	744	6							
TG225	BKK	HKT	15.15	16.35	0	40	113	BKK	S	0	6	88	S	TAX	AB7	6							
TG226	HKT	BKK	0.25	1.50	0	46	68	HKT	S	0	0	133	S	TAZ	AB7	6							
TG228	HKT	BKK	14.35	16.0	0	46	14	HKT	S	0	0	187	S	TAA	AB7	6							
TG249	BKK	KBV	1.0	2.20	0	42	2	BKK	S	0	4	199	S	TAY	AB7	8							
TG250	KBV	BKK	3.10	4.30	0	12	155	KBV	S	0	34	46	S	TAY	AB7	8							
TG259	BKK	KBV	11.55	13.15	0	10	86	BKK	S	0	2	51	S	TDL	734	8							

Figure 52: Flight data of 1/8/07

TG1002	DMK	UTH	2.25	3.30	0	6	88	DMK	5	0	6	49	5	TDJ	734	1			
TG1003	UTH	DMK	4.10	5.10	0	9	100	UTH	5	0	3	37	5	TDJ	734	1			
TG1010	DMK	UTH	6.20	7.25	0	8	8	DMK	5	0	4	129	5	TDJ	734	1			
TG1011	UTH	DMK	8.05	9.05	0	4	86	UTH	5	0	8	51	5	TDJ	734	1			
TG1014	DMK	UTH	11.0	12.05	0	12	19	DMK	5	0	0	118	5	TDK	734	1			
TG1015	UTH	DMK	12.45	13.45	0	4	83	UTH	5	0	8	54	5	TDK	734	1			
TG102	BKK	CNX	0.45	1.55	0	3	103	BKK	5	0	43	98	5	TAL	AB6	9			
TG1020	DMK	UBP	23.0	0.05	0	9	121	DMK	5	0	3	16	5	TDF	734	2			
TG1021	UBP	DMK	0.45	1.50	0	9	119	UBP	5	0	3	18	5	TDF	734	2			
TG1022	DMK	UBP	6.25	7.30	0	3	119	DMK	5	0	9	18	5	TDF	734	2			
TG1023	UBP	DMK	8.10	9.15	0	2	87	UBP	5	0	10	50	5	TDF	734	2			
TG103	CNX	BKK	2.45	3.55	0	23	198	CNX	5	0	23	3	5	TAL	AB6	9			
TG1030	DMK	UBP	10.05	11.10	0	1	111	DMK	5	0	11	26	5	TDJ	734	2			
TG1031	UBP	DMK	11.50	12.55	0	2	70	UBP	5	0	10	67	5	TDJ	734	2			
TG104	BKK	CNX	3.30	4.40	0	45	199	BKK	5	0	1	2	5	TAE	AB7	9			
TG1041	KKC	DMK	0.50	1.45	0	3	56	KKC	5	0	9	81	5	TDJ	734	0			
TG1044	DMK	KKC	4.20	5.15	0	39	167	DMK	5	0	7	34	5	TAF	AB7	0			
TG1045	KKC	DMK	6.0	6.55	0	44	126	KKC	5	0	2	75	5	TAF	AB7	0			
TG1046	DMK	KKC	12.15	13.10	0	4	79	DMK	5	0	42	122	5	TAF	AB7	0			
TG1047	KKC	DMK	13.55	14.50	0	5	158	KKC	5	0	41	43	5	TAF	AB7	0			
TG110	BKK	CNX	6.35	7.45	0	3	89	BKK	5	0	43	112	5	TAZ	AB7	9			
TG1107	CNX	DMK	1.40	2.50	0	21	1	CNX	5	0	25	200	5	TAD	AB7	9			
TG111	CNX	BKK	8.35	9.45	0	36	13	CNX	5	0	10	188	5	TAZ	AB7	9			
TG1116	DMK	CNX	8.0	9.10	0	34	86	DMK	5	0	12	115	5	TAD	AB7	9			
TG1117	CNX	DMK	9.55	11.05	0	24	128	CNX	5	0	22	73	5	TAD	AB7	9			
TG1124	DMK	CNX	14.35	15.45	0	14	9	DMK	5	0	32	192	5	TAA	AB7	9			
TG1132	DMK	CEI	2.15	3.35	0	7	73	DMK	5	0	5	64	5	TDK	734	10			
TG1133	CEI	DMK	4.20	5.40	0	2	32	CEI	5	0	10	105	5	TDK	734	10			
TG1140	DMK	CEI	11.0	12.20	0	0	11	DMK	5	0	46	190	5	TAE	AB7	10			
TG1141	CEI	DMK	13.05	14.20	0	33	116	CEI	5	0	13	85	5	TAE	AB7	10			
TG116	BKK	CNX	10.15	11.25	0	3	232	BKK	5	0	46	107	5	TKC	773	9			
TG1160	DMK	PHS	23.05	24.0	0	7	15	DMK	5	0	5	122	5	TDJ	734	11			
TG1161	PHS	DMK	0.40	1.25	0	12	53	PHS	5	0	0	84	5	TDK	734	11			
TG1164	DMK	PHS	13.40	14.35	0	7	134	DMK	5	0	5	3	5	TDJ	734	11			
TG1165	PHS	DMK	15.15	16.0	0	5	29	PHS	5	0	7	108	5	TDJ	734	11			
TG117	CNX	BKK	12.15	13.25	0	0	257	CNX	5	0	49	82	5	TKC	773	9			
TG1200	HKT	DMK	8.35	10.0	0	7	166	HKT	5	0	39	35	5	TAE	AB7	6			
TG1204	HKT	DMK	2.25	3.50	0	17	25	HKT	5	0	29	176	5	TAA	AB7	6			
TG1205	DMK	HKT	3.40	5.0	0	25	168	DMK	5	0	21	33	5	TAD	AB7	6			
TG1206	HKT	DMK	5.45	7.10	0	2	158	HKT	5	0	44	43	5	TAD	AB7	6			
TG1213	DMK	HKT	5.35	6.55	0	29	105	DMK	5	0	17	96	5	TAA	AB7	6			
TG1214	HKT	DMK	7.40	9.05	0	46	20	HKT	5	0	0	181	5	TAA	AB7	6			
TG1221	DMK	HKT	12.30	13.50	0	33	199	DMK	5	0	13	2	5	TAD	AB7	6			
TG1232	HDY	DMK	1.20	2.50	0	31	36	HDY	5	0	15	165	5	TAF	AB7	3			
TG1233	DMK	HDY	6.40	8.10	0	10	31	DMK	5	0	2	106	5	TDK	734	3			
TG1234	HDY	DMK	8.50	10.20	0	10	42	HDY	5	0	2	95	5	TDK	734	3			
TG1235	DMK	HDY	10.0	11.30	0	1	197	DMK	5	0	45	4	5	TAA	AB7	3			
TG1236	HDY	DMK	12.15	13.45	0	41	77	HDY	5	0	5	124	5	TAA	AB7	3			
TG1245	DMK	KBV	7.45	9.05	0	42	101	DMK	5	0	4	100	5	TAF	AB7	8			
TG1246	KBV	DMK	9.50	11.10	0	20	189	KBV	5	0	26	12	5	TAF	AB7	8			
TG125	CNX	BKK	0.0	1.10	0	22	192	CNX	5	0	24	9	5	TAE	AB7	9			
TG1253	DMK	URT	2.35	3.50	0	9	120	DMK	5	0	3	17	5	TDF	734	4			
TG1254	URT	DMK	4.30	5.40	0	10	135	URT	5	0	2	2	5	TDF	734	4			
TG126	BKK	CNX	12.0	13.10	0	12	23	BKK	5	0	18	256	5	TJA	772	9			
TG127	CNX	BKK	14.0	15.10	0	27	122	CNX	5	0	3	157	5	TJA	772	9			
TG1273	DMK	URT	10.05	11.20	0	11	27	DMK	5	0	1	110	5	TDF	734	4			
TG1274	URT	DMK	12.0	13.10	0	10	9	URT	5	0	2	128	5	TDF	734	4			
TG129	CNX	HKT	5.50	7.45	0	4	145	CNX	5	0	42	56	5	TAE	AB7	6			
TG130	BKK	CEI	6.45	8.05	0	46	182	BKK	5	0	0	19	5	TAK	AB6	10			
TG131	CEI	BKK	8.55	10.10	0	17	91	CEI	5	0	29	110	5	TAK	AB6	10			
TG194	CNX	HGN	3.10	3.45	0	0	37	CNX	5	0	0	29	5	TRB	AT7	9			
TG195	HGN	CNX	4.05	4.40	0	0	56	HGN	5	0	0	10	5	TRB	AT7	9			
TG196	CNX	HGN	9.10	9.45	0	0	47	CNX	5	0	0	19	5	TRB	AT7	9			
TG197	HGN	CNX	10.05	10.40	0	0	45	HGN	5	0	0	21	5	TRB	AT7	9			
TG201	BKK	HKT	0.50	2.10	0	0	45	BKK	5	0	0	21	5	TGG	747	6			
TG202	HKT	BKK	3.0	4.25	0	0	45	HKT	5	0	0	21	5	TGG	747	6			
TG203	BKK	HKT	0.20	1.40	0	11	197	BKK	5	0	35	4	5	TAA	AB7	6			
TG213	BKK	HKT	7.05	8.25	0	11	197	BKK	5	0	35	4	5	TED	333	6			
TG214	HKT	BKK	9.15	10.40	0	11	197	HKT	5	0	35	4	5	TED	333	6			
TG217	BKK	HKT	9.0	10.20	0	36	229	BKK	5	0	14	96	5	TGN	744	6			
TG218	HKT	BKK	11.25	12.50	0	5	318	HKT	5	0	45	7	5	TGN	744	6			
TG223	BKK	HKT	11.20	12.40	0	35	303	BKK	5	0	15	22	5	TGN	744	6			
TG224	HKT	BKK	13.50	15.15	0	25	221	HKT	5	0	25	104	5	TGN	744	6			
TG225	BKK	HKT	15.15	16.35	0	9	77	BKK	5	0	37	124	5	TAX	AB7	6			
TG226	HKT	BKK	0.25	1.50	0	39	200	HKT	5	0	7	1	5	TAX	AB7	6			
TG228	HKT	BKK	14.35	16.0	0	7	59	HKT	5	0	39	142	5	TAD	AB7	6			
TG249	BKK	KBV	1.0	2.20	0	0	100	BKK	5	0	46	101	5	TAK	AB6	8			
TG250	KBV	BKK	3.10	4.30	0	25	56	KBV	5	0	21	145	5	TAK	AB6	8			
TG259	BKK	KBV	11.55	13.15	0	22	114	BKK	5	0	24	87	5	TAZ	AB7	8			
TG260	KBV	BKK	14.05	15.25	0	17	64	KBV	5	0	29	137	5	TAZ	AB7	8			
TG2608	KBV	BKK	6.20	7.30	0	9	23	KBV	5	0	3	114	5	TDL	734	8			

Figure 53: Flight data of 2/8/07

TG1002	DMK	UTH	2.25	3.30	0	6	88	DMK	5	0	6	49	5	TDJ	734	1							
TG1003	UTH	DMK	4.10	5.10	0	9	100	UTH	5	0	3	37	5	TDJ	734	1							
TG1010	DMK	UTH	6.20	7.25	0	8	8	DMK	5	0	4	129	5	TDJ	734	1							
TG1011	UTH	DMK	8.05	9.05	0	4	86	UTH	5	0	8	51	5	TDJ	734	1							
TG1014	DMK	UTH	11.0	12.05	0	12	89	DMK	5	0	0	48	5	TDK	734	1							
TG1015	UTH	DMK	12.45	13.45	0	4	13	UTH	5	0	8	124	5	TDK	734	1							
TG102	BKK	CNX	0.45	1.55	0	3	103	BKK	5	0	43	94	5	TAL	AB6	9							
TG1020	DMK	UBP	23.0	0.05	0	0	121	DMK	5	0	12	16	5	TDF	734	2							
TG1021	UBP	DMK	0.45	1.50	0	9	119	UBP	5	0	3	18	5	TDF	734	2							
TG1022	DMK	UBP	6.25	7.30	0	3	119	DMK	5	0	9	18	5	TDF	734	2							
TG1023	UBP	DMK	8.10	9.15	0	2	87	UBP	5	0	10	50	5	TDF	734	2							
TG103	CNX	BKK	2.45	3.55	0	23	198	CNX	5	0	23	3	5	TAL	AB6	9							
TG1030	DMK	UBP	10.05	11.10	0	1	111	DMK	5	0	11	26	5	TDJ	734	2							
TG1031	UBP	DMK	11.50	12.55	0	2	70	UBP	5	0	10	67	5	TDJ	734	2							
TG104	BKK	CNX	3.30	4.40	0	45	199	BKK	5	0	1	2	5	TAE	AB7	9							
TG1041	KKC	DMK	0.50	1.45	0	3	56	KKC	5	0	9	81	5	TDJ	734	0							
TG1044	DMK	KKC	4.20	5.15	0	39	167	DMK	5	0	7	34	5	TAF	AB7	0							
TG1045	KKC	DMK	6.0	6.55	0	44	126	KKC	5	0	2	75	5	TAF	AB7	0							
TG1046	DMK	KKC	12.15	13.10	0	4	79	DMK	5	0	42	122	5	TAF	AB7	0							
TG1047	KKC	DMK	13.55	14.50	0	5	108	KKC	5	0	41	93	5	TAF	AB7	0							
TG110	BKK	CNX	6.35	7.45	0	3	89	BKK	5	0	43	112	5	TAZ	AB7	9							
TG1107	CNX	DMK	1.40	2.50	0	21	1	CNX	5	0	25	200	5	TAD	AB7	9							
TG111	CNX	BKK	8.35	9.45	0	36	13	CNX	5	0	10	188	5	TAZ	AB7	9							
TG1116	DMK	CNX	8.0	9.10	0	34	86	DMK	5	0	12	115	5	TAD	AB7	9							
TG1117	CNX	DMK	9.55	11.05	0	24	128	CNX	5	0	22	73	5	TAD	AB7	9							
TG1124	DMK	CNX	14.35	15.45	0	14	9	DMK	5	0	32	192	5	TAA	AB7	9							
TG1132	DMK	CEI	2.15	3.35	0	7	73	DMK	5	0	5	64	5	TDK	734	10							
TG1133	CEI	DMK	4.20	5.40	0	2	32	CEI	5	0	10	105	5	TDK	734	10							
TG1140	DMK	CEI	11.0	12.20	0	0	171	DMK	5	0	46	30	5	TAE	AB7	10							
TG1141	CEI	DMK	13.05	14.20	0	33	116	CEI	5	0	13	85	5	TAE	AB7	10							
TG116	BKK	CNX	10.15	11.25	0	3	232	BKK	5	0	46	107	5	TKC	773	9							
TG1160	DMK	PHS	23.05	24.0	0	7	15	DMK	5	0	5	122	5	TDJ	734	11							
TG1161	PHS	DMK	0.40	1.25	0	12	53	PHS	5	0	0	84	5	TDK	734	11							
TG1164	DMK	PHS	13.40	14.35	0	7	134	DMK	5	0	5	3	5	TDJ	734	11							
TG1165	PHS	DMK	15.15	16.0	0	5	29	PHS	5	0	7	108	5	TDJ	734	11							
TG117	CNX	BKK	12.15	13.25	0	0	257	CNX	5	0	49	82	5	TKC	773	9							
TG1200	HKT	DMK	8.35	10.0	0	7	166	HKT	5	0	39	35	5	TAE	AB7	6							
TG1204	HKT	DMK	2.25	3.50	0	17	25	HKT	5	0	29	176	5	TAA	AB7	6							
TG1205	DMK	HKT	3.40	5.0	0	25	168	DMK	5	0	21	33	5	TAD	AB7	6							
TG1206	HKT	DMK	5.45	7.10	0	2	158	HKT	5	0	44	43	5	TAD	AB7	6							
TG1213	DMK	HKT	5.35	6.55	0	29	105	DMK	5	0	17	96	5	TAA	AB7	6							
TG1214	HKT	DMK	7.40	9.05	0	46	20	HKT	5	0	0	181	5	TAA	AB7	6							
TG1221	DMK	HKT	12.30	13.50	0	33	199	DMK	5	0	13	2	5	TAD	AB7	6							
TG1232	HDY	DMK	1.20	2.50	0	31	36	HDY	5	0	15	165	5	TAF	AB7	3							
TG1233	DMK	HDY	6.40	8.10	0	10	31	DMK	5	0	2	186	5	TDK	734	3							
TG1234	HDY	DMK	8.50	10.20	0	10	42	HDY	5	0	2	95	5	TDK	734	3							
TG1235	DMK	HDY	10.0	11.30	0	1	197	DMK	5	0	45	4	5	TAA	AB7	3							
TG1236	HDY	DMK	12.15	13.45	0	41	77	HDY	5	0	5	124	5	TAA	AB7	3							
TG1245	DMK	KBV	7.45	9.05	0	42	101	DMK	5	0	4	100	5	TAF	AB7	8							
TG1246	KBV	DMK	9.50	11.10	0	20	189	KBV	5	0	26	12	5	TAF	AB7	8							
TG125	CNX	BKK	0.0	1.10	0	22	192	CNX	5	0	24	9	5	TAE	AB7	9							
TG1253	DMK	URT	2.35	3.50	0	9	120	DMK	5	0	3	17	5	TDF	734	4							
TG1254	URT	DMK	4.30	5.40	0	10	135	URT	5	0	2	2	5	TDF	734	4							
TG126	BKK	CNX	12.0	13.10	0	12	23	BKK	5	0	18	256	5	TJA	772	9							
TG127	CNX	BKK	14.0	15.10	0	27	122	CNX	5	0	3	157	5	TJA	772	9							
TG1273	DMK	URT	10.05	11.20	0	11	27	DMK	5	0	1	110	5	TDF	734	4							
TG1274	URT	DMK	12.0	13.10	0	10	9	URT	5	0	2	128	5	TDF	734	4							
TG129	CNX	HKT	5.50	7.45	0	4	145	CNX	5	0	42	56	5	TAE	AB7	6							
TG130	BKK	CEI	6.45	8.05	0	46	182	BKK	5	0	0	19	5	TAK	AB6	10							
TG131	CEI	BKK	8.55	10.10	0	17	91	CEI	5	0	29	110	5	TAK	AB6	10							
TG194	CNX	HGN	3.10	3.45	0	0	37	CNX	5	0	0	29	5	TRB	AT7	9							
TG195	HGN	CNX	4.05	4.40	0	0	56	HGN	5	0	0	10	5	TRB	AT7	9							
TG196	CNX	HGN	9.10	9.45	0	0	47	CNX	5	0	0	19	5	TRB	AT7	9							
TG197	HGN	CNX	10.05	10.40	0	0	45	HGN	5	0	0	21	5	TRB	AT7	9							
TG201	BKK	HKT	0.50	2.10	0	0	45	BKK	5	0	0	21	5	TGG	747	6							
TG202	HKT	BKK	3.0	4.25	0	0	45	HKT	5	0	0	21	5	TGG	747	6							
TG203	BKK	HKT	0.20	1.40	0	11	197	BKK	5	0	35	4	5	TAA	AB7	6							
TG213	BKK	HKT	7.05	8.25	0	11	197	BKK	5	0	35	4	5	TED	333	6							
TG214	HKT	BKK	9.15	10.40	0	11	197	HKT	5	0	35	4	5	TED	333	6							
TG217	BKK	HKT	9.0	10.20	0	36	229	BKK	5	0	14	96	5	TGN	744	6							
TG218	HKT	BKK	11.25	12.50	0	5	318	HKT	5	0	45	7	5	TGN	744	6							
TG223	BKK	HKT	11.20	12.40	0	35	303	BKK	5	0	15	22	5	TGN	744	6							
TG224	HKT	BKK	13.50	15.15	0	25	221	HKT	5	0	25	104	5	TGN	744	6							
TG225	BKK	HKT	15.15	16.35	0	9	77	BKK	5	0	37	124	5	TAX	AB7	6							
TG226	HKT	BKK	0.25	1.50	0	39	200	HKT	5	0	7	1	5	TAX	AB7	6							
TG228	HKT	BKK	14.35	16.0	0	7	59	HKT	5	0	39	142	5	TAD	AB7	6							
TG249	BKK	KBV	1.0	2.20	0	0	100	BKK	5	0	46	101	5	TAK	AB6	8							
TG250	KBV	BKK	3.10	4.30	0	25	56	KBV	5	0	21	145	5	TAK	AB6	8							
TG259	BKK	KBV	11.55	13.15	0	22	114	BKK	5	0	24	87	5	TAZ	AB7	8							
TG260	KBV	BKK	14.05	15.25	0	17	64	KBV	5	0	29	137	5	TAZ	AB7	8							
TG2608	KBV	BKK	6.20	7.30	0	9	23	KBV	5	0	3	114	5	TDL	734	8							

