



AIRSERVICES AUSTRALIA



NOISE AND FLIGHT PATH MONITORING SYSTEM

GOLD COAST QUARTERLY REPORT

JANUARY - MARCH 2010



Foreword

Airservices Australia has established a Noise and Flight Path Monitoring System (NFPMS) at Australia's major airports. Operated from a single control centre, the system monitors aircraft operations and their environmental effects at airports across the Australian continent.

This report provides a brief description of the system and the data it collects and processes. It also contains summaries of data collected in the Gold Coast/Tweed area over the quarter January to March 2010 by the NFPMS.

Since the issue of the previous quarterly report (4th Quarter 2009), the NFPMS has undergone an upgrade. The following report presents results from the upgraded system.

On 29/7/10 minor amendments were made to the report in Appendix D as a result of data validation checks following the commissioning of the upgraded NFPMS.

DISCLAIMER

This report contains a summary of data collected over the specified period and is intended to convey the best information available from the NFPMS at the time. The system databases are to some extent dependent upon external sources and errors may occur. All care is taken in preparation of the report but its complete accuracy can not be guaranteed. Airservices Australia does not accept any legal liability for any losses arising from reliance upon data in this report which may be found to be inaccurate.



CONTENTS

Glossary of terms	5
1. Introduction	7
2. NMT locations and noise data summaries	8
3. Quarterly track data	10
3.1. Quarterly track density plots	10
3.2. Aircraft track plots	13
4. Aircraft movement and aircraft noise data	13
4.1. Movement statistics	13
4.2. Curfew movement statistics	18
4.3. Daily runway usage per calendar month for arrivals and departures during the quarter	18
4.4. Hourly movements per calendar month for arrivals and departures during the quarter	18
4.5. Quarterly aircraft average noise levels	18
4.6. Data included in Appendix E	23
<u>Appendix A: An overview of the Noise and Flight Path Monitoring System</u>	24
A.1. System configuration and features	25
A.2. System applications	26
<u>Appendix B: Daily N70 value and distribution of N70 for each NMT during the period January to March 2010</u>	27
<u>Appendix C: Daily runway usage per calendar month for arrivals and departures during the period January to March 2010</u>	30
<u>Appendix D: Hourly movements per calendar month for arrivals and departures during the period January to March 2010</u>	40
<u>Appendix E: Quarterly aircraft average noise levels, January to March 2010</u>	44



FIGURES AND TABLES

<u>Figure 1:</u>	Noise and flight path monitoring locations in Australia	7
<u>Figure 2:</u>	Locations of NMTs around the Gold Coast Airport	8
<u>Figure 3:</u>	Track density plot for all aircraft operations during the first quarter 2010	11
<u>Figure 4:</u>	Track density plot for jet operations only during the first quarter 2010	12
<u>Figure 5:</u>	Track plot coloured by height(ft) for jet arrivals during the period 2/03/10 to 8/03/10	14
<u>Figure 6:</u>	Track plot coloured by height(ft) for jet departures during the period 2/03/10 to 8/03/10	15
<u>Figure 7:</u>	Track plot coloured by height(ft) for non-jet and helicopter arrivals during the period 2/03/10 to 8/03/10	16
<u>Figure 8:</u>	Track plot coloured by height(ft) for non-jet and helicopter departures during the period 2/03/10 to 8/03/10	17
<u>Table 1:</u>	Location and noise parameters for each permanent NMT about Gold Coast Airport for the first quarter of 2010	9
<u>Table 2:</u>	Monthly movement statistics for the first quarter 2010	19
<u>Table 3:</u>	Movement statistics for previous four quarters	20
<u>Table 4:</u>	Curfew movement statistics for the first quarter 2010	21
<u>Table 5:</u>	Movement statistics for previous four quarters	22



GLOSSARY OF TERMS

A:	Arrivals
CNE:	Correlated noise events - noise events which are correlated with aircraft movements
CNE _{all} :	All correlated noise events
CNE ₇₀ :	Only correlated noise events equal to or greater than 70 dB(A)
D:	Departures
H:	Helicopters
I:	Indeterminate
JET:	Jet aircraft
LA _{eq} :	Time average A-weighted sound pressure level
Movement:	An aircraft operation, such as a take-off or landing
N70:	Average daily number of correlated noise events equal to or greater than 70 dB(A)
N80:	Average daily number of correlated noise events equal to or greater than 80 dB(A)
N90:	Average daily number of correlated noise events equal to or greater than 90 dB(A)



NFPMS: Noise and Flight Path Monitoring System

NMT: Noise Monitoring Terminal

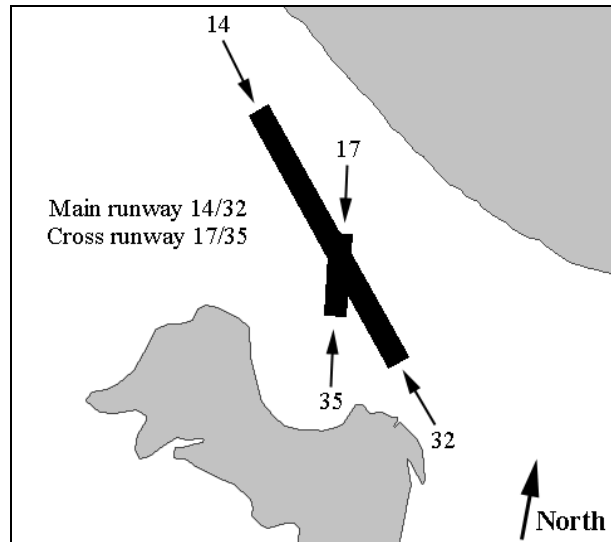
Noise Event: A noise exceeding the threshold sound pressure level for longer than the threshold duration

NON-JET: Non-jet aircraft

RUNWAY:

Runway on which the aircraft operates.

The runways at Gold Coast are numbered 14/32 (the main runway), and 17/35 (the cross-runway).



T: Total

TYPE: Aircraft type



1. INTRODUCTION

Under its environmental responsibilities, Airservices Australia has established a Noise and Flight Path Monitoring System (NFPMS) at Australia's major airports. The NFPMS uses aircraft flight track and flight plan data obtained from The Australian Advanced Air Traffic System (TAAATS), the air traffic control system for Airservices Australia. An overview of the NFPMS is shown in Appendix A. A map displaying all noise and flight path monitoring locations in Australia is shown in Figure 1.

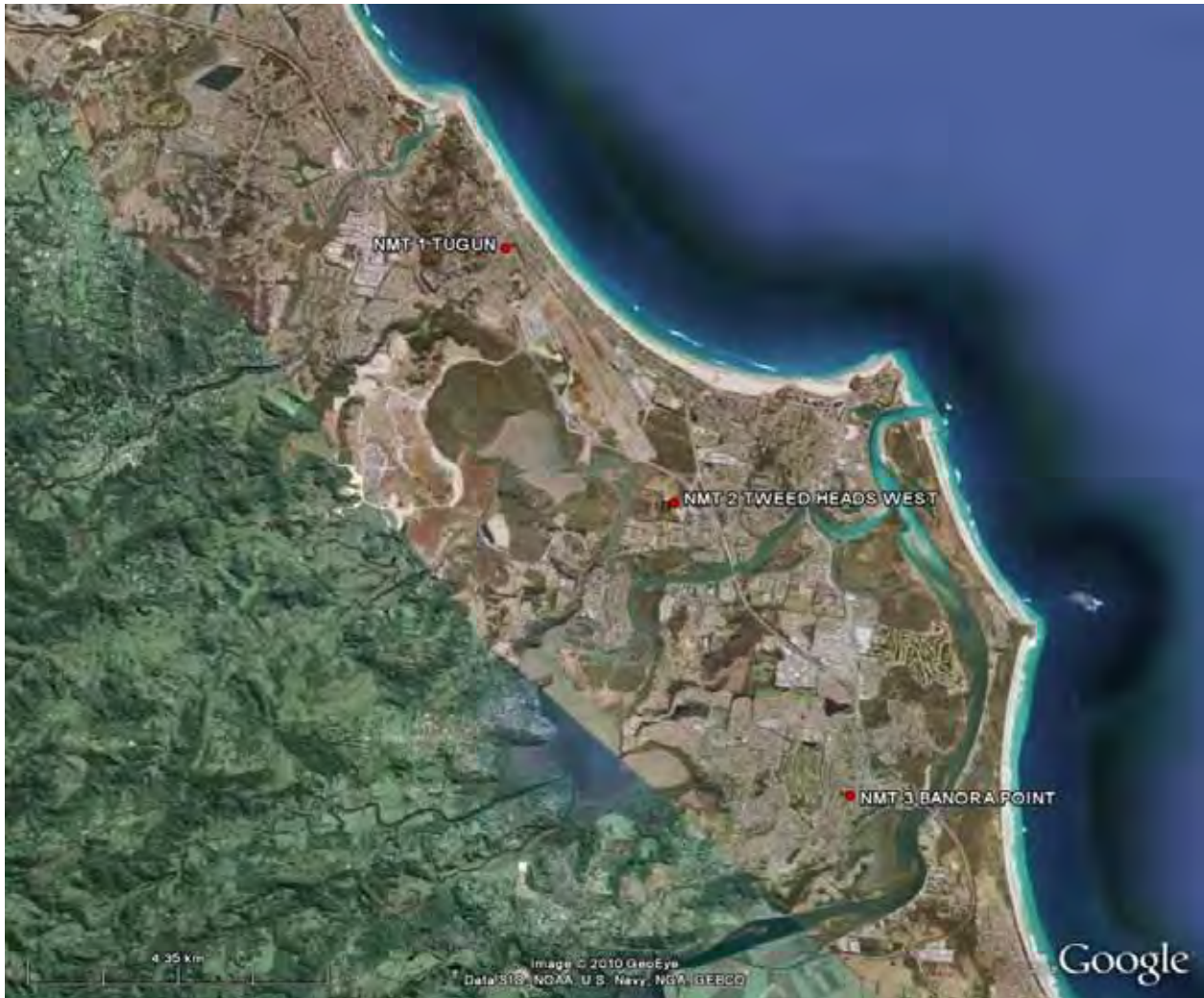
This report is a summary of data collected by the Gold Coast segment of the system over the first quarter (January to March) 2010. The data used within this report has been obtained from an upgraded NFPMS system. As a result, some slight changes to the presented graphics may exist.



Figure 1: Noise and flight path monitoring locations in Australia

2. NMT LOCATIONS AND NOISE DATA SUMMARIES

The Gold Coast component of the NFPMS has two permanently installed Noise Monitoring Terminals (NMTs) which are strategically located around Gold Coast Airport as shown in Figure 2 and listed in Table 1. In addition to the permanent NMTs, there are portable NMTs which may be connected to the system for measuring aircraft noise data at temporary locations, if requested by the Airport Noise Abatement Consultative Committee (ANACC).



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Figure 2: Locations of NMTs around Gold Coast Airport.

The A-weighted average noise exposure levels (LAeq) for the entire quarter and for the curfew period (23:00 to 6:00 each day) at each NMT are contained in Table 1, the curfew values are in brackets. These noise levels encompass the whole environment (including aircraft) as measured at each NMT. Also included in Table 1 are the number of correlated noise events (CNE), and the N70, N80 and N90 values for each NMT during the quarter. N70 is calculated by dividing the



total number of CNE equal to or greater than 70 dB(A) detected during the quarter by the number of days in the quarter that the NMT is in operation (Op Days). For N80 and N90 the noise threshold is 80 dB(A) and 90 dB(A) respectively.

Appendix B includes graphs showing the daily value of N70 at each NMT excluding days where an NMT was not operational for a full 24 hours. In some cases an NMT may suffer a hardware outage, for example during routine maintenance. The caption under each graph details such outages for each NMT during the quarter. The distribution of N70 values is also included in Appendix B.

