Twenty First Meeting of the
Informal South Pacific ATS Co-ordinating Group (ISPACG/21)

Auckland, New Zealand, 6-8 March 2007

Agenda Item 4: review progress on open action items
AI 17-12

Optimum Arrival Trial AA April 07

Presented by Kevin Bethwaite, Airways New Zealand

SUMMARY

- The intention of this trial is fact gathering, primarily to flush out the real "can do" and "can't do" of making a continuous descent arrival while retaining a high degree of on time performance and overall system capacity.

- We will use only the Air NZ and Qantas 747 400 for the first part of this trial. These aircraft commonly arrive at times of the day when they are not affecting other aircraft. While we do want to experience some situations where a trial aircraft is affecting the normal sequence of another aircraft we do not want this to happen regularly. These 747s also have data link capability which will be used to provide early communication of ETAs and other relevant info and clearances.

- We have chosen the Auckland Terminal sector because they already have some well established STARS which have recently been altered and will serve the purposes of our end of what we want very well.(Information on the current arrival fuel burn will be recorded mostly via the onboard flight data recorder).

- While we will be measuring the achieved accuracy of these aircraft to meet their ETAs, in the first instance we will not chase this. However it is very likely we will follow up the first period of trial with a second period where we will analyse the ability of these aircraft to meet RTAs. Initial modelling and limited live trial indicate that pragmatic demand to meet an RTA may be fuel costly.

- In the first period of the trial these aircraft will fly ECON SPD 50 which is a FMC directive that puts a high degree of priority in flying the aircraft at the absolute best speed to achieve the lowest fuel burn. It is expected these aircraft will fly slightly slower than has been seen in the past. We will provide more details on this aspect in the ATC operational instruction.

- There are three other trials in progress around the world analysing a similar aspect of flight (Melbourne and San Francisco where they are calling them Tailored Arrivals and in Amsterdam where they call them Continuous Descent Arrivals). Significant knowledge has been obtained from these other trials. I look forward to reviewing what we can and can not do in New Zealand (weather/wind/traffic) conditions.

1. INTRODUCTION

Over the last one-two years the price of fuel has caused airlines to seriously review the way they operate – obviously fuel is a major component of their cost and the airlines have been providing the air traffic service providers with a great deal of information about how their aircraft operate with particular focus on fuel burn in the arrival phase of the flight. (Things they believe we can do to minimise this fuel burn such as providing continuous descents). I'll refer to this as "fuel saving measures".

Note; there is no intent to ignore the understanding of fuel burn in all other phases of flight or indeed while manoeuvring on the ground however the focus of this trial is on the arrival phase.

This transfer of information has mostly been a one way effort to this point where the air traffic service providers have not been in a strong position to provide information back to the airlines on what the effects of some of the "fuel saving measures" will have on other demands such as on time performance and runway capacity. At the end of the day both groups in this business (airlines and air traffic service providers) have common aims, which are to be SAFE and PROFITABLE.

It is my belief that the info provided to date by the airlines is great and controllers will be the better for this knowledge. However what needs to happen now is to better understand the implications of "fuel saving measures".

I.e. An effort to save fuel by some aircraft may cause others to burn more, or may degrade the on time performance of the airline. A likely end product will be a compromise.

At a meeting between Airways and the airlines late last year it was agreed that we should run a live trial to be able to better understand these issues.

2. DISCUSSION

1/. The trial will be run at AA starting sometime in April.
2/. Aircraft involved will be arriving ANZ and QFA 747s.
3/. All eligible aircraft are expected to fly the full STAR and a full ILS.
4/. All eligible aircraft will be afforded a priority in order to do 3/.
5/. A NOTAM will be issued stating the intent to afford this priority.
6/. An ATC staff operational instruction will be issued to formalise the process.
7/. A pilot operational instruction will be issued to all pilots flying the eligible flights to formalise their participation.
8/. A new temp map will be provided for use on radar to depict the tracks being flown.
9/. Data is being collected now on fuel burn in the arrival phase.
10/. Data will be collected over the trial period to compare with the current position.
11/. Records will be made over the trial period concerning flight nav accuracy both in terms of adhering to track and meeting ETAs over all points along the route.
12/. Records will be made as much as possible documenting the effects on other traffic.
13/. There will be a facility for both pilots and controllers to give additional feedback.

3. ACTION BY THE MEETING

3.1 The meeting is invited to critique the upcoming OAT in AA. Airways appreciate that other trials have been made and are currently in progress ostensibly analysing the same issue.

We do not wish to reinvent the wheel but believe we need to expose our own operational staff to such matters as part of our pathway to RNP.
As noted above our trial will go further than the others mentioned by confronting aircraft to aircraft separation issues in concert with “fuel saving measures”.