Figure 54: Flight data of 3/8/07

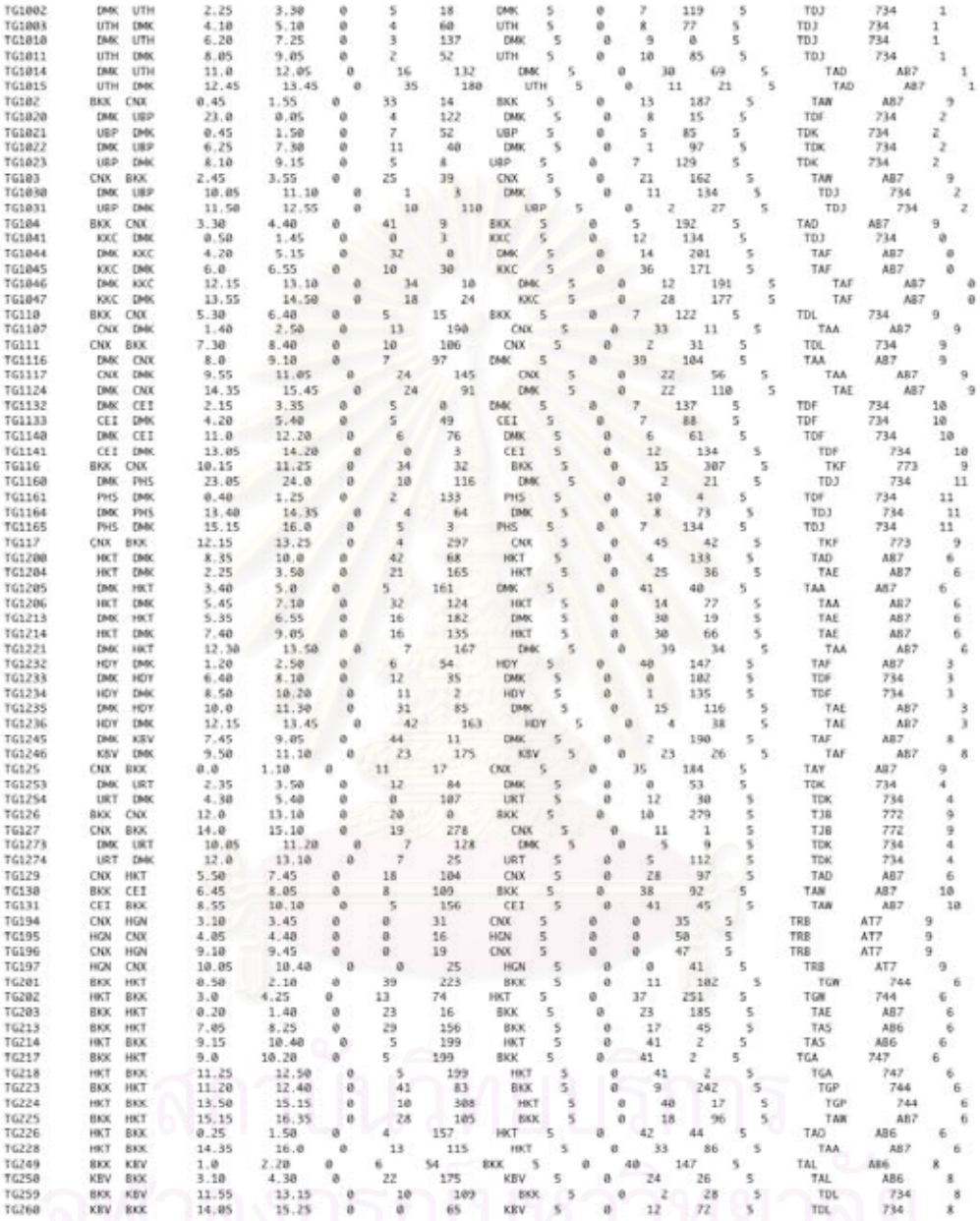


Figure 55: Flight data of 4/8/07

TG1002	DMK	UTH	2.25	3.30	0	11	137	DMK	5	0	1	0	5	TDK	734	1			
TG1003	UTH	DMK	4.10	5.10	0	4	42	UTH	5	0	8	95	5	TDK	734	1			
TG1010	DMK	UTH	6.20	7.25	0	11	35	DMK	5	0	1	102	5	TDK	734	1			
TG1011	UTH	DMK	8.05	9.05	0	12	68	UTH	5	0	0	69	5	TDK	734	1			
TG1014	DMK	UTH	11.0	12.05	0	27	18	DMK	5	0	19	183	5	TAE	A87	1			
TG1015	UTH	DMK	12.45	13.45	0	16	22	UTH	5	0	30	179	5	TAE	A87	1			
TG102	BKK	CNX	0.45	1.55	0	26	190	BKK	5	0	20	11	5	TAN	AB6	9			
TG1021	UBP	DMK	0.45	1.50	0	7	36	UBP	5	0	5	101	5	TDF	734	2			
TG1022	DMK	UBP	6.25	7.30	0	12	5	DMK	5	0	0	132	5	TDF	734	2			
TG1023	UBP	DMK	8.10	9.15	0	12	5	UBP	5	0	0	132	5	TDF	734	2			
TG103	CNX	BKK	2.45	3.55	0	12	131	CNX	5	0	34	70	5	TAN	AB6	9			
TG1030	DMK	UBP	10.05	11.10	0	4	59	DMK	5	0	8	78	5	TDK	734	2			
TG1031	UBP	DMK	11.50	12.55	0	12	75	UBP	5	0	0	62	5	TDK	734	2			
TG104	BKK	CNX	3.30	4.40	0	15	105	BKK	5	0	31	96	5	TAE	A87	9			
TG1041	KKC	DMK	0.50	1.45	0	10	80	KKC	5	0	2	57	5	TDK	734	0			
TG1044	DMK	KKC	4.20	5.15	0	46	186	DMK	5	0	0	15	5	TAF	A87	0			
TG1045	KKC	DMK	6.0	6.55	0	7	113	KKC	5	0	39	88	5	TAF	A87	0			
TG1046	DMK	KKC	12.15	13.10	0	43	28	DMK	5	0	3	173	5	TAF	A87	0			
TG1047	KKC	DMK	13.55	14.50	0	10	131	KKC	5	0	36	70	5	TAF	A87	0			
TG110	BKK	CNX	6.35	7.45	0	27	76	BKK	5	0	19	125	5	TAS	AB6	9			
TG1107	CNX	DMK	1.40	2.50	0	5	157	CNX	5	0	41	44	5	TAD	A87	9			
TG111	CNX	BKK	8.35	9.45	0	29	5	CNX	5	0	17	196	5	TAS	AB6	9			
TG1116	DMK	CNX	8.0	9.10	0	21	181	DMK	5	0	25	20	5	TAD	A87	9			
TG1117	CNX	DMK	9.55	11.05	0	27	86	CNX	5	0	19	115	5	TAD	A87	9			
TG1124	DMK	CNX	14.35	15.45	0	2	131	DMK	5	0	44	70	5	TAA	A87	9			
TG1132	DMK	CEI	2.15	3.35	0	6	33	DMK	5	0	6	104	5	TDJ	734	10			
TG1133	CEI	DMK	4.20	5.40	0	11	77	CEI	5	0	1	60	5	TDJ	734	10			
TG1140	DMK	CEI	11.0	12.20	0	8	125	DMK	5	0	4	12	5	TDJ	734	10			
TG1141	CEI	DMK	13.05	14.20	0	9	61	CEI	5	0	3	76	5	TDJ	734	10			
TG116	BKK	CNX	10.15	11.25	0	42	42	BKK	5	0	7	297	5	TKD	773	9			
TG1160	DMK	PHS	23.05	24.0	0	8	25	DMK	5	0	4	112	5	TDF	734	11			
TG1161	PHS	DMK	0.40	1.25	0	3	111	PHS	5	0	9	26	5	TDJ	734	11			
TG1164	DMK	PHS	13.40	14.35	0	7	20	DMK	5	0	5	117	5	TDK	734	11			
TG1165	PHS	DMK	15.15	16.0	0	4	67	PHS	5	0	8	70	5	TDK	734	11			
TG117	CNX	BKK	12.15	13.25	0	48	92	CNX	5	0	1	247	5	TKD	773	9			
TG1200	HKT	DMK	8.35	10.0	0	42	87	HKT	5	0	4	114	5	TAE	A87	6			
TG1204	HKT	DMK	2.25	3.50	0	12	151	HKT	5	0	34	50	5	TAA	A87	6			
TG1205	DMK	HKT	3.40	5.0	0	23	175	DMK	5	0	23	26	5	TAD	A87	6			
TG1206	HKT	DMK	5.45	7.10	0	25	28	HKT	5	0	21	173	5	TAD	A87	6			
TG1213	DMK	HKT	5.35	6.55	0	46	106	DMK	5	0	0	95	5	TAA	A87	6			
TG1214	HKT	DMK	7.40	9.05	0	11	146	HKT	5	0	35	55	5	TAA	A87	6			
TG1221	DMK	HKT	12.30	13.50	0	6	123	DMK	5	0	40	78	5	TAD	A87	6			
TG1232	HDY	DMK	1.20	2.50	0	6	66	HDY	5	0	40	135	5	TAF	A87	3			
TG1233	DMK	HDY	6.40	8.10	0	9	21	DMK	5	0	3	116	5	TDJ	734	3			
TG1234	HDY	DMK	8.50	10.20	0	9	94	HDY	5	0	3	43	5	TDJ	734	3			
TG1235	DMK	HDY	10.0	11.30	0	6	74	DMK	5	0	40	127	5	TAA	A87	3			
TG1236	HDY	DMK	12.15	13.45	0	35	170	HDY	5	0	11	31	5	TAA	A87	3			
TG1245	DMK	KBV	7.45	9.05	0	6	177	DMK	5	0	40	24	5	TAF	A87	8			
TG1246	KBV	DMK	9.50	11.10	0	38	107	KBV	5	0	8	94	5	TAF	A87	8			
TG125	CNX	BKK	0.0	1.10	0	45	168	CNX	5	0	1	33	5	TAE	A87	9			
TG1253	DMK	URT	2.35	3.50	0	9	40	DMK	5	0	3	97	5	TDF	734	4			
TG1254	URT	DMK	4.30	5.40	0	2	72	URT	5	0	10	65	5	TDF	734	4			
TG126	BKK	CNX	12.0	13.10	0	17	278	BKK	5	0	13	1	5	TJE	772	9			
TG127	CNX	BKK	14.0	15.10	0	16	180	CNX	5	0	14	99	5	TJE	772	9			
TG1273	DMK	URT	10.05	11.20	0	2	49	DMK	5	0	10	88	5	TDF	734	4			
TG1274	URT	DMK	12.0	13.10	0	1	76	URT	5	0	11	61	5	TDF	734	4			
TG129	CNX	HKT	5.50	7.45	0	20	139	CNX	5	0	26	62	5	TAE	A87	6			
TG130	BKK	CEI	6.45	8.05	0	46	190	BKK	5	0	0	11	5	TAH	AB6	10			
TG131	CEI	BKK	8.55	10.10	0	14	11	CEI	5	0	32	190	5	TAH	AB6	10			
TG194	CNX	HGN	3.10	3.45	0	0	65	CNX	5	0	0	1	5	TRB	AT7	9			
TG195	HGN	CNX	4.05	4.40	0	0	26	HGN	5	0	0	40	5	TRB	AT7	9			
TG196	CNX	HGN	9.10	9.45	0	0	16	CNX	5	0	0	50	5	TRB	AT7	9			
TG197	HGN	CNX	10.05	10.40	0	0	55	HGN	5	0	0	11	5	TRB	AT7	9			
TG201	BKK	HKT	0.50	2.10	0	43	94	BKK	5	0	7	231	5	TGX	744	6			
TG202	HKT	BKK	3.0	4.25	0	8	187	HKT	5	0	42	138	5	TGX	744	6			
TG203	BKK	HKT	0.20	1.40	0	4	28	BKK	5	0	42	173	5	TAA	A87	6			
TG213	BKK	HKT	7.05	8.25	0	12	106	BKK	5	0	34	95	5	TAZ	A87	6			
TG217	BKK	HKT	9.0	10.20	0	44	277	BKK	5	0	6	48	5	TGW	744	6			
TG218	HKT	BKK	11.25	12.50	0	20	246	HKT	5	0	30	79	5	TGW	744	6			
TG223	BKK	HKT	11.20	12.40	0	20	246	BKK	5	0	30	79	5	TGB	747	6			
TG224	HKT	BKK	13.50	15.15	0	20	246	HKT	5	0	30	79	5	TGB	747	6			
TG225	BKK	HKT	15.15	16.35	0	39	171	BKK	5	0	7	30	5	TAN	AB6	6			
TG226	HKT	BKK	0.25	1.50	0	30	93	HKT	5	0	16	108	5	TAW	A87	6			
TG228	HKT	BKK	14.35	16.0	0	7	3	HKT	5	0	39	198	5	TAD	A87	6			
TG249	BKK	KBV	1.0	2.20	0	29	69	BKK	5	0	17	132	5	TAS	AB6	8			
TG250	KBV	BKK	3.10	4.30	0	23	50	KBV	5	0	23	151	5	TAS	AB6	8			
TG259	BKK	KBV	11.55	13.15	0	6	34	BKK	5	0	6	103	5	TDL	734	8			
TG260	KBV	BKK	14.05	15.25	0	10	58	KBV	5	0	2	79	5	TDL	734	8			

Figure 56: Flight data of 5/8/07

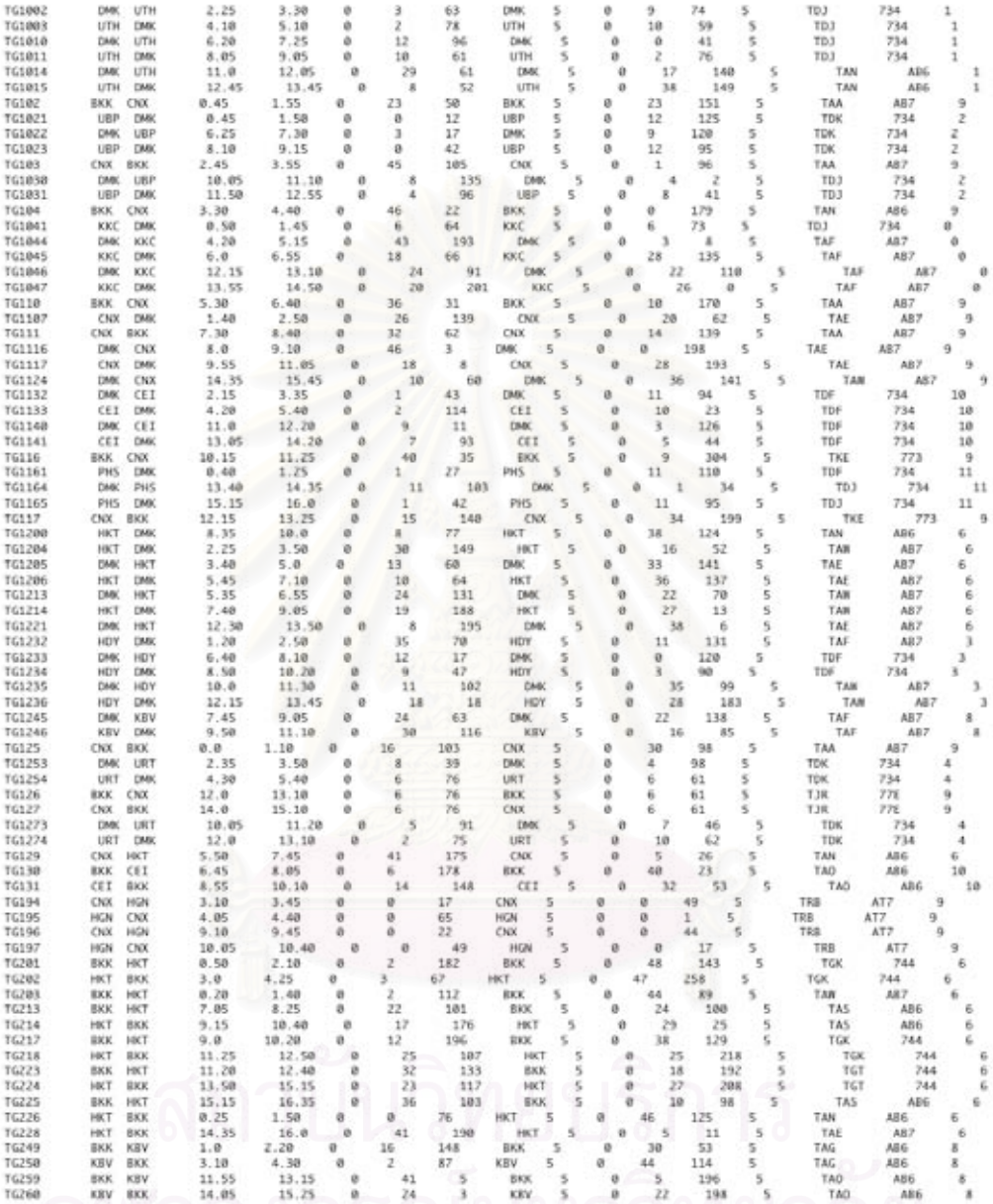


Figure 57: Flight data of 6/8/07

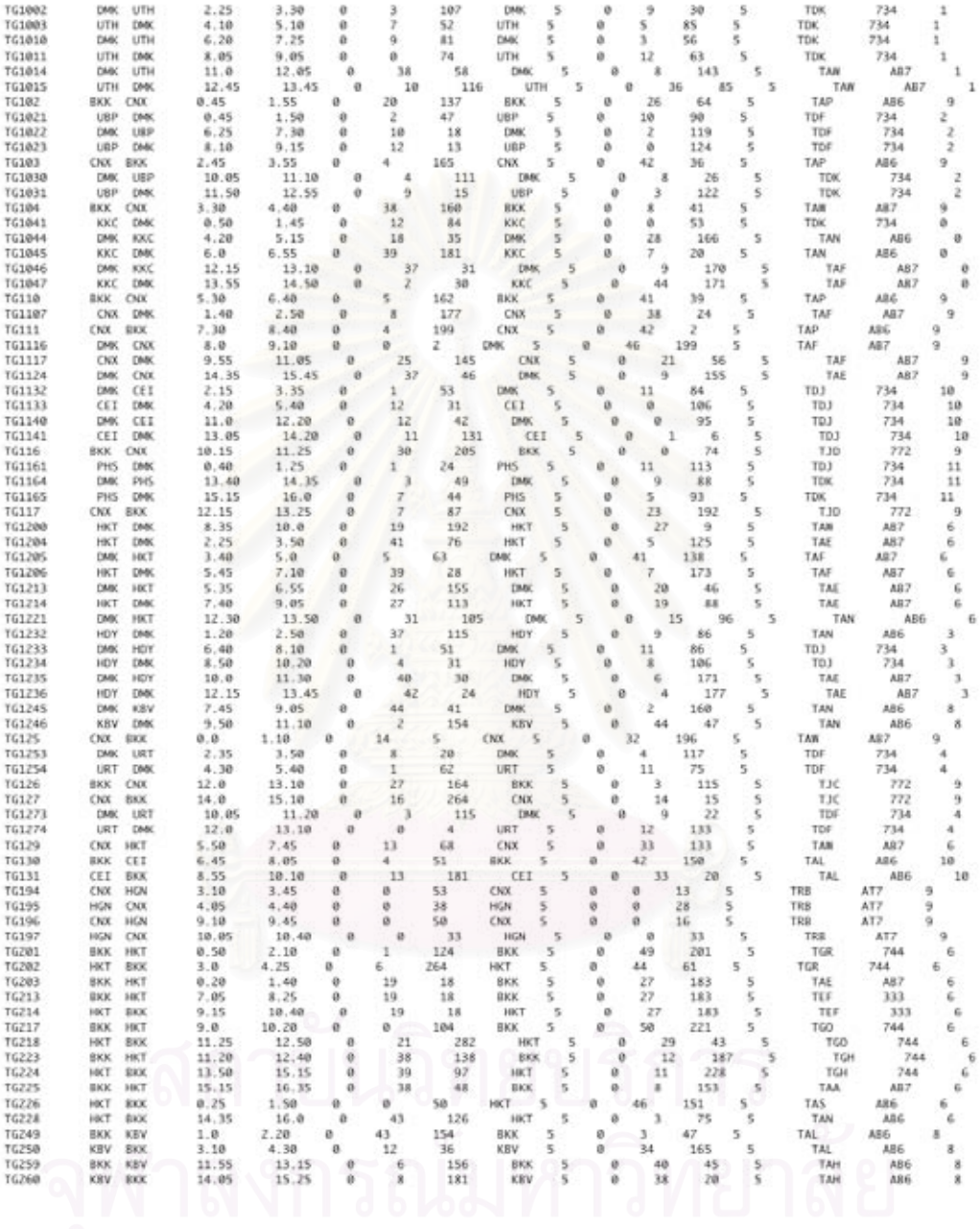


Figure 58: Flight data of 7/8/07

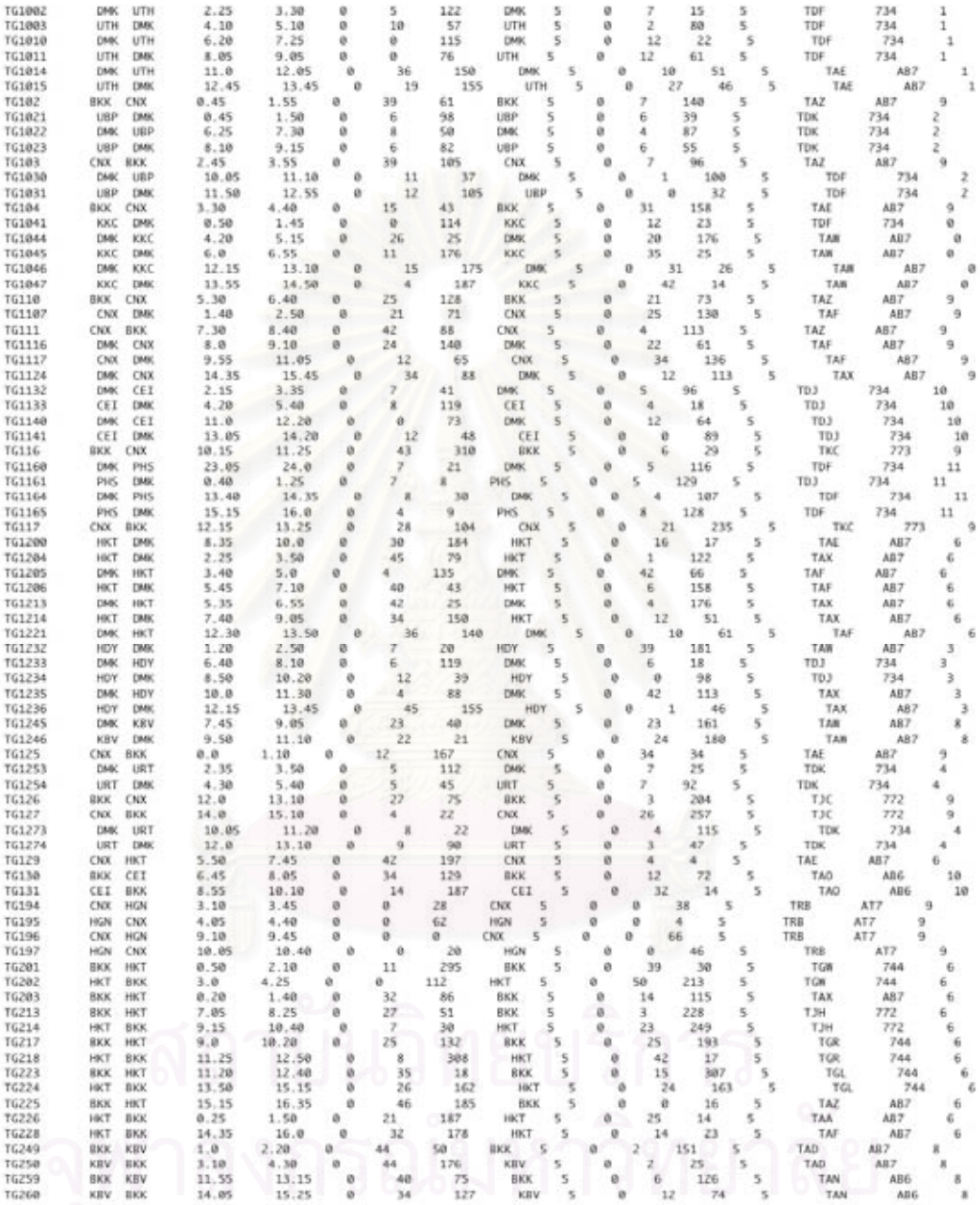


Figure 59: Flight data of 8/8/07

TG1002	DMK	UTH	2.25	3.30	0	10	107	DMK	5	0	2	30	5	TDK	734	1			
TG1003	UTH	DMK	4.10	5.10	0	12	124	UTH	5	0	0	13	5	TDK	734	1			
TG1010	DMK	UTH	6.20	7.25	0	12	93	DMK	5	0	0	44	5	TDK	734	1			
TG1011	UTH	DMK	8.05	9.05	0	9	5	UTH	5	0	3	132	5	TDK	734	1			
TG1014	DMK	UTH	11.0	12.05	0	31	169	DMK	5	0	15	32	5	TAX	AB7	1			
TG1015	UTH	DMK	12.45	13.45	0	2	68	UTH	5	0	44	133	5	TAX	AB7	1			
TG102	BKK	CNX	0.45	1.55	0	24	35	BKK	5	0	22	166	5	TAH	AB6	9			
TG1021	UBP	DMK	0.45	1.50	0	0	15	UBP	5	0	12	122	5	TDJ	734	2			
TG1022	DMK	UBP	6.25	7.30	0	10	104	DMK	5	0	2	33	5	TDJ	734	2			
TG1023	UBP	DMK	8.10	9.15	0	11	85	UBP	5	0	1	52	5	TDJ	734	2			
TG103	CNX	BKK	2.45	3.55	0	10	191	CNX	5	0	36	10	5	TAH	AB6	9			
TG1030	DMK	UBP	10.05	11.10	0	4	132	DMK	5	0	8	5	5	TDK	734	2			
TG1031	UBP	DMK	11.50	12.55	0	12	116	UBP	5	0	0	21	5	TDK	734	2			
TG104	BKK	CNX	3.30	4.40	0	14	98	BKK	5	0	32	103	5	TAX	AB7	9			
TG1041	KKC	DMK	0.50	1.45	0	6	49	KKC	5	0	6	88	5	TDK	734	0			
TG1044	DMK	KKC	4.20	5.15	0	33	106	DMK	5	0	13	95	5	TAE	AB7	0			
TG1045	KKC	DMK	6.0	6.55	0	26	162	KKC	5	0	20	39	5	TAE	AB7	0			
TG1046	DMK	KKC	12.15	13.10	0	28	158	DMK	5	0	18	43	5	TAE	AB7	0			
TG1047	KKC	DMK	13.55	14.50	0	12	105	KKC	5	0	34	96	5	TAE	AB7	0			
TG110	BKK	CNX	6.35	7.45	0	33	112	BKK	5	0	13	89	5	TAY	AB7	9			
TG1107	CNX	DMK	1.40	2.50	0	39	188	CNX	5	0	7	13	5	TAW	AB7	9			
TG111	CNX	BKK	8.35	9.45	0	17	155	CNX	5	0	29	46	5	TAY	AB7	9			
TG1116	DMK	CNX	8.0	9.10	0	45	97	DMK	5	0	1	104	5	TAW	AB7	9			
TG1117	CNX	DMK	9.55	11.05	0	32	27	CNX	5	0	14	174	5	TAW	AB7	9			
TG1124	DMK	CNX	14.35	15.45	0	4	128	DMK	5	0	42	73	5	TAF	AB7	9			
TG1132	DMK	CEI	2.15	3.35	0	11	40	DMK	5	0	1	97	5	TDF	734	10			
TG1133	CEI	DMK	4.20	5.40	0	0	132	CEI	5	0	12	5	5	TDF	734	10			
TG1140	DMK	CEI	11.0	12.20	0	9	45	DMK	5	0	3	92	5	TDF	734	10			
TG1141	CEI	DMK	13.05	14.20	0	11	32	CEI	5	0	1	105	5	TDF	734	10			
TG116	BKK	CNX	10.15	11.25	0	15	333	BKK	5	0	34	6	5	TKF	773	9			
TG1161	PHS	DMK	0.40	1.25	0	6	5	PHS	5	0	6	132	5	TDF	734	11			
TG1164	DMK	PHS	13.40	14.35	0	4	33	DMK	5	0	8	104	5	TDK	734	11			
TG1165	PHS	DMK	15.15	16.0	0	10	33	PHS	5	0	2	104	5	TDK	734	11			
TG117	CNX	BKK	12.15	13.25	0	47	255	CNX	5	0	2	84	5	TKF	773	9			
TG1200	HKT	DMK	8.35	10.0	0	35	88	HKT	5	0	11	113	5	TAX	AB7	6			
TG1204	HKT	DMK	2.25	3.50	0	32	157	HKT	5	0	14	44	5	TAF	AB7	6			
TG1205	DMK	HKT	3.40	5.0	0	41	165	DMK	5	0	5	36	5	TAW	AB7	6			
TG1206	HKT	DMK	5.45	7.10	0	12	71	HKT	5	0	34	130	5	TAW	AB7	6			
TG1213	DMK	HKT	5.35	6.55	0	41	31	DMK	5	0	5	170	5	TAF	AB7	6			
TG1214	HKT	DMK	7.40	9.05	0	17	149	HKT	5	0	29	52	5	TAF	AB7	6			
TG1221	DMK	HKT	12.30	13.50	0	27	142	DMK	5	0	19	59	5	TAW	AB7	6			
TG1232	HDY	DMK	1.20	2.50	0	46	165	HDY	5	0	0	36	5	TAE	AB7	3			
TG1233	DMK	HDY	6.40	8.10	0	12	101	DMK	5	0	0	36	5	TDF	734	3			
TG1234	HDY	DMK	8.50	10.20	0	10	134	HDY	5	0	2	3	5	TDF	734	3			
TG1235	DMK	HDY	10.0	11.30	0	23	125	DMK	5	0	23	76	5	TAF	AB7	3			
TG1236	HDY	DMK	12.15	13.45	0	14	198	HDY	5	0	32	3	5	TAF	AB7	3			
TG1245	DMK	KBV	7.45	9.05	0	37	40	DMK	5	0	9	161	5	TAE	AB7	8			
TG1246	KBV	DMK	9.50	11.10	0	31	141	KBV	5	0	15	60	5	TAE	AB7	8			
TG125	CNX	BKK	0.0	1.10	0	37	165	CNX	5	0	9	36	5	TAX	AB7	9			
TG1253	DMK	URT	2.35	3.50	0	4	93	DMK	5	0	8	44	5	TDJ	734	4			
TG1254	URT	DMK	4.30	5.40	0	11	133	URT	5	0	1	4	5	TDJ	734	4			
TG126	BKK	CNX	12.0	13.10	0	28	239	BKK	5	0	2	40	5	TJC	772	9			
TG127	CNX	BKK	14.0	15.10	0	26	33	CNX	5	0	4	246	5	TJC	772	9			
TG1273	DMK	URT	10.05	11.20	0	11	31	DMK	5	0	1	106	5	TDJ	734	4			
TG1274	URT	DMK	12.0	13.10	0	8	35	URT	5	0	4	102	5	TDJ	734	4			
TG129	CNX	HKT	5.50	7.45	0	28	65	CNX	5	0	18	136	5	TAX	AB7	6			
TG130	BKK	CEI	6.45	8.05	0	25	89	BKK	5	0	21	112	5	TAN	AB6	10			
TG131	CEI	BKK	8.55	10.10	0	11	126	CEI	5	0	35	75	5	TAN	AB6	10			
TG194	CNX	HGN	3.10	3.45	0	0	54	CNX	5	0	0	12	5	TRB	AT7	9			
TG195	HGN	CNX	4.05	4.40	0	0	35	HGN	5	0	0	31	5	TRB	AT7	9			
TG196	CNX	HGN	9.10	9.45	0	0	40	CNX	5	0	0	26	5	TRB	AT7	9			
TG197	HGN	CNX	10.05	10.40	0	0	57	HGN	5	0	0	9	5	TRB	AT7	9			
TG201	BKK	HKT	0.50	2.10	0	9	306	BKK	5	0	41	19	5	TQM	744	6			
TG202	HKT	BKK	3.0	4.25	0	12	65	HKT	5	0	38	260	5	TQM	744	6			
TG203	BKK	HKT	0.20	1.40	0	7	116	BKK	5	0	39	85	5	TAF	AB7	6			
TG213	BKK	HKT	7.05	8.25	0	7	116	BKK	5	0	39	85	5	TEK	333	6			
TG214	HKT	BKK	9.15	10.40	0	7	116	HKT	5	0	39	85	5	TEK	333	6			
TG217	BKK	HKT	9.0	10.20	0	34	183	BKK	5	0	16	142	5	TQM	744	6			
TG218	HKT	BKK	11.25	12.50	0	27	150	HKT	5	0	23	175	5	TQM	744	6			
TG223	BKK	HKT	11.20	12.40	0	5	43	BKK	5	0	45	282	5	TGK	744	6			
TG224	HKT	BKK	13.50	15.15	0	1	97	HKT	5	0	49	228	5	TGK	744	6			
TG225	BKK	HKT	15.15	16.35	0	21	57	BKK	5	0	25	144	5	TAY	AB7	6			
TG226	HKT	BKK	0.25	1.50	0	32	7	HKT	5	0	14	194	5	TAZ	AB7	6			
TG228	HKT	BKK	14.35	16.0	0	46	15	HKT	5	0	0	186	5	TAW	AB7	6			
TG249	BKK	KBV	1.0	2.20	0	1	106	BKK	5	0	45	95	5	TAL	AB6	8			
TG250	KBV	BKK	3.10	4.30	0	46	192	KBV	5	0	0	9	5	TAL	AB6	8			
TG259	BKK	KBV	11.55	13.15	0	11	19	BKK	5	0	35	182	5	TAN	AB6	8			
TG260	KBV	BKK	14.05	15.25	0	37	50	KBV	5	0	9	151	5	TAN	AB6	8			