Table 1: Location and noise parameters for each permanent NMT about Gold Coast Airport for the first quarter of 2010 and previous four quarters.

NMT LOCATION (NMT NUMBER)	NOISE PARAMETERS	10Q1	09Q4	09Q3	09Q2	09Q1
Tugun Bowls Club Tugun (NMT 1)	LAeq 24hr (LAeq night),dBA	61.7 (50.3)	61.4 (55.7)	61.4 (54.6)	61.4 (55.7)	61.4 (55.7)
	Days	90.0	92.0	92.0	91.0	88.9
	CNE 24hr (CNE night)	7,801 (30)	7,732 (40)	8,354 (41)	7,740 (35)	8,508 (85)
	CNE₇₀	6,568	6,083	6,350	5,771	6,106
	N70	73.0	66.1	69.0	63.4	68.7
	N80	50.0	41.8	44.7	46.4	45.6
	N90	0.9	1.2	0.9	0.7	0.8
Wastewater Treatment Works Tweed Heads West (NMT 2) Decommissioned during Q109	LAeq 24hr (LAeq night), dBA	-	-	-	-	62.6 (57.6)
	Days	-	-	-	-	62.0
	CNE 24hr (CNE night)	-	-	-	-	5,778 (46)
	CNE₇₀	-	-	-	-	4,522
	N70	-	-	-	-	72.9
	N80	-	-	-	-	46.2
	N90	-	-	-	-	2.2
Banora Point Primary School Banora Point (NMT 3)	LAeq 24hr (LAeq night), dBA	55.7 (46.2)	55.4 (50.8)	55.6 (50.7)	56.6 (52.7)	59.3 (54.5)
	Days	90.0	92.0	92.0	91.0	82.1
	CNE 24hr (CNE night)	3,764 (8)	4,087 (7)	4,145 (8)	3,434 (4)	3,163 (15)
	CNE₇₀	3,388	3,760	3,777	3,166	2,901
	N70	37.6	40.9	41.1	34.8	35.3
	N80	0.4	0.7	0.7	0.4	0.6
	N90	0.0	0.0	0.0	0.0	0.1



3. QUARTERLY TRACK DATA

3.1. Quarterly track density plots.

The quarterly track density plot is a map which displays the pattern of aircraft flight tracks passing over the region around the airport during the quarter. The system analyses the number of flights passing over each grid element of an array defined by the user. Grid elements of 200m x 200m have been adopted as a standard. The track density plot takes into account all aircraft and provides a useful indication of the general patterns of the flight operations.

Figure 3 shows the quarterly track density plot for all aircraft operations for the first quarter of 2010. The colour coding from green to red represents the range 180 to 1800 flight tracks (ie. 2 per day to 20 or more per day) over a grid element. If any grid element is not colour-coded, the number of aircraft flight tracks passing over that element during the quarter was less than 180, ie. less than 2 flights per day on average. The concentrations at the top of the plot and along the coast are due to helicopter joy flights and light aircraft movements. The grey circles within Figure 3 show the location of each NMT.

For comparison purposes, the quarterly track density plot for jet operations only for the quarter is shown in Figure 4.

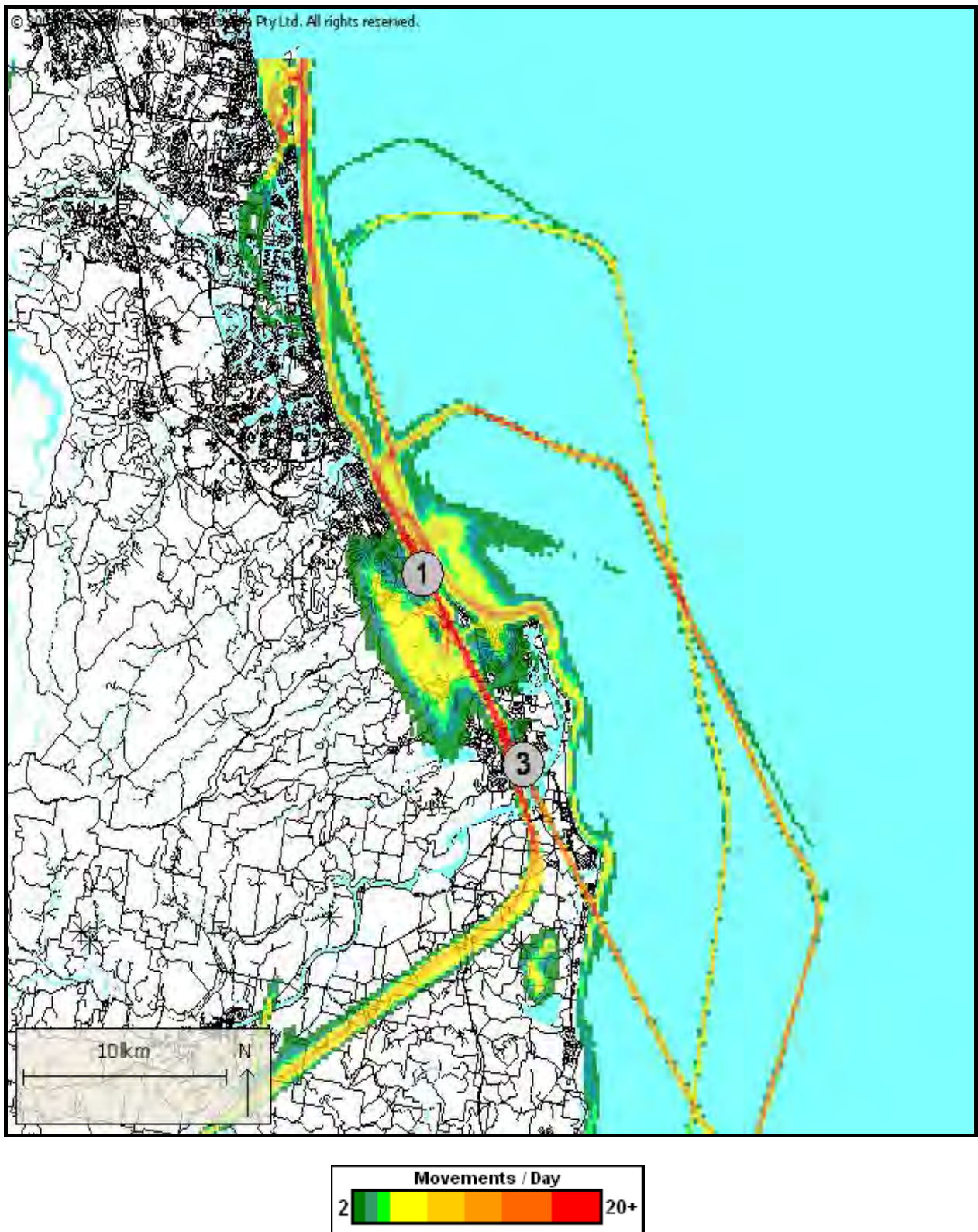


Figure 3: Track density plot for all aircraft movements during the first quarter of 2010.

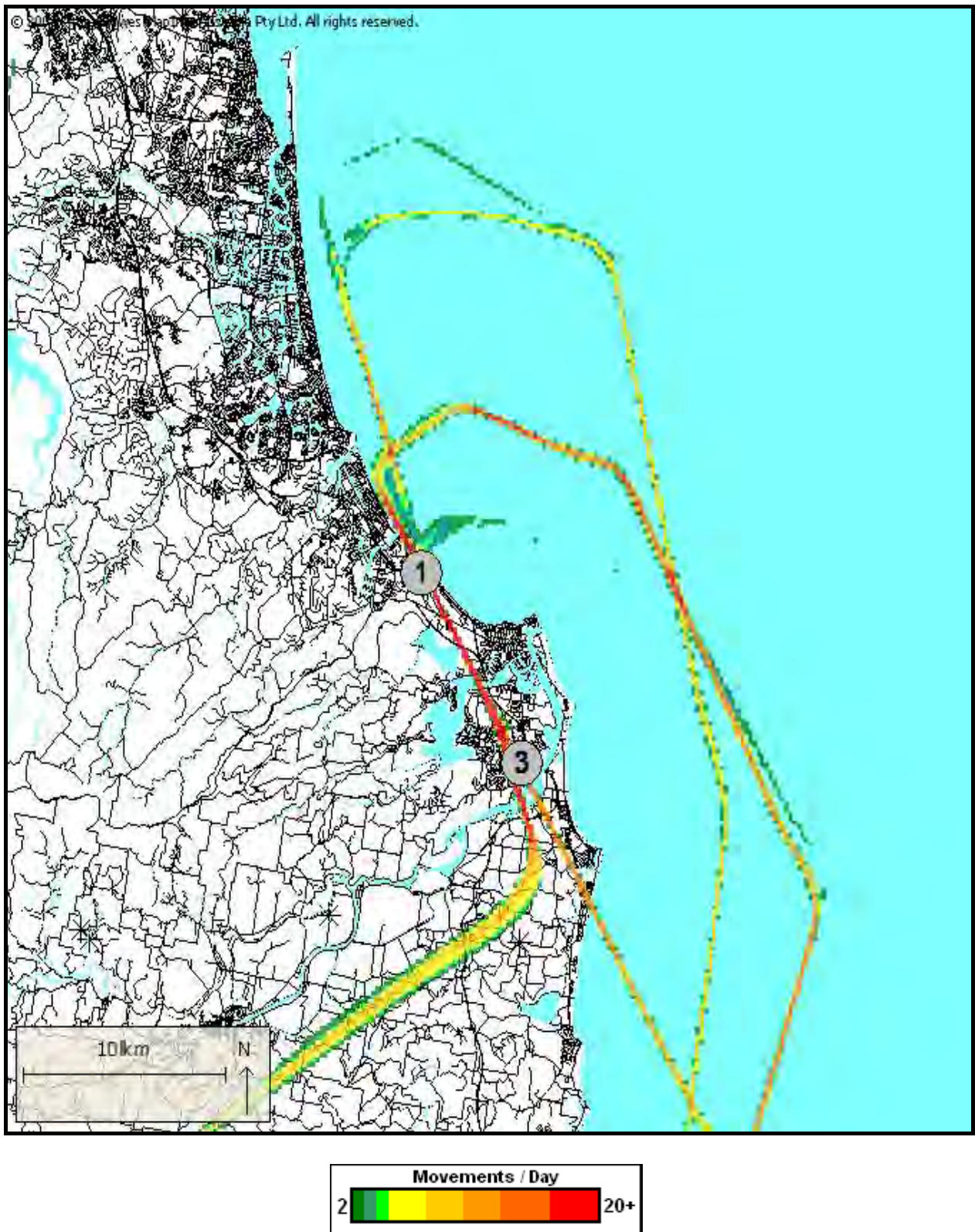


Figure 4: Track density plot for jet operations only during the first quarter of 2010.



3.2. Aircraft track plots.

Track plots of jet and non-jet aircraft arrivals and departures can also be obtained from the NFPMS. Figures 5 and 6 show the track plots for jet arrivals and departures over the period of 2nd to 8th March 2010 and Figures 7 and 8 shows track plots of arriving and departing non-jet aircraft and helicopters during the same period. These tracks have been coloured according to the aircraft height above ground level. Note that using the upgraded NFPMS, Figures 5, 6, 7 and 8 present track plots in height above ground level. This is slightly different to the previous system where track plots were presented in altitude (distance above sea level).

- Red when less than 1000ft
- Orange between 1000ft and 3000ft
- Yellow between 3000ft and 5000ft
- Green above 5000ft.

