

**Twenty Seventh Meeting of the
Informal South Pacific ATS Co-ordinating Group
(ISPACG/27)**

**Auckland, New Zealand
27 February – 01 March 2013**

Agenda Item 5.1 – Seamless Airspace Chart

Operational Trials for the Enhanced ATFM

Presented by Japan Civil Aviation Bureau

SUMMARY

This paper presents the information regarding recent initiatives on the enhancement of ATFM in Japan. Operational trial of Specifying Calculated Fix Departure Time for Arrival Spacing (SCAS) Program has been conducting since 25 August, 2011, and operational trial for Expected Departure Clearance Time (EDCT) valid window is scheduled from 7 March, 2013.

1. INTRODUCTION

- 1.1 In 1994, JCAB implemented Ground Delay Program, an ATFM technique. ATC assigns calculated Expected Departure Clearance Time (EDCT) to the departure aircraft on the ground in case traffic volume is expected to exceed airports/ATC sectors capacity. Since then, many efforts such as ATFM system upgrades (both hardware and software) and improvements of operational procedures have been conducted to enhance ATFM effectiveness in order to manage more efficient airports/ATC sectors capacity and contribute to aircraft operational improvements.
- 1.2 Ground Delay Program is applied only for the aircraft on the ground at Japanese airports, not for in-flight aircraft as well as for departure aircraft from outside of Japan, which limits the accuracy of ATFM. Therefore, introduction of SCAS Program was considered.
- 1.3 SCAS Program is also one of the ATFM techniques in which ATC issues Calculated Fix Departure Time (CFDT) to the in-flight aircraft. When an aircraft is assigned CFDT by ATC, it is required to depart a specified fix on the route of its flight at CFDT time to mitigate expected traffic congestion.
- 1.3 Operational trial of SCAS has commenced since 25 Aug, 2011. Aircraft subject to this trial are those bound for Tokyo international airport (RJTT). Related AIC is Nr 034/11.
- 1.4 In addition, Ground Delay Program by issuing EDCT has also a long standing issue in itself. EDCT does not include valid time; therefore, aircraft with EDCT has to be taken off at or later than EDCT, however, there is no requirement by when the aircraft

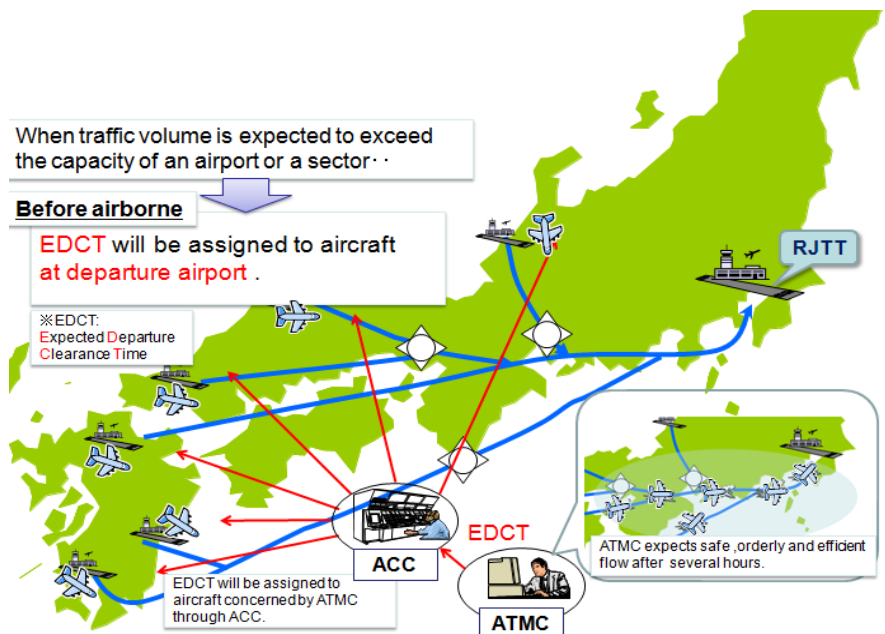
should take off. This had to be improved to enhance the accuracy of traffic volume calculation, which is fundamental for ATFM.