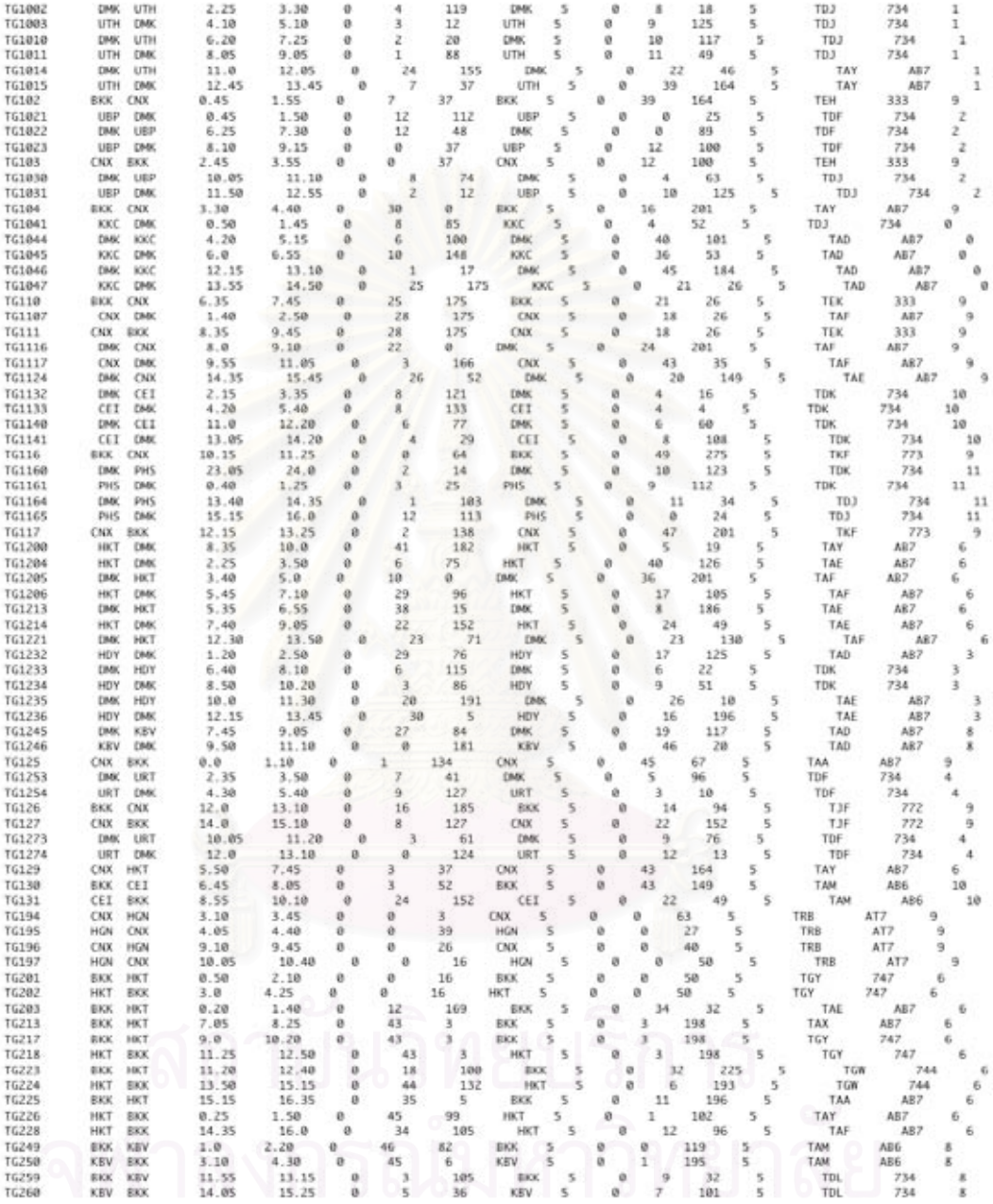
Figure 60: Flight data of 9/8/07

TG1002	DMK	UTH	2.25	3.30	0	4	98	DMK	5	0	8	39	5	TDF	734	1			
TG1003	UTH	DMK	4.10	5.10	0	4	57	UTH	5	0	8	80	5	TDF	734	1			
TG1010	DMK	UTH	6.20	7.25	0	7	80	DMK	5	0	5	57	5	TDF	734	1			
TG1011	UTH	DMK	8.05	9.05	0	12	39	UTH	5	0	0	98	5	TDF	734	1			
TG1014	DMK	UTH	11.0	12.05	0	2	82	DMK	5	0	10	55	5	TDJ	734	1			
TG1015	UTH	DMK	12.45	13.45	0	8	20	UTH	5	0	4	117	5	TDJ	734	1			
TG102	BKK	CNX	0.45	1.55	0	0	126	BKK	5	0	46	75	5	TAN	AB6	9			
TG1021	UBP	DMK	0.45	1.50	0	1	101	UBP	5	0	11	36	5	TDK	734	2			
TG1022	DMK	UBP	6.25	7.30	0	10	18	DMK	5	0	2	119	5	TDK	734	2			
TG1023	UBP	DMK	8.10	9.15	0	3	68	UBP	5	0	9	69	5	TDK	734	2			
TG103	CNX	BKK	2.45	3.55	0	26	67	CNX	5	0	20	134	5	TAN	AB6	9			
TG1030	DMK	UBP	10.05	11.10	0	0	109	DMK	5	0	12	28	5	TDF	734	2			
TG1031	UBP	DMK	11.50	12.55	0	11	74	UBP	5	0	1	63	5	TDF	734	2			
TG104	BKK	CNX	3.30	4.40	0	37	77	BKK	5	0	9	124	5	TAF	AB7	9			
TG1041	KKC	DMK	0.50	1.45	0	2	9	KKC	5	0	10	128	5	TDF	734	0			
TG1044	DMK	KKC	4.20	5.15	0	25	15	DMK	5	0	21	186	5	TAE	AB7	0			
TG1045	KKC	DMK	6.0	6.55	0	45	112	KKC	5	0	1	89	5	TAE	AB7	0			
TG1046	DMK	KKC	12.15	13.10	0	26	174	DMK	5	0	20	27	5	TAE	AB7	0			
TG1047	KKC	DMK	13.55	14.50	0	12	187	KKC	5	0	34	14	5	TAE	AB7	0			
TG110	BKK	CNX	5.30	6.40	0	1	13	BKK	5	0	45	188	5	TAW	AB7	9			
TG1107	CNX	DMK	1.40	2.50	0	13	183	CNX	5	0	33	18	5	TAX	AB7	9			
TG111	CNX	BKK	7.30	8.40	0	23	145	CNX	5	0	23	56	5	TAW	AB7	9			
TG1116	DMK	CNX	8.0	9.10	0	28	108	DMK	5	0	18	93	5	TAX	AB7	9			
TG1117	CNX	DMK	9.55	11.05	0	4	136	CNX	5	0	42	85	5	TAX	AB7	9			
TG1124	DMK	CNX	14.35	15.45	0	36	155	DMK	5	0	10	46	5	TAD	AB7	9			
TG1132	DMK	CEI	2.15	3.35	0	8	125	DMK	5	0	4	12	5	TDJ	734	10			
TG1133	CEI	DMK	4.20	5.40	0	2	89	CEI	5	0	10	48	5	TDJ	734	10			
TG1140	DMK	CEI	11.0	12.20	0	0	137	DMK	5	0	46	64	5	TAW	AB7	10			
TG1141	CEI	DMK	13.05	14.20	0	20	81	CEI	5	0	26	120	5	TAW	AB7	10			
TG116	BKK	CNX	10.15	11.25	0	45	165	BKK	5	0	4	174	5	TKF	773	9			
TG1160	DMK	PHS	23.05	24.0	0	0	47	DMK	5	0	12	90	5	TDF	734	11			
TG1161	PHS	DMK	0.40	1.25	0	2	130	PHS	5	0	10	7	5	TDJ	734	11			
TG1164	DMK	PHS	13.40	14.35	0	4	18	DMK	5	0	8	119	5	TDF	734	11			
TG1165	PHS	DMK	15.15	16.0	0	5	17	PHS	5	0	7	120	5	TDF	734	11			
TG117	CNX	BKK	12.15	13.25	0	2	336	CNX	5	0	47	3	5	TKF	773	9			
TG1200	HKT	DMK	8.35	10.0	0	13	33	HKT	5	0	33	168	5	TAF	AB7	6			
TG1204	HKT	DMK	2.25	3.50	0	0	129	HKT	5	0	46	72	5	TAD	AB7	6			
TG1205	DMK	HKT	3.40	5.0	0	22	153	DMK	5	0	24	48	5	TAX	AB7	6			
TG1206	HKT	DMK	5.45	7.10	0	13	111	HKT	5	0	33	90	5	TAX	AB7	6			
TG1213	DMK	HKT	5.35	6.55	0	14	132	DMK	5	0	32	69	5	TAD	AB7	6			
TG1214	HKT	DMK	7.40	9.05	0	22	15	HKT	5	0	24	186	5	TAD	AB7	6			
TG1221	DMK	HKT	12.30	13.50	0	13	5	DMK	5	0	33	196	5	TAX	AB7	6			
TG1232	HDY	DMK	1.20	2.50	0	23	172	HDY	5	0	23	29	5	TAE	AB7	3			
TG1233	DMK	HDY	6.40	8.10	0	8	119	DMK	5	0	4	18	5	TDJ	734	3			
TG1234	HDY	DMK	8.50	10.20	0	7	59	HDY	5	0	5	78	5	TDJ	734	3			
TG1235	DMK	HDY	10.0	11.30	0	12	168	DMK	5	0	34	33	5	TAD	AB7	3			
TG1236	HDY	DMK	12.15	13.45	0	0	147	HDY	5	0	46	54	5	TAD	AB7	3			
TG1245	DMK	KBV	7.45	9.05	0	25	140	DMK	5	0	21	61	5	TAE	AB7	8			
TG1246	KBV	DMK	9.50	11.10	0	21	89	KBV	5	0	25	112	5	TAE	AB7	8			
TG125	CNX	BKK	0.0	1.10	0	8	185	CNX	5	0	38	16	5	TAF	AB7	9			
TG1253	DMK	URT	2.35	3.50	0	1	137	DMK	5	0	11	0	5	TDK	734	4			
TG1254	URT	DMK	4.30	5.40	0	1	63	URT	5	0	11	74	5	TDK	734	4			
TG126	BKK	CNX	12.0	13.10	0	17	196	BKK	5	0	13	83	5	TJE	772	9			
TG127	CNX	BKK	14.0	15.10	0	17	93	CNX	5	0	13	186	5	TJE	772	9			
TG1273	DMK	URT	10.05	11.20	0	8	43	DMK	5	0	4	94	5	TDK	734	4			
TG1274	URT	DMK	12.0	13.10	0	1	44	URT	5	0	11	93	5	TDK	734	4			
TG129	CNX	HKT	5.50	7.45	0	1	10	CNX	5	0	45	191	5	TAF	AB7	6			
TG130	BKK	CEI	6.45	8.05	0	34	180	BKK	5	0	12	21	5	TAN	AB6	10			
TG131	CEI	BKK	8.55	10.10	0	8	78	CEI	5	0	38	123	5	TAN	AB6	10			
TG194	CNX	HGN	3.10	3.45	0	0	32	CNX	5	0	0	34	5	TRB	AT7	9			
TG195	HGN	CNX	4.05	4.40	0	0	25	HGN	5	0	0	41	5	TRB	AT7	9			
TG196	CNX	HGN	9.10	9.45	0	0	3	CNX	5	0	0	63	5	TRB	AT7	9			
TG197	HGN	CNX	10.05	10.40	0	0	24	HGN	5	0	0	42	5	TRB	AT7	9			
TG201	BKK	HKT	0.50	2.10	0	11	260	BKK	5	0	39	65	5	TGH	744	6			
TG202	HKT	BKK	3.0	4.25	0	38	292	HKT	5	0	12	33	5	TGH	744	6			
TG203	BKK	HKT	0.20	1.40	0	35	57	BKK	5	0	11	144	5	TAD	AB7	6			
TG213	BKK	HKT	7.05	8.25	0	10	265	BKK	5	0	20	14	5	TJH	772	6			
TG214	HKT	BKK	9.15	10.40	0	24	155	HKT	5	0	6	124	5	TJH	772	6			
TG217	BKK	HKT	9.0	10.20	0	21	260	BKK	5	0	29	65	5	TGN	744	6			
TG218	HKT	BKK	11.25	12.50	0	41	83	HKT	5	0	9	242	5	TGN	744	6			
TG223	BKK	HKT	11.20	12.40	0	37	273	BKK	5	0	13	52	5	TGH	744	6			
TG224	HKT	BKK	13.50	15.15	0	49	22	HKT	5	0	1	303	5	TGH	744	6			
TG225	BKK	HKT	15.15	16.35	0	29	60	BKK	5	0	17	141	5	TAP	AB6	6			
TG226	HKT	BKK	0.25	1.50	0	36	144	HKT	5	0	10	57	5	TAY	AB7	6			
TG228	HKT	BKK	14.35	16.0	0	16	112	HKT	5	0	30	89	5	TAX	AB7	6			
TG249	BKK	KBV	1.0	2.20	0	9	47	BKK	5	0	37	154	5	TAW	AB7	8			
TG250	KBV	BKK	3.10	4.30	0	3	125	KBV	5	0	43	76	5	TAW	AB7	8			
TG259	BKK	KBV	11.55	13.15	0	4	55	BKK	5	0	8	82	5	TDL	734	8			
TG260	KBV	BKK	14.05	15.25	0	4	62	KBV	5	0	8	75	5	TDL	734	8			

Figure 61: Flight data of 10/8/07

TG1002	DMK	UTH	2.25	3.30	0	1	76	DMK	5	0	11	61	5	TDK	734	1
TG1003	UTH	DMK	4.10	5.10	0	5	109	UTH	5	0	7	28	5	TDK	734	1
TG1010	DMK	UTH	6.20	7.25	0	6	30	DMK	5	0	6	107	5	TDK	734	1
TG1011	UTH	DMK	8.05	9.05	0	1	33	UTH	5	0	11	104	5	TDK	734	1
TG1014	DMK	UTH	11.0	12.05	0	17	104	DMK	5	0	29	97	5	TAD	AB7	1
TG1015	UTH	DMK	12.45	13.45	0	18	153	UTH	5	0	28	48	5	TAD	AB7	1
TG102	BKK	CNX	0.45	1.55	0	18	153	BKK	5	0	28	48	5	TEJ	333	9
TG1020	DMK	UBP	23.0	0.05	0	5	61	DMK	5	0	7	76	5	TDF	734	2
TG1021	UBP	DMK	0.45	1.50	0	4	11	UBP	5	0	8	126	5	TDJ	734	2
TG1022	DMK	UBP	6.25	7.30	0	11	5	DMK	5	0	1	132	5	TDJ	734	2
TG1023	UBP	DMK	8.10	9.15	0	1	104	UBP	5	0	11	33	5	TDJ	734	2
TG103	CNX	BKK	2.45	3.55	0	1	104	CNX	5	0	11	33	5	TEJ	333	9
TG1030	DMK	UBP	10.05	11.10	0	12	54	DMK	5	0	0	83	5	TDK	734	2
TG1031	UBP	DMK	11.50	12.55	0	9	24	UBP	5	0	3	113	5	TDK	734	2
TG104	BKK	CNX	3.30	4.40	0	31	92	BKK	5	0	15	109	5	TAD	AB7	9
TG1041	KKC	DMK	0.50	1.45	0	0	22	KKC	5	0	12	115	5	TDK	734	0
TG1044	DMK	KKC	4.20	5.15	0	3	109	DMK	5	0	43	92	5	TAF	AB7	0
TG1045	KKC	DMK	6.0	6.55	0	1	44	KKC	5	0	45	157	5	TAF	AB7	0
TG1046	DMK	KKC	12.15	13.10	0	7	154	DMK	5	0	39	47	5	TAF	AB7	0
TG1047	KKC	DMK	13.55	14.50	0	11	50	KKC	5	0	35	151	5	TAF	AB7	0
TG110	BKK	CNX	5.30	6.40	0	11	50	BKK	5	0	35	151	5	TEE	333	9
TG1107	CNX	DMK	1.40	2.50	0	45	30	CNX	5	0	1	171	5	TAE	AB7	9
TG111	CNX	BKK	7.30	8.40	0	45	30	CNX	5	0	1	171	5	TEE	333	9
TG1116	DMK	CNX	8.0	9.10	0	1	86	DMK	5	0	45	115	5	TAE	AB7	9
TG1117	CNX	DMK	9.55	11.05	0	15	135	CNX	5	0	31	66	5	TAE	AB7	9
TG1124	DMK	CNX	14.35	15.45	0	43	11	DMK	5	0	3	190	5	TAA	AB7	9
TG1132	DMK	CEI	2.15	3.35	0	9	100	DMK	5	0	3	37	5	TDF	734	10
TG1133	CEI	DMK	4.20	5.40	0	7	57	CEI	5	0	5	80	5	TDF	734	10
TG1140	DMK	CEI	11.0	12.20	0	10	106	DMK	5	0	2	31	5	TDF	734	10
TG1141	CEI	DMK	13.05	14.20	0	7	22	CEI	5	0	5	115	5	TDF	734	10
TG116	BKK	CNX	10.15	11.25	0	23	80	BKK	5	0	26	259	5	TKF	773	9
TG1160	DMK	PHS	23.05	24.0	0	7	13	DMK	5	0	5	124	5	TDK	734	11
TG1161	PHS	DMK	0.40	1.25	0	10	56	PHS	5	0	2	81	5	TDF	734	11
TG1164	DMK	PHS	13.40	14.35	0	3	118	DMK	5	0	9	19	5	TDK	734	11
TG1165	PHS	DMK	15.15	16.0	0	11	99	PHS	5	0	1	38	5	TDK	734	11
TG117	CNX	BKK	12.15	13.25	0	14	5	CNX	5	0	35	334	5	TKF	773	9
TG1200	HKT	DMK	8.35	10.0	0	33	46	HKT	5	0	13	155	5	TAD	AB7	6
TG1204	HKT	DMK	2.25	3.50	0	2	15	HKT	5	0	44	186	5	TAA	AB7	6
TG1205	DMK	HKT	3.40	5.0	0	13	81	DMK	5	0	33	120	5	TAE	AB7	6
TG1206	HKT	DMK	5.45	7.10	0	39	178	HKT	5	0	7	23	5	TAE	AB7	6
TG1213	DMK	HKT	5.35	6.55	0	8	23	DMK	5	0	38	178	5	TAA	AB7	6
TG1214	HKT	DMK	7.40	9.05	0	26	201	HKT	5	0	20	0	5	TAA	AB7	6
TG1221	DMK	HKT	12.30	13.50	0	46	111	DMK	5	0	0	90	5	TAE	AB7	6
TG1232	HDY	DMK	1.20	2.50	0	42	75	HDY	5	0	4	126	5	TAF	AB7	3
TG1233	DMK	HDY	6.40	8.10	0	11	26	DMK	5	0	1	111	5	TDF	734	3
TG1234	HDY	DMK	8.50	10.20	0	2	1	HDY	5	0	10	136	5	TDF	734	3
TG1235	DMK	HDY	10.0	11.30	0	44	34	DMK	5	0	2	167	5	TAA	AB7	3
TG1236	HDY	DMK	12.15	13.45	0	3	167	HDY	5	0	43	34	5	TAA	AB7	3
TG1245	DMK	KBV	7.45	9.05	0	5	91	DMK	5	0	41	110	5	TAF	AB7	8
TG1246	KBV	DMK	9.50	11.10	0	7	201	KBV	5	0	39	0	5	TAF	AB7	8
TG125	CNX	BKK	0.0	1.10	0	24	13	CNX	5	0	22	188	5	TAD	AB7	9
TG1253	DMK	URT	2.35	3.50	0	1	23	DMK	5	0	11	114	5	TDJ	734	4
TG1254	URT	DMK	4.30	5.40	0	4	82	URT	5	0	8	55	5	TDJ	734	4
TG126	BKK	CNX	12.0	13.10	0	3	207	BKK	5	0	46	132	5	TKD	773	9
TG127	CNX	BKK	14.0	15.10	0	19	185	CNX	5	0	30	154	5	TKD	773	9
TG1273	DMK	URT	10.05	11.20	0	1	133	DMK	5	0	11	4	5	TDJ	734	4
TG1274	URT	DMK	12.0	13.10	0	11	91	URT	5	0	1	46	5	TDJ	734	4
TG129	CNX	HKT	5.50	7.45	0	42	25	CNX	5	0	4	176	5	TAD	AB7	6
TG130	BKK	CEI	6.45	8.05	0	10	140	BKK	5	0	36	61	5	TAL	AB6	10
TG131	CEI	BKK	8.55	10.10	0	17	99	CEI	5	0	29	102	5	TAL	AB6	10
TG194	CNX	HGN	3.10	3.45	0	0	25	CNX	5	0	0	41	5	TRB	AT7	9
TG195	HGN	CNX	4.05	4.40	0	0	57	HGN	5	0	0	9	5	TRB	AT7	9
TG196	CNX	HGN	9.10	9.45	0	0	27	CNX	5	0	0	39	5	TRB	AT7	9
TG197	HGN	CNX	10.05	10.40	0	0	31	HGN	5	0	0	35	5	TRB	AT7	9
TG201	BKK	HKT	0.50	2.10	0	0	200	BKK	5	0	30	79	5	TJA	772	6
TG202	HKT	BKK	3.0	4.25	0	15	69	HKT	5	0	15	210	5	TJA	772	6
TG203	BKK	HKT	0.20	1.40	0	43	126	BKK	5	0	3	75	5	TAA	AB7	6
TG213	BKK	HKT	7.05	8.25	0	37	45	BKK	5	0	9	156	5	TAM	AB6	6
TG214	HKT	BKK	9.15	10.40	0	25	37	HKT	5	0	21	164	5	TAM	AB6	6
TG217	BKK	HKT	9.0	10.20	0	25	37	BKK	5	0	21	164	5	TGB	747	6
TG218	HKT	BKK	11.25	12.50	0	25	37	HKT	5	0	21	164	5	TGB	747	6
TG223	BKK	HKT	11.20	12.40	0	36	248	BKK	5	0	14	77	5	TGX	744	6
TG224	HKT	BKK	13.50	15.15	0	39	152	HKT	5	0	11	173	5	TGX	744	6
TG225	BKK	HKT	15.15	16.35	0	9	26	BKK	5	0	37	175	5	TAY	AB7	6
TG226	HKT	BKK	0.25	1.50	0	18	108	HKT	5	0	28	93	5	TAP	AB6	6
TG228	HKT	BKK	14.35	16.0	0	9	32	HKT	5	0	37	169	5	TAE	AB7	6
TG249	BKK	KBV	1.0	2.20	0	41	32	BKK	5	0	5	169	5	TAL	AB6	8
TG250	KBV	BKK	3.10	4.30	0	18	72	KBV	5	0	28	129	5	TAL	AB6	8
TG259	BKK	KBV	11.55	13.15	0	38	12	BKK	5	0	8	189	5	TAL	AB6	8
TG260	KBV	BKK	14.05	15.25	0	23	180	KBV	5	0	23	21	5	TAL	AB6	8