These heights have been chosen in accordance with the criteria in the document “Environmental Principles and Procedures for Minimising the Impact of Aircraft Noise”. This document can be found on the Airservices Australia's web site:

www.airservicesaustralia.com/projectsservices/reports/

A comparison between the track plots of jet aircraft arrivals and departures with those of non-jet aircraft arrivals and departures shows the arrival flight tracks of non-jet aircraft join centreline for their final approach closer to the airport and their departures disperse from the runway centrelines closer to the airport. These flight paths are followed to allow a clear path for jets, which are significantly faster.

The red tracks along the coast are mainly helicopter joy flights which are below 1000 ft for the majority of their flights.

4. AIRCRAFT MOVEMENT AND AIRCRAFT NOISE DATA

4.1. Movement statistics.

Movement statistics for Gold Coast Airport expressed in monthly figures are shown in Table 2. Explanations of the terms shown in Table 2 can be found in the Glossary section on Pages 5 and 6. The figures are based on The Australian Advanced Air Traffic System (TAAATS) data.

Table 2 also covers the runway usage for arrivals and departures as well as total movements on each runway. Although their flight tracks are available from the NFPMS, the data obtained from it does not always include operational details for helicopters and light propeller-driven aircraft. This is the main reason that Table 2 includes figures for operations by miscellaneous General Aviation aircraft, or aircraft with indeterminate runway (I).

The total number of monthly arrival (A) and departure (D) movements of all types (jets, non-jets and helicopters) at Gold Coast Airport for January was 4808, for February was 4410 and for

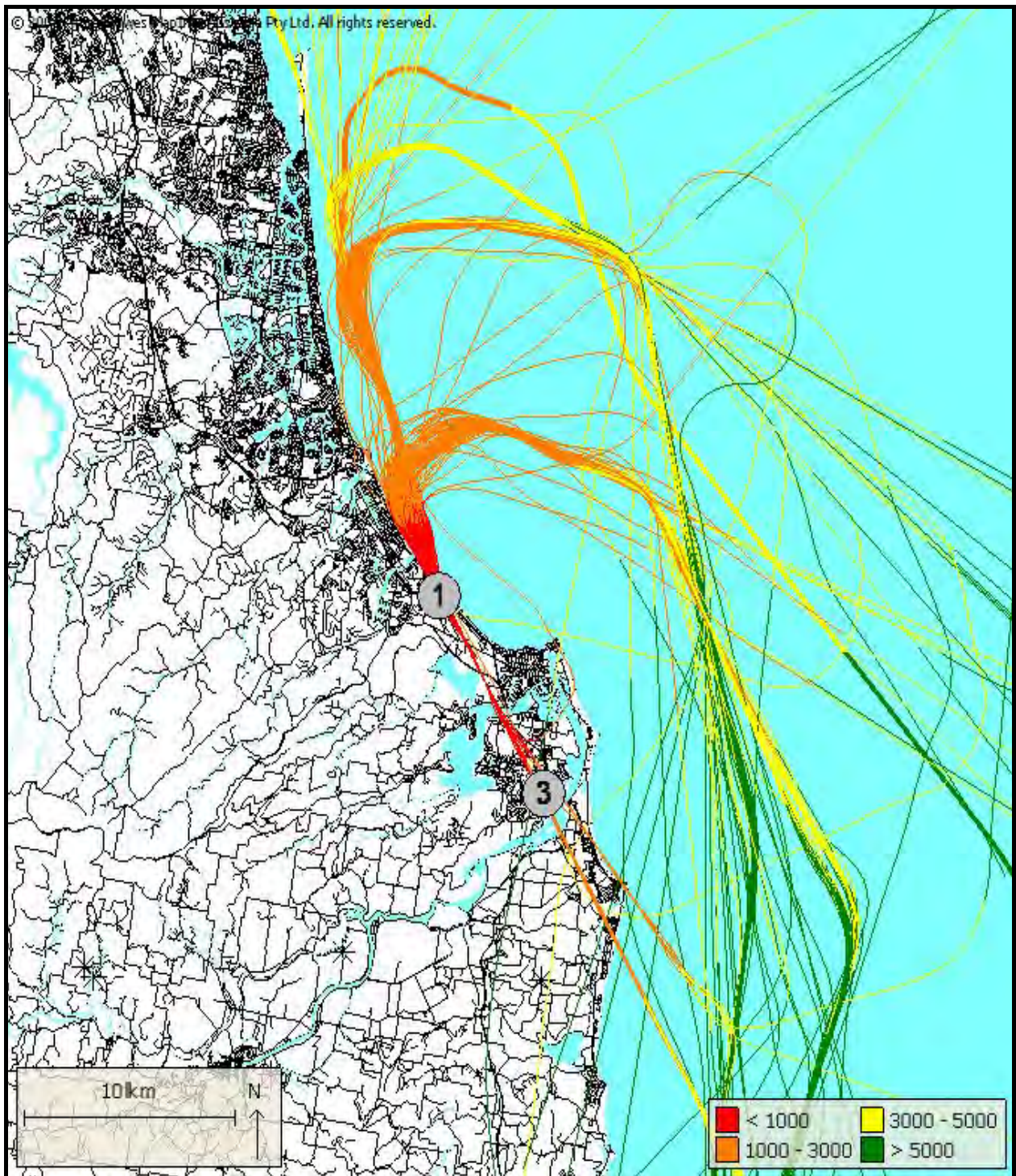


Figure 5: Track plots coloured by height(ft) for jet arrivals during the period 2/03/2010 to 8/03/2010.

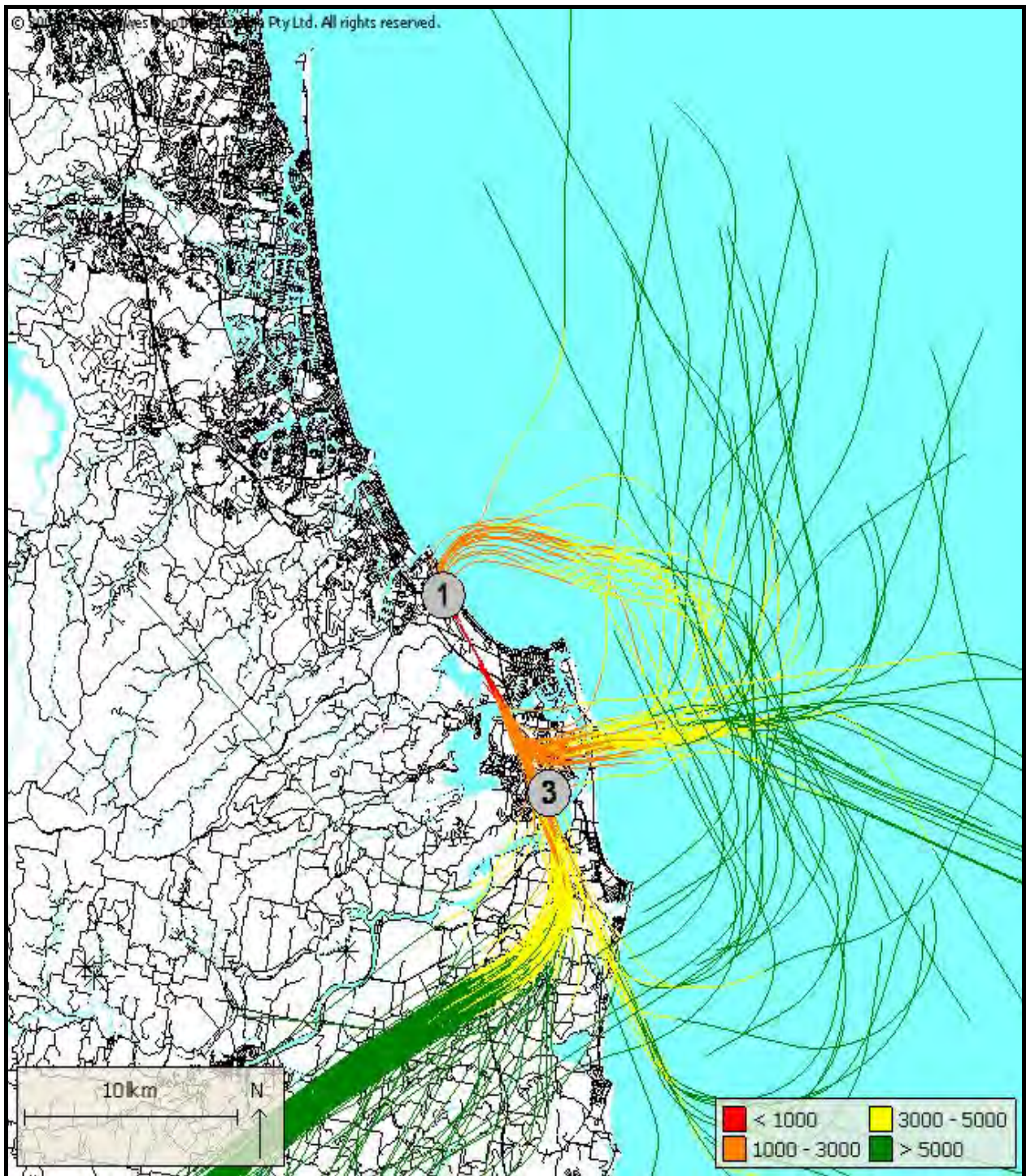


Figure 6: Track plots coloured by height(ft) for jet departures during the period 2/03/2010 to 8/03/2010.

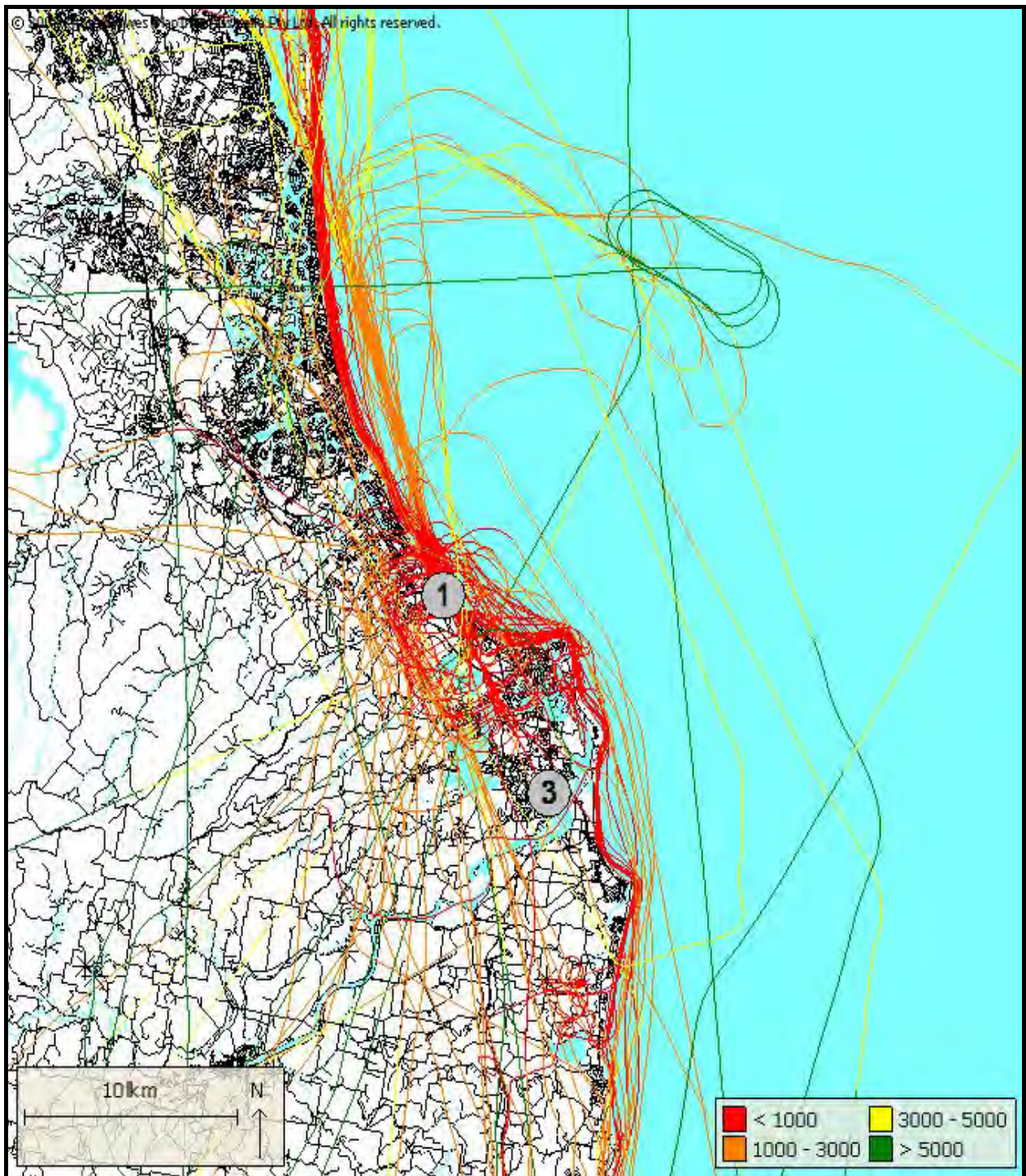


Figure 7: Track plots coloured by height(ft) for non-jet and helicopter arrivals during the period 2/03/2010 to 8/03/2010.

