



**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

Sydney Flow Management

(Presented by Airservices Australia)

SUMMARY

This working paper provides an overview of the Sequencing trial for arrivals into Sydney that was conducted last year, as well as the introduction of a new flow management programme.

1. INTRODUCTION

1.1 During September 2006 a Pre Tactical Flow (PTF) trial was conducted that involved flights arriving at Sydney between 0600 and 0700 local. The purpose of the trial was to minimise holding and/or extended vectoring during the arrival phase, and instead to absorb any required delays in the enroute phase of flight by issuing an RTA (Required Time of Arrival) to the aircraft. This RTA would normally be issued 90-120 minutes prior to the aircraft's ETA Sydney.

2. DESCRIPTION OF THE PRE TACTICAL FLOW TRIAL

2.1 During normal operations, sequencing at YSSY (Sydney) is determined by Maestro (Flow management tool integrated with TAAATS). Maestro compares the YSSY ETA for all aircraft that have a destination of YSSY, assigns a runway, and determines a landing sequence, landing time, and the required delay for each aircraft. Until the aircraft are approximately 160NM from Sydney, this sequence is dynamic – if the aircraft's estimate changes, so too can the sequence (although it is possible to manually "lock in" an estimate).

2.2 The principle behind the PTF trial was for the sequence of arrivals between 0600 and 0700 to be determined further in advance, and for these estimates to then be locked into Maestro. These estimates were coordinated to the responsible controller who then issued appropriate RTA instructions to the aircraft.

2.3 Problems encountered during the trial

2.3.1 On a number of occasions during the PTF trial, local weather conditions at Sydney resulted in a lower landing rate between 0600 and 0700 than what had been anticipated. This resulted in additional delays to those that had already been absorbed en-route (the landing order was preserved)

- 2 -

2.3.2 Some aircraft advised that they were unable to achieve the RTA that was issued, yet other like-type aircraft did accept a similar delay. While this did not affect the final landing order, it added complexity to achieving the final sequence, due to aircraft being 'out of order'. There was a controller perception that possibly some pilots were hoping to improve their landing time by not reducing speed.

2.3.3 Some aircraft implemented a uniform speed reduction, whilst other aircraft maintained their cruise speed until the last minute and then reduced to minimum speed. The wide variance of techniques employed led to potential problems in maintaining longitudinal procedural separation between non-identified aircraft.

2.3.4 Accurate estimate data was not available for some of the early morning international arrivals on shorter route segments (e.g. Auckland-Sydney) when the PTF sequence was calculated.

3. NEW SEQUENCING TOOL – “ALOFT”

3.1 The ATM Long-range Optimal Flow Tool (ALOFT) is an automated implementation of the PTF Trial that was run during September 2006. When ALOFT is in operation, aircraft inbound to Sydney with an arrival time between 0600 and 0700 local shall be issued a Required Time of Arrival to cross the “feeder fix” (a waypoint at 45NM Sydney) prior to ninety (90) minutes before the feeder fix estimate.

3.2 The ALOFT programme will operate during the non-daylight savings period, with an expected commencement date of 24th March 2007. During the period of daylight savings, revised airline schedules minimise the arrival peaks (and the associated delays) during the 0600 to 0700 period.

3.3 DESCRIPTION OF ALOFT

3.3.1 The procedures associated with ALOFT are similar to those developed for the PTF trial:

- The ALOFT Operator will publish a completed landing programme by 0400;
- Where it is determined that traffic levels do not warrant a programme being run, a “Null Programme” will be published;
- A copy of the ALOFT programme will be issued to each group that will process ALOFT affected aircraft. The ALOFT programme will display all aircraft processed by ALOFT, including aircraft that have zero ALOFT delay;
- When the required delay for an aircraft is 2 minutes or less, the delay shall be managed by the sectors responsible for sequencing through the feeder fix;
- When the required delay is greater than 2 minutes, the responsible controllers shall instruct aircraft to adjust their speed to cross the required fix at the published time;
- When the required delay is greater than 12 minutes or where aircraft advise that they are unable to meet the required time of arrival at the feeder fix, the responsible controller shall

- 3 -

recommend speed reduction and advise the aircraft of their expected time to cross the feeder fix;

- The Sydney Flow shall schedule aircraft onto the Maestro ladder at the time determined by ALOFT.

3.4 Additional delays may still occur due to unforeseen situations such as emergencies, medical flights, un-forecast weather etc.

3.5 Benefits

3.5.1 Demonstrated savings made during the two weeks that the PTF trial was run in September 2006 were 60,000 KG of fuel. Introduction of this capability over the non daylight savings period 25 March 2006 to 28 October 2007 results in an estimated fuel savings of 930,000kg for the period.

3.5.2 The average cruise time absorption for aircraft was 8 minutes with up to 12 minutes regularly achieved.

3.5.3 It is expected that any extension to ALOFT beyond the 0600-0700 period at Sydney would result in further considerable fuel savings to the airline industry, although an accurate estimate of the benefit has not yet been calculated.

4. ACTION BY THE MEETING

4.1 The meeting is invited to:

- a) Note the calculated savings during the PTF Trial during September 2006
- b) Note the planned introduction of the new sequencing tool – ALOFT in March 2007