Figure 62: Flight data of 11/8/07

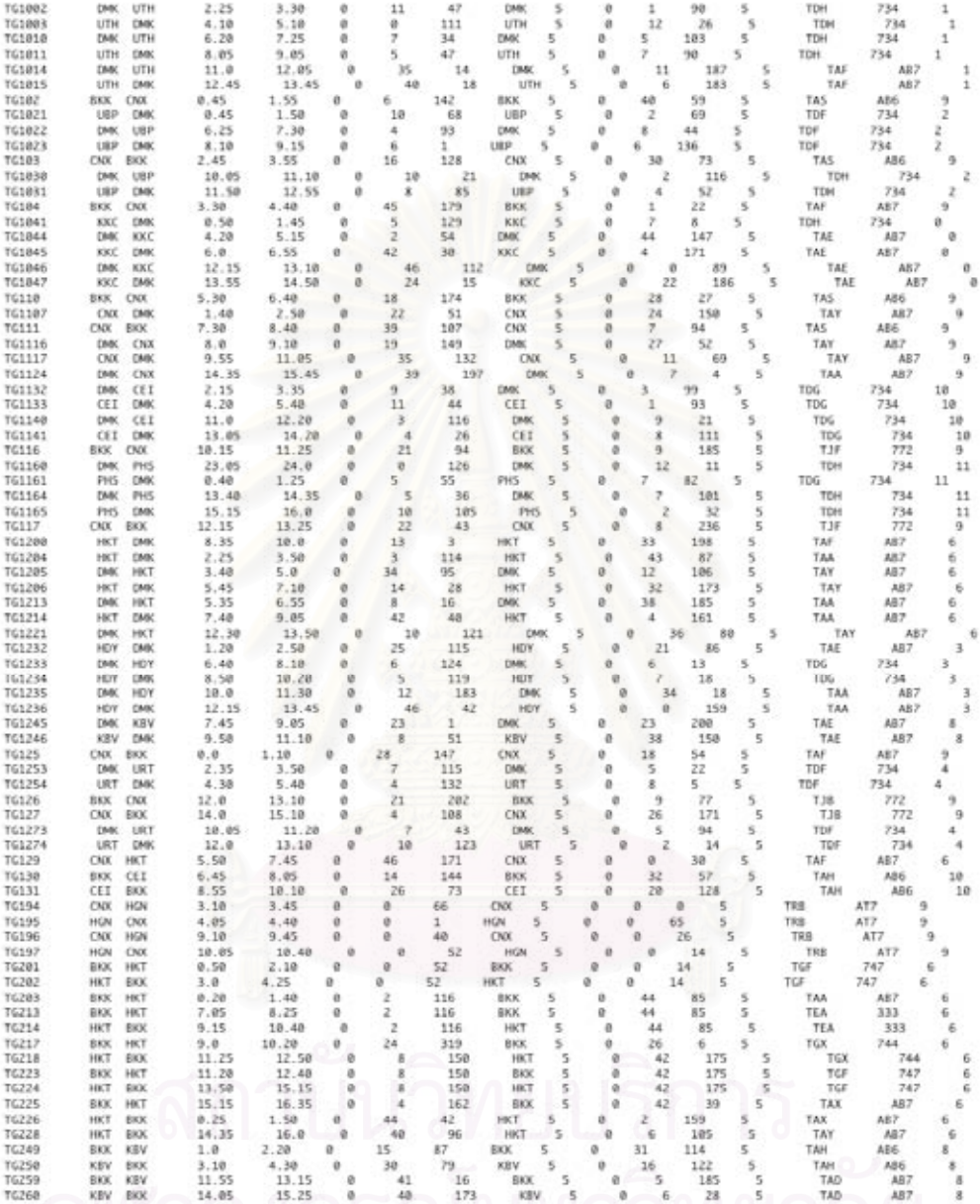


TG1002	DMK	UTH	2.25	3.30	0	4	119	DMK	5	0	8	18	5	TDJ	734	1			
TG1003	UTH	DMK	4.10	5.10	0	3	12	UTH	5	0	9	125	5	TDJ	734	1			
TG1010	DMK	UTH	6.20	7.25	0	2	20	DMK	5	0	10	117	5	TDJ	734	1			
TG1011	UTH	DMK	8.05	9.05	0	1	88	UTH	5	0	11	49	5	TDJ	734	1			
TG1014	DMK	UTH	11.0	12.05	0	24	155	DMK	5	0	22	46	5	TAY	AB7	1			
TG1015	UTH	DMK	12.45	13.45	0	7	37	UTH	5	0	39	164	5	TAY	AB7	1			
TG102	BKK	CNX	0.45	1.55	0	7	37	BKK	5	0	39	164	5	TEH	333	9			
TG1021	UBP	DMK	0.45	1.50	0	12	112	UBP	5	0	0	25	5	TDF	734	2			
TG1022	DMK	UBP	6.25	7.30	0	12	48	DMK	5	0	0	89	5	TDF	734	2			
TG1023	UBP	DMK	8.10	9.15	0	0	37	UBP	5	0	12	100	5	TDF	734	2			
TG103	CNX	BKK	2.45	3.55	0	0	37	CNX	5	0	12	100	5	TEH	333	9			
TG1030	DMK	UBP	10.05	11.10	0	8	74	DMK	5	0	4	63	5	TDJ	734	2			
TG1031	UBP	DMK	11.50	12.55	0	2	12	UBP	5	0	10	125	5	TDJ	734	2			
TG104	BKK	CNX	3.30	4.40	0	30	0	BKK	5	0	16	201	5	TAY	AB7	9			
TG1041	KKC	DMK	0.50	1.45	0	8	85	KKC	5	0	4	52	5	TDJ	734	0			
TG1044	DMK	KKC	4.20	5.15	0	6	100	DMK	5	0	40	101	5	TAD	AB7	0			
TG1045	KKC	DMK	6.0	6.55	0	10	148	KKC	5	0	36	53	5	TAD	AB7	0			
TG1046	DMK	KKC	12.15	13.10	0	1	17	DMK	5	0	45	184	5	TAD	AB7	0			
TG1047	KKC	DMK	13.55	14.50	0	25	175	KKC	5	0	21	26	5	TAD	AB7	0			
TG110	BKK	CNX	6.35	7.45	0	25	175	BKK	5	0	21	26	5	TEK	333	9			
TG1107	CNX	DMK	1.40	2.50	0	28	175	CNX	5	0	18	26	5	TAF	AB7	9			
TG111	CNX	BKK	8.35	9.45	0	28	175	CNX	5	0	18	26	5	TEK	333	9			
TG1116	DMK	CNX	8.0	9.10	0	22	0	DMK	5	0	24	201	5	TAF	AB7	9			
TG1117	CNX	DMK	9.55	11.05	0	3	166	CNX	5	0	43	35	5	TAF	AB7	9			
TG1124	DMK	CNX	14.35	15.45	0	26	52	DMK	5	0	20	140	5	TAE	AB7	9			
TG1132	DMK	CEI	2.15	3.35	0	8	121	DMK	5	0	4	16	5	TDK	734	10			
TG1133	CEI	DMK	4.20	5.40	0	8	133	CEI	5	0	4	4	5	TDK	734	10			
TG1140	DMK	CEI	11.0	12.20	0	6	77	DMK	5	0	6	60	5	TDK	734	10			
TG1141	CEI	DMK	13.05	14.20	0	4	29	CEI	5	0	8	108	5	TDK	734	10			
TG116	BKK	CNX	10.15	11.25	0	0	64	BKK	5	0	49	275	5	TKF	773	9			
TG1160	DMK	PHS	23.05	24.0	0	2	14	DMK	5	0	10	123	5	TDK	734	11			
TG1161	PHS	DMK	0.40	1.25	0	3	25	PHS	5	0	9	112	5	TDK	734	11			
TG1164	DMK	PHS	13.40	14.35	0	1	103	DMK	5	0	11	34	5	TDJ	734	11			
TG1165	PHS	DMK	15.15	16.0	0	12	113	PHS	5	0	0	24	5	TDJ	734	11			
TG117	CNX	BKK	12.15	13.25	0	2	138	CNX	5	0	47	201	5	TKF	773	9			
TG1200	HKT	DMK	8.35	10.0	0	41	182	HKT	5	0	5	19	5	TAY	AB7	6			
TG1204	HKT	DMK	2.25	3.50	0	6	75	HKT	5	0	40	126	5	TAE	AB7	6			
TG1205	DMK	HKT	3.40	5.0	0	10	0	DMK	5	0	36	201	5	TAF	AB7	6			
TG1206	HKT	DMK	5.45	7.10	0	29	96	HKT	5	0	17	105	5	TAF	AB7	6			
TG1213	DMK	HKT	5.35	6.55	0	38	15	DMK	5	0	8	186	5	TAE	AB7	6			
TG1214	HKT	DMK	7.40	9.05	0	22	152	HKT	5	0	24	49	5	TAE	AB7	6			
TG1221	DMK	HKT	12.30	13.50	0	23	71	DMK	5	0	23	130	5	TAF	AB7	6			
TG1232	HDY	DMK	1.20	2.50	0	29	76	HDY	5	0	17	125	5	TAD	AB7	3			
TG1233	DMK	HDY	6.40	8.10	0	6	115	DMK	5	0	6	22	5	TDK	734	3			
TG1234	HDY	DMK	8.50	10.20	0	3	86	HDY	5	0	9	51	5	TDK	734	3			
TG1235	DMK	HDY	10.0	11.30	0	20	191	DMK	5	0	26	10	5	TAE	AB7	3			
TG1236	HDY	DMK	12.15	13.45	0	30	5	HDY	5	0	16	196	5	TAE	AB7	3			
TG1245	DMK	KBV	7.45	9.05	0	27	84	DMK	5	0	19	117	5	TAD	AB7	8			
TG1246	KBV	DMK	9.50	11.10	0	0	181	KBV	5	0	46	20	5	TAD	AB7	8			
TG125	CNX	BKK	0.0	1.10	0	1	134	CNX	5	0	45	67	5	TAA	AB7	9			
TG1253	DMK	URT	2.35	3.50	0	7	41	DMK	5	0	5	96	5	TDF	734	4			
TG1254	URT	DMK	4.30	5.40	0	9	127	URT	5	0	3	10	5	TDF	734	4			
TG126	BKK	CNX	12.0	13.10	0	16	185	BKK	5	0	14	94	5	TJF	772	9			
TG127	CNX	BKK	14.0	15.10	0	8	127	CNX	5	0	22	152	5	TJF	772	9			
TG1273	DMK	URT	10.05	11.20	0	3	61	DMK	5	0	9	76	5	TDF	734	4			
TG1274	URT	DMK	12.0	13.10	0	0	124	URT	5	0	12	13	5	TDF	734	4			
TG129	CNX	HKT	5.50	7.45	0	3	37	CNX	5	0	43	164	5	TAY	AB7	6			
TG130	BKK	CEI	6.45	8.05	0	3	52	BKK	5	0	43	149	5	TAM	AB6	10			
TG131	CEI	BKK	8.55	10.10	0	24	152	CEI	5	0	22	49	5	TAM	AB6	10			
TG194	CNX	HGN	3.10	3.45	0	0	3	CNX	5	0	0	63	5	TRB	AT7	9			
TG195	HGN	CNX	4.05	4.40	0	0	39	HGN	5	0	0	27	5	TRB	AT7	9			
TG196	CNX	HGN	9.10	9.45	0	0	26	CNX	5	0	0	40	5	TRB	AT7	9			
TG197	HGN	CNX	10.05	10.40	0	0	16	HGN	5	0	0	50	5	TRB	AT7	9			
TG201	BKK	HKT	0.50	2.10	0	0	16	BKK	5	0	0	50	5	TGY	747	6			
TG202	HKT	BKK	3.0	4.25	0	0	16	HKT	5	0	0	50	5	TGY	747	6			
TG203	BKK	HKT	0.20	1.40	0	12	169	BKK	5	0	34	32	5	TAE	AB7	6			
TG213	BKK	HKT	7.05	8.25	0	43	3	BKK	5	0	3	198	5	TAX	AB7	6			
TG217	BKK	HKT	9.0	10.20	0	43	3	BKK	5	0	3	198	5	TGY	747	6			
TG218	HKT	BKK	11.25	12.50	0	43	3	HKT	5	0	3	198	5	TGY	747	6			
TG223	BKK	HKT	11.20	12.40	0	18	100	BKK	5	0	32	225	5	TGW	744	6			
TG224	HKT	BKK	13.50	15.15	0	44	132	HKT	5	0	6	193	5	TGW	744	6			
TG225	BKK	HKT	15.15	16.35	0	35	5	BKK	5	0	11	196	5	TAA	AB7	6			
TG226	HKT	BKK	0.25	1.50	0	45	99	HKT	5	0	1	102	5	TAY	AB7	6			
TG228	HKT	BKK	14.35	16.0	0	34	105	HKT	5	0	12	96	5	TAF	AB7	6			
TG249	BKK	KBV	1.0	2.20	0	46	82	BKK	5	0	0	119	5	TAM	AB6	8			
TG250	KBV	BKK	3.10	4.30	0	45	6	KBV	5	0	1	195	5	TAM	AB6	8			
TG259	BKK	KBV	11.55	13.15	0	3	105	BKK	5	0	9	32	5	TDL	734	8			
TG260	KBV	BKK	14.05	15.25	0	5	36	KBV	5	0	7	101	5	TDL	734	8			

Figure 63: Flight data of 12/8/07

TG1002	DMK	UTH	2.25	3.30	0	8	59	DMK	5	0	4	78	5	TDF	734	1			
TG1003	UTH	DMK	4.10	5.10	0	9	93	UTH	5	0	3	44	5	TDF	734	1			
TG1010	DMK	UTH	6.20	7.25	0	9	13	DMK	5	0	3	124	5	TDF	734	1			
TG1011	UTH	DMK	8.05	9.05	0	12	52	UTH	5	0	0	85	5	TDF	734	1			
TG1014	DMK	UTH	11.0	12.05	0	10	117	DMK	5	0	2	20	5	TDH	734	1			
TG1015	UTH	DMK	12.45	13.45	0	7	10	UTH	5	0	5	127	5	TDH	734	1			
TG102	BKK	CNX	0.45	1.55	0	42	113	BKK	5	0	4	88	5	TAO	AB6	9			
TG1021	UBP	DMK	0.45	1.50	0	1	129	UBP	5	0	11	8	5	TDJ	734	2			
TG1022	DMK	UBP	6.25	7.30	0	7	118	DMK	5	0	5	19	5	TDJ	734	2			
TG1023	UBP	DMK	8.10	9.15	0	9	127	UBP	5	0	3	10	5	TDJ	734	2			
TG103	CNX	BKK	2.45	3.55	0	26	1	CNX	5	0	20	200	5	TAO	AB6	9			
TG1030	DMK	UBP	10.05	11.10	0	8	7	DMK	5	0	4	130	5	TDF	734	2			
TG1031	UBP	DMK	11.50	12.55	0	5	83	UBP	5	0	7	54	5	TDF	734	2			
TG104	BKK	CNX	3.30	4.40	0	19	25	BKK	5	0	27	176	5	TAE	AB7	9			
TG1041	KKC	DMK	0.50	1.45	0	6	39	KKC	5	0	6	98	5	TDF	734	0			
TG1044	DMK	KKC	4.20	5.15	0	10	27	DMK	5	0	36	174	5	TAY	AB7	0			
TG1045	KKC	DMK	6.0	6.55	0	2	167	KKC	5	0	44	34	5	TAY	AB7	0			
TG1046	DMK	KKC	12.15	13.10	0	44	88	DMK	5	0	2	113	5	TAY	AB7	0			
TG1047	KKC	DMK	13.55	14.50	0	5	177	KKC	5	0	41	24	5	TAY	AB7	0			
TG110	BKK	CNX	5.30	6.40	0	15	118	BKK	5	0	31	83	5	TAO	AB6	9			
TG1107	CNX	DMK	1.40	2.50	0	4	156	CNX	5	0	42	45	5	TAD	AB7	9			
TG111	CNX	BKK	7.30	8.40	0	30	127	CNX	5	0	16	74	5	TAO	AB6	9			
TG1116	DMK	CNX	8.0	9.10	0	43	180	DMK	5	0	3	21	5	TAD	AB7	9			
TG1117	CNX	DMK	9.55	11.05	0	27	47	CNX	5	0	19	154	5	TAD	AB7	9			
TG1124	DMK	CNX	14.35	15.45	0	1	194	DMK	5	0	45	7	5	TAF	AB7	9			
TG1132	DMK	CEI	2.15	3.35	0	12	54	DMK	5	0	0	83	5	TDK	734	10			
TG1133	CEI	DMK	4.20	5.40	0	4	133	CEI	5	0	8	4	5	TDK	734	10			
TG1140	DMK	CEI	11.0	12.20	0	46	169	DMK	5	0	0	32	5	TAE	AB7	10			
TG1141	CEI	DMK	13.05	14.20	0	29	161	CEI	5	0	17	40	5	TAE	AB7	10			
TG116	BKK	CNX	10.15	11.25	0	20	188	BKK	5	0	29	151	5	TKF	773	9			
TG1161	PHS	DMK	0.40	1.25	0	11	21	PHS	5	0	1	116	5	TDK	734	11			
TG1164	DMK	PHS	13.40	14.35	0	0	44	DMK	5	0	12	93	5	TDF	734	11			
TG1165	PHS	DMK	15.15	16.0	0	10	88	PHS	5	0	2	49	5	TDF	734	11			
TG117	CNX	BKK	12.15	13.25	0	35	213	CNX	5	0	14	126	5	TKF	773	9			
TG1200	HKT	DMK	8.35	10.0	0	20	18	HKT	5	0	26	183	5	TAE	AB7	6			
TG1204	HKT	DMK	2.25	3.50	0	25	73	HKT	5	0	21	128	5	TAF	AB7	6			
TG1205	DMK	HKT	3.40	5.0	0	23	63	DMK	5	0	23	138	5	TAD	AB7	6			
TG1206	HKT	DMK	5.45	7.10	0	42	161	HKT	5	0	4	40	5	TAD	AB7	6			
TG1213	DMK	HKT	5.35	6.55	0	0	192	DMK	5	0	46	9	5	TAF	AB7	6			
TG1214	HKT	DMK	7.40	9.05	0	23	37	HKT	5	0	23	164	5	TAF	AB7	6			
TG1221	DMK	HKT	12.30	13.50	0	20	59	DMK	5	0	26	142	5	TAD	AB7	6			
TG1232	HDY	DMK	1.20	2.50	0	7	184	HDY	5	0	39	17	5	TAY	AB7	3			
TG1233	DMK	HDY	6.40	8.10	0	4	6	DMK	5	0	8	131	5	TDH	734	3			
TG1234	HDY	DMK	8.50	10.20	0	0	90	HDY	5	0	12	47	5	TDH	734	3			
TG1235	DMK	HDY	10.0	11.30	0	36	117	DMK	5	0	10	84	5	TAF	AB7	3			
TG1236	HDY	DMK	12.15	13.45	0	14	201	HDY	5	0	32	0	5	TAF	AB7	3			
TG1245	DMK	KBV	7.45	9.05	0	42	69	DMK	5	0	4	132	5	TAY	AB7	8			
TG1246	KBV	DMK	9.50	11.10	0	35	193	KBV	5	0	11	8	5	TAY	AB7	8			
TG125	CNX	BKK	0.0	1.10	0	1	194	CNX	5	0	45	7	5	TAE	AB7	9			
TG1253	DMK	URT	2.35	3.50	0	10	47	DMK	5	0	2	90	5	TDJ	734	4			
TG1254	URT	DMK	4.30	5.40	0	11	84	URT	5	0	1	53	5	TDJ	734	4			
TG126	BKK	CNX	12.0	13.10	0	15	240	BKK	5	0	15	39	5	TJE	772	9			
TG127	CNX	BKK	14.0	15.10	0	9	268	CNX	5	0	21	11	5	TJE	772	9			
TG1273	DMK	URT	10.05	11.20	0	4	71	DMK	5	0	8	66	5	TDJ	734	4			
TG1274	URT	DMK	12.0	13.10	0	12	110	URT	5	0	0	27	5	TDJ	734	4			
TG129	CNX	HKT	5.50	7.45	0	5	70	CNX	5	0	41	131	5	TAE	AB7	6			
TG130	BKK	CEI	6.45	8.05	0	32	86	BKK	5	0	14	115	5	TAR	AB6	10			
TG131	CEI	BKK	8.55	10.10	0	36	30	CEI	5	0	10	171	5	TAR	AB6	10			
TG194	CNX	HGN	3.10	3.45	0	0	38	CNX	5	0	0	28	5	TRB	AT7	9			
TG195	HGN	CNX	4.05	4.40	0	0	19	HGN	5	0	0	47	5	TRB	AT7	9			
TG196	CNX	HGN	9.10	9.45	0	0	61	CNX	5	0	0	5	5	TRB	AT7	9			
TG197	HGN	CNX	10.05	10.40	0	0	51	HGN	5	0	0	15	5	TRB	AT7	9			
TG201	BKK	HKT	0.50	2.10	0	46	146	BKK	5	0	4	179	5	TGX	744	6			
TG202	HKT	BKK	3.0	4.25	0	11	80	HKT	5	0	39	245	5	TGX	744	6			
TG203	BKK	HKT	0.20	1.40	0	24	150	BKK	5	0	22	51	5	TAF	AB7	6			
TG213	BKK	HKT	7.05	8.25	0	39	192	BKK	5	0	7	9	5	TAG	AB6	6			
TG214	HKT	BKK	9.15	10.40	0	41	71	HKT	5	0	5	130	5	TAG	AB6	6			
TG217	BKK	HKT	9.0	10.20	0	15	63	BKK	5	0	35	262	5	TGN	744	6			
TG218	HKT	BKK	11.25	12.50	0	14	320	HKT	5	0	36	5	5	TGN	744	6			
TG223	BKK	HKT	11.20	12.40	0	28	260	BKK	5	0	22	65	5	TGT	744	6			
TG224	HKT	BKK	13.50	15.15	0	28	59	HKT	5	0	22	266	5	TGT	744	6			
TG225	BKK	HKT	15.15	16.35	0	20	80	BKK	5	0	26	121	5	TAX	AB7	6			
TG226	HKT	BKK	0.25	1.50	0	11	112	HKT	5	0	35	89	5	TAA	AB7	6			
TG228	HKT	BKK	14.35	16.0	0	34	50	HKT	5	0	12	151	5	TAD	AB7	6			
TG249	BKK	KBV	1.0	2.20	0	29	193	BKK	5	0	17	8	5	TAR	AB6	8			
TG250	KBV	BKK	3.10	4.30	0	25	169	KBV	5	0	21	32	5	TAR	AB6	8			
TG259	BKK	KBV	11.55	13.15	0	11	163	BKK	5	0	35	38	5	TAT	AB7	8			
TG260	KBV	BKK	14.05	15.25	0	21	6	KBV	5	0	25	195	5	TAT	AB7	8			

Figure 64: Flight data of 13/8/07



TG1002	DMK	UTH	2.25	3.30	0	11	47	DMK	5	0	1	90	5	TDH	734	1							
TG1003	UTH	DMK	4.10	5.10	0	0	111	UTH	5	0	12	26	5	TDH	734	1							
TG1010	DMK	UTH	6.20	7.25	0	7	34	DMK	5	0	5	183	5	TDH	734	1							
TG1011	UTH	DMK	8.05	9.05	0	5	47	UTH	5	0	7	90	5	TDH	734	1							
TG1014	DMK	UTH	11.0	12.05	0	35	14	DMK	5	0	11	187	5	TAF	AB7	1							
TG1015	UTH	DMK	12.45	13.45	0	40	18	UTH	5	0	6	183	5	TAF	AB7	1							
TG102	BKK	CNX	0.45	1.55	0	6	142	BKK	5	0	40	59	5	TAS	AB6	9							
TG1021	UBP	DMK	0.45	1.50	0	10	68	UBP	5	0	2	69	5	TDF	734	2							
TG1022	DMK	UBP	6.25	7.30	0	4	93	DMK	5	0	8	44	5	TDF	734	2							
TG1023	UBP	DMK	8.10	9.15	0	6	1	UBP	5	0	6	136	5	TDF	734	2							
TG103	CNX	BKK	2.45	3.55	0	16	128	CNX	5	0	30	73	5	TAS	AB6	9							
TG1030	DMK	UBP	10.05	11.10	0	10	21	DMK	5	0	2	116	5	TDH	734	2							
TG1031	UBP	DMK	11.50	12.55	0	8	85	UBP	5	0	4	52	5	TDH	734	2							
TG104	BKK	CNX	3.30	4.40	0	45	179	BKK	5	0	1	22	5	TAF	AB7	9							
TG1041	KKC	DMK	0.50	1.45	0	5	129	KKC	5	0	7	8	5	TDH	734	0							
TG1044	DMK	KKC	4.20	5.15	0	2	54	DMK	5	0	44	147	5	TAE	AB7	0							
TG1045	KKC	DMK	6.0	6.55	0	42	30	KKC	5	0	4	171	5	TAE	AB7	0							
TG1046	DMK	KKC	12.15	13.10	0	46	112	DMK	5	0	0	89	5	TAE	AB7	0							
TG1047	KKC	DMK	13.55	14.50	0	24	15	KKC	5	0	22	186	5	TAE	AB7	0							
TG110	BKK	CNX	5.30	6.40	0	18	174	BKK	5	0	28	27	5	TAS	AB6	9							
TG1107	CNX	DMK	1.40	2.50	0	22	51	CNX	5	0	24	150	5	TAY	AB7	9							
TG111	CNX	BKK	7.30	8.40	0	39	107	CNX	5	0	7	94	5	TAS	AB6	9							
TG1116	DMK	CNX	8.0	9.10	0	19	149	DMK	5	0	27	52	5	TAY	AB7	9							
TG1117	CNX	DMK	9.55	11.05	0	35	132	CNX	5	0	11	69	5	TAY	AB7	9							
TG1124	DMK	CNX	14.35	15.45	0	39	197	DMK	5	0	7	4	5	TAA	AB7	9							
TG1132	DMK	CEI	2.15	3.35	0	9	38	DMK	5	0	3	99	5	TDG	734	10							
TG1133	CEI	DMK	4.20	5.40	0	11	44	CEI	5	0	1	93	5	TDG	734	10							
TG1140	DMK	CEI	11.0	12.20	0	3	116	DMK	5	0	9	21	5	TDG	734	10							
TG1141	CEI	DMK	13.05	14.20	0	4	26	CEI	5	0	8	111	5	TDG	734	10							
TG116	BKK	CNX	10.15	11.25	0	21	94	BKK	5	0	9	185	5	TJF	772	9							
TG1160	DMK	PHS	23.05	24.0	0	0	126	DMK	5	0	12	11	5	TDH	734	11							
TG1161	PHS	DMK	0.40	1.25	0	5	55	PHS	5	0	7	82	5	TDG	734	11							
TG1164	DMK	PHS	13.40	14.35	0	5	36	DMK	5	0	7	101	5	TDH	734	11							
TG1165	PHS	DMK	15.15	16.0	0	10	105	PHS	5	0	2	32	5	TDH	734	11							
TG117	CNX	BKK	12.15	13.25	0	22	43	CNX	5	0	8	236	5	TJF	772	9							
TG1200	HKT	DMK	8.35	10.0	0	13	3	HKT	5	0	33	198	5	TAF	AB7	6							
TG1204	HKT	DMK	2.25	3.50	0	3	114	HKT	5	0	43	87	5	TAA	AB7	6							
TG1205	DMK	HKT	3.40	5.0	0	34	95	DMK	5	0	12	106	5	TAY	AB7	6							
TG1206	HKT	DMK	5.45	7.10	0	14	28	HKT	5	0	32	173	5	TAY	AB7	6							
TG1213	DMK	HKT	5.35	6.55	0	8	16	DMK	5	0	38	185	5	TAA	AB7	6							
TG1214	HKT	DMK	7.40	9.05	0	42	48	HKT	5	0	4	161	5	TAA	AB7	6							
TG1221	DMK	HKT	12.30	13.50	0	10	121	DMK	5	0	36	80	5	TAY	AB7	6							
TG1232	HDY	DMK	1.20	2.50	0	25	115	HDY	5	0	21	86	5	TAE	AB7	3							
TG1233	DMK	HDY	6.40	8.10	0	6	124	DMK	5	0	6	13	5	TDG	734	3							
TG1234	HDY	DMK	8.50	10.20	0	5	119	HDY	5	0	7	18	5	TDG	734	3							
TG1235	DMK	HDY	10.0	11.30	0	12	183	DMK	5	0	34	18	5	TAA	AB7	3							
TG1236	HDY	DMK	12.15	13.45	0	46	42	HDY	5	0	0	159	5	TAA	AB7	3							
TG1245	DMK	KBV	7.45	9.05	0	23	1	DMK	5	0	23	200	5	TAE	AB7	8							
TG1246	KBV	DMK	9.50	11.10	0	8	51	KBV	5	0	38	150	5	TAE	AB7	8							
TG125	CNX	BKK	0.0	1.10	0	28	147	CNX	5	0	18	54	5	TAF	AB7	9							
TG1253	DMK	URT	2.35	3.50	0	7	115	DMK	5	0	5	22	5	TDF	734	4							
TG1254	URT	DMK	4.30	5.40	0	4	132	URT	5	0	8	5	5	TDF	734	4							
TG126	BKK	CNX	12.0	13.10	0	21	202	BKK	5	0	9	77	5	TJB	772	9							
TG127	CNX	BKK	14.0	15.10	0	4	108	CNX	5	0	26	171	5	TJB	772	9							
TG1273	DMK	URT	10.05	11.20	0	7	43	DMK	5	0	5	94	5	TDF	734	4							
TG1274	URT	DMK	12.0	13.10	0	10	123	URT	5	0	2	14	5	TDF	734	4							
TG129	CNX	HKT	5.50	7.45	0	46	171	CNX	5	0	0	30	5	TAF	AB7	6							
TG130	BKK	CEI	6.45	8.05	0	14	144	BKK	5	0	32	57	5	TAH	AB6	10							
TG131	CEI	BKK	8.55	10.10	0	26	73	CEI	5	0	20	128	5	TAH	AB6	10							
TG194	CNX	HGN	3.10	3.45	0	0	66	CNX	5	0	0	0	5	TRB	AT7	9							
TG195	HGN	CNX	4.05	4.40	0	0	1	HGN	5	0	0	65	5	TRB	AT7	9							
TG196	CNX	HGN	9.10	9.45	0	0	40	CNX	5	0	0	26	5	TRB	AT7	9							
TG197	HGN	CNX	10.05	10.40	0	0	52	HGN	5	0	0	14	5	TRB	AT7	9							
TG201	BKK	HKT	0.50	2.10	0	0	52	BKK	5	0	0	14	5	TGF	747	6							
TG202	HKT	BKK	3.0	4.25	0	0	52	HKT	5	0	0	14	5	TGF	747	6							
TG203	BKK	HKT	0.20	1.40	0	2	116	BKK	5	0	44	85	5	TAA	AB7	6							
TG213	BKK	HKT	7.05	8.25	0	2	116	BKK	5	0	44	85	5	TEA	333	6							
TG214	HKT	BKK	9.15	10.40	0	2	116	HKT	5	0	44	85	5	TEA	333	6							
TG217	BKK	HKT	9.0	10.20	0	24	319	BKK	5	0	26	6	5	TGX	744	6							
TG218	HKT	BKK	11.25	12.50	0	8	150	HKT	5	0	42	175	5	TGX	744	6							
TG223	BKK	HKT	11.20	12.40	0	8	150	BKK	5	0	42	175	5	TGF	747	6							
TG224	HKT	BKK	13.50	15.15	0	8	150	HKT	5	0	42	175	5	TGF	747	6							
TG225	BKK	HKT	15.15	16.35	0	4	162	BKK	5	0	42	39	5	TAX	AB7	6							
TG226	HKT	BKK	0.25	1.50	0	44	42	HKT	5	0	2	159	5	TAX	AB7	6							
TG228	HKT	BKK	14.35	16.0	0	40	96	HKT	5	0	6	105	5	TAY	AB7	6							
TG249	BKK	KBV	1.0	2.20	0	15	87	BKK	5	0	31	114	5	TAH	AB6	8							
TG250	KBV	BKK	3.10	4.30	0	30	79	KBV	5	0	16	122	5	TAH	AB6	8							
TG259	BKK	KBV	11.55	13.15	0	41	16	BKK	5	0	5	185	5	TAD	AB7	8							
TG260	KBV	BKK	14.05	15.25	0	40	173	KBV	5	0	6	28	5	TAD	AB7	8							