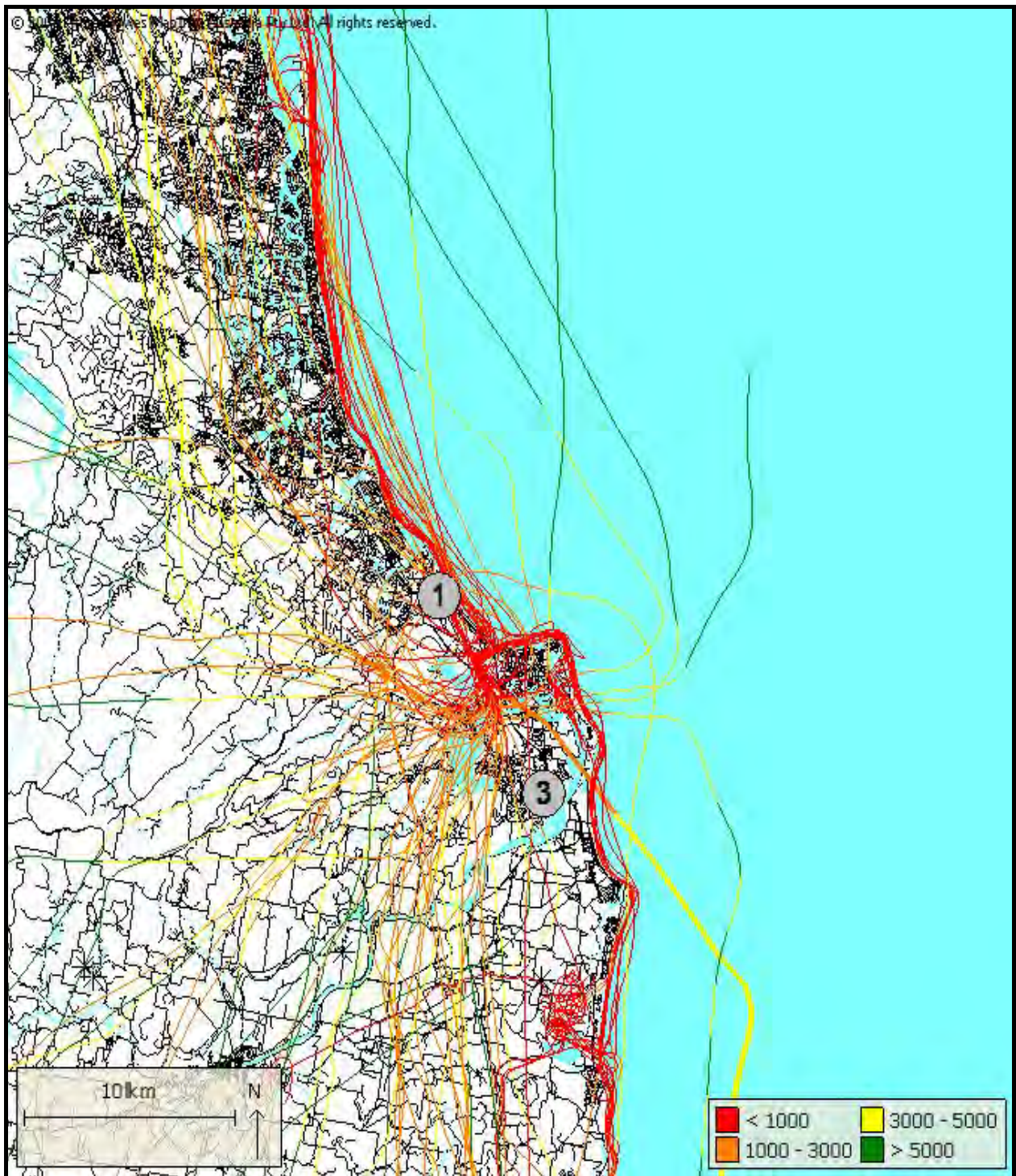


Figure 8: Track plots coloured by height(ft) for non-jet and helicopter departures during the period 2/03/2010 to 8/03/2010.



March was 4842. The total number of arrival and departure movements for all aircraft types during the quarter was 14060.

Note that when an aircraft conducts a training operations during their approach or departure the NFPMS counts multiple circuits as a single movement. This is the reason that numbers of arrivals may differ from the corresponding numbers of departures. It is also the reason that movement numbers obtained from the NFPMS may differ from other ATC-sourced data.

In addition to the number of aircraft arrival and departure movements listed in the table, there were also another 3638 local area operations by General Aviation aircraft and helicopters, which are not listed in Table 2. Some of the General Aviation aircraft operations involved multiple training circuits at the airport.

Movement data for the preceding 4 quarters are given in Table 3.

4.2. Curfew movement statistics.

Movement statistics for aircraft operating during the curfew hours (23:00 to 6:00) for Gold Coast Airport are shown in Table 4. The total number of arrival and departure movements during curfew in the first quarter of 2010 was 71.

Movement data for the curfew period for the preceding 4 quarters are given in Table 5.

4.3. Daily runway usage per calendar month for arrivals and departures during the quarter.

The daily runway usage per calendar month for arrivals and departures of all aircraft types including jets, non-jets, helicopters and emergency aircraft during the quarter is shown in Appendix C in which the movement figures of aircraft arrivals and departures are counted separately and wholly per runway for each day of the calendar month for the quarter.

4.4. Hourly movements per calendar month for arrivals and departures during the quarter.

The hourly movements per calendar month of the quarter for all aircraft movements operating in and out of the airport including helicopters and emergency aircraft are shown in Appendix D. The data in Appendix D are calculated for whole clock hours within the day.

4.5. Quarterly aircraft average noise levels.

Appendix E presents a summary of movement numbers and noise levels recorded over the quarter for jet and non-jet aircraft types. It shows the actual movements and the correlated noise events of aircraft types operating on specific runways together with the average maximum sound pressure levels and standard deviations of the maxima for overflights by each type at each NMT. The terms used in the data output are explained in the Glossary. The data is sorted in order of



descending maximum sound pressure levels for the 25 noisiest types/operations at each NMT (in some cases, there were less than 25 types causing correlated noise events at the NMT).



Table 2
Movement statistics for the first quarter of 2010

		JAN-10	FEB-10	MAR-10	1 st Quarter	2010
		Movements	Movements	Movements	Movements	Percents
Jets	A	1623	1469	1655	4747	
	D	1622	1467	1650	4739	
	T	3245	2936	3305	9486	
Non-Jets	A	585	478	543	1606	
	D	568	464	514	1546	
	T	1153	942	1057	3152	
Helicopter	A	213	263	234	710	
	D	188	255	238	681	
	T	401	518	472	1391	
Miscellaneous General Aviation Aircraft	A	4	8	0	12	
	D	5	6	8	19	
	T	9	14	8	31	
All Types*	A	2425	2218	2432	7075	100.0%
	D	2383	2192	2410	6985	100.0%
	T	4808	4410	4842	14060	
Runway Usage Arrivals	14	1070	1394	1942	4406	62.3%
	17	2	5	0	7	0.1%
	32	1064	512	235	1811	25.6%
	35	76	44	21	141	2.0%
	H	213	263	234	710	10.0%
	I	0	0	0	0	0.0%
Runway Usage Departures	14	1079	1443	1934	4456	63.8%
	17	0	3	3	6	0.1%
	32	1113	490	235	1838	26.3%
	35	3	1	0	4	0.1%
	H	188	255	238	681	9.7%
	I	0	0	0	0	0.0%
Runway Usage All Movements	14	2149	2837	3876	8862	
	17	2	8	3	13	
	32	2177	1002	470	3649	
	35	79	45	21	145	
	H	401	518	472	1391	
	I	0	0	0	0	

* In addition to the aircraft movements listed in Table 2, there were also another 3638 local area movements by GA aircraft and helicopters, some of which conducted multiple circuit training.



Table 3: Movement statistics for previous four quarters

		4 th Quarter	2009	3 rd Quarter	2009	2 nd Quarter	2009	1 st Quarter	2009
		Movements	Percents	Movements	Percents	Movements	Percents	Movements	Percents
Jets	A	4471		4410		4249		4054	
	D	4458		4404		4237		4051	
	T	8929		8814		8486		8105	
Non-Jets	A	2404		2822		2297		2292	
	D	2046		2488		1878		1966	
	T	4449		5310		4175		4258	
Helicopter	A	648		713		583		685	
	D	678		696		668		728	
	T	1326		1409		1251		1413	
Miscellaneous General Aviation Aircraft	A	578		778		744		807	
	D	107		181		215		213	
	T	685		959		959		1020	
All Types	A	8101	100.0%	8723	100.0%	7873	100.0%	7838	100.0%
	D	7288	100.0%	7769	100.0%	6998	100.0%	6958	100.0%
	T	15389	100.0%	16492	100.0%	14871	100.0%	14796	100.0%
Runway Usage Arrivals	14	3403	42.0%	4206	48.2%	5669	72.0%	5585	71.3%
	17	2	0.0%	6	0.1%	40	0.5%	9	0.1%
	32	3619	44.7%	3483	39.9%	1394	17.7%	1332	17.0%
	35	396	4.9%	237	2.7%	85	1.1%	141	1.8%
	H	648	8.0%	713	8.2%	583	7.4%	685	8.7%
	I	33	0.4%	78	0.9%	102	1.3%	86	1.1%
Runway Usage Departures	14	3009	41.3%	3738	48.1%	4974	71.1%	4835	69.5%
	17	4	0.1%	30	0.4%	32	0.5%	16	0.2%
	32	3534	48.5%	3220	41.4%	1226	17.5%	1284	18.5%
	35	7	0.1%	0	0.0%	3	0.0%	1	0.0%
	H	678	9.3%	696	9.0%	668	9.5%	728	10.5%
	I	56	0.8%	85	1.1%	95	1.4%	94	1.4%
Runway Usage All Movements	14	6412	41.7%	7944	48.2%	10643	71.6%	10420	70.4%
	17	6	0.0%	36	0.2%	72	0.5%	25	0.2%
	32	7153	46.5%	6703	40.6%	2620	17.6%	2616	17.7%
	35	403	2.6%	237	1.4%	88	0.6%	142	1.0%
	H	1326	8.6%	1409	8.5%	1251	8.4%	1413	9.5%
	I	89	0.6%	163	1.0%	197	1.3%	180	1.2%



Table 4
Curfew movement statistics for the first quarter of 2010

		JAN-10	FEB-10	MAR-10	1 st Quarter	2010
		Movements	Movements	Movements	Movements	Percents
Jets	A	3	3	5	11	
	D	3	3	3	9	
	T	6	6	8	20	
Non-Jets	A	2	1	4	7	
	D	5	2	4	11	
	T	7	3	8	18	
Helicopter	A	3	2	7	12	
	D	5	4	4	13	
	T	8	6	11	25	
Miscellaneous General Aviation Aircraft	A	1	0	0	1	
	D	4	1	2	7	
	T	5	1	2	8	
All Types	A	9	6	16	31	100.0%
	D	17	10	13	40	100.0%
	T	26	16	29	71	
Runway Usage Arrivals *	14	3	3	7	13	41.9%
	17	0	0	0	0	0.0%
	32	3	1	2	6	19.4%
	35	0	0	0	0	0.0%
	H	3	2	7	12	38.7%
	I	0	0	0	0	0.0%
Runway Usage Departures *	14	8	5	4	17	42.5%
	17	0	0	0	0	0.0%
	32	4	1	5	10	25.0%
	35	0	0	0	0	0.0%
	H	5	4	4	13	32.5%
	I	0	0	0	0	0.0%
Runway Usage All Movements	14	11	8	11	30	
	17	0	0	0	0	
	32	7	2	7	16	
	35	0	0	0	0	
	H	8	6	11	25	
	I	0	0	0	0	

* Takeoffs and landings preferentially use runway 14.