- 1.5 Operational trial for EDCT valid window, which is an enhanced Ground Delay Program, is scheduled from 7 March 2013. From this trial, EDCT contains valid time from “EDCT - X (minutes)” to “EDCT + Y (minutes)”. Aircraft subject to this trial are those departing from airports which air traffic controllers work for. Related AIC (Nr 008/12) is appended as Attachment A.

2. DISCUSSION

2.1 SCAS Program

- 2.1.1 When ATM Center expects that the traffic volume will exceed the capacity of an airport or a sector of ACC within the next several hours, EDCT will be assigned to aircraft concerned through ACC. This is known as Ground Delay Program. (See Fig.1)

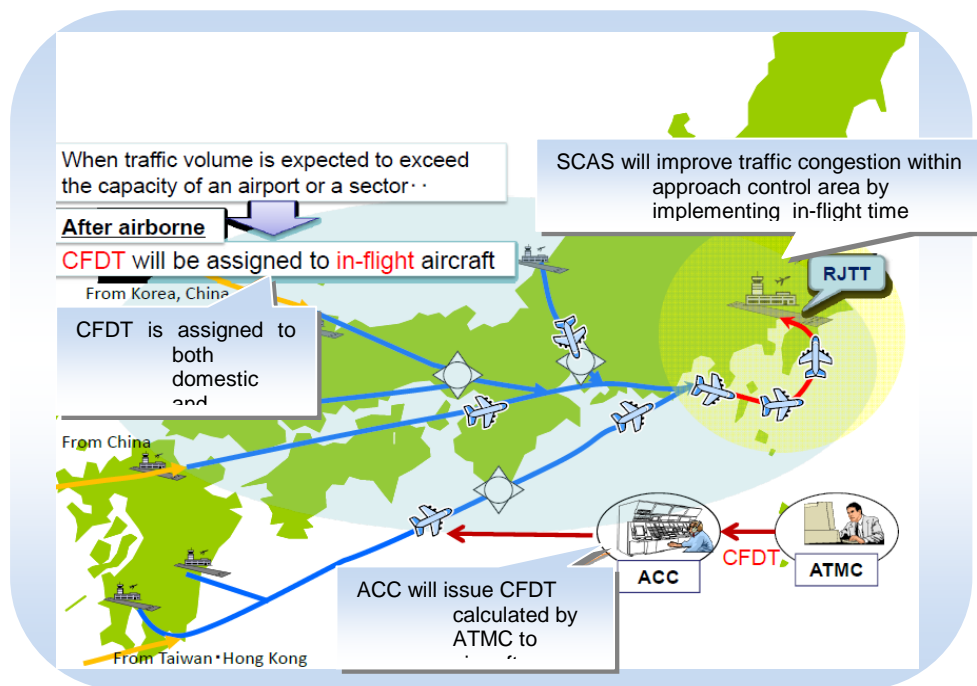


(Fig.1)

- 2.1.2 However, unexpected airborne delay often makes congestion, particularly around Tokyo metropolitan airspace. Under this circumstance, air traffic controllers have to deal with such congestion by a lot more radar vectors, speed adjustments, etc. This is why ATFM for in-flight aircraft is necessary .

- 2.1.3 When ATM Center issues SCAS Program, CFDT is calculated and will be assigned to both domestic and international in-flight aircraft.