Figure 65: Flight data of 14/8/07

TG1002	DMK	UTH	2.25	3.30	0	7	74	DMK	5	0	5	63	5	TDF	734	1				
TG1003	UTH	DMK	4.10	5.10	0	4	119	UTH	5	0	8	18	5	TDF	734	1				
TG1010	DMK	UTH	6.20	7.25	0	4	117	DMK	5	0	8	20	5	TDF	734	1				
TG1011	UTH	DMK	8.05	9.05	0	11	137	UTH	5	0	1	0	5	TDF	734	1				
TG1014	DMK	UTH	11.0	12.05	0	42	36	DMK	5	0	4	165	5	TAA	A87	1				
TG1015	UTH	DMK	12.45	13.45	0	23	69	UTH	5	0	23	132	5	TAA	A87	1				
TG102	BKK	CNX	0.45	1.55	0	2	190	BKK	5	0	44	11	5	TAL	A86	9				
TG1021	UBP	DMK	0.45	1.50	0	2	111	UBP	5	0	10	26	5	TDG	734	2				
TG1022	DMK	UBP	6.25	7.30	0	11	0	DMK	5	0	1	137	5	TDG	734	2				
TG1023	UBP	DMK	8.10	9.15	0	7	13	UBP	5	0	5	124	5	TDG	734	2				
TG103	CNX	BKK	2.45	3.55	0	14	124	CNX	5	0	82	77	5	TAL	A86	9				
TG1030	DMK	UBP	10.05	11.10	0	2	14	DMK	5	0	10	123	5	TDF	734	2				
TG1031	UBP	DMK	11.50	12.55	0	8	132	UBP	5	0	4	5	5	TDF	734	2				
TG104	BKK	CNX	3.30	4.40	0	39	140	BKK	5	0	7	61	5	TAA	A87	9				
TG1041	KKC	DMK	0.50	1.45	0	11	128	KKC	5	0	1	9	5	TDF	734	0				
TG1044	DMK	KKC	4.20	5.15	0	13	76	DMK	5	0	33	125	5	TAE	A87	0				
TG1045	KKC	DMK	6.0	6.55	0	4	107	KKC	5	0	42	94	5	TAE	A87	0				
TG1046	DMK	KKC	12.15	13.10	0	9	125	DMK	5	0	37	76	5	TAF	A87	0				
TG1047	KKC	DMK	13.55	14.50	0	39	110	KKC	5	0	7	91	5	TAF	A87	0				
TG110	BKK	CNX	5.30	6.40	0	8	39	BKK	5	0	38	162	5	TAY	A87	9				
TG1107	CNX	DMK	1.40	2.50	0	19	96	CNX	5	0	27	105	5	TAE	A87	9				
TG111	CNX	BKK	7.30	8.40	0	28	50	CNX	5	0	18	151	5	TAY	A87	9				
TG1116	DMK	CNX	8.0	9.10	0	16	105	DMK	5	0	30	96	5	TAF	A87	9				
TG1117	CNX	DMK	9.55	11.05	0	10	39	CNX	5	0	36	162	5	TAF	A87	9				
TG1124	DMK	CNX	14.35	15.45	0	20	119	DMK	5	0	26	82	5	TAD	A87	9				
TG1132	DMK	CEI	2.15	3.35	0	2	121	DMK	5	0	10	16	5	TDH	734	10				
TG1133	CEI	DMK	4.20	5.40	0	9	26	CEI	5	0	3	111	5	TDH	734	10				
TG1140	DMK	CEI	11.0	12.20	0	8	7	DMK	5	0	4	130	5	TDH	734	10				
TG1141	CEI	DMK	13.05	14.20	0	7	18	CEI	5	0	5	119	5	TDH	734	10				
TG116	BKK	CNX	10.15	11.25	0	27	67	BKK	5	0	22	272	5	TKC	773	9				
TG1160	DMK	PHS	23.05	24.0	0	0	55	DMK	5	0	12	82	5	TDF	734	11				
TG1161	PHS	DMK	0.40	1.25	0	2	94	PHS	5	0	10	43	5	TDH	734	11				
TG1164	DMK	PHS	13.40	14.35	0	3	1	DMK	5	0	9	136	5	TDF	734	11				
TG1165	PHS	DMK	15.15	16.0	0	7	68	PHS	5	0	5	69	5	TDF	734	11				
TG117	CNX	BKK	12.15	13.25	0	32	127	CNX	5	0	17	212	5	TKC	773	9				
TG1200	HKT	DMK	8.35	10.0	0	0	95	HKT	5	0	46	106	5	TAA	A87	6				
TG1204	HKT	DMK	2.25	3.50	0	35	201	HKT	5	0	11	0	5	TAD	A87	6				
TG1205	DMK	HKT	3.40	5.0	0	27	101	DMK	5	0	19	100	5	TAF	A87	6				
TG1206	HKT	DMK	5.45	7.10	0	1	57	HKT	5	0	45	144	5	TAF	A87	6				
TG1213	DMK	HKT	5.35	6.55	0	26	89	DMK	5	0	20	112	5	TAD	A87	6				
TG1214	HKT	DMK	7.40	9.05	0	25	198	HKT	5	0	21	3	5	TAD	A87	6				
TG1221	DMK	HKT	12.30	13.50	0	5	112	DMK	5	0	41	89	5	TAE	A87	6				
TG1232	HDY	DMK	1.20	2.50	0	25	189	HDY	5	0	21	12	5	TAF	A87	3				
TG1233	DMK	HDY	6.40	8.10	0	8	37	DMK	5	0	4	100	5	TDH	734	3				
TG1234	HDY	DMK	8.50	10.20	0	11	113	HDY	5	0	1	24	5	TDH	734	3				
TG1235	DMK	HDY	10.0	11.30	0	9	119	DMK	5	0	37	82	5	TAD	A87	3				
TG1236	HDY	DMK	12.15	13.45	0	16	24	HDY	5	0	30	177	5	TAD	A87	3				
TG1245	DMK	KBV	7.45	9.05	0	13	7	DMK	5	0	33	194	5	TAE	A87	8				
TG1246	KBV	DMK	9.50	11.10	0	38	148	KBV	5	0	8	53	5	TAE	A87	8				
TG125	CNX	BKK	0.0	1.10	0	21	195	CNX	5	0	25	6	5	TAA	A87	9				
TG1253	DMK	URT	2.35	3.50	0	3	129	DMK	5	0	9	8	5	TDG	734	4				
TG1254	URT	DMK	4.30	5.40	0	6	12	URT	5	0	6	125	5	TDG	734	4				
TG126	BKK	CNX	12.0	13.10	0	0	80	BKK	5	0	30	199	5	TJE	772	9				
TG127	CNX	BKK	14.0	15.10	0	20	227	CNX	5	0	10	52	5	TJE	772	9				
TG1273	DMK	URT	10.05	11.20	0	2	27	DMK	5	0	10	110	5	TDG	734	4				
TG1274	URT	DMK	12.0	13.10	0	12	34	URT	5	0	0	103	5	TDG	734	4				
TG129	CNX	HKT	5.50	7.45	0	19	120	CNX	5	0	27	81	5	TAA	A87	6				
TG130	BKK	CEI	6.45	8.05	0	30	28	BKK	5	0	16	173	5	TAL	A86	10				
TG131	CEI	BKK	8.55	10.10	0	39	139	CEI	5	0	7	62	5	TAL	A86	10				
TG194	CNX	HGN	3.10	3.45	0	0	30	CNX	5	0	0	36	5	TRB	AT7	9				
TG195	HGN	CNX	4.05	4.40	0	0	27	HGN	5	0	0	39	5	TRB	AT7	9				
TG196	CNX	HGN	9.10	9.45	0	0	2	CNX	5	0	0	64	5	TRB	AT7	9				
TG197	HGN	CNX	10.05	10.40	0	0	62	HGN	5	0	0	4	5	TRB	AT7	9				
TG201	BKK	HKT	0.50	2.10	0	13	200	BKK	5	0	37	125	5	TGL	744	6				
TG202	HKT	BKK	3.0	4.25	0	5	184	HKT	5	0	45	141	5	TGL	744	6				
TG203	BKK	HKT	0.20	1.40	0	19	83	BKK	5	0	27	118	5	TAD	A87	6				
TG213	BKK	HKT	7.05	8.25	0	6	154	BKK	5	0	40	47	5	TAD	A86	6				
TG214	HKT	BKK	9.15	10.40	0	3	137	HKT	5	0	43	64	5	TAD	A86	6				
TG217	BKK	HKT	9.0	10.20	0	39	148	BKK	5	0	11	177	5	TGK	744	6				
TG218	HKT	BKK	11.25	12.50	0	43	238	HKT	5	0	7	87	5	TGK	744	6				
TG223	BKK	HKT	11.20	12.40	0	43	238	BKK	5	0	7	87	5	TGB	747	6				
TG224	HKT	BKK	13.50	15.15	0	43	238	HKT	5	0	7	87	5	TGB	747	6				
TG225	BKK	HKT	15.15	16.35	0	42	120	BKK	5	0	4	81	5	TAT	A87	6				
TG226	HKT	BKK	0.25	1.50	0	9	70	HKT	5	0	37	131	5	TAX	A87	6				
TG228	HKT	BKK	14.35	16.0	0	45	148	HKT	5	0	1	53	5	TAE	A87	6				
TG249	BKK	KBV	1.0	2.20	0	28	162	BKK	5	0	18	39	5	TAO	A86	8				
TG250	KBV	BKK	3.10	4.30	0	19	117	KBV	5	0	27	84	5	TAO	A86	8				
TG259	BKK	KBV	11.55	13.15	0	32	30	BKK	5	0	14	171	5	TAY	A87	8				
TG260	KBV	BKK	14.05	15.25	0	4	200	KBV	5	0	42	1	5	TAY	A87	8				

Figure 66: Flight data of 15/8/07

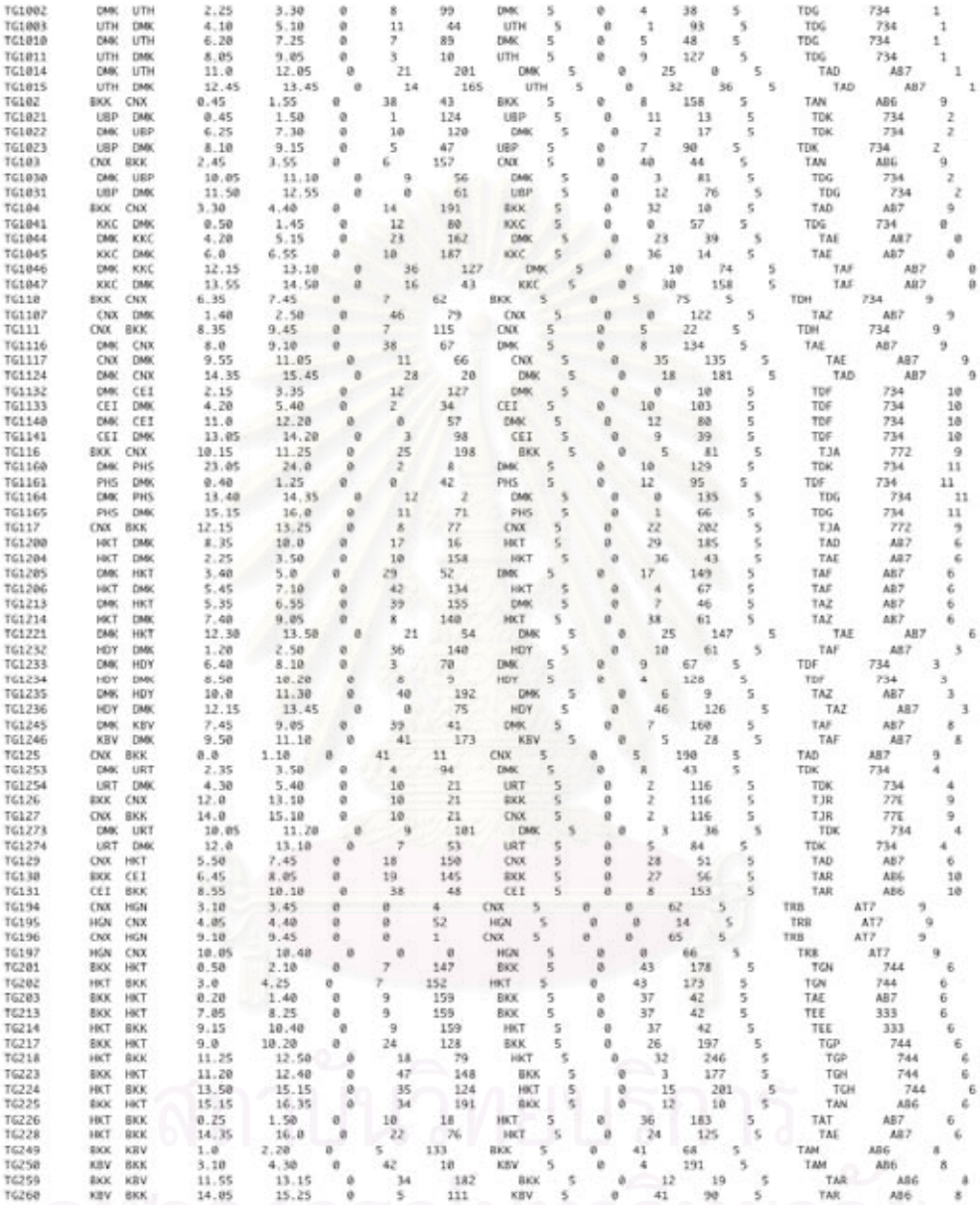


Figure 67: Flight data of 16/8/07

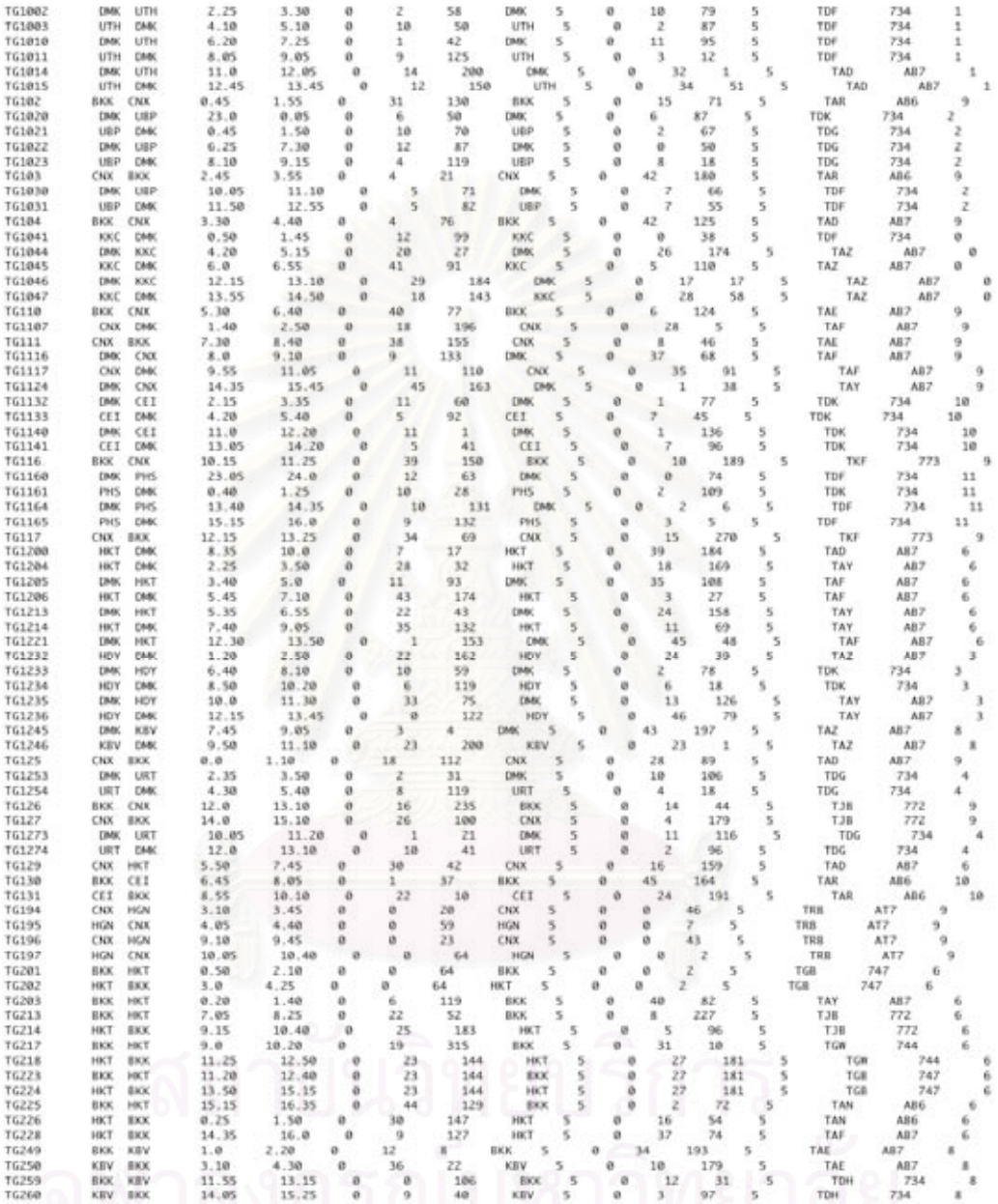


Figure 68: Flight data of 17/8/07

TG100Z	DMK	UTH	2.25	3.30	0	0	17	DMK	5	0	12	120	5	TDG	734	1					
TG1003	UTH	DMK	4.10	5.10	0	9	3	UTH	5	0	3	134	5	TDG	734	1					
TG1010	DMK	UTH	6.20	7.25	0	12	28	DMK	5	0	0	109	5	TDG	734	1					
TG1011	UTH	DMK	8.05	9.05	0	3	9	UTH	5	0	9	128	5	TDG	734	1					
TG1014	DMK	UTH	11.0	12.05	0	1	140	DMK	5	0	45	61	5	TAY	A87	1					
TG1015	UTH	DMK	12.45	13.45	0	29	19	UTH	5	0	17	182	5	TAY	A87	1					
TG102	BKK	CNX	0.45	1.55	0	44	116	BKK	5	0	2	85	5	TAO	A86	9					
TG1020	DMK	UBP	23.0	0.05	0	10	93	DMK	5	0	2	44	5	TDF	734	2					
TG1021	UBP	DMK	0.45	1.50	0	6	35	UBP	5	0	6	102	5	TDK	734	2					
TG1022	DMK	UBP	6.25	7.30	0	11	79	DMK	5	0	1	58	5	TDK	734	2					
TG1023	UBP	DMK	8.10	9.15	0	10	44	UBP	5	0	2	93	5	TDK	734	2					
TG103	CNX	BKK	2.45	3.55	0	5	111	CNX	5	0	41	90	5	TAO	A86	9					
TG1030	DMK	UBP	10.05	11.10	0	5	63	DMK	5	0	7	74	5	TDG	734	2					
TG1031	UBP	DMK	11.50	12.55	0	3	17	UBP	5	0	9	120	5	TDG	734	2					
TG104	BKK	CNX	3.30	4.40	0	21	25	BKK	5	0	25	176	5	TAY	A87	9					
TG1041	KKC	DMK	0.50	1.45	0	12	86	KKC	5	0	0	51	5	TDG	734	0					
TG1044	DMK	KKC	4.20	5.15	0	17	27	DMK	5	0	29	174	5	TAO	A87	0					
TG1045	KKC	DMK	6.0	6.55	0	23	68	KKC	5	0	23	133	5	TAO	A87	0					
TG1046	DMK	KKC	12.15	13.10	0	32	22	DMK	5	0	14	179	5	TAO	A87	0					
TG1047	KKC	DMK	13.55	14.50	0	9	75	KKC	5	0	37	126	5	TAO	A87	0					
TG110	BKK	CNX	5.30	6.40	0	3	97	BKK	5	0	9	40	5	TDH	734	9					
TG1107	CNX	DMK	1.40	2.50	0	16	133	CNX	5	0	30	68	5	TAA	A87	9					
TG111	CNX	BKK	7.30	8.40	0	10	75	CNX	5	0	2	62	5	TDH	734	9					
TG1116	DMK	CNX	8.0	9.10	0	3	23	DMK	5	0	43	178	5	TAA	A87	9					
TG1117	CNX	DMK	9.55	11.05	0	34	63	CNX	5	0	12	138	5	TAA	A87	9					
TG1124	DMK	CNX	14.35	15.45	0	35	185	DMK	5	0	11	16	5	TAX	A87	9					
TG1132	DMK	CEI	2.15	3.35	0	5	74	DMK	5	0	7	63	5	TDF	734	10					
TG1133	CEI	DMK	4.20	5.40	0	4	98	CEI	5	0	8	39	5	TDF	734	10					
TG1140	DMK	CEI	11.0	12.20	0	7	94	DMK	5	0	5	43	5	TDF	734	10					
TG1141	CEI	DMK	13.05	14.20	0	1	60	CEI	5	0	11	77	5	TDF	734	10					
TG116	BKK	CNX	10.15	11.25	0	37	129	BKK	5	0	12	210	5	TKF	773	9					
TG1160	DMK	PHS	23.05	24.0	0	4	129	DMK	5	0	8	8	5	TDG	734	11					
TG1161	PHS	DMK	0.40	1.25	0	0	61	PHS	5	0	12	76	5	TDF	734	11					
TG1164	DMK	PHS	13.40	14.35	0	7	93	DMK	5	0	5	44	5	TDG	734	11					
TG1165	PHS	DMK	15.15	16.0	0	4	19	PHS	5	0	8	118	5	TDG	734	11					
TG117	CNX	BKK	12.15	13.25	0	13	335	CNX	5	0	36	4	5	TKF	773	9					
TG1200	HKT	DMK	8.35	10.0	0	16	143	HKT	5	0	30	58	5	TAY	A87	6					
TG1204	HKT	DMK	2.25	3.50	0	32	131	HKT	5	0	14	70	5	TAX	A87	6					
TG1205	DMK	HKT	3.40	5.0	0	45	58	DMK	5	0	1	143	5	TAA	A87	6					
TG1206	HKT	DMK	5.45	7.10	0	32	128	HKT	5	0	14	73	5	TAA	A87	6					
TG1213	DMK	HKT	5.35	6.55	0	35	2	DMK	5	0	11	199	5	TAX	A87	6					
TG1214	HKT	DMK	7.40	9.05	0	19	196	HKT	5	0	27	5	5	TAX	A87	6					
TG1221	DMK	HKT	12.30	13.50	0	1	132	DMK	5	0	45	69	5	TAA	A87	6					
TG1232	HUT	DMK	1.20	2.50	0	16	174	HUY	5	0	30	27	5	TAO	A87	3					
TG1233	DMK	HDY	6.40	8.10	0	0	66	DMK	5	0	12	71	5	TDF	734	3					
TG1234	HDY	DMK	8.50	10.20	0	1	89	HDY	5	0	11	48	5	TDF	734	3					
TG1235	DMK	HDY	10.0	11.30	0	21	60	DMK	5	0	25	141	5	TAX	A87	3					
TG1236	HDY	DMK	12.15	13.45	0	17	29	HDY	5	0	29	172	5	TAX	A87	3					
TG1245	DMK	KBV	7.45	9.05	0	46	108	DMK	5	0	0	93	5	TAO	A87	8					
TG1246	KBV	DMK	9.50	11.10	0	9	18	KBV	5	0	37	183	5	TAO	A87	8					
TG125	CNX	BKK	0.0	1.10	0	14	101	CNX	5	0	32	100	5	TAY	A87	9					
TG1253	DMK	URT	2.35	3.50	0	9	10	DMK	5	0	3	127	5	TDK	734	4					
TG1254	URT	DMK	4.30	5.40	0	10	74	URT	5	0	2	63	5	TDK	734	4					
TG126	BKK	CNX	12.0	13.10	0	21	34	BKK	5	0	9	245	5	TJF	772	9					
TG127	CNX	BKK	14.0	15.10	0	19	129	CNX	5	0	11	150	5	TJF	772	9					
TG1273	DMK	URT	10.05	11.20	0	8	31	DMK	5	0	4	106	5	TDK	734	4					
TG1274	URT	DMK	12.0	13.10	0	10	130	URT	5	0	2	7	5	TDK	734	4					
TG129	CNX	HKT	5.50	7.45	0	22	45	CNX	5	0	24	156	5	TAY	A87	6					
TG130	BKK	CEI	6.45	8.05	0	29	147	BKK	5	0	17	54	5	TAO	A86	10					
TG131	CEI	BKK	8.55	10.10	0	15	138	CEI	5	0	31	63	5	TAO	A86	10					
TG194	CNX	HGN	3.10	3.45	0	0	0	CNX	5	0	0	66	5	TRB	AT7	9					
TG195	HGN	CNX	4.05	4.40	0	0	12	HGN	5	0	0	54	5	TRB	AT7	9					
TG196	CNX	HGN	9.10	9.45	0	0	0	CNX	5	0	0	66	5	TRB	AT7	9					
TG197	HGN	CNX	10.05	10.40	0	0	54	HGN	5	0	0	12	5	TRB	AT7	9					
TG201	BKK	HKT	0.50	2.10	0	0	54	BKK	5	0	0	12	5	TEL	333	6					
TG202	HKT	BKK	3.0	4.25	0	0	54	HKT	5	0	0	12	5	TEL	333	6					
TG203	BKK	HKT	0.20	1.40	0	31	183	BKK	5	0	15	18	5	TAX	A87	6					
TG213	BKK	HKT	7.05	8.25	0	26	17	BKK	5	0	20	184	5	TAR	A86	6					
TG214	HKT	BKK	9.15	10.40	0	18	185	HKT	5	0	28	16	5	TAR	A86	6					
TG217	BKK	HKT	9.0	10.20	0	39	181	BKK	5	0	11	144	5	TGX	744	6					
TG218	HKT	BKK	11.25	12.50	0	33	17	HKT	5	0	17	308	5	TGX	744	6					
TG223	BKK	HKT	11.20	12.40	0	33	17	BKK	5	0	17	308	5	TGG	747	6					
TG224	HKT	BKK	13.50	15.15	0	33	17	HKT	5	0	17	308	5	TGG	747	6					
TG225	BKK	HKT	15.15	16.35	0	14	27	BKK	5	0	32	174	5	TAF	A87	6					
TG226	HKT	BKK	0.25	1.50	0	9	166	HKT	5	0	37	35	5	TAN	A86	6					
TG228	HKT	BKK	14.35	16.0	0	45	23	HKT	5	0	1	178	5	TAA	A87	6					
TG249	BKK	KBV	1.0	2.20	0	14	49	BKK	5	0	32	152	5	TAR	A86	8					
TG250	KBV	BKK	3.10	4.30	0	31	179	KBV	5	0	15	22	5	TAR	A86	8					
TG259	BKK	KBV	11.55	13.15	0	6	71	BKK	5	0	40	130	5	TAO	A86	8					
TG260	KBV	BKK	14.05	15.25	0	38	156	KBV	5	0	8	45	5	TAO	A86	8					