Table 5: Curfew movement statistics for previous four quarters

		4 th Quarter	2009	3 rd Quarter	2009	2 nd Quarter	2009	1 st Quarter	2009
		Movements	Percents	Movements	Percents	Movements	Percents	Movements	Percents
Jets	A	16		20		16		12	
	D	14		12		7		5	
	T	30		32		23		17	
Non-Jets	A	11		5		3		42	
	D	16		12		6		43	
	T	27		17		9		85	
Helicopter	A	10		11		15		23	
	D	13		9		6		16	
	T	23		20		21		39	
Miscellaneous General Aviation Aircraft	A	0		2		0		6	
	D	9		6		5		9	
	T	9		8		5		15	
All Types	A	37	100.0%	38	100.0%	34	100.0%	83	100.0%
	D	52	100.0%	39	100.0%	24	100.0%	73	100.0%
	T	89	100.0%	77	100.0%	58	100.0%	156	100.0%
Runway Usage Arrivals	14	17	45.9%	20	52.6%	17	50.0%	35	42.2%
	17	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	32	10	27.0%	7	18.4%	2	5.9%	25	30.1%
	35	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	H	10	27.0%	11	28.9%	15	44.1%	23	27.7%
	I	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Runway Usage Departures	14	15	28.8%	16	41.0%	11	45.8%	28	38.4%
	17	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	32	21	40.4%	11	28.2%	3	12.5%	24	32.9%
	35	0	0.0%	0	0.0%	1	4.2%	0	0.0%
	H	12	23.1%	8	20.5%	6	25.0%	16	21.9%
	I	4	7.7%	4	10.3%	3	12.5%	5	6.8%
Runway Usage All Movements	14	32	36.0%	36	46.8%	28	48.3%	63	40.4%
	17	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	32	31	34.8%	18	23.4%	5	8.6%	49	31.4%
	35	0	0.0%	0	0.0%	1	1.7%	0	0.0%
	H	23	25.8%	19	24.7%	21	36.2%	39	25.0%
	I	3	3.4%	4	5.2%	3	5.2%	5	3.2%



4.6. Data included in Appendix E.

It may be noted in Appendix E that in some cases there is a difference between the reported number of aircraft movements and the number of correlated noise events.

A noise event occurs when a noise being measured at an NMT stays above a preset level for a preset time duration. When that condition occurs, the NFPMS looks at the radar input to see whether there is an aircraft track within a preset radius around the NMT location. If there is, the noise event is correlated with that aircraft track and registered as a correlated noise event.

Differences between the number of aircraft movements and the number of correlated noise events may be due to the following:

- (i) For aircraft operations which are not relatively close to the NMT location, the noise levels received from the aircraft may be below the event threshold level. This results in less correlated noise events than actual aircraft movements.
- (ii) Noise events may not be correlated with aircraft tracks due to radar system downtime or transponders on the aircraft being turned off. This also results in less correlated noise events than actual aircraft movements.
- (iii) In some cases, extraneous noise events caused by sources other than aircraft occur concurrently with an aircraft operation, and are coincidentally correlated with an aircraft track in the vicinity of the NMT. This may result in more correlated noise events than actual aircraft movements.

For larger data samples, the absence or mistaken identity of some noise events will have minimal effect on the mean data presented in the report. Data for small sample sizes may however not be truly representative. A minimum total of six over flights have been used to establish a mean noise level. As a result, it should be noted that with this small sample size the mean noise level can be viewed as being less accurate.



APPENDIX A

An overview of the Noise and Flight Path Monitoring System



A.1. System configuration and features.

The NFPMS is the world's largest, most geographically-spread system of its type. The complete system is operated and controlled from Airservices Head Office in Canberra.

Around each of the airports are a number of noise monitoring terminals (NMTs). The NMT basically consists of a microphone, atop a mast of 6m height, and an electronics box. The noise level to which the microphone is exposed over the range 30 to 130 dB(A) is continuously measured and then transmitted, via a data line, to the NFPMS central computer where it is processed and stored for later analysis. Apart from measuring the aircraft noise, the NMT also continuously monitors the background noise levels.

Through the TAAATS system, the NFPMS acquires flight track and operational information on aircraft operating in and out of the airport.

On a map display for each airport, the system displays the noise levels measured by each of the NMTs and the flight tracks of the aircraft in the vicinity of the airport.

When the level and duration of noise from any noise source in the vicinity of an NMT exceed the threshold level and duration which have been set for the NMT, a "noise event" is recorded. The time at which the noise event is recorded at the NMT location is then checked against movement times and radar tracks of aircraft operating in the vicinity. If the time and NMT location of the noise event match the movement time and radar track of an aircraft, the noise event is attributed to that aircraft, i.e it becomes a "correlated noise event". Otherwise, it is regarded as part of the background noise.

The incoming data is stored in the central computer and can be recalled to display the tracks flown by any user selection of aircraft operations, together with the noise levels which those operations produced at the NMTs. The track information includes aircraft identity, altitude and speed.

The system includes statistical and acoustical software to undertake analyses of noise or flight track information as required by the user.

Automatically and regularly, the NFPMS produces reports that contain tabular and graphical summaries of noise and aircraft movement data for each airport over selected time periods.

The system includes the capability to analyse aircraft tracks, by selecting and listing the tracks which have passed through defined windows and corridors. The analysis can be selective, e.g. on specification of aircraft type or the route being flown.



A.2. System applications.

The NFPMS collects noise and flight path data 24 hours a day, seven days per week. It also accumulates flight plan and weather data.

The information collected is used by AA to:

- determine the contribution of aircraft to overall noise exposure;
 - detect occurrences of excessive noise levels from aircraft operations;
 - assess the effects of operational and administrative procedures for noise control and compliance with these procedures;
 - assist in planning of airspace usage;
 - validate noise forecasts and forecasting techniques;
 - assist relevant authorities in land-use planning for developments on areas in the vicinity of an airport;
 - provide reports to, and responses to questions from, Government and other Members of Parliament, industry organisations, airport owners, community groups and individuals; and
 - assist in answering noise complaints about aircraft operations from the general public.
-

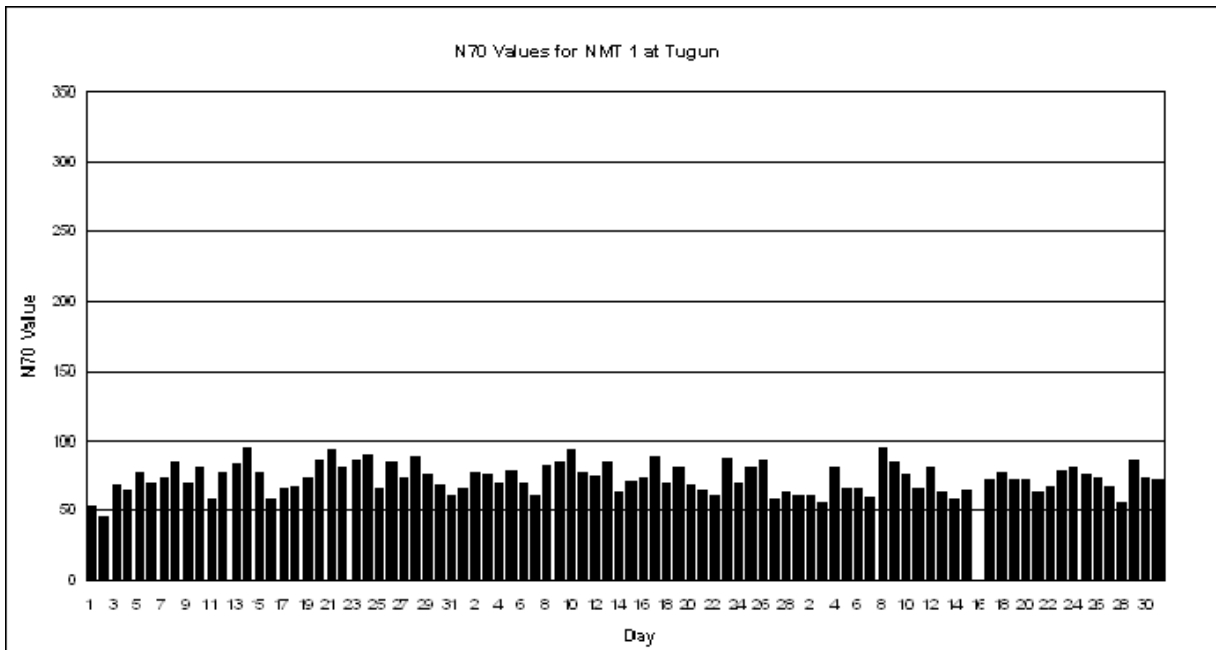


APPENDIX B

Daily value of N70 and N70 distribution for each NMT
during the period January to March 2010