- 2.1.4 SCAS will improve traffic congestion within terminal control area by implementing in-flight time adjustment. (See Fig.2)



(Fig.2)

2.1.5 Effects of introducing SCAS Program are as follows:

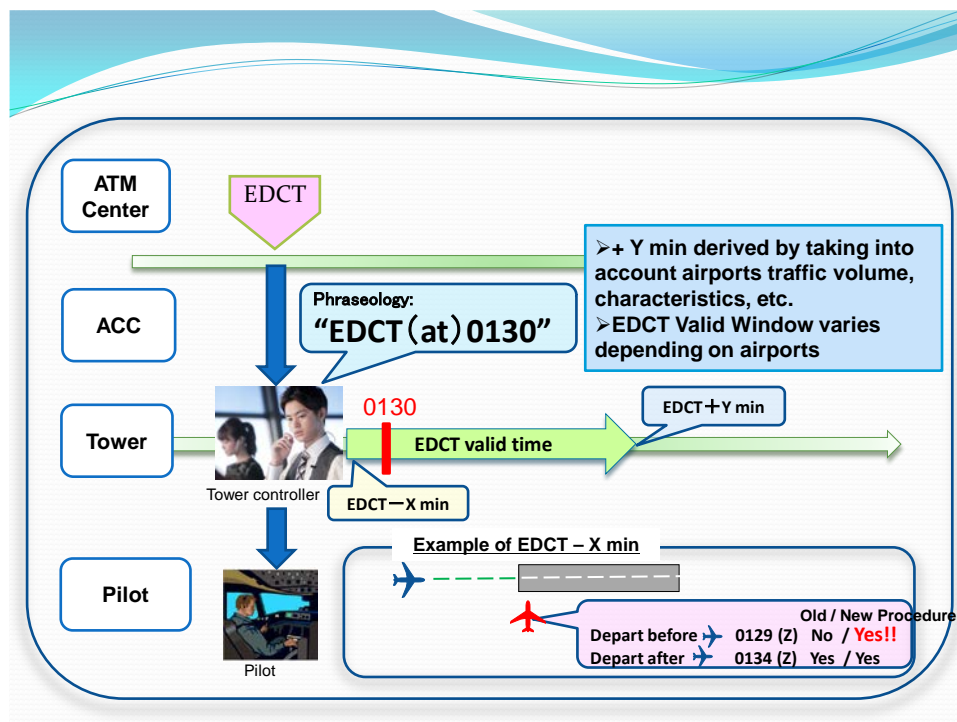
- Congestion of air traffic can be improved by adjusting crossing time of the specified fix, which leads to the reduction of ATC work load.
- Fuel consumption will be reduced by avoiding excessive radar vectors, especially in lower altitudes.
- Equality and effectiveness of ATFM can be enhanced by covering aircraft from foreign airports under CFDT, which are not covered by EDCT.

2.1.6 Evaluation and analysis of collected data are conducted to improve CFDT be more precise. In order to realize safer, more efficient and economical traffic flow, cooperation of the trial operation by concerned parties would be encouraged.

2.2 Enhanced Ground Delay Program (EDCT valid window)

2.2.1 When ATM Center expects that the traffic volume will exceed the capacity of an airport or a sector of ACC within the next several hours, EDCT will be assigned to aircraft concerned through ACC.

2.2.2 Basic principle is that both controllers and airline operators are expected to depart the aircraft with EDCT on its assigned time to the maximum extent possible. When it is not feasible by considering traffic situation, controllers depart the aircraft within EDCT valid time. (See Fig.3)



(Fig.3)

2.2.3 When operators expect that the estimated take-off time may exceed EDCT+Y min before block out, it is desirable to send an ATS message containing changed EOBT as soon as possible (at least by 15 minutes before "old" EOBT, in principle) in order to ensure the effect of ATFM. On the other hand, it is not necessary to send the message in case of delay caused by ATC instructions.

2.2.4 Implementation of EDCT valid window will improve the gap between EDCT and actual airborne time which enhances the accuracy of ATFM calculation. This will result in more effective use of airports/ACC sectors capacity, reduction of overall delay in air traffic, and prevent excessive ATC workload in congested airspace which might cause adverse effect on safety.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) ask for airline operators understanding and cooperation on these trial operations.