Figure 69: Flight data of 18/8/07

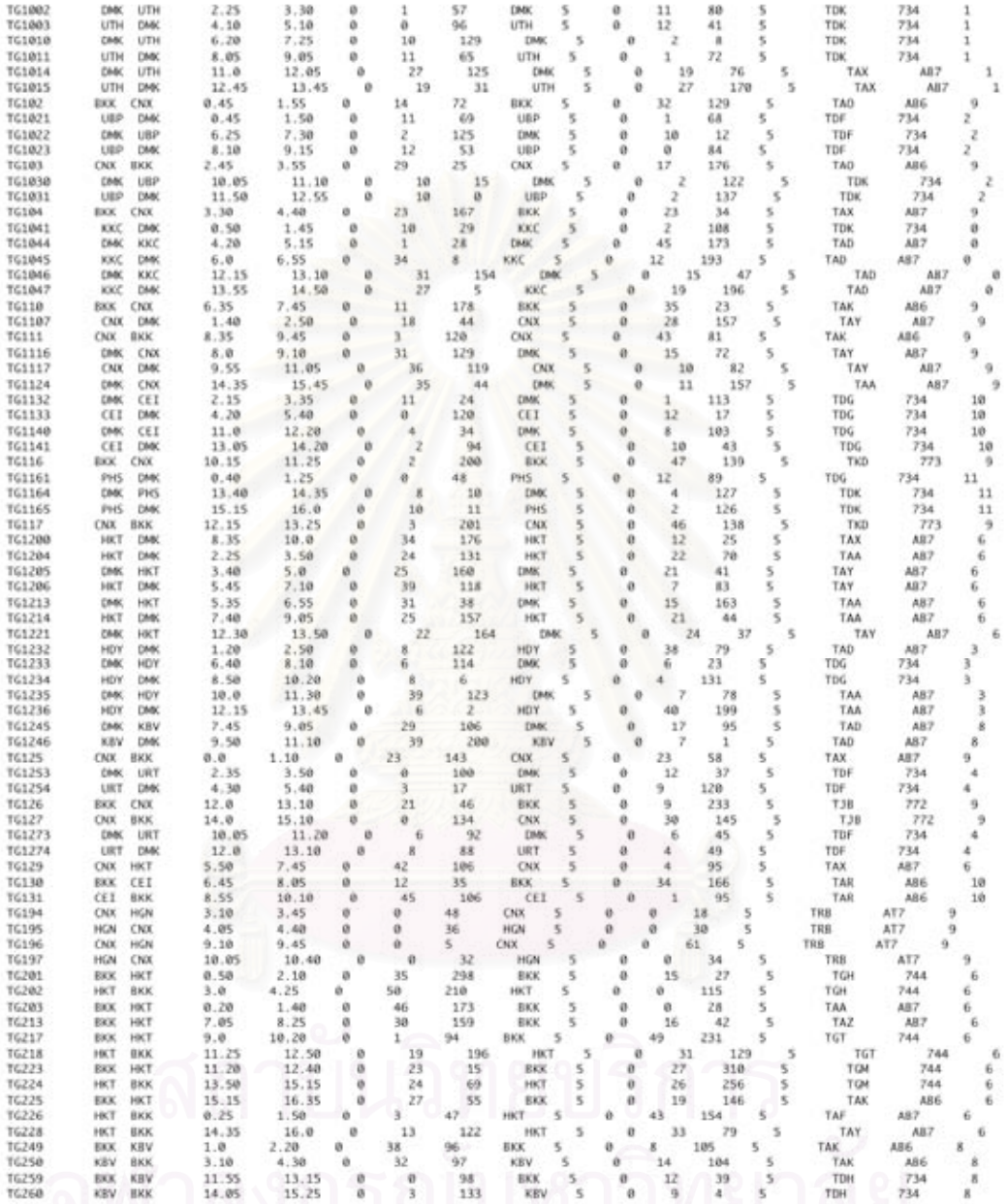


Figure 70: Flight data of 19/8/07

TG1002	DMK	UTH	2.25	3.30	0	6	72	DMK	5	0	6	65	5	TDG	734	1					
TG1003	UTH	DMK	4.10	5.10	0	7	6	UTH	5	0	5	131	5	TDG	734	1					
TG1010	DMK	UTH	6.20	7.25	0	0	14	DMK	5	0	12	123	5	TDG	734	1					
TG1011	UTH	DMK	8.05	9.05	0	10	103	UTH	5	0	2	34	5	TDG	734	1					
TG1014	DMK	UTH	11.0	12.05	0	22	29	DMK	5	0	24	172	5	TAA	AB7	1					
TG1015	UTH	DMK	12.45	13.45	0	46	1	UTH	5	0	0	200	5	TAA	AB7	1					
TG102	BKK	CNX	0.45	1.55	0	5	6	BKK	5	0	41	195	5	TAL	AB6	9					
TG1021	UBP	DMK	0.45	1.50	0	1	103	UBP	5	0	11	34	5	TDK	734	2					
TG1022	DMK	UBP	6.25	7.30	0	4	111	DMK	5	0	8	26	5	TDK	734	2					
TG1023	UBP	DMK	8.10	9.15	0	9	11	UBP	5	0	3	126	5	TDK	734	2					
TG103	CNX	BKK	2.45	3.55	0	14	176	CNX	5	0	32	25	5	TAL	AB6	9					
TG1030	DMK	UBP	10.05	11.10	0	11	4	DMK	5	0	1	133	5	TDG	734	2					
TG1031	UBP	DMK	11.50	12.55	0	8	87	UBP	5	0	4	50	5	TDG	734	2					
TG104	BKK	CNX	3.30	4.40	0	42	167	BKK	5	0	4	34	5	TAA	AB7	9					
TG1041	KKC	DMK	0.50	1.45	0	1	3	KKC	5	0	11	134	5	TDG	734	0					
TG1044	DMK	KKC	4.20	5.15	0	18	108	DMK	5	0	28	93	5	TAD	AB7	0					
TG1045	KKC	DMK	6.0	6.55	0	2	179	KKC	5	0	44	22	5	TAD	AB7	0					
TG1046	DMK	KKC	12.15	13.10	0	40	106	DMK	5	0	6	95	5	TAD	AB7	0					
TG1047	KKC	DMK	13.55	14.50	0	15	81	KKC	5	0	31	120	5	TAD	AB7	0					
TG110	BKK	CNX	5.30	6.40	0	9	74	BKK	5	0	3	63	5	TDH	734	9					
TG1107	CNX	DMK	1.40	2.50	0	6	146	CNX	5	0	40	55	5	TAX	AB7	9					
TG111	CNX	BKK	7.30	8.40	0	0	0	CNX	5	0	12	137	5	TDH	734	9					
TG1116	DMK	CNX	8.0	9.10	0	36	1	DMK	5	0	10	200	5	TAX	AB7	9					
TG1117	CNX	DMK	9.55	11.05	0	46	131	CNX	5	0	0	70	5	TAX	AB7	9					
TG1124	DMK	CNX	14.35	15.45	0	11	100	DMK	5	0	35	101	5	TAZ	AB7	9					
TG1140	DMK	CEI	11.0	12.20	0	1	63	DMK	5	0	11	74	5	TDK	734	10					
TG1141	CEI	DMK	13.05	14.20	0	5	126	CEI	5	0	7	11	5	TDK	734	10					
TG116	BKK	CNX	10.15	11.25	0	24	192	BKK	5	0	25	147	5	TKD	773	9					
TG1160	DMK	PHS	23.05	24.0	0	9	97	DMK	5	0	3	40	5	TDG	734	11					
TG1161	PHS	DMK	0.40	1.25	0	9	109	PHS	5	0	3	28	5	TDF	734	11					
TG1164	DMK	PHS	13.40	14.35	0	2	25	DMK	5	0	10	112	5	TDG	734	11					
TG1165	PHS	DMK	15.15	16.0	0	7	129	PHS	5	0	5	8	5	TDG	734	11					
TG117	CNX	BKK	12.15	13.25	0	46	63	CNX	5	0	3	276	5	TKD	773	9					
TG1200	HKT	DMK	8.35	10.0	0	35	160	HKT	5	0	11	41	5	TAA	AB7	6					
TG1204	HKT	DMK	2.25	3.50	0	6	167	HKT	5	0	40	34	5	TAZ	AB7	6					
TG1205	DMK	HKT	3.40	5.0	0	37	181	DMK	5	0	9	20	5	TAX	AB7	6					
TG1206	HKT	DMK	5.45	7.10	0	15	2	HKT	5	0	31	199	5	TAX	AB7	6					
TG1213	DMK	HKT	5.35	6.55	0	6	132	DMK	5	0	40	69	5	TAZ	AB7	6					
TG1214	HKT	DMK	7.40	9.05	0	21	40	HKT	5	0	25	161	5	TAZ	AB7	6					
TG1221	DMK	HKT	12.30	13.50	0	22	41	DMK	5	0	24	160	5	TAX	AB7	6					
TG1232	HDY	DMK	1.20	2.50	0	46	91	HDY	5	0	0	110	5	TAD	AB7	3					
TG1233	DMK	HDY	6.40	8.10	0	10	39	DMK	5	0	2	98	5	TDH	734	3					
TG1234	HDY	DMK	8.50	10.20	0	12	2	HDY	5	0	0	135	5	TDH	734	3					
TG1235	DMK	HDY	10.0	11.30	0	32	95	DMK	5	0	14	106	5	TAZ	AB7	3					
TG1236	HDY	DMK	12.15	13.45	0	21	159	HDY	5	0	25	42	5	TAZ	AB7	3					
TG1245	DMK	KBV	7.45	9.05	0	6	15	DMK	5	0	40	186	5	TAD	AB7	8					
TG1246	KBV	DMK	9.50	11.10	0	14	37	KBV	5	0	32	164	5	TAD	AB7	8					
TG125	CNX	BKK	0.0	1.10	0	6	73	CNX	5	0	40	128	5	TAA	AB7	9					
TG1253	DMK	URT	2.35	3.50	0	11	136	DMK	5	0	1	1	5	TDK	734	4					
TG1254	URT	DMK	4.30	5.40	0	9	14	URT	5	0	3	123	5	TDK	734	4					
TG126	BKK	CNX	12.0	13.10	0	19	55	BKK	5	0	11	224	5	TJC	772	9					
TG127	CNX	BKK	14.0	15.10	0	28	240	CNX	5	0	2	39	5	TJC	772	9					
TG1273	DMK	URT	10.05	11.20	0	10	137	DMK	5	0	2	0	5	TDK	734	4					
TG1274	URT	DMK	12.0	13.10	0	4	12	URT	5	0	8	125	5	TDK	734	4					
TG129	CNX	HKT	5.50	7.45	0	20	176	CNX	5	0	26	25	5	TAA	AB7	6					
TG130	BKK	CEI	6.45	8.05	0	46	20	BKK	5	0	0	181	5	TAM	AB6	10					
TG131	CEI	BKK	8.55	10.10	0	36	117	CEI	5	0	10	84	5	TAM	AB6	10					
TG194	CNX	HGN	3.10	3.45	0	0	9	CNX	5	0	0	57	5	TRB	AT7	9					
TG195	HGN	CNX	4.05	4.40	0	0	14	HGN	5	0	0	52	5	TRB	AT7	9					
TG196	CNX	HGN	9.10	9.45	0	0	40	CNX	5	0	0	26	5	TRB	AT7	9					
TG197	HGN	CNX	10.05	10.40	0	0	7	HGN	5	0	0	59	5	TRB	AT7	9					
TG201	BKK	HKT	0.50	2.10	0	0	7	BKK	5	0	0	59	5	TGG	747	6					
TG202	HKT	BKK	3.0	4.25	0	0	7	HKT	5	0	0	59	5	TGG	747	6					
TG203	BKK	HKT	0.20	1.40	0	34	35	BKK	5	0	12	166	5	TAZ	AB7	6					
TG213	BKK	HKT	7.05	8.25	0	35	157	BKK	5	0	11	44	5	TAD	AB6	6					
TG214	HKT	BKK	9.15	10.40	0	37	11	HKT	5	0	9	190	5	TAD	AB6	6					
TG217	BKK	HKT	9.0	10.20	0	37	11	BKK	5	0	9	190	5	TGG	747	6					
TG218	HKT	BKK	11.25	12.50	0	37	11	HKT	5	0	9	190	5	TGG	747	6					
TG223	BKK	HKT	11.20	12.40	0	30	7	BKK	5	0	20	318	5	TGO	744	6					
TG224	HKT	BKK	13.50	15.15	0	14	294	HKT	5	0	36	31	5	TGO	744	6					
TG225	BKK	HKT	15.15	16.35	0	42	41	BKK	5	0	4	160	5	TAY	AB7	6					
TG226	HKT	BKK	0.25	1.50	0	5	109	HKT	5	0	41	92	5	TAK	AB6	6					
TG228	HKT	BKK	14.35	16.0	0	2	178	HKT	5	0	44	23	5	TAX	AB7	6					
TG249	BKK	KBV	1.0	2.20	0	7	109	BKK	5	0	39	92	5	TAM	AB6	8					
TG250	KBV	BKK	3.10	4.30	0	4	117	KBV	5	0	42	84	5	TAM	AB6	8					
TG259	BKK	KBV	12.15	13.35	0	35	110	BKK	5	0	11	91	5	TAO	AB6	8					
TG260	KBV	BKK	14.20	15.40	0	29	104	KBV	5	0	17	97	5	TAO	AB6	8					

Figure 71: Flight data of 20/8/07

TG1002	DMK	UTH	2.25	3.30	0	0	11	DMK	5	0	12	126	5	TDK	734	1			
TG1003	UTH	DMK	4.10	5.10	0	12	34	UTH	5	0	0	103	5	TDK	734	1			
TG1010	DMK	UTH	6.20	7.25	0	11	107	DMK	5	0	1	30	5	TDK	734	1			
TG1011	UTH	DMK	8.05	9.05	0	8	95	UTH	5	0	4	42	5	TDK	734	1			
TG1014	DMK	UTH	11.0	12.05	0	20	76	DMK	5	0	26	125	5	TAY	A87	1			
TG1015	UTH	DMK	12.45	13.45	0	24	46	UTH	5	0	22	155	5	TAY	A87	1			
TG102	BKK	CNX	0.45	1.55	0	4	108	BKK	5	0	42	93	5	TAO	A86	9			
TG1021	UBP	DMK	0.45	1.50	0	10	58	UBP	5	0	2	79	5	TDF	734	2			
TG1022	DMK	UBP	6.25	7.30	0	11	87	DMK	5	0	1	50	5	TDF	734	2			
TG1023	UBP	DMK	8.10	9.15	0	3	50	UBP	5	0	9	87	5	TDF	734	2			
TG103	CNX	BKK	2.45	3.55	0	31	128	CNX	5	0	15	73	5	TAO	A86	9			
TG1030	DMK	UBP	10.05	11.10	0	12	125	DMK	5	0	0	12	5	TDK	734	2			
TG1031	UBP	DMK	11.50	12.55	0	3	89	UBP	5	0	9	48	5	TDK	734	2			
TG104	BKK	CNX	3.30	4.40	0	24	152	BKK	5	0	22	49	5	TAY	A87	9			
TG1041	KKC	DMK	0.50	1.45	0	12	34	KKC	5	0	0	103	5	TDK	734	0			
TG1044	DMK	KKC	4.20	5.15	0	37	177	DMK	5	0	9	24	5	TAD	A87	0			
TG1045	KKC	DMK	6.0	6.55	0	3	113	KKC	5	0	43	88	5	TAD	A87	0			
TG1046	DMK	KKC	12.15	13.10	0	2	69	DMK	5	0	44	132	5	TAD	A87	0			
TG1047	KKC	DMK	13.55	14.50	0	38	183	KKC	5	0	8	18	5	TAD	A87	0			
TG110	BKK	CNX	5.30	6.40	0	20	156	BKK	5	0	26	45	5	TAX	A87	9			
TG1107	CNX	DMK	1.40	2.50	0	43	28	CNX	5	0	3	173	5	TAA	A87	9			
TG111	CNX	BKK	7.30	8.40	0	3	172	CNX	5	0	43	29	5	TAX	A87	9			
TG1116	DMK	CNX	8.0	9.10	0	22	11	DMK	5	0	24	190	5	TAA	A87	9			
TG1117	CNX	DMK	9.55	11.05	0	19	105	CNX	5	0	27	96	5	TAA	A87	9			
TG1124	DMK	CNX	14.35	15.45	0	3	194	DMK	5	0	43	7	5	TAY	A87	9			
TG1132	DMK	CEI	2.15	3.35	0	8	111	DMK	5	0	4	26	5	TDG	734	10			
TG1133	CEI	DMK	4.20	5.40	0	3	72	CEI	5	0	9	65	5	TDG	734	10			
TG1140	DMK	CEI	11.0	12.20	0	6	86	DMK	5	0	6	51	5	TDG	734	10			
TG1141	CEI	DMK	13.05	14.20	0	2	36	CEI	5	0	10	101	5	TDG	734	10			
TG116	BKK	CNX	10.15	11.25	0	9	254	BKK	5	0	21	25	5	TJD	772	9			
TG1160	DMK	PHS	23.05	24.0	0	10	41	DMK	5	0	2	96	5	TDK	734	11			
TG1161	PHS	DMK	0.40	1.25	0	2	116	PHS	5	0	10	21	5	TDG	734	11			
TG1164	DMK	PHS	13.40	14.35	0	1	135	DMK	5	0	11	2	5	TDK	734	11			
TG1165	PHS	DMK	15.15	16.0	0	10	47	PHS	5	0	2	98	5	TDK	734	11			
TG117	CNX	BKK	12.15	13.25	0	14	265	CNX	5	0	16	14	5	TJD	772	9			
TG1200	HKT	DMK	8.35	10.0	0	3	47	HKT	5	0	43	154	5	TAY	A87	6			
TG1204	HKT	DMK	2.25	3.50	0	34	131	HKT	5	0	12	70	5	TAT	A87	6			
TG1205	DMK	HKT	3.40	5.0	0	24	161	DMK	5	0	22	40	5	TAA	A87	6			
TG1206	HKT	DMK	5.45	7.10	0	42	29	HKT	5	0	4	172	5	TAA	A87	6			
TG1213	DMK	HKT	5.35	6.55	0	40	31	DMK	5	0	6	170	5	TAT	A87	6			
TG1214	HKT	DMK	7.40	9.05	0	44	13	HKT	5	0	2	188	5	TAT	A87	6			
TG1221	DMK	HKT	12.30	13.50	0	41	104	DMK	5	0	5	97	5	TAA	A87	6			
TG1232	HDY	DMK	1.20	2.50	0	10	131	HDY	5	0	36	70	5	TAD	A87	3			
TG1233	DMK	HDY	6.40	8.10	0	2	123	DMK	5	0	10	14	5	TDG	734	3			
TG1234	HDY	DMK	8.50	10.20	0	10	34	HDY	5	0	2	103	5	TDG	734	3			
TG1235	DMK	HDY	10.0	11.30	0	45	31	DMK	5	0	1	170	5	TAT	A87	3			
TG1236	HDY	DMK	12.15	13.45	0	15	58	HDY	5	0	31	143	5	TAT	A87	3			
TG1245	DMK	KBV	7.45	9.05	0	17	165	DMK	5	0	29	36	5	TAD	A87	8			
TG1246	KBV	DMK	9.50	11.10	0	13	110	KBV	5	0	33	91	5	TAD	A87	8			
TG125	CNX	BKK	0.0	1.10	0	28	52	CNX	5	0	18	149	5	TAZ	A87	9			
TG1253	DMK	URT	2.35	3.50	0	12	5	DMK	5	0	0	132	5	TDF	734	4			
TG1254	URT	DMK	4.30	5.40	0	11	4	URT	5	0	1	133	5	TDF	734	4			
TG126	BKK	CNX	12.0	13.10	0	3	269	BKK	5	0	27	10	5	TJC	772	9			
TG127	CNX	BKK	14.0	15.10	0	18	184	CNX	5	0	12	95	5	TJC	772	9			
TG1273	DMK	URT	10.05	11.20	0	9	18	DMK	5	0	3	119	5	TDF	734	4			
TG1274	URT	DMK	12.0	13.10	0	10	93	URT	5	0	2	44	5	TDF	734	4			
TG129	CNX	HKT	5.50	7.45	0	19	5	CNX	5	0	27	196	5	TAY	A87	6			
TG130	BKK	CEI	6.45	8.05	0	18	33	BKK	5	0	28	168	5	TAO	A86	10			
TG131	CEI	BKK	8.55	10.10	0	35	185	CEI	5	0	11	16	5	TAO	A86	10			
TG194	CNX	HGN	3.10	3.45	0	0	3	CNX	5	0	0	63	5	TRB	AT7	9			
TG195	HGN	CNX	4.05	4.40	0	0	35	HGN	5	0	0	31	5	TRB	AT7	9			
TG196	CNX	HGN	9.10	9.45	0	0	17	CNX	5	0	0	49	5	TRB	AT7	9			
TG197	HGN	CNX	10.05	10.40	0	0	28	HGN	5	0	0	38	5	TRB	AT7	9			
TG201	BKK	HKT	0.50	2.10	0	15	127	BKK	5	0	35	198	5	TGW	744	6			
TG202	HKT	BKK	3.0	4.25	0	0	209	HKT	5	0	50	116	5	TGW	744	6			
TG203	BKK	HKT	0.20	1.40	0	32	175	BKK	5	0	14	26	5	TAT	A87	6			
TG213	BKK	HKT	7.05	8.25	0	32	175	BKK	5	0	14	26	5	TEE	333	6			
TG214	HKT	BKK	9.15	10.40	0	32	175	HKT	5	0	14	26	5	TEE	333	6			
TG217	BKK	HKT	9.0	10.20	0	48	50	BKK	5	0	2	275	5	TGR	744	6			
TG218	HKT	BKK	11.25	12.50	0	3	228	HKT	5	0	47	97	5	TGR	744	6			
TGZ23	BKK	HKT	11.20	12.40	0	21	163	BKK	5	0	29	162	5	TGP	744	6			
TG224	HKT	BKK	13.50	15.15	0	12	233	HKT	5	0	38	92	5	TGP	744	6			
TG225	BKK	HKT	15.15	16.35	0	42	26	BKK	5	0	4	175	5	TAX	A87	6			
TG226	HKT	BKK	0.25	1.50	0	4	75	HKT	5	0	42	126	5	TAY	A87	6			
TG228	HKT	BKK	14.35	16.0	0	38	78	HKT	5	0	8	123	5	TAA	A87	6			
TG249	BKK	KBV	1.0	2.20	0	23	134	BKK	5	0	23	67	5	TAX	A87	8			
TG250	KBV	BKK	3.10	4.30	0	45	104	KBV	5	0	1	97	5	TAX	A87	8			
TG259	BKK	KBV	11.55	13.15	0	25	48	BKK	5	0	21	153	5	TAK	A86	8			
TG260	KBV	BKK	14.05	15.25	0	32	133	KBV	5	0	14	68	5	TAK	A86	8			

Figure 72: Flight data of 21/8/07

Figure 73: Flight data of 22/8/07

TG1002	DMK	UTH	2.25	3.30	0	3	11	DMK	5	0	9	126	5	TDF	734	1							
TG1003	UTH	DMK	4.10	5.10	0	1	9	UTH	5	0	11	128	5	TDF	734	1							
TG1010	DMK	UTH	6.20	7.25	0	8	38	DMK	5	0	4	99	5	TDF	734	1							
TG1011	UTH	DMK	8.05	9.05	0	7	57	UTH	5	0	5	80	5	TDF	734	1							
TG1014	DMK	UTH	11.0	12.05	0	7	149	DMK	5	0	39	52	5	TAF	A87	1							
TG1015	UTH	DMK	12.45	13.45	0	26	37	UTH	5	0	20	164	5	TAF	A87	1							
TG102	BKK	CNX	0.45	1.55	0	32	57	BKK	5	0	14	144	5	TAR	A86	9							
TG1021	UBP	DMK	0.45	1.50	0	8	41	UBP	5	0	4	96	5	TDG	734	2							
TG1022	DMK	UBP	6.25	7.30	0	8	5	DMK	5	0	4	132	5	TDG	734	2							
TG1023	UBP	DMK	8.10	9.15	0	11	65	UBP	5	0	1	72	5	TDG	734	2							
TG103	CNX	BKK	2.45	3.55	0	2	197	CNX	5	0	44	4	5	TAR	A86	9							
TG1030	DMK	UBP	10.05	11.10	0	9	62	DMK	5	0	3	75	5	TDF	734	2							
TG1031	UBP	DMK	11.50	12.55	0	6	0	UBP	5	0	6	137	5	TDF	734	2							
TG104	BKK	CNX	3.30	4.40	0	33	83	BKK	5	0	13	118	5	TAF	A87	9							
TG1041	KKC	DMK	0.50	1.45	0	12	112	KKC	5	0	0	25	5	TDF	734	0							
TG1044	DMK	KKC	4.20	5.15	0	17	134	DMK	5	0	29	67	5	TAE	A87	0							
TG1045	KKC	DMK	6.0	6.55	0	27	163	KKC	5	0	19	38	5	TAE	A87	0							
TG1046	DMK	KKC	12.15	13.10	0	9	170	DMK	5	0	37	31	5	TAE	A87	0							
TG1047	KKC	DMK	13.55	14.50	0	30	63	KKC	5	0	16	138	5	TAE	A87	0							
TG110	BKK	CNX	6.35	7.45	0	41	23	BKK	5	0	5	178	5	TAK	A86	9							
TG1107	CNX	DMK	1.40	2.50	0	0	42	CNX	5	0	46	159	5	TAD	A87	9							
TG111	CNX	BKK	8.35	9.45	0	0	112	CNX	5	0	46	89	5	TAK	A86	9							
TG1116	DMK	CNX	8.0	9.10	0	5	160	DMK	5	0	41	41	5	TAD	A87	9							
TG1117	CNX	DMK	9.55	11.05	0	18	6	CNX	5	0	28	195	5	TAD	A87	9							
TG1124	DMK	CNX	14.35	15.45	0	28	133	DMK	5	0	18	68	5	TAY	A87	9							
TG1132	DMK	CEI	2.15	3.35	0	10	115	DMK	5	0	2	22	5	TDK	734	10							
TG1133	CEI	DMK	4.20	5.40	0	2	2	CEI	5	0	10	135	5	TDK	734	10							
TG1140	DMK	CEI	11.0	12.20	0	1	39	DMK	5	0	11	98	5	TDK	734	10							
TG1141	CEI	DMK	13.05	14.20	0	0	65	CEI	5	0	12	72	5	TDK	734	10							
TG116	BKK	CNX	10.15	11.25	0	7	97	BKK	5	0	42	242	5	TKC	773	9							
TG1160	DMK	PHS	23.05	24.0	0	7	95	DMK	5	0	5	42	5	TDF	734	11							
TG1161	PHS	DMK	0.40	1.25	0	3	8	PHS	5	0	9	129	5	TDK	734	11							
TG1164	DMK	PHS	13.40	14.35	0	11	85	DMK	5	0	1	52	5	TDF	734	11							
TG1165	PHS	DMK	15.15	16.0	0	11	115	PHS	5	0	1	22	5	TDF	734	11							
TG117	CNX	BKK	12.15	13.25	0	29	82	CNX	5	0	20	257	5	TKC	773	9							
TG1200	HKT	DMK	8.35	10.0	0	15	168	HKT	5	0	31	33	5	TAF	A87	6							
TG1204	HKT	DMK	2.25	3.50	0	21	28	HKT	5	0	25	173	5	TAY	A87	6							
TG1205	DMK	HKT	3.40	5.0	0	2	107	DMK	5	0	44	94	5	TAD	A87	6							
TG1206	HKT	DMK	5.45	7.10	0	12	110	HKT	5	0	34	91	5	TAD	A87	6							
TG1213	DMK	HKT	5.35	6.55	0	13	200	DMK	5	0	33	1	5	TAY	A87	6							
TG1214	HKT	DMK	7.40	9.05	0	1	163	HKT	5	0	45	38	5	TAY	A87	6							
TG1221	DMK	HKT	12.30	13.50	0	20	58	DMK	5	0	26	143	5	TAD	A87	6							
TG1232	HDY	DMK	1.20	2.50	0	9	167	HDY	5	0	37	34	5	TAE	A87	3							
TG1233	DMK	HDY	6.40	8.10	0	4	21	DMK	5	0	8	116	5	TDK	734	3							
TG1234	HDY	DMK	8.50	10.20	0	7	37	HDY	5	0	5	100	5	TDK	734	3							
TG1235	DMK	HDY	10.0	11.30	0	36	195	DMK	5	0	10	6	5	TAY	A87	3							
TG1236	HDY	DMK	12.15	13.45	0	10	82	HDY	5	0	36	119	5	TAY	A87	3							
TG1245	DMK	KBV	7.45	9.05	0	34	79	DMK	5	0	12	122	5	TAE	A87	8							
TG1246	KBV	DMK	9.50	11.10	0	38	186	KBV	5	0	8	15	5	TAE	A87	8							
TG125	CNX	BKK	0.0	1.10	0	21	145	CNX	5	0	25	56	5	TAA	A87	9							
TG1253	DMK	URT	2.35	3.50	0	10	82	DMK	5	0	2	55	5	TDG	734	4							
TG1254	URT	DMK	4.30	5.40	0	0	46	URT	5	0	12	91	5	TDG	734	4							
TG126	BKK	CNX	12.0	13.10	0	30	208	BKK	5	0	0	71	5	TJA	772	9							
TG127	CNX	BKK	14.0	15.10	0	5	58	CNX	5	0	25	221	5	TJA	772	9							
TG1273	DMK	URT	10.05	11.20	0	9	74	DMK	5	0	3	63	5	TDG	734	4							
TG1274	URT	DMK	12.0	13.10	0	6	94	URT	5	0	6	43	5	TDG	734	4							
TG129	CNX	HKT	5.50	7.45	0	3	200	CNX	5	0	43	1	5	TAF	A87	6							
TG130	BKK	CEI	6.45	8.05	0	8	190	BKK	5	0	38	11	5	TAP	A86	10							
TG131	CEI	BKK	8.55	10.10	0	23	83	CEI	5	0	23	118	5	TAP	A86	10							
TG194	CNX	HGN	3.10	3.45	0	0	14	CNX	5	0	0	52	5	TRB	AT7	9							
TG195	HGN	CNX	4.05	4.40	0	0	54	HGN	5	0	0	12	5	TRB	AT7	9							
TG196	CNX	HGN	9.10	9.45	0	0	6	CNX	5	0	0	60	5	TRB	AT7	9							
TG197	HGN	CNX	10.05	10.40	0	0	9	HGN	5	0	0	57	5	TRB	AT7	9							
TG201	BKK	HKT	0.50	2.10	0	0	9	BKK	5	0	0	57	5	TGB	747	6							
TG202	HKT	BKK	3.0	4.25	0	0	9	HKT	5	0	0	57	5	TGB	747	6							
TG203	BKK	HKT	0.20	1.40	0	34	1	BKK	5	0	12	200	5	TAY	A87	6							
TG213	BKK	HKT	7.05	8.25	0	34	1	BKK	5	0	12	200	5	TEE	333	6							
TG214	HKT	BKK	9.15	10.40	0	34	1	HKT	5	0	12	200	5	TEE	333	6							
TG217	BKK	HKT	9.0	10.20	0	33	272	BKK	5	0	17	53	5	TGH	744	6							
TG218	HKT	BKK	11.25	12.50	0	49	126	HKT	5	0	1	199	5	TGH	744	6							
TG223	BKK	HKT	11.20	12.40	0	0	76	BKK	5	0	50	249	5	TGK	744	6							
TG224	HKT	BKK	13.50	15.15	0	42	132	HKT	5	0	8	193	5	TGK	744	6							
TG225	BKK	HKT	15.15	16.35	0	38	21	BKK	5	0	8	180	5	TAA	A87	6							
TG226	HKT	BKK	0.25	1.50	0	35	26	HKT	5	0	11	175	5	TAF	A87	6							
TG228	HKT	BKK	14.35	16.0	0	13	181	HKT	5	0	33	180	5	TAD	A87	6							
TG249	BKK	KBV	1.0	2.20	0	22	100	BKK	5	0	24	101	5	TAP	A86	8							
TG250	KBV	BKK	3.10	4.30	0	28	154	KBV	5	0	18	47	5	TAP	A86	8							
TG259	BKK	KBV	11.55	13.15	0	0	23	BKK	5	0	12	114	5	TDL	734	8							
TG260	KBV	BKK	14.05	15.25	0	1	43	KBV	5	0	11	94	5	TDL	734	8							