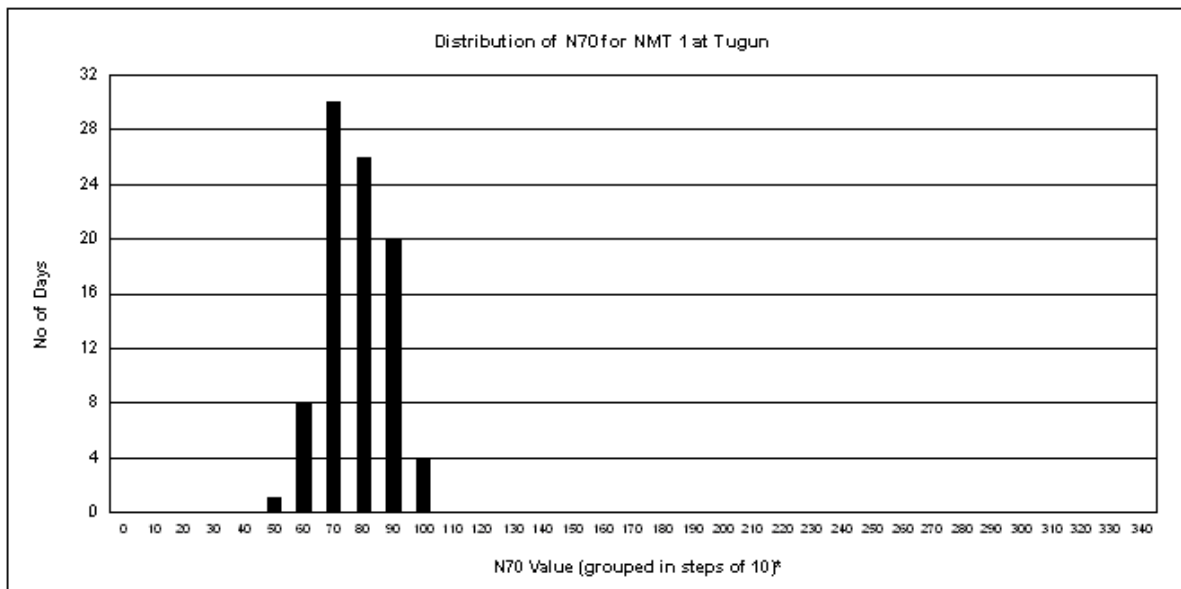


N70 Values for NMT 1 at Tugun



NMT 1 at Tugun was non-operational on the following days: 16/03/10

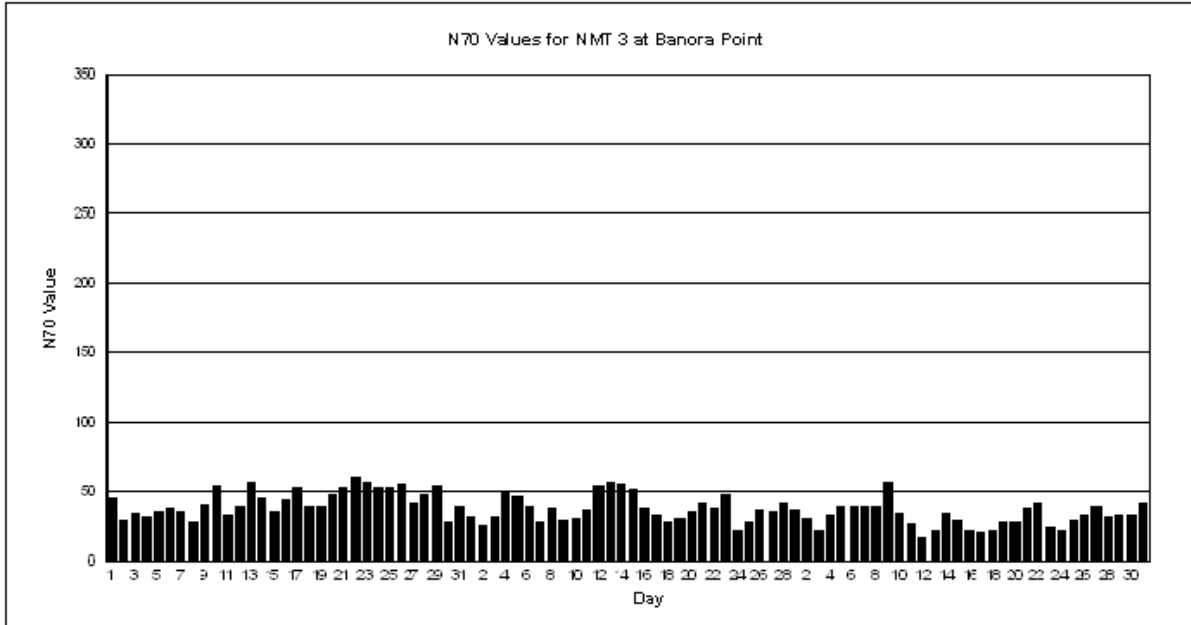
Distribution of N70 for NMT 1 at Tugun



* Except for N70 value of 0, which shows number of days with zero exceedances of N70 dB(A). All other values are in steps of 10 (eg. days with N70 of 1 to 10, 11 to 20, 21 to 30 etc).

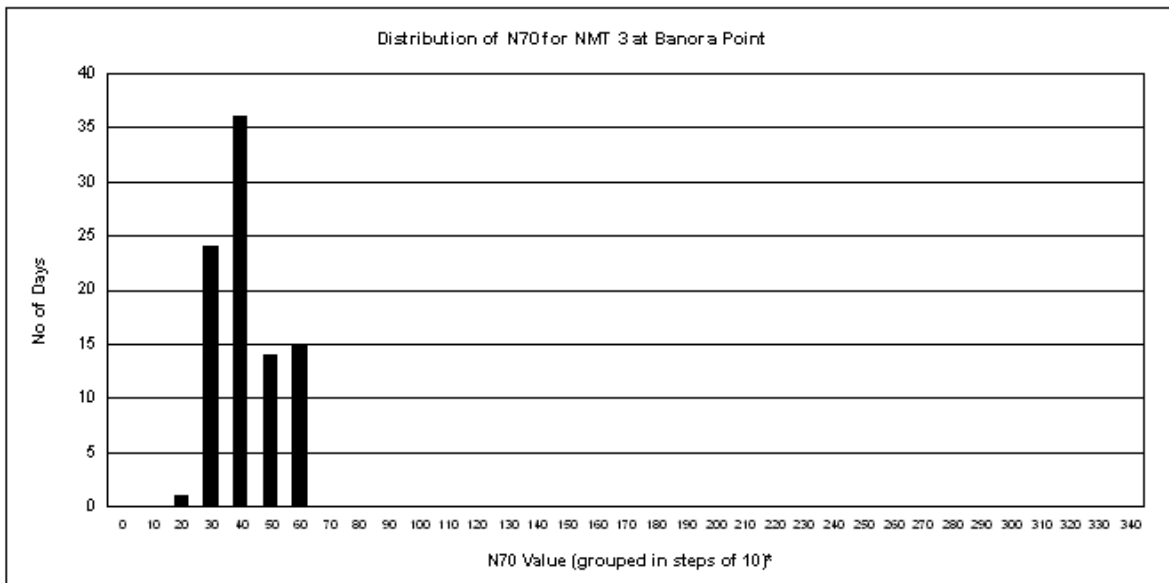


N70 Values for NMT 3 at Banora Point



NMT 3 at Banora Point

Distribution of N70 for NMT 3 at Banora Point



* Except for N70 value of 0, which shows number of days with zero exceedances of N70 dB(A). All other values are in steps of 10 (eg. days with N70 of 1 to 10, 11 to 20, 21 to 30 etc).



APPENDIX C

Daily runway usage per calendar month for arrivals and departures
during the period January to March 2010



Coolangatta Airport
Daily Runway Usage (Arrivals for All Aircraft Types)
Jan-10

days	Totals	14	17	32	35	H	I
01-Jan-10	54	3	0	48	3	0	0
02-Jan-10	69	0	0	58	7	4	0
03-Jan-10	61	44	0	14	0	3	0
04-Jan-10	62	61	0	0	0	1	0
05-Jan-10	73	72	0	0	0	1	0
06-Jan-10	73	64	1	4	0	4	0
07-Jan-10	64	60	0	0	0	4	0
08-Jan-10	77	68	0	0	0	9	0
09-Jan-10	75	67	0	0	0	8	0
10-Jan-10	71	15	0	51	3	2	0
11-Jan-10	77	71	0	0	0	6	0
12-Jan-10	80	78	0	0	0	2	0
13-Jan-10	105	6	0	80	7	12	0
14-Jan-10	96	35	0	49	3	9	0
15-Jan-10	89	76	0	0	0	13	0
16-Jan-10	75	59	0	9	0	7	0
17-Jan-10	71	0	0	58	5	8	0
18-Jan-10	74	7	0	55	2	10	0
19-Jan-10	92	84	0	0	0	8	0
20-Jan-10	92	22	0	58	3	9	0
21-Jan-10	96	2	0	75	4	15	0
22-Jan-10	100	0	0	80	6	14	0
23-Jan-10	80	3	0	72	3	2	0
24-Jan-10	71	1	0	63	3	4	0
25-Jan-10	80	0	0	67	2	11	0
26-Jan-10	87	0	0	71	10	6	0
27-Jan-10	83	27	1	39	6	10	0
28-Jan-10	89	4	0	62	8	15	0
29-Jan-10	82	19	0	51	1	11	0
30-Jan-10	67	66	0	0	0	1	0
31-Jan-10	60	56	0	0	0	4	0
Total	2425	1070	2	1064	76	213	0
Percentage	100.0%	44.1%	0.1%	43.9%	3.1%	8.8%	0.0%



Coolangatta Airport
Daily Runway Usage (Departures for All Aircraft Types)
Jan-10

days	Totals	14	17	32	35	H	I
01-Jan-10	55	3	0	52	0	0	0
02-Jan-10	68	0	0	65	0	3	0
03-Jan-10	61	40	0	18	0	3	0
04-Jan-10	62	60	0	0	0	2	0
05-Jan-10	74	73	0	0	0	1	0
06-Jan-10	73	67	0	3	0	3	0
07-Jan-10	62	59	0	0	0	3	0
08-Jan-10	74	67	0	0	0	7	0
09-Jan-10	75	68	0	0	0	7	0
10-Jan-10	65	15	0	48	0	2	0
11-Jan-10	75	70	0	0	0	5	0
12-Jan-10	82	79	0	0	0	3	0
13-Jan-10	97	13	0	76	0	8	0
14-Jan-10	91	32	0	53	0	6	0
15-Jan-10	88	80	0	0	0	8	0
16-Jan-10	72	64	0	3	0	5	0
17-Jan-10	72	0	0	64	0	8	0
18-Jan-10	76	6	0	60	0	10	0
19-Jan-10	93	83	0	0	0	10	0
20-Jan-10	88	24	0	56	0	8	0
21-Jan-10	94	4	0	76	0	14	0
22-Jan-10	96	1	0	82	0	13	0
23-Jan-10	78	3	0	72	0	3	0
24-Jan-10	68	0	0	65	0	3	0
25-Jan-10	86	1	0	74	1	10	0
26-Jan-10	90	1	0	82	1	6	0
27-Jan-10	84	25	0	51	0	8	0
28-Jan-10	84	2	0	68	1	13	0
29-Jan-10	76	22	0	45	0	9	0
30-Jan-10	66	63	0	0	0	3	0
31-Jan-10	58	54	0	0	0	4	0
Total	2383	1079	0	1113	3	188	0
Percentage	100.0%	45.3%	0.0%	46.7%	0.1%	7.9%	0.0%



Coolangatta Airport
Daily Runway Usage (Arrivals and Departures for All Aircraft Types)
Jan-10

days	Totals	14	17	32	35	H	I
01-Jan-10	109	6	0	100	3	0	0
02-Jan-10	137	0	0	123	7	7	0
03-Jan-10	122	84	0	32	0	6	0
04-Jan-10	124	121	0	0	0	3	0
05-Jan-10	147	145	0	0	0	2	0
06-Jan-10	146	131	1	7	0	7	0
07-Jan-10	126	119	0	0	0	7	0
08-Jan-10	151	135	0	0	0	16	0
09-Jan-10	150	135	0	0	0	15	0
10-Jan-10	136	30	0	99	3	4	0
11-Jan-10	152	141	0	0	0	11	0
12-Jan-10	162	157	0	0	0	5	0
13-Jan-10	202	19	0	156	7	20	0
14-Jan-10	187	67	0	102	3	15	0
15-Jan-10	177	156	0	0	0	21	0
16-Jan-10	147	123	0	12	0	12	0
17-Jan-10	143	0	0	122	5	16	0
18-Jan-10	150	13	0	115	2	20	0
19-Jan-10	185	167	0	0	0	18	0
20-Jan-10	180	46	0	114	3	17	0
21-Jan-10	190	6	0	151	4	29	0
22-Jan-10	196	1	0	162	6	27	0
23-Jan-10	158	6	0	144	3	5	0
24-Jan-10	139	1	0	128	3	7	0
25-Jan-10	166	1	0	141	3	21	0
26-Jan-10	177	1	0	153	11	12	0
27-Jan-10	167	52	1	90	6	18	0
28-Jan-10	173	6	0	130	9	28	0
29-Jan-10	158	41	0	96	1	20	0
30-Jan-10	133	129	0	0	0	4	0
31-Jan-10	118	110	0	0	0	8	0
Total	4808	2149	2	2177	79	401	0
Percentage	100.0%	44.7%	0.0%	45.3%	1.6%	8.3%	0.0%