Figure 74: Flight data of 23/8/07

TG1002	DMK	UTH	2.25	3.30	0	2	10	DMK	5	0	10	127	5	TDK	734	1					
TG1003	UTH	DMK	4.10	5.10	0	5	56	UTH	5	0	7	81	5	TDK	734	1					
TG1010	DMK	UTH	6.20	7.25	0	1	38	DMK	5	0	11	99	5	TDK	734	1					
TG1011	UTH	DMK	8.05	9.05	0	3	41	UTH	5	0	9	96	5	TDK	734	1					
TG1014	DMK	UTH	11.0	12.05	0	19	82	DMK	5	0	27	119	5	TAY	AB7	1					
TG1015	UTH	DMK	12.45	13.45	0	29	169	UTH	5	0	17	32	5	TAY	AB7	1					
TG102	BKK	CNX	0.45	1.55	0	14	91	BKK	5	0	32	110	5	TAM	AB6	9					
TG1021	UBP	DMK	0.45	1.50	0	0	82	UBP	5	0	12	55	5	TDG	734	2					
TG1022	DMK	UBP	6.25	7.30	0	10	61	DMK	5	0	2	76	5	TDG	734	2					
TG1023	UBP	DMK	8.10	9.15	0	11	115	UBP	5	0	1	22	5	TDG	734	2					
TG103	CNX	BKK	2.45	3.55	0	5	121	CNX	5	0	41	80	5	TAM	AB6	9					
TG1030	DMK	UBP	10.05	11.10	0	8	123	DMK	5	0	4	14	5	TDK	734	2					
TG1031	UBP	DMK	11.50	12.55	0	8	104	UBP	5	0	4	33	5	TDK	734	2					
TG104	BKK	CNX	3.30	4.40	0	42	174	BKK	5	0	4	27	5	TAY	AB7	9					
TG1041	KKC	DMK	0.50	1.45	0	7	80	KKC	5	0	5	57	5	TDK	734	0					
TG1044	DMK	KKC	4.20	5.15	0	31	120	DMK	5	0	15	81	5	TAF	AB7	0					
TG1045	KKC	DMK	6.0	6.55	0	10	84	KKC	5	0	36	117	5	TAF	AB7	0					
TG1046	DMK	KKC	12.15	13.10	0	35	25	DMK	5	0	11	176	5	TAF	AB7	0					
TG1047	KKC	DMK	13.55	14.50	0	40	29	KKC	5	0	6	172	5	TAF	AB7	0					
TG110	BKK	CNX	5.30	6.40	0	39	1	BKK	5	0	7	200	5	TAA	AB7	9					
TG1107	CNX	DMK	1.40	2.50	0	43	37	CNX	5	0	3	164	5	TAE	AB7	9					
TG111	CNX	BKK	7.30	8.40	0	26	150	CNX	5	0	28	51	5	TAA	AB7	9					
TG1116	DMK	CNX	8.0	9.10	0	4	21	DMK	5	0	42	180	5	TAE	AB7	9					
TG1117	CNX	DMK	9.55	11.05	0	31	95	CNX	5	0	15	106	5	TAE	AB7	9					
TG1124	DMK	CNX	14.35	15.45	0	4	7	DMK	5	0	42	194	5	TAD	AB7	9					
TG1132	DMK	CEI	2.15	3.35	0	1	71	DMK	5	0	11	66	5	TDF	734	10					
TG1133	CEI	DMK	4.20	5.40	0	6	90	CEI	5	0	6	47	5	TDF	734	10					
TG1140	DMK	CEI	11.0	12.20	0	1	58	DMK	5	0	11	79	5	TDF	734	10					
TG1141	CEI	DMK	13.05	14.20	0	0	96	CEI	5	0	12	41	5	TDF	734	10					
TG116	BKK	CNX	10.15	11.25	0	39	17	BKK	5	0	10	322	5	TKD	773	9					
TG1160	DMK	PHS	23.05	24.0	0	2	92	DMK	5	0	10	45	5	TDK	734	11					
TG1161	PHS	DMK	0.40	1.25	0	1	103	PHS	5	0	11	34	5	TDF	734	11					
TG1164	DMK	PHS	13.40	14.35	0	6	36	DMK	5	0	6	101	5	TDK	734	11					
TG1165	PHS	DMK	15.15	16.0	0	11	123	PHS	5	0	1	14	5	TDK	734	11					
TG117	CNX	BKK	12.15	13.25	0	2	165	CNX	5	0	47	174	5	TKD	773	9					
TG1200	HKT	DMK	8.35	10.0	0	20	149	HKT	5	0	26	52	5	TAY	AB7	6					
TG1204	HKT	DMK	2.25	3.50	0	31	174	HKT	5	0	15	27	5	TAD	AB7	6					
TG1205	DMK	HKT	3.40	5.0	0	41	37	DMK	5	0	5	164	5	TAE	AB7	6					
TG1206	HKT	DMK	5.45	7.10	0	23	110	HKT	5	0	23	91	5	TAE	AB7	6					
TG1213	DMK	HKT	5.35	6.55	0	42	166	DMK	5	0	4	35	5	TAD	AB7	6					
TG1214	HKT	DMK	7.40	9.05	0	29	138	HKT	5	0	17	63	5	TAD	AB7	6					
TG1221	DMK	HKT	12.30	13.50	0	45	156	DMK	5	0	1	45	5	TAE	AB7	6					
TG1232	HDY	DMK	1.20	2.50	0	37	41	HDY	5	0	9	160	5	TAF	AB7	3					
TG1233	DMK	HDY	6.40	8.10	0	11	137	DMK	5	0	1	0	5	TDF	734	3					
TG1234	HDY	DMK	8.50	10.20	0	6	82	HDY	5	0	6	55	5	TDF	734	3					
TG1235	DMK	HDY	10.0	11.30	0	1	162	DMK	5	0	45	39	5	TAD	AB7	3					
TG1236	HDY	DMK	12.15	13.45	0	42	90	HDY	5	0	4	111	5	TAD	AB7	3					
TG1245	DMK	KBV	7.45	9.05	0	40	149	DMK	5	0	6	52	5	TAF	AB7	8					
TG1246	KBV	DMK	9.50	11.10	0	33	186	KBV	5	0	13	15	5	TAF	AB7	8					
TG125	CNX	BKK	0.0	1.10	0	12	128	CNX	5	0	34	73	5	TAY	AB7	9					
TG1253	DMK	URT	2.35	3.50	0	7	123	DMK	5	0	5	14	5	TDG	734	4					
TG1254	URT	DMK	4.30	5.40	0	4	2	URT	5	0	8	135	5	TDG	734	4					
TG126	BKK	CNX	12.0	13.10	0	0	189	BKK	5	0	30	90	5	TJE	772	9					
TG127	CNX	BKK	14.0	15.10	0	11	163	CNX	5	0	19	116	5	TJE	772	9					
TG1273	DMK	URT	10.05	11.20	0	2	120	DMK	5	0	10	17	5	TDG	734	4					
TG1274	URT	DMK	12.0	13.10	0	3	86	URT	5	0	9	51	5	TDG	734	4					
TG129	CNX	HKT	5.50	7.45	0	13	143	CNX	5	0	33	58	5	TAY	AB7	6					
TG130	BKK	CEI	6.45	8.05	0	38	176	BKK	5	0	8	25	5	TAG	AB6	10					
TG131	CEI	BKK	8.55	10.10	0	22	86	CEI	5	0	24	115	5	TAG	AB6	10					
TG194	CNX	HGN	3.10	3.45	0	0	9	CNX	5	0	0	57	5	TRB	AT7	9					
TG195	HGN	CNX	4.05	4.40	0	0	21	HGN	5	0	0	45	5	TRB	AT7	9					
TG196	CNX	HGN	9.10	9.45	0	0	42	CNX	5	0	0	24	5	TRB	AT7	9					
TG197	HGN	CNX	10.05	10.40	0	0	51	HGN	5	0	0	15	5	TRB	AT7	9					
TG201	BKK	HKT	0.50	2.10	0	33	39	BKK	5	0	17	286	5	TGJ	744	6					
TG202	HKT	BKK	3.0	4.25	0	7	278	HKT	5	0	43	47	5	TGJ	744	6					
TG203	BKK	HKT	0.20	1.40	0	34	186	BKK	5	0	12	15	5	TAD	AB7	6					
TG213	BKK	HKT	7.05	8.25	0	9	164	BKK	5	0	21	135	5	TJC	772	6					
TG214	HKT	BKK	9.15	10.40	0	26	78	HKT	5	0	4	201	5	TJC	772	6					
TG217	BKK	HKT	9.0	10.20	0	8	110	BKK	5	0	42	215	5	TGR	744	6					
TG218	HKT	BKK	11.25	12.50	0	4	215	HKT	5	0	46	110	5	TGR	744	6					
TG223	BKK	HKT	11.20	12.40	0	8	36	BKK	5	0	42	289	5	TGO	744	6					
TG224	HKT	BKK	13.50	15.15	0	10	1	HKT	5	0	40	324	5	TGO	744	6					
TG225	BKK	HKT	15.15	16.35	0	44	30	BKK	5	0	2	171	5	TAR	AB6	6					
TG226	HKT	BKK	0.25	1.50	0	2	132	HKT	5	0	44	69	5	TAA	AB7	6					
TG228	HKT	BKK	14.35	16.0	0	4	55	HKT	5	0	42	146	5	TAE	AB7	6					
TG249	BKK	KBV	1.0	2.20	0	43	116	BKK	5	0	3	85	5	TAG	AB6	8					
TG250	KBV	BKK	3.10	4.30	0	3	196	KBV	5	0	43	5	5	TAG	AB6	8					
TG259	BKK	KBV	11.55	13.15	0	1	102	BKK	5	0	11	35	5	TDH	734	8					
TG260	KBV	BKK	14.05	15.25	0	4	22	KBV	5	0	8	115	5	TDH	734	8					

Figure 75: Flight data of 24/8/07

TG1002	DMK	UTH	2.25	3.30	0	9	128	DMK	5	0	3	9	5	TDG	734	1							
TG1003	UTH	DMK	4.10	5.10	0	8	101	UTH	5	0	4	36	5	TDG	734	1							
TG1010	DMK	UTH	6.20	7.25	0	1	94	DMK	5	0	11	43	5	TDG	734	1							
TG1011	UTH	DMK	8.05	9.05	0	2	79	UTH	5	0	10	58	5	TDG	734	1							
TG1014	DMK	UTH	11.0	12.05	0	46	46	DMK	5	0	0	155	5	TAD	A87	1							
TG1015	UTH	DMK	12.45	13.45	0	14	142	UTH	5	0	32	59	5	TAD	A87	1							
TG102	BKK	CNX	0.45	1.55	0	21	122	BKK	5	0	25	79	5	TAM	A86	9							
TG1021	UBP	DMK	0.45	1.50	0	9	69	UBP	5	0	3	68	5	TDF	734	2							
TG1022	DMK	UBP	6.25	7.30	0	0	35	DMK	5	0	12	102	5	TDF	734	2							
TG1023	UBP	DMK	8.10	9.15	0	11	13	UBP	5	0	1	124	5	TDF	734	2							
TG103	CNX	BKK	2.45	3.55	0	2	53	CNX	5	0	44	148	5	TAM	A86	9							
TG1030	DMK	UBP	10.05	11.10	0	8	24	DMK	5	0	4	113	5	TDG	734	2							
TG1031	UBP	DMK	11.50	12.55	0	5	21	UBP	5	0	7	116	5	TDG	734	2							
TG104	BKK	CNX	3.30	4.40	0	36	86	BKK	5	0	10	115	5	TAD	A87	9							
TG1041	KKC	DMK	0.50	1.45	0	5	24	KKC	5	0	7	113	5	TDG	734	0							
TG1044	DMK	KKC	4.20	5.15	0	7	190	DMK	5	0	39	11	5	TAF	A87	0							
TG1045	KKC	DMK	6.0	6.55	0	23	180	KKC	5	0	23	21	5	TAF	A87	0							
TG1046	DMK	KKC	12.15	13.10	0	1	7	DMK	5	0	45	194	5	TAF	A87	0							
TG1047	KKC	DMK	13.55	14.50	0	25	190	KKC	5	0	21	11	5	TAF	A87	0							
TG110	BKK	CNX	5.30	6.40	0	8	3	BKK	5	0	4	134	5	TDH	734	9							
TG1107	CNX	DMK	1.40	2.50	0	30	13	CNX	5	0	16	188	5	TAY	A87	9							
TG111	CNX	BKK	7.30	8.40	0	9	44	CNX	5	0	3	93	5	TDH	734	9							
TG1116	DMK	CNX	8.0	9.10	0	5	19	DMK	5	0	41	182	5	TAY	A87	9							
TG1117	CNX	DMK	9.55	11.05	0	31	11	CNX	5	0	15	190	5	TAY	A87	9							
TG1124	DMK	CNX	14.35	15.45	0	41	73	DMK	5	0	5	128	5	TAE	A87	9							
TG1132	DMK	CEI	2.15	3.35	0	11	20	DMK	5	0	1	117	5	TDK	734	10							
TG1133	CEI	DMK	4.20	5.40	0	2	6	CEI	5	0	10	131	5	TDK	734	10							
TG1140	DMK	CEI	11.0	12.20	0	5	112	DMK	5	0	7	25	5	TDK	734	10							
TG1141	CEI	DMK	13.05	14.20	0	7	41	CEI	5	0	5	96	5	TDK	734	10							
TG116	BKK	CNX	10.15	11.25	0	5	229	BKK	5	0	44	110	5	TKD	773	9							
TG1160	DMK	PHS	23.05	24.0	0	4	60	DMK	5	0	8	77	5	TDG	734	11							
TG1161	PHS	DMK	0.40	1.25	0	6	100	PHS	5	0	6	37	5	TDK	734	11							
TG1164	DMK	PHS	13.40	14.35	0	6	26	DMK	5	0	6	111	5	TDG	734	11							
TG1165	PHS	DMK	15.15	16.0	0	1	61	PHS	5	0	11	76	5	TDG	734	11							
TG117	CNX	BKK	12.15	13.25	0	21	265	CNX	5	0	28	74	5	TKD	773	9							
TG1200	HKT	DMK	8.35	10.0	0	28	5	HKT	5	0	18	196	5	TAD	A87	6							
TG1204	HKT	DMK	2.25	3.50	0	35	97	HKT	5	0	11	104	5	TAE	A87	6							
TG1205	DMK	HKT	3.40	5.0	0	11	68	DMK	5	0	35	133	5	TAY	A87	6							
TG1206	HKT	DMK	5.45	7.10	0	31	15	HKT	5	0	15	186	5	TAY	A87	6							
TG1213	DMK	HKT	5.35	6.55	0	19	163	DMK	5	0	27	38	5	TAE	A87	6							
TG1214	HKT	DMK	7.40	9.05	0	33	26	HKT	5	0	13	175	5	TAE	A87	6							
TG1221	DMK	HKT	12.30	13.50	0	5	110	DMK	5	0	41	91	5	TAY	A87	6							
TG1232	HDY	DMK	1.20	2.50	0	29	88	HDY	5	0	17	113	5	TAF	A87	3							
TG1233	DMK	HDY	6.40	8.10	0	10	51	DMK	5	0	2	86	5	TDK	734	3							
TG1234	HDY	DMK	8.50	10.20	0	5	60	HDY	5	0	7	77	5	TDK	734	3							
TG1235	DMK	HDY	10.0	11.30	0	36	182	DMK	5	0	10	19	5	TAE	A87	3							
TG1236	HDY	DMK	12.15	13.45	0	42	24	HDY	5	0	4	177	5	TAE	A87	3							
TG1245	DMK	KBV	7.45	9.05	0	33	69	DMK	5	0	13	132	5	TAF	A87	8							
TG1246	KBV	DMK	9.50	11.10	0	34	119	KBV	5	0	12	82	5	TAF	A87	8							
TG125	CNX	BKK	0.0	1.10	0	39	95	CNX	5	0	7	106	5	TAD	A87	9							
TG1253	DMK	URT	2.35	3.50	0	2	25	DMK	5	0	10	112	5	TDF	734	4							
TG1254	URT	DMK	4.30	5.40	0	5	115	URT	5	0	7	22	5	TDF	734	4							
TG126	BKK	CNX	12.0	13.10	0	7	193	BKK	5	0	23	86	5	TJH	772	9							
TG127	CNX	BKK	14.0	15.10	0	6	147	CNX	5	0	24	132	5	TJH	772	9							
TG1273	DMK	URT	10.05	11.20	0	11	25	DMK	5	0	1	112	5	TDF	734	4							
TG1274	URT	DMK	12.0	13.10	0	6	97	URT	5	0	6	40	5	TDF	734	4							
TG129	CNX	HKT	5.50	7.45	0	8	71	CNX	5	0	38	130	5	TAD	A87	6							
TG130	BKK	CEI	6.45	8.05	0	5	31	BKK	5	0	41	170	5	TAM	A86	10							
TG131	CEI	BKK	8.55	10.10	0	12	143	CEI	5	0	34	58	5	TAM	A86	10							
TG194	CNX	HGN	3.10	3.45	0	0	30	CNX	5	0	0	36	5	TRB	AT7	9							
TG195	HGN	CNX	4.05	4.40	0	0	52	HGN	5	0	0	14	5	TRB	AT7	9							
TG196	CNX	HGN	9.10	9.45	0	0	43	CNX	5	0	0	23	5	TRB	AT7	9							
TG197	HGN	CNX	10.05	10.40	0	0	27	HGN	5	0	0	39	5	TRB	AT7	9							
TG201	BKK	HKT	0.50	2.10	0	0	27	BKK	5	0	0	39	5	TEM	333	6							
TG202	HKT	BKK	3.0	4.25	0	0	27	HKT	5	0	0	39	5	TEM	333	6							
TG203	BKK	HKT	0.20	1.40	0	1	146	BKK	5	0	45	55	5	TAE	A87	6							
TG213	BKK	HKT	7.05	8.25	0	30	82	BKK	5	0	16	119	5	TAL	A86	6							
TG214	HKT	BKK	9.15	10.40	0	9	134	HKT	5	0	37	67	5	TAL	A86	6							
TG217	BKK	HKT	9.0	10.20	0	27	195	BKK	5	0	23	130	5	TGJ	744	6							
TG218	HKT	BKK	11.25	12.50	0	3	308	HKT	5	0	47	17	5	TGJ	744	6							
TG223	BKK	HKT	11.20	12.40	0	40	140	BKK	5	0	10	185	5	TGK	744	6							
TG224	HKT	BKK	13.50	15.15	0	25	8	HKT	5	0	25	317	5	TGK	744	6							
TG225	BKK	HKT	15.15	16.35	0	23	110	BKK	5	0	23	91	5	TAK	A86	6							
TG226	HKT	BKK	0.25	1.50	0	32	101	HKT	5	0	14	100	5	TAK	A86	6							
TG228	HKT	BKK	14.35	16.0	0	3	115	HKT	5	0	43	86	5	TAY	A87	6							
TG249	BKK	KBV	1.0	2.20	0	1	80	BKK	5	0	11	57	5	TDH	734	8							
TG250	KBV	BKK	3.10	4.30	0	12	42	KBV	5	0	0	95	5	TDH	734	8							
TG259	BKK	KBV	11.55	13.15	0	25	71	BKK	5	0	21	130	5	TAM	A86	8							
TG260	KBV	BKK	14.05	15.25	0	20	146	KBV	5	0	26	55	5	TAM	A86	8							

Figure 76: Flight data of 25/8/07

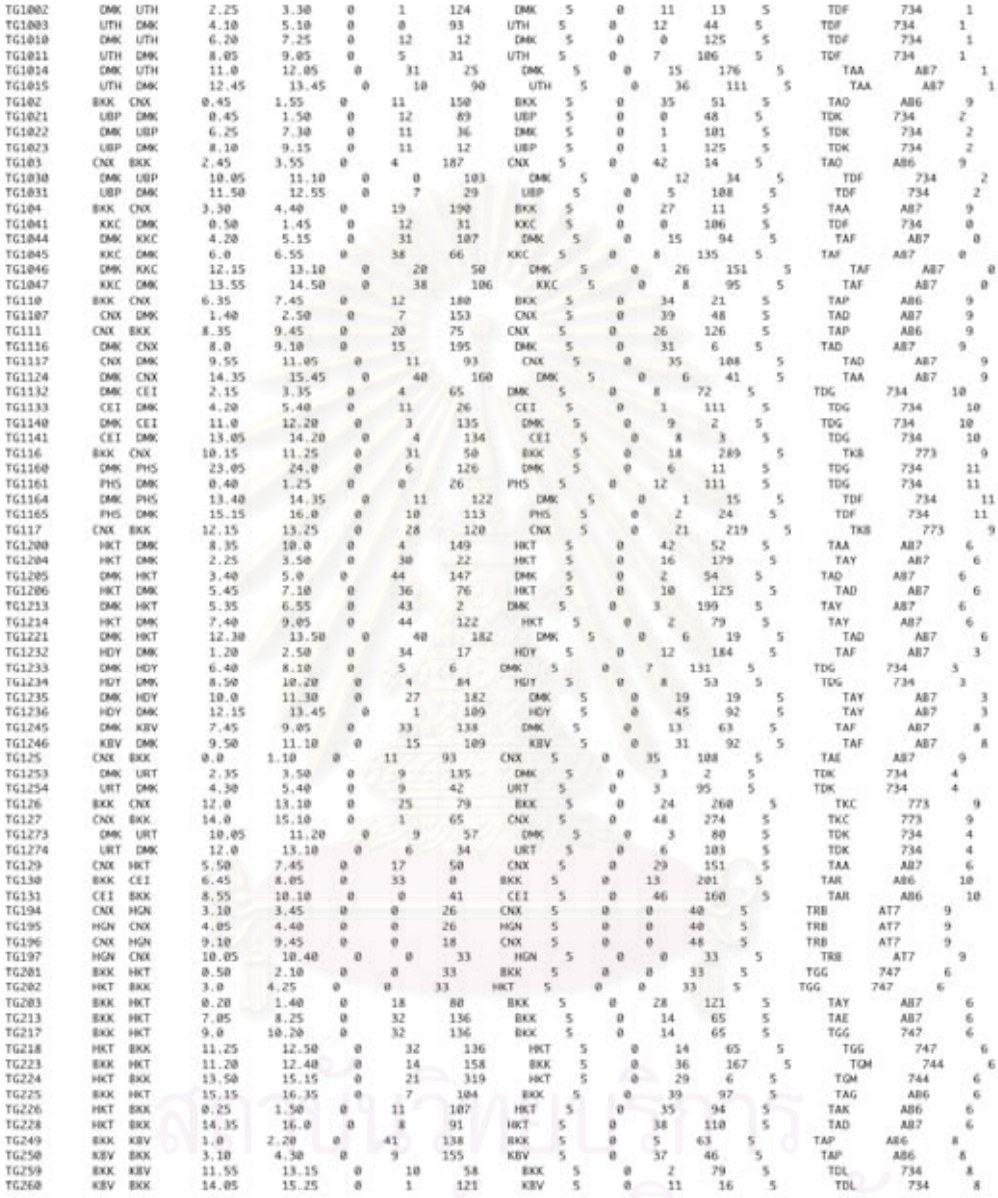
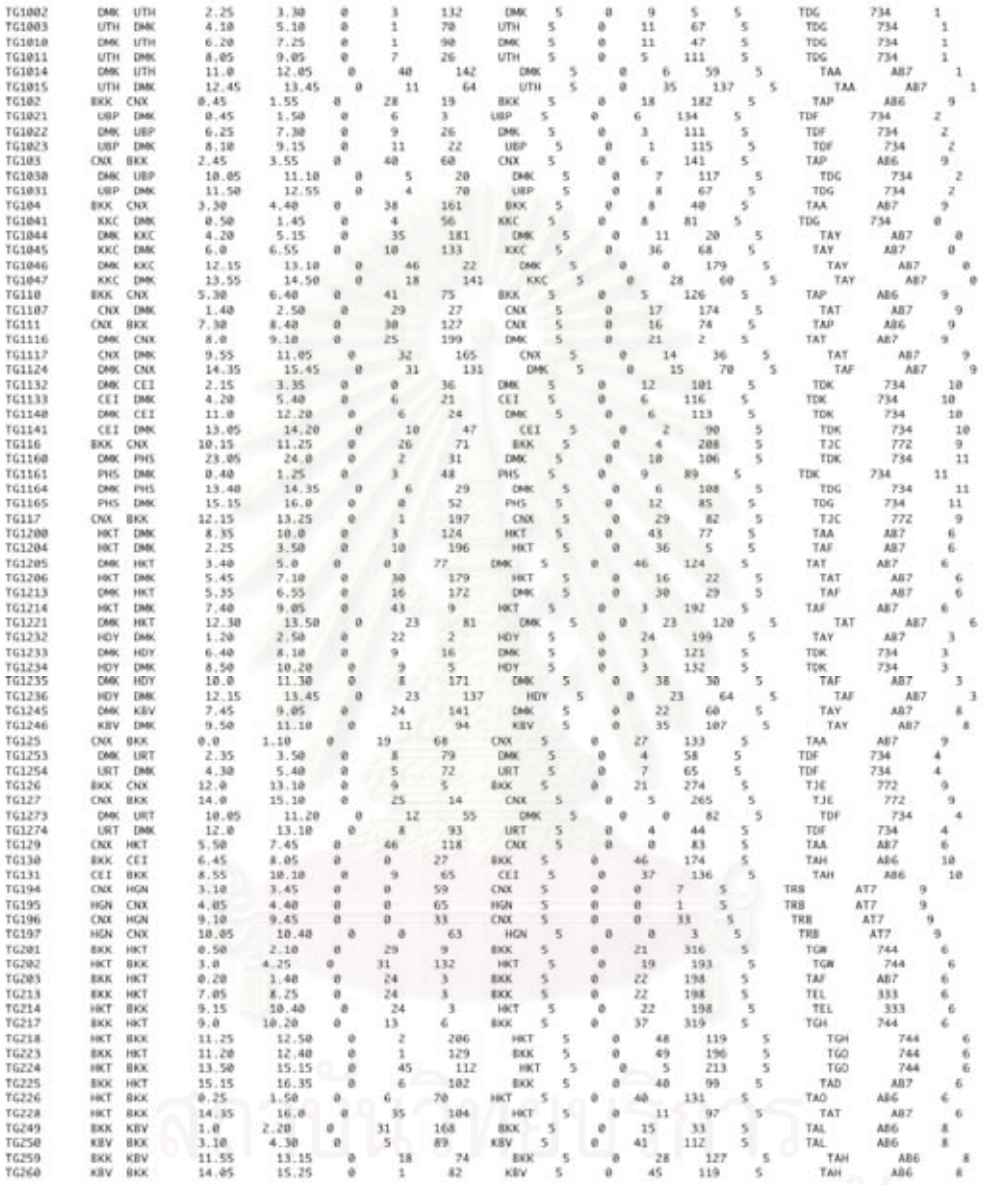


Figure 77: Flight data of 26/8/07

TG1002	DMK	UTH	2.25	3.30	0	10	54	DMK	5	0	2	83	5	TDF	734	1			
TG1003	UTH	DMK	4.10	5.10	0	5	123	UTH	5	0	7	14	5	TDF	734	1			
TG1010	DMK	UTH	6.20	7.25	0	8	75	DMK	5	0	4	62	5	TDF	734	1			
TG1011	UTH	DMK	8.05	9.05	0	10	62	UTH	5	0	2	75	5	TDF	734	1			
TG1014	DMK	UTH	11.0	12.05	0	13	171	DMK	5	0	33	30	5	TAA	A87	1			
TG1015	UTH	DMK	12.45	13.45	0	19	183	UTH	5	0	27	18	5	TAA	A87	1			
TG102	BKK	CNX	0.45	1.55	0	6	36	BKK	5	0	40	165	5	TAN	A86	9			
TG1021	UBP	DMK	0.45	1.50	0	4	24	UBP	5	0	8	113	5	TDK	734	2			
TG1022	DMK	UBP	6.25	7.30	0	0	125	DMK	5	0	12	12	5	TDK	734	2			
TG1023	UBP	DMK	8.10	9.15	0	7	2	UBP	5	0	5	135	5	TDK	734	2			
TG103	CNX	BKK	2.45	3.55	0	17	9	CNX	5	0	29	192	5	TAN	A86	9			
TG1030	DMK	UBP	10.05	11.10	0	3	75	DMK	5	0	9	62	5	TDF	734	2			
TG1031	UBP	DMK	11.50	12.55	0	5	94	UBP	5	0	7	43	5	TDF	734	2			
TG104	BKK	CNX	3.30	4.40	0	27	51	BKK	5	0	19	150	5	TAA	A87	9			
TG1041	KKC	DMK	0.50	1.45	0	12	46	KKC	5	0	0	91	5	TDF	734	0			
TG1044	DMK	KKC	4.20	5.15	0	4	88	DMK	5	0	42	113	5	TAY	A87	0			
TG1045	KKC	DMK	6.0	6.55	0	23	29	KKC	5	0	23	172	5	TAY	A87	0			
TG1046	DMK	KKC	12.15	13.10	0	18	52	DMK	5	0	28	149	5	TAY	A87	0			
TG1047	KKC	DMK	13.55	14.50	0	40	120	KKC	5	0	6	81	5	TAY	A87	0			
TG110	BKK	CNX	5.30	6.40	0	2	101	BKK	5	0	10	36	5	TDH	734	9			
TG1107	CNX	DMK	1.40	2.50	0	32	138	CNX	5	0	14	63	5	TAF	A87	9			
TG111	CNX	BKK	7.30	8.40	0	8	60	CNX	5	0	4	77	5	TDH	734	9			
TG1116	DMK	CNX	8.0	9.10	0	48	7	DMK	5	0	6	194	5	TAF	A87	9			
TG1117	CNX	DMK	9.55	11.05	0	23	26	CNX	5	0	23	175	5	TAF	A87	9			
TG1124	DMK	CNX	14.35	15.45	0	17	26	DMK	5	0	29	175	5	TAA	A87	9			
TG1132	DMK	CEI	2.15	3.35	0	11	102	DMK	5	0	1	35	5	TDG	734	10			
TG1133	CEI	DMK	4.20	5.40	0	9	49	CEI	5	0	3	88	5	TDG	734	10			
TG1140	DMK	CEI	11.0	12.20	0	9	35	DMK	5	0	3	102	5	TDG	734	10			
TG1141	CEI	DMK	13.05	14.20	0	11	39	CEI	5	0	1	98	5	TDG	734	10			
TG116	BKK	CNX	10.15	11.25	0	20	314	BKK	5	0	29	25	5	TKB	773	9			
TG1160	DMK	PHS	23.05	24.0	0	1	106	DMK	5	0	11	31	5	TDK	734	11			
TG1161	PHS	DMK	0.40	1.25	0	6	80	PHS	5	0	6	57	5	TDG	734	11			
TG1164	DMK	PHS	13.40	14.35	0	6	31	DMK	5	0	6	106	5	TDF	734	11			
TG1165	PHS	DMK	15.15	16.0	0	12	119	PHS	5	0	0	18	5	TDF	734	11			
TG117	CNX	BKK	12.15	13.25	0	15	215	CNX	5	0	34	124	5	TKB	773	9			
TG1200	HKT	DMK	8.35	10.0	0	28	73	HKT	5	0	18	128	5	TAA	A87	6			
TG1204	HKT	DMK	2.25	3.50	0	19	117	HKT	5	0	27	84	5	TAT	A87	6			
TG1205	DMK	HKT	3.40	5.0	0	24	43	DMK	5	0	22	158	5	TAF	A87	6			
TG1206	HKT	DMK	5.45	7.10	0	25	70	HKT	5	0	21	131	5	TAF	A87	6			
TG1213	DMK	HKT	5.35	6.55	0	46	59	DMK	5	0	0	142	5	TAT	A87	6			
TG1214	HKT	DMK	7.40	9.05	0	11	2	HKT	5	0	35	199	5	TAT	A87	6			
TG1221	DMK	HKT	12.30	13.50	0	29	151	DMK	5	0	17	50	5	TAF	A87	6			
TG1232	HDY	DMK	1.20	2.50	0	8	94	HDY	5	0	38	187	5	TAY	A87	3			
TG1233	DMK	HDY	6.40	8.10	0	6	77	DMK	5	0	6	60	5	TDG	734	3			
TG1234	HDY	DMK	8.50	10.20	0	0	31	HDY	5	0	12	106	5	TDG	734	3			
TG1235	DMK	HDY	10.0	11.30	0	7	2	DMK	5	0	39	199	5	TAT	A87	3			
TG1236	HDY	DMK	12.15	13.45	0	41	184	HDY	5	0	5	17	5	TAT	A87	3			
TG1245	DMK	KBV	7.45	9.05	0	46	101	DMK	5	0	0	100	5	TAY	A87	8			
TG1246	KBV	DMK	9.50	11.10	0	14	55	KBV	5	0	32	146	5	TAY	A87	8			
TG125	CNX	BKK	0.0	1.10	0	7	100	CNX	5	0	39	101	5	TAA	A87	9			
TG1253	DMK	URT	2.35	3.50	0	5	95	DMK	5	0	7	42	5	TDK	734	4			
TG1254	URT	DMK	4.30	5.40	0	3	116	URT	5	0	9	21	5	TDK	734	4			
TG126	BKK	CNX	12.0	13.10	0	26	60	BKK	5	0	4	219	5	TJC	772	9			
TG127	CNX	BKK	14.0	15.10	0	18	135	CNX	5	0	12	144	5	TJC	772	9			
TG1273	DMK	URT	10.05	11.20	0	11	17	DMK	5	0	1	120	5	TDK	734	4			
TG1274	URT	DMK	12.0	13.10	0	3	23	URT	5	0	9	114	5	TDK	734	4			
TG129	CNX	HKT	5.50	7.45	0	43	10	CNX	5	0	3	191	5	TAA	A87	6			
TG130	BKK	CEI	6.45	8.05	0	32	195	BKK	5	0	14	6	5	TAR	A86	10			
TG131	CEI	BKK	8.55	10.10	0	23	54	CEI	5	0	23	147	5	TAR	A86	10			
TG194	CNX	HGN	3.10	3.45	0	0	14	CNX	5	0	0	52	5	TRB	AT7	9			
TG195	HGN	CNX	4.05	4.40	0	0	21	HGN	5	0	0	45	5	TRB	AT7	9			
TG196	CNX	HGN	9.10	9.45	0	0	51	CNX	5	0	0	15	5	TRB	AT7	9			
TG197	HGN	CNX	10.05	10.40	0	0	51	HGN	5	0	0	15	5	TRB	AT7	9			
TG201	BKK	HKT	0.50	2.10	0	0	51	BKK	5	0	0	15	5	TGZ	747	6			
TG202	HKT	BKK	3.0	4.25	0	0	51	HKT	5	0	0	15	5	TGZ	747	6			
TG203	BKK	HKT	0.20	1.40	0	34	66	BKK	5	0	12	135	5	TAT	A87	6			
TG213	BKK	HKT	7.05	8.25	0	37	89	BKK	5	0	9	112	5	TAL	A86	6			
TG214	HKT	BKK	9.15	10.40	0	2	145	HKT	5	0	44	56	5	TAL	A86	6			
TG217	BKK	HKT	9.0	10.20	0	2	145	BKK	5	0	44	56	5	TGZ	747	6			
TG218	HKT	BKK	11.25	12.50	0	2	145	HKT	5	0	44	56	5	TGZ	747	6			
TG223	BKK	HKT	11.20	12.40	0	2	145	BKK	5	0	44	56	5	TGA	747	6			
TG224	HKT	BKK	13.50	15.15	0	2	145	HKT	5	0	44	56	5	TGA	747	6			
TG225	BKK	HKT	15.15	16.35	0	43	10	BKK	5	0	3	191	5	TAO	A86	6			
TG226	HKT	BKK	0.25	1.50	0	22	129	HKT	5	0	24	72	5	TAG	A86	6			
TG228	HKT	BKK	14.35	16.0	0	32	23	HKT	5	0	14	178	5	TAF	A87	6			
TG249	BKK	KBV	1.0	2.20	0	13	116	BKK	5	0	33	85	5	TAR	A86	8			
TG250	KBV	BKK	3.10	4.30	0	7	170	KBV	5	0	39	31	5	TAR	A86	8			
TG259	BKK	KBV	11.55	13.15	0	3	60	BKK	5	0	9	77	5	TDH	734	8			
TG260	KBV	BKK	14.05	15.25	0	11	123	KBV	5	0	1	14	5	TDH	734	8			

Figure 78: Flight data of 27/8/07



TG1002	DMK	UTH	2.25	3.30	0	3	132	DMK	5	0	9	5	5	TDG	734	1										
TG1003	UTH	DMK	4.10	5.10	0	1	70	UTH	5	0	11	67	5	TDG	734	1										
TG1010	DMK	UTH	6.20	7.25	0	1	90	DMK	5	0	11	47	5	TDG	734	1										
TG1011	UTH	DMK	8.05	9.05	0	7	26	UTH	5	0	5	111	5	TDG	734	1										
TG1014	DMK	UTH	11.0	12.05	0	40	142	DMK	5	0	6	59	5	TAA	AB7	1										
TG1015	UTH	DMK	12.45	13.45	0	11	64	UTH	5	0	35	137	5	TAA	AB7	1										
TG102	BKK	CNX	0.45	1.55	0	28	19	BKK	5	0	18	182	5	TAP	AB6	9										
TG1021	UBP	DMK	0.45	1.50	0	6	3	UBP	5	0	6	134	5	TDF	734	2										
TG1022	DMK	UBP	6.25	7.30	0	9	26	DMK	5	0	3	111	5	TDF	734	2										
TG1023	UBP	DMK	8.10	9.15	0	11	22	UBP	5	0	1	115	5	TDF	734	2										
TG103	CNX	BKK	2.45	3.55	0	40	60	CNX	5	0	6	141	5	TAP	AB6	9										
TG1030	DMK	UBP	10.05	11.10	0	5	20	DMK	5	0	7	117	5	TDG	734	2										
TG1031	UBP	DMK	11.50	12.55	0	4	70	UBP	5	0	8	67	5	TDG	734	2										
TG104	BKK	CNX	3.30	4.40	0	38	161	BKK	5	0	8	40	5	TAA	AB7	9										
TG1041	KKC	DMK	0.50	1.45	0	4	56	KKC	5	0	8	81	5	TDG	734	0										
TG1044	DMK	KKC	4.20	5.15	0	35	181	DMK	5	0	11	20	5	TAY	AB7	0										
TG1045	KKC	DMK	6.0	6.55	0	10	133	KKC	5	0	36	68	5	TAY	AB7	0										
TG1046	DMK	KKC	12.15	13.10	0	46	22	DMK	5	0	0	179	5	TAY	AB7	0										
TG1047	KKC	DMK	13.55	14.50	0	18	141	KKC	5	0	28	60	5	TAY	AB7	0										
TG110	BKK	CNX	5.30	6.40	0	41	75	BKK	5	0	5	126	5	TAP	AB6	9										
TG1107	CNX	DMK	1.40	2.50	0	29	27	CNX	5	0	17	174	5	TAT	AB7	9										
TG111	CNX	BKK	7.30	8.40	0	30	127	CNX	5	0	16	74	5	TAP	AB6	9										
TG1116	DMK	CNX	8.0	9.10	0	25	199	DMK	5	0	21	2	5	TAT	AB7	9										
TG1117	CNX	DMK	9.55	11.05	0	32	165	CNX	5	0	14	36	5	TAT	AB7	9										
TG1124	DMK	CNX	14.35	15.45	0	31	131	DMK	5	0	15	70	5	TAF	AB7	9										
TG1132	DMK	CEI	2.15	3.35	0	0	36	DMK	5	0	12	101	5	TDK	734	10										
TG1133	CEI	DMK	4.20	5.40	0	6	21	CEI	5	0	6	116	5	TDK	734	10										
TG1140	DMK	CEI	11.0	12.20	0	6	24	DMK	5	0	6	113	5	TDK	734	10										
TG1141	CEI	DMK	13.05	14.20	0	10	47	CEI	5	0	2	90	5	TDK	734	10										
TG116	BKK	CNX	10.15	11.25	0	26	71	BKK	5	0	4	208	5	TJC	772	9										
TG1160	DMK	PHS	23.05	24.0	0	2	31	DMK	5	0	10	106	5	TDK	734	11										
TG1161	PHS	DMK	0.40	1.25	0	3	48	PHS	5	0	9	89	5	TDK	734	11										
TG1164	DMK	PHS	13.40	14.35	0	6	29	DMK	5	0	6	108	5	TDG	734	11										
TG1165	PHS	DMK	15.15	16.0	0	0	52	PHS	5	0	12	85	5	TDG	734	11										
TG117	CNX	BKK	12.15	13.25	0	1	197	CNX	5	0	29	82	5	TJC	772	9										
TG1200	HKT	DMK	8.35	10.0	0	3	124	HKT	5	0	43	77	5	TAA	AB7	6										
TG1204	HKT	DMK	2.25	3.50	0	10	196	HKT	5	0	36	5	5	TAF	AB7	6										
TG1205	DMK	HKT	3.40	5.0	0	0	77	DMK	5	0	46	124	5	TAT	AB7	6										
TG1206	HKT	DMK	5.45	7.10	0	30	179	HKT	5	0	16	22	5	TAT	AB7	6										
TG1213	DMK	HKT	5.35	6.55	0	16	172	DMK	5	0	30	29	5	TAF	AB7	6										
TG1214	HKT	DMK	7.40	9.05	0	43	9	HKT	5	0	3	192	5	TAF	AB7	6										
TG1221	DMK	HKT	12.30	13.50	0	23	81	DMK	5	0	23	120	5	TAT	AB7	6										
TG1232	HDY	DMK	1.20	2.50	0	22	2	HDY	5	0	24	199	5	TAY	AB7	3										
TG1233	DMK	HDY	6.40	8.10	0	9	16	DMK	5	0	3	121	5	TDK	734	3										
TG1234	HDY	DMK	8.50	10.20	0	9	5	HDY	5	0	3	132	5	TDK	734	3										
TG1235	DMK	HDY	10.0	11.30	0	8	171	DMK	5	0	38	30	5	TAF	AB7	3										
TG1236	HDY	DMK	12.15	13.45	0	23	137	HDY	5	0	23	64	5	TAF	AB7	3										
TG1245	DMK	KBV	7.45	9.05	0	24	141	DMK	5	0	22	60	5	TAY	AB7	8										
TG1246	KBV	DMK	9.50	11.10	0	11	94	KBV	5	0	35	107	5	TAY	AB7	8										
TG125	CNX	BKK	0.0	1.10	0	19	68	CNX	5	0	27	133	5	TAA	AB7	9										
TG1253	DMK	URT	2.35	3.50	0	8	79	DMK	5	0	4	58	5	TDF	734	4										
TG1254	URT	DMK	4.30	5.40	0	5	72	URT	5	0	7	65	5	TDF	734	4										
TG126	BKK	CNX	12.0	13.10	0	9	5	BKK	5	0	21	274	5	TJE	772	9										
TG127	CNX	BKK	14.0	15.10	0	25	14	CNX	5	0	5	265	5	TJE	772	9										
TG1273	DMK	URT	10.05	11.20	0	12	55	DMK	5	0	0	82	5	TDF	734	4										
TG1274	URT	DMK	12.0	13.10	0	8	93	URT	5	0	4	44	5	TDF	734	4										
TG129	CNX	HKT	5.50	7.45	0	46	118	CNX	5	0	0	83	5	TAA	AB7	6										
TG130	BKK	CEI	6.45	8.05	0	0	27	BKK	5	0	46	174	5	TAH	AB6	10										
TG131	CEI	BKK	8.55	10.10	0	9	65	CEI	5	0	37	136	5	TAH	AB6	10										
TG194	CNX	HGN	3.10	3.45	0	0	59	CNX	5	0	0	7	5	TRB	AT7	9										
TG195	HGN	CNX	4.05	4.40	0	0	65	HGN	5	0	0	1	5	TRB	AT7	9										
TG196	CNX	HGN	9.10	9.45	0	0	33	CNX	5	0	0	33	5	TRB	AT7	9										
TG197	HGN	CNX	10.05	10.40	0	0	63	HGN	5	0	0	3	5	TRB	AT7	9										
TG201	BKK	HKT	0.50	2.10	0	29	9	BKK	5	0	21	316	5	TGW	744	6										
TG202	HKT	BKK	3.0	4.25	0	31	132	HKT	5	0	39	193	5	TGW	744	6										
TG203	BKK	HKT	0.20	1.40	0	24	3	BKK	5	0	22	198	5	TAF	AB7	6										
TG213	BKK	HKT	7.05	8.25	0	24	3	BKK	5	0	22	198	5	TEL	333	6										
TG214	HKT	BKK	9.15	10.40	0	24	3	HKT	5	0	22	198	5	TEL	333	6										
TG217	BKK	HKT	9.0	10.20	0	13	6	BKK	5	0	37	319	5	TGH	744	6										
TG218	HKT	BKK	11.25	12.50	0	2	206	HKT	5	0	48	119	5	TGH	744	6										
TG223	BKK	HKT	11.20	12.40	0	1	129	BKK	5	0	49	196	5	TGO	744	6										
TG224	HKT	BKK	13.50	15.15	0	45	112	HKT	5	0	5	213	5	TGO	744	6										
TG225	BKK	HKT	15.15	16.35	0	6	102	BKK	5	0	40	99	5	TAD	AB7	6										
TG226	HKT	BKK	0.25	1.50	0	6	70	HKT	5	0	40	131	5	TAO	AB6	6										
TG228	HKT	BKK	14.35	16.0	0	35	104	HKT	5	0	11	97	5	TAT	AB7	6										
TG249	BKK	KBV	1.0	2.20	0	31	168	BKK	5	0	15	33	5	TAL	AB6	8										
TG250	KBV	BKK	3.10	4.30	0	5	89	KBV	5	0	41	112	5	TAL	AB6	8										
TG259	BKK	KBV	11.55	13.15	0	18	74	BKK	5	0	28	127	5	TAH	AB6	8										
TG260	KBV	BKK	14.05	15.25	0	1	82	KBV	5	0	45	119	5	TAH	AB6	8										

Figure 79: Flight data of 28/8/07

TG1002	DMK	UTH	2.25	3.30	0	11	17	DMK	5	0	1	120	5	TDF	734	1							
TG1003	UTH	DMK	4.10	5.10	0	8	133	UTH	5	0	4	4	5	TDF	734	1							
TG1010	DMK	UTH	6.20	7.25	0	8	98	DMK	5	0	4	39	5	TDF	734	1							
TG1011	UTH	DMK	8.05	9.05	0	5	88	UTH	5	0	7	49	5	TDF	734	1							
TG1014	DMK	UTH	11.0	12.05	0	25	65	DMK	5	0	21	136	5	TAF	A87	1							
TG1015	UTH	DMK	12.45	13.45	0	31	69	UTH	5	0	15	132	5	TAF	A87	1							
TG102	BKK	CNX	0.45	1.55	0	3	42	BKK	5	0	43	159	5	TAH	A86	9							
TG1021	UBP	DMK	0.45	1.50	0	5	119	UBP	5	0	7	18	5	TDG	734	2							
TG1022	DMK	UBP	6.25	7.30	0	11	17	DMK	5	0	1	120	5	TDG	734	2							
TG1023	UBP	DMK	8.10	9.15	0	12	4	UBP	5	0	0	133	5	TDG	734	2							
TG103	CNX	BKK	2.45	3.55	0	3	41	CNX	5	0	43	160	5	TAH	A86	9							
TG1030	DMK	UBP	10.05	11.10	0	11	33	DMK	5	0	1	104	5	TDF	734	2							
TG1031	UBP	DMK	11.50	12.55	0	1	8	UBP	5	0	11	129	5	TDF	734	2							
TG104	BKK	CNX	3.30	4.40	0	12	90	BKK	5	0	34	111	5	TAF	A87	9							
TG1041	KKC	DMK	0.50	1.45	0	3	120	KKC	5	0	9	17	5	TDF	734	0							
TG1044	DMK	KKC	4.20	5.15	0	37	24	DMK	5	0	9	177	5	TAD	A87	0							
TG1045	KKC	DMK	6.0	6.55	0	34	23	KKC	5	0	12	178	5	TAD	A87	0							
TG1046	DMK	KKC	12.15	13.10	0	43	81	DMK	5	0	3	120	5	TAD	A87	0							
TG1047	KKC	DMK	13.55	14.50	0	6	120	KKC	5	0	40	81	5	TAD	A87	0							
TG110	BKK	CNX	6.0	7.10	0	6	120	BKK	5	0	40	81	5	TEM	333	9							
TG1107	CNX	DMK	1.40	2.50	0	14	69	CNX	5	0	32	132	5	TAA	A87	9							
TG111	CNX	BKK	8.0	9.10	0	14	69	CNX	5	0	32	132	5	TEM	333	9							
TG1116	DMK	CNX	8.0	9.10	0	32	28	DMK	5	0	14	173	5	TAA	A87	9							
TG1117	CNX	DMK	9.55	11.05	0	41	112	CNX	5	0	5	89	5	TAA	A87	9							
TG1124	DMK	CNX	14.35	15.45	0	38	54	DMK	5	0	8	147	5	TAZ	A87	9							
TG1132	DMK	CEI	2.15	3.35	0	10	60	DMK	5	0	2	77	5	TDK	734	10							
TG1133	CEI	DMK	4.20	5.40	0	2	6	CEI	5	0	10	131	5	TDK	734	10							
TG1140	DMK	CEI	11.0	12.20	0	2	32	DMK	5	0	10	105	5	TDK	734	10							
TG1141	CEI	DMK	13.05	14.20	0	7	130	CEI	5	0	5	7	5	TDK	734	10							
TG116	BKK	CNX	10.15	11.25	0	22	132	BKK	5	0	8	147	5	TJH	772	9							
TG1160	DMK	PHS	23.05	24.0	0	12	68	DMK	5	0	0	69	5	TDF	734	11							
TG1161	PHS	DMK	0.40	1.25	0	4	97	PHS	5	0	8	40	5	TDK	734	11							
TG1164	DMK	PHS	13.40	14.35	0	9	59	DMK	5	0	3	78	5	TDF	734	11							
TG1165	PHS	DMK	15.15	16.0	0	1	113	PHS	5	0	11	24	5	TDF	734	11							
TG117	CNX	BKK	12.15	13.25	0	23	103	CNX	5	0	7	176	5	TJH	772	9							
TG1200	HKT	DMK	8.35	10.0	0	36	182	HKT	5	0	10	19	5	TAF	A87	6							
TG1204	HKT	DMK	2.25	3.50	0	10	123	HKT	5	0	36	78	5	TAZ	A87	6							
TG1205	DMK	HKT	3.40	5.0	0	42	9	DMK	5	0	4	192	5	TAA	A87	6							
TG1206	HKT	DMK	5.45	7.10	0	0	93	HKT	5	0	46	108	5	TAA	A87	6							
TG1213	DMK	HKT	5.35	6.55	0	13	24	DMK	5	0	33	177	5	TAZ	A87	6							
TG1214	HKT	DMK	7.40	9.05	0	35	94	HKT	5	0	11	107	5	TAZ	A87	6							
TG1221	DMK	HKT	12.30	13.50	0	26	173	DMK	5	0	20	28	5	TAA	A87	6							
TG1232	HDY	DMK	1.20	2.50	0	27	80	HDY	5	0	19	121	5	TAY	A87	3							
TG1233	DMK	HDY	6.40	8.10	0	3	44	DMK	5	0	9	93	5	TDK	734	3							
TG1234	HDY	DMK	8.50	10.20	0	5	127	HDY	5	0	0	10	5	TDK	734	3							
TG1235	DMK	HDY	10.0	11.30	0	26	33	DMK	5	0	20	168	5	TAZ	A87	3							
TG1236	HDY	DMK	12.15	13.45	0	4	45	HDY	5	0	42	156	5	TAZ	A87	3							
TG1245	DMK	KBV	7.45	9.05	0	35	63	DMK	5	0	11	138	5	TAD	A87	8							
TG1246	KBV	DMK	9.50	11.10	0	0	31	KBV	5	0	46	170	5	TAD	A87	8							
TG125	CNX	BKK	0.0	1.10	0	40	130	CNX	5	0	6	71	5	TAF	A87	9							
TG1253	DMK	URT	2.35	3.50	0	8	106	DMK	5	0	4	31	5	TDG	734	4							
TG1254	URT	DMK	4.30	5.40	0	9	26	URT	5	0	3	111	5	TDG	734	4							
TG126	BKK	CNX	12.0	13.10	0	1	249	BKK	5	0	29	30	5	TJA	772	9							
TG127	CNX	BKK	14.0	15.10	0	24	241	CNX	5	0	6	38	5	TJA	772	9							
TG1273	DMK	URT	10.05	11.20	0	7	79	DMK	5	0	5	58	5	TDG	734	4							
TG1274	URT	DMK	12.0	13.10	0	11	91	URT	5	0	1	46	5	TDG	734	4							
TG129	CNX	HKT	5.50	7.45	0	4	44	CNX	5	0	42	157	5	TAF	A87	6							
TG130	BKK	CEI	6.45	8.05	0	4	157	BKK	5	0	42	44	5	TAE	A87	10							
TG131	CEI	BKK	8.55	10.10	0	42	4	CEI	5	0	4	197	5	TAE	A87	10							
TG194	CNX	HGN	3.10	3.45	0	0	6	CNX	5	0	0	60	5	TRB	AT7	9							
TG195	HGN	CNX	4.05	4.40	0	0	22	HGN	5	0	0	44	5	TRB	AT7	9							
TG196	CNX	HGN	9.10	9.45	0	0	43	CNX	5	0	0	23	5	TRB	AT7	9							
TG197	HGN	CNX	10.05	10.40	0	0	23	HGN	5	0	0	43	5	TRB	AT7	9							
TG201	BKK	HKT	0.50	2.10	0	0	23	BKK	5	0	0	43	5	TGF	747	6							
TG202	HKT	BKK	3.0	4.25	0	0	23	HKT	5	0	0	43	5	TGF	747	6							
TG203	BKK	HKT	0.20	1.40	0	33	5	BKK	5	0	13	196	5	TAZ	A87	6							
TG213	BKK	HKT	7.05	8.25	0	45	183	BKK	5	0	1	18	5	TAG	A86	6							
TG214	HKT	BKK	9.15	10.40	0	16	198	HKT	5	0	38	3	5	TAG	A86	6							
TG217	BKK	HKT	9.0	10.20	0	41	282	BKK	5	0	9	43	5	TGM	744	6							
TG218	HKT	BKK	11.25	12.50	0	42	232	HKT	5	0	8	93	5	TGM	744	6							
TG223	BKK	HKT	11.20	12.40	0	42	232	BKK	5	0	8	93	5	TGF	747	6							
TG224	HKT	BKK	13.50	15.15	0	42	232	HKT	5	0	8	93	5	TGF	747	6							
TG225	BKK	HKT	15.15	16.35	0	6	111	BKK	5	0	40	90	5	TAS	A86	6							
TG226	HKT	BKK	0.25	1.50	0	43	200	HKT	5	0	3	1	5	TAD	A87	6							
TG228	HKT	BKK	14.35	16.0	0	12	19	HKT	5	0	34	182	5	TAA	A87	6							
TG249	BKK	BKK	1.0	1.40	0	44	145	BKK	5	0	2	56	5	TAX	A87	6							
TG249	BKK	KBV	1.0	2.20	0	45	35	BKK	5	0	1	166	5	TAE	A87	8							
TG250	KBV	BKK	3.10	4.30	0	37	196	KBV	5	0	9	5	5	TAE	A87	8							
TG259	BKK	KBV	11.55	13.15	0	3	118	BKK	5	0	9	19	5	TDH	734	8							
TG260	KBV	BKK	14.05	15.25	0	2	70	KBV	5	0	10	67	5	TDH	734	8							

Figure 80: Flight data of 29/8/07

Figure 81: Flight data of 30/8/07

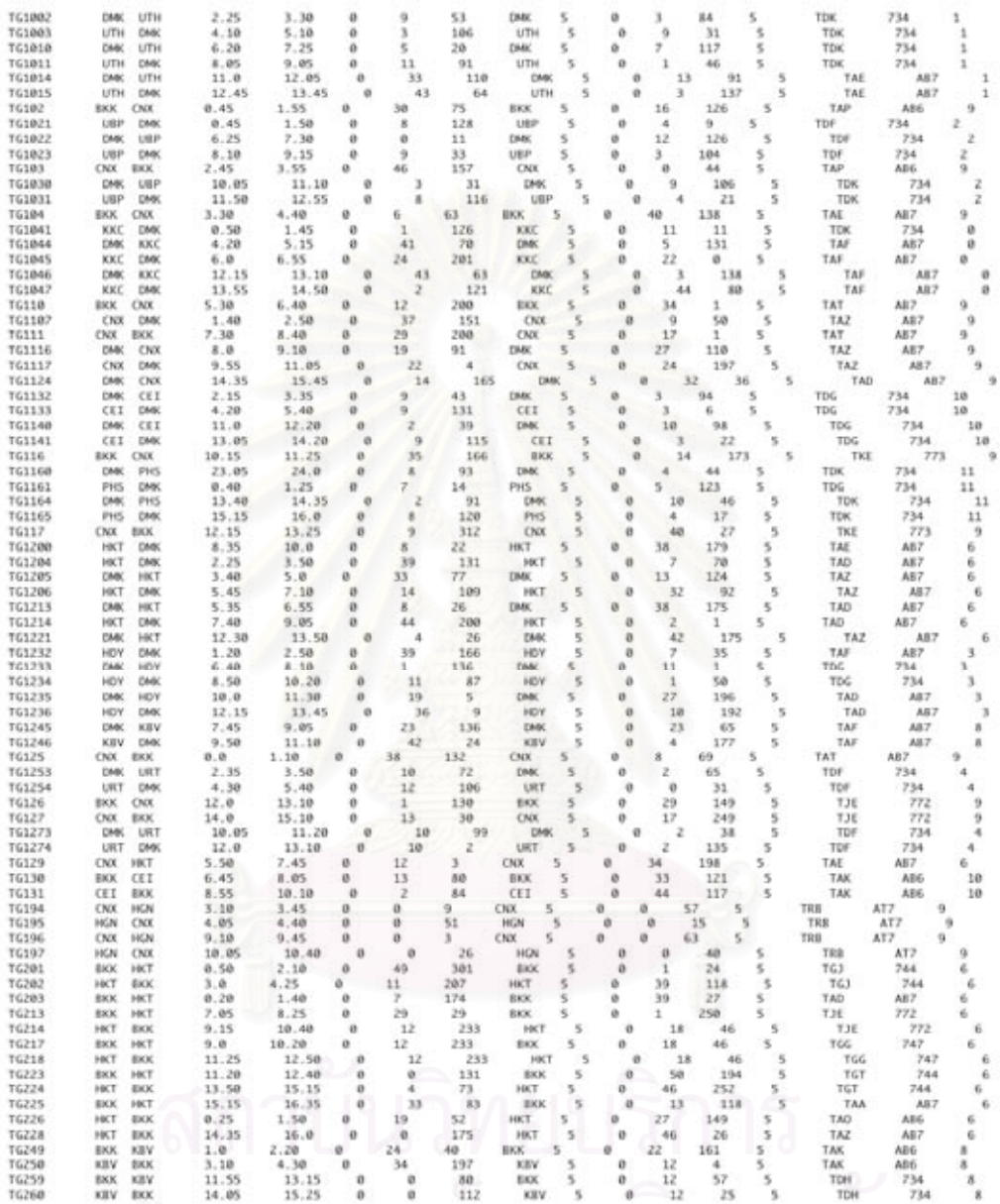


Figure 82: Flight data of 31/8/07

BIOGRAPHY

Ensign Soottipoom Yaowiwat was born on 24 July 1982 in Bangkok, Thailand. His hometown is Chumphon province. He received his high school education from the Armed Forces Academy Preparatory School in Bangkok, Thailand. He graduated with a Bachelor of Science, Majoring in Computer Science and Mathematics, from the Australian Defense Force Academy, the University of New South Wales in Canberra, Australia. He is now commissioned as a naval officer at the Royal Thai Naval Academy in Samutprakarn, Thailand.