Coolangatta Airport
Daily Runway Usage (Arrivals for All Aircraft Types)
Feb-10

days	Totals	14	17	32	35	H	I
01-Feb-10	67	59	0	0	0	8	0
02-Feb-10	78	64	1	0	0	13	0
03-Feb-10	76	63	0	0	0	13	0
04-Feb-10	88	44	0	30	3	11	0
05-Feb-10	95	24	0	56	4	11	0
06-Feb-10	66	52	0	11	0	3	0
07-Feb-10	56	53	0	0	0	3	0
08-Feb-10	74	62	0	0	0	12	0
09-Feb-10	75	66	0	0	0	9	0
10-Feb-10	92	81	0	1	0	10	0
11-Feb-10	95	77	0	0	0	18	0
12-Feb-10	116	4	0	85	6	21	0
13-Feb-10	85	0	0	78	4	3	0
14-Feb-10	77	0	0	64	4	9	0
15-Feb-10	83	0	0	63	9	11	0
16-Feb-10	73	35	0	31	0	7	0
17-Feb-10	72	64	0	0	0	8	0
18-Feb-10	90	74	1	0	0	15	0
19-Feb-10	90	74	0	0	0	16	0
20-Feb-10	74	67	1	0	0	6	0
21-Feb-10	68	62	0	0	1	5	0
22-Feb-10	84	65	0	3	3	13	0
23-Feb-10	107	14	0	69	10	14	0
24-Feb-10	63	60	1	0	0	2	0
25-Feb-10	66	62	1	0	0	3	0
26-Feb-10	83	71	0	0	0	12	0
27-Feb-10	55	54	0	0	0	1	0
28-Feb-10	70	43	0	21	0	6	0
Total	2218	1394	5	512	44	263	0
Percentage	100.0%	62.8%	0.2%	23.1%	2.0%	11.9%	0.0%



Coolangatta Airport
Daily Runway Usage (Departures for All Aircraft Types)
Feb-10

days	Totals	14	17	32	35	H	I
01-Feb-10	68	62	0	0	0	6	0
02-Feb-10	77	65	0	0	0	12	0
03-Feb-10	78	63	0	0	0	15	0
04-Feb-10	83	52	0	20	0	11	0
05-Feb-10	95	32	0	51	0	12	0
06-Feb-10	66	54	0	6	0	6	0
07-Feb-10	53	52	0	0	0	1	0
08-Feb-10	79	66	0	0	0	13	0
09-Feb-10	75	66	0	0	0	9	0
10-Feb-10	94	81	1	0	0	12	0
11-Feb-10	97	80	0	0	0	17	0
12-Feb-10	103	6	0	81	0	16	0
13-Feb-10	85	0	0	81	0	4	0
14-Feb-10	74	0	0	65	1	8	0
15-Feb-10	82	0	0	66	0	16	0
16-Feb-10	73	37	0	31	0	5	0
17-Feb-10	69	62	0	0	0	7	0
18-Feb-10	92	77	1	0	0	14	0
19-Feb-10	84	72	1	0	0	11	0
20-Feb-10	77	70	0	0	0	7	0
21-Feb-10	68	63	0	0	0	5	0
22-Feb-10	84	72	0	0	0	12	0
23-Feb-10	102	16	0	73	0	13	0
24-Feb-10	62	60	0	0	0	2	0
25-Feb-10	68	64	0	0	0	4	0
26-Feb-10	80	69	0	0	0	11	0
27-Feb-10	54	53	0	0	0	1	0
28-Feb-10	70	49	0	16	0	5	0
Total	2192	1443	3	490	1	255	0
Percentage	100.0%	65.8%	0.1%	22.4%	0.0%	11.6%	0.0%



Coolangatta Airport
Daily Runway Usage (Arrivals and Departures for All Aircraft Types)
Feb-10

days	Totals	14	17	32	35	H	I
01-Feb-10	135	121	0	0	0	14	0
02-Feb-10	155	129	1	0	0	25	0
03-Feb-10	154	126	0	0	0	28	0
04-Feb-10	171	96	0	50	3	22	0
05-Feb-10	190	56	0	107	4	23	0
06-Feb-10	132	106	0	17	0	9	0
07-Feb-10	109	105	0	0	0	4	0
08-Feb-10	153	128	0	0	0	25	0
09-Feb-10	150	132	0	0	0	18	0
10-Feb-10	186	162	1	1	0	22	0
11-Feb-10	192	157	0	0	0	35	0
12-Feb-10	219	10	0	166	6	37	0
13-Feb-10	170	0	0	159	4	7	0
14-Feb-10	151	0	0	129	5	17	0
15-Feb-10	165	0	0	129	9	27	0
16-Feb-10	146	72	0	62	0	12	0
17-Feb-10	141	126	0	0	0	15	0
18-Feb-10	182	151	2	0	0	29	0
19-Feb-10	174	146	1	0	0	27	0
20-Feb-10	151	137	1	0	0	13	0
21-Feb-10	136	125	0	0	1	10	0
22-Feb-10	168	137	0	3	3	25	0
23-Feb-10	209	30	0	142	10	27	0
24-Feb-10	125	120	1	0	0	4	0
25-Feb-10	134	126	1	0	0	7	0
26-Feb-10	163	140	0	0	0	23	0
27-Feb-10	109	107	0	0	0	2	0
28-Feb-10	140	92	0	37	0	11	0
Total	4410	2837	8	1002	45	518	0
Percentage	100.0%	64.3%	0.2%	22.7%	1.0%	11.8%	0.0%



Coolangatta Airport
Daily Runway Usage (Arrivals for All Aircraft Types)
Mar-10

days	Totals	14	17	32	35	H	I
01-Mar-10	65	60	0	0	0	5	0
02-Mar-10	57	57	0	0	0	0	0
03-Mar-10	63	57	0	0	0	6	0
04-Mar-10	81	67	0	0	0	14	0
05-Mar-10	82	62	0	8	1	11	0
06-Mar-10	61	60	0	0	0	1	0
07-Mar-10	64	60	0	0	0	4	0
08-Mar-10	74	48	0	18	4	4	0
09-Mar-10	88	2	0	74	4	8	0
10-Mar-10	84	70	0	4	0	10	0
11-Mar-10	75	71	0	0	0	4	0
12-Mar-10	78	68	0	0	0	10	0
13-Mar-10	60	56	0	0	0	4	0
14-Mar-10	61	57	0	0	0	4	0
15-Mar-10	76	63	0	1	0	12	0
16-Mar-10	88	76	0	0	0	12	0
17-Mar-10	82	72	0	0	0	10	0
18-Mar-10	89	81	0	0	0	8	0
19-Mar-10	91	74	0	0	0	17	0
20-Mar-10	94	84	0	0	0	10	0
21-Mar-10	71	65	0	1	1	4	0
22-Mar-10	84	40	0	30	1	13	0
23-Mar-10	90	79	0	0	0	11	0
24-Mar-10	91	79	0	0	0	12	0
25-Mar-10	96	85	0	3	0	8	0
26-Mar-10	96	88	0	0	0	8	0
27-Mar-10	83	74	0	2	2	5	0
28-Mar-10	77	72	0	2	1	2	0
29-Mar-10	73	66	0	1	0	6	0
30-Mar-10	77	40	0	30	4	3	0
31-Mar-10	81	9	0	61	3	8	0
Total	2432	1942	0	235	21	234	0
Percentage	100.0%	79.9%	0.0%	9.7%	0.9%	9.6%	0.0%



Coolangatta Airport
Daily Runway Usage (Departures for All Aircraft Types)
Mar-10

days	Totals	14	17	32	35	H	I
01-Mar-10	64	62	0	0	0	2	0
02-Mar-10	59	59	0	0	0	0	0
03-Mar-10	63	56	0	0	0	7	0
04-Mar-10	82	68	0	0	0	14	0
05-Mar-10	81	65	0	4	0	12	0
06-Mar-10	62	59	0	0	0	3	0
07-Mar-10	62	59	0	0	0	3	0
08-Mar-10	72	43	0	24	0	5	0
09-Mar-10	83	5	0	69	0	9	0
10-Mar-10	84	64	0	9	0	11	0
11-Mar-10	78	73	0	0	0	5	0
12-Mar-10	74	64	0	0	0	10	0
13-Mar-10	63	59	0	0	0	4	0
14-Mar-10	62	58	0	0	0	4	0
15-Mar-10	71	62	0	0	0	9	0
16-Mar-10	91	76	1	0	0	14	0
17-Mar-10	83	73	0	0	0	10	0
18-Mar-10	86	74	1	1	0	10	0
19-Mar-10	91	76	0	0	0	15	0
20-Mar-10	86	74	0	0	0	12	0
21-Mar-10	70	66	0	0	0	4	0
22-Mar-10	91	41	0	37	0	13	0
23-Mar-10	92	79	1	0	0	12	0
24-Mar-10	87	77	0	0	0	10	0
25-Mar-10	92	84	0	1	0	7	0
26-Mar-10	97	87	0	1	0	9	0
27-Mar-10	87	79	0	2	0	6	0
28-Mar-10	70	67	0	1	0	2	0
29-Mar-10	76	68	0	1	0	7	0
30-Mar-10	76	47	0	26	0	3	0
31-Mar-10	75	10	0	59	0	6	0
Total	2410	1934	3	235	0	238	0
Percentage	100.0%	80.2%	0.1%	9.8%	0.0%	9.9%	0.0%



Coolangatta Airport
Daily Runway Usage (Arrivals and Departures for All Aircraft Types)
Mar-10

days	Totals	14	17	32	35	H	I
01-Mar-10	129	122	0	0	0	7	0
02-Mar-10	116	116	0	0	0	0	0
03-Mar-10	126	113	0	0	0	13	0
04-Mar-10	163	135	0	0	0	28	0
05-Mar-10	163	127	0	12	1	23	0
06-Mar-10	123	119	0	0	0	4	0
07-Mar-10	126	119	0	0	0	7	0
08-Mar-10	146	91	0	42	4	9	0
09-Mar-10	171	7	0	143	4	17	0
10-Mar-10	168	134	0	13	0	21	0
11-Mar-10	153	144	0	0	0	9	0
12-Mar-10	152	132	0	0	0	20	0
13-Mar-10	123	115	0	0	0	8	0
14-Mar-10	123	115	0	0	0	8	0
15-Mar-10	147	125	0	1	0	21	0
16-Mar-10	179	152	1	0	0	26	0
17-Mar-10	165	145	0	0	0	20	0
18-Mar-10	175	155	1	1	0	18	0
19-Mar-10	182	150	0	0	0	32	0
20-Mar-10	180	158	0	0	0	22	0
21-Mar-10	141	131	0	1	1	8	0
22-Mar-10	175	81	0	67	1	26	0
23-Mar-10	182	158	1	0	0	23	0
24-Mar-10	178	156	0	0	0	22	0
25-Mar-10	188	169	0	4	0	15	0
26-Mar-10	193	175	0	1	0	17	0
27-Mar-10	170	153	0	4	2	11	0
28-Mar-10	147	139	0	3	1	4	0
29-Mar-10	149	134	0	2	0	13	0
30-Mar-10	153	87	0	56	4	6	0
31-Mar-10	156	19	0	120	3	14	0
Total	4842	3876	3	470	21	472	0
Percentage	100.0%	80.0%	0.1%	9.7%	0.4%	9.7%	0.0%



APPENDIX D

Hourly movements per calendar month for arrivals and departures
during the period January to March 2010



Coolangatta Airport
Hourly Movements (Arrivals and Departures for All Aircraft Types)
January 2010

days	total	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
1-Jan-10	109	0	0	0	0	0	0	11	6	10	6	11	8	4	6	7	10	4	4	6	6	5	4	1	0
2-Jan-10	137	0	0	0	0	0	0	13	7	10	12	13	10	7	9	10	11	9	6	7	6	5	2	0	0
3-Jan-10	122	0	0	0	0	0	0	8	9	9	6	10	13	9	5	10	7	4	5	7	4	10	5	1	0
4-Jan-10	124	0	0	0	0	0	3	12	11	10	8	7	12	7	5	9	7	6	6	5	6	5	4	1	0
5-Jan-10	147	0	0	0	0	0	0	10	10	17	11	14	15	10	8	9	9	8	5	7	4	6	3	1	0
6-Jan-10	146	0	0	0	0	0	1	12	11	11	14	13	13	7	8	9	9	10	6	5	7	3	4	2	1
7-Jan-10	126	0	0	0	0	0	0	12	10	11	7	10	11	7	9	9	9	7	3	6	5	5	4	1	0
8-Jan-10	151	0	0	0	0	0	0	9	10	13	10	12	13	11	11	11	8	8	9	8	8	7	2	1	0
9-Jan-10	150	0	0	0	0	0	0	12	10	16	9	12	14	8	9	13	14	7	7	4	6	6	3	0	0
10-Jan-10	136	0	0	0	0	0	0	7	6	11	11	10	10	12	11	10	11	6	5	7	5	9	3	2	0
11-Jan-10	152	0	0	0	0	0	1	9	13	11	12	11	13	15	13	11	6	6	6	6	5	9	3	2	0
12-Jan-10	162	0	0	0	0	0	1	12	11	15	14	14	12	15	10	10	12	8	5	6	6	5	4	2	0
13-Jan-10	202	0	0	0	0	0	1	12	14	17	16	17	13	13	18	19	14	13	6	10	5	8	4	1	1
14-Jan-10	187	0	0	0	1	0	0	11	13	13	15	15	12	12	16	13	14	14	5	9	10	9	4	1	0
15-Jan-10	177	0	0	0	0	0	1	8	10	12	15	17	18	10	10	13	12	11	12	4	11	7	2	4	0
16-Jan-10	147	0	0	0	0	0	0	6	10	15	13	13	12	9	12	12	9	10	4	8	5	5	4	0	0
17-Jan-10	143	0	0	0	0	0	1	7	8	11	10	11	15	11	9	11	11	8	5	5	5	8	5	2	0
18-Jan-10	150	1	0	0	0	0	0	8	15	15	10	14	14	8	9	10	9	10	4	5	6	9	2	1	0
19-Jan-10	185	0	0	0	0	0	0	11	11	16	15	15	16	16	11	12	12	12	11	6	8	8	4	1	0
20-Jan-10	180	0	0	0	0	0	0	13	11	18	15	17	15	13	13	9	13	12	10	5	6	7	2	1	0
21-Jan-10	190	0	0	0	0	0	1	15	15	14	15	15	20	9	16	13	15	7	8	7	8	9	2	1	0
22-Jan-10	196	0	1	0	0	0	0	9	13	16	21	21	13	13	13	15	13	8	11	10	7	8	3	1	0
23-Jan-10	158	0	0	0	0	0	0	9	10	11	15	15	11	14	13	9	11	11	7	4	7	5	4	2	0
24-Jan-10	139	0	0	0	0	0	0	7	8	13	11	14	12	9	7	8	8	5	7	5	9	9	3	4	0
25-Jan-10	166	0	0	0	0	0	1	10	10	17	15	16	14	8	9	13	13	10	6	7	5	7	4	1	0
26-Jan-10	177	0	1	1	1	0	0	11	12	19	14	16	19	13	8	15	8	7	8	6	6	7	3	2	0
27-Jan-10	167	0	0	0	1	0	0	10	13	13	17	15	13	11	13	17	10	7	2	7	6	9	2	1	0
28-Jan-10	173	0	0	0	0	0	1	10	10	12	15	13	19	12	13	12	10	15	8	6	5	6	3	1	2
29-Jan-10	158	0	0	0	0	0	0	10	6	12	15	16	14	13	8	11	12	7	6	8	7	8	4	1	0
30-Jan-10	133	0	0	0	1	0	1	9	9	13	9	14	13	9	6	8	8	5	7	6	6	5	3	1	0
31-Jan-10	118	0	1	0	0	0	0	6	6	9	10	9	10	5	7	8	7	4	5	6	6	13	4	2	0
Total	4808	2	3	1	4	0	13	309	318	410	386	420	417	320	315	346	322	259	199	198	196	222	103	42	4
Percentage	100.0	0.0	0.1	0.0	0.1	0.0	0.3	6.4	6.6	8.5	8.0	8.7	8.7	6.7	6.6	7.2	6.7	5.4	4.1	4.1	4.1	4.6	2.1	0.9	0.1



Coolangatta Airport
Hourly Movements (Arrivals and Departures for All Aircraft Types)
February 2010

days	total	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
1-Feb-10	135	0	0	0	0	0	1	8	8	11	13	9	11	10	6	8	10	10	10	4	4	8	3	1	0
2-Feb-10	155	0	0	0	0	0	0	8	9	10	16	15	13	10	11	9	13	10	6	6	7	8	2	2	0
3-Feb-10	154	0	0	0	0	0	0	13	10	11	16	11	13	7	10	10	10	15	6	5	5	8	2	1	1
4-Feb-10	171	0	0	0	0	0	0	9	9	12	11	12	18	17	17	16	7	11	5	7	5	8	2	3	2
5-Feb-10	190	0	0	0	0	0	0	9	18	14	14	13	18	9	11	16	12	12	14	10	6	8	3	2	1
6-Feb-10	132	1	0	0	1	0	0	9	15	7	10	11	10	8	5	12	10	8	4	5	7	5	4	0	0
7-Feb-10	109	0	0	0	0	0	1	5	4	6	2	9	10	8	7	7	9	9	3	7	5	11	5	1	0
8-Feb-10	153	0	0	0	0	0	2	9	6	13	16	10	12	6	12	17	7	12	7	7	3	5	5	3	1
9-Feb-10	150	0	0	0	0	0	1	10	8	14	10	16	12	12	8	7	9	6	10	5	5	10	5	2	0
10-Feb-10	186	0	0	0	0	0	1	12	14	12	19	18	16	12	11	12	16	11	4	5	9	7	4	3	0
11-Feb-10	192	0	0	0	0	0	1	11	15	8	16	20	18	11	16	13	17	14	8	6	6	6	5	1	0
12-Feb-10	219	0	0	0	0	0	0	7	15	16	22	28	21	13	13	17	15	12	11	6	8	7	6	2	0
13-Feb-10	170	0	0	0	0	0	0	10	12	16	18	16	17	9	11	14	8	11	6	5	8	5	4	0	0
14-Feb-10	151	0	0	0	0	0	0	10	7	13	17	12	13	7	7	13	11	8	6	6	6	9	3	3	0
15-Feb-10	165	0	0	0	0	0	0	11	8	11	18	16	16	7	13	14	13	9	5	7	5	7	3	2	0
16-Feb-10	146	0	0	0	0	0	0	9	10	14	15	14	14	7	8	7	6	8	10	7	6	7	3	1	0
17-Feb-10	141	0	0	0	0	0	0	8	13	10	16	13	14	7	8	8	8	8	7	5	6	6	3	1	0
18-Feb-10	182	0	0	0	0	0	0	14	9	8	20	21	15	13	12	13	7	14	7	7	8	10	3	1	0
19-Feb-10	174	0	0	0	0	0	0	12	11	10	15	12	13	14	14	13	10	10	11	5	9	9	4	2	0
20-Feb-10	151	0	0	0	0	0	0	11	9	11	14	13	11	7	12	18	10	6	7	7	7	5	3	0	0
21-Feb-10	136	0	0	0	0	0	1	8	7	10	11	10	13	6	9	13	9	7	6	6	5	10	4	1	0
22-Feb-10	168	0	0	0	0	0	0	10	9	13	14	17	18	11	11	16	12	5	7	6	7	8	3	1	0
23-Feb-10	209	0	0	0	0	0	0	10	14	17	20	17	18	15	19	17	10	14	11	10	5	8	2	1	1
24-Feb-10	125	0	0	0	0	0	0	9	8	7	15	4	7	11	6	12	10	6	8	5	5	8	3	1	0
25-Feb-10	134	0	0	0	0	0	0	11	9	9	10	14	12	5	8	9	7	7	6	6	10	8	2	1	0
26-Feb-10	163	0	0	0	0	0	0	8	12	14	9	18	10	9	13	14	11	9	10	6	7	8	3	2	0
27-Feb-10	109	0	0	0	0	0	0	7	5	9	10	11	9	6	6	9	6	7	4	5	8	4	2	1	0
28-Feb-10	140	0	0	0	0	0	0	6	7	9	13	12	16	8	6	13	8	7	5	10	7	7	5	1	0
Total	4410	1	0	0	1	0	8	264	281	315	400	392	388	265	290	347	281	266	204	176	179	210	96	40	6
Percentage	100.0	0.0	0.0	0.0	0.0	0.0	0.2	6.0	6.4	7.1	9.1	8.9	8.8	6.0	6.6	7.9	6.4	6.0	4.6	4.0	4.1	4.8	2.2	0.9	0.1



Coolangatta Airport
Hourly Movements (Arrivals and Departures for All Aircraft Types)
March 2010

days	total	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
1-Mar-10	129	0	0	0	0	0	0	8	12	6	13	11	13	5	7	7	6	9	10	5	6	7	3	1	0
2-Mar-10	116	0	0	0	0	0	0	9	8	9	10	11	9	6	6	6	6	6	6	6	5	9	3	1	0
3-Mar-10	126	1	0	0	0	0	0	11	7	7	12	13	9	5	8	9	8	5	8	6	5	6	3	2	1
4-Mar-10	163	0	0	0	0	0	0	11	10	8	15	21	10	10	7	13	14	11	7	7	8	8	2	1	0
5-Mar-10	163	0	0	0	0	0	0	10	10	12	14	20	16	8	8	10	13	6	8	6	9	7	5	1	0
6-Mar-10	123	0	1	0	0	0	0	9	6	14	13	11	11	7	8	10	6	7	3	4	5	4	3	1	0
7-Mar-10	126	0	0	0	0	0	0	6	8	10	12	10	11	9	10	9	5	7	3	7	6	3	5	5	0
8-Mar-10	146	1	0	0	0	0	1	9	11	6	13	12	13	13	12	8	10	4	5	8	7	9	2	1	1
9-Mar-10	171	0	1	0	0	0	0	11	9	14	11	16	17	10	13	12	12	10	9	8	5	9	2	1	1
10-Mar-10	168	1	1	0	0	1	2	13	11	15	19	14	17	6	9	7	9	8	8	6	7	7	7	0	0
11-Mar-10	153	0	0	0	0	0	0	10	11	16	10	15	11	10	11	10	7	8	7	8	5	8	5	1	0
12-Mar-10	152	0	0	0	0	0	0	9	11	14	9	14	11	9	10	7	11	8	9	6	11	8	4	1	0
13-Mar-10	123	0	0	0	0	0	0	9	6	12	11	11	9	7	6	9	8	7	7	4	9	6	2	0	0
14-Mar-10	123	0	0	0	0	0	0	7	6	8	9	12	10	8	7	10	7	5	7	5	7	9	3	3	0
15-Mar-10	147	1	0	0	1	0	0	9	7	8	14	14	15	6	15	9	9	6	9	6	5	8	4	1	0
16-Mar-10	179	0	0	0	0	0	0	10	9	16	17	23	11	9	9	18	9	11	12	6	8	8	2	1	0
17-Mar-10	165	0	0	0	0	0	0	11	10	11	20	15	16	11	11	11	9	9	10	4	7	5	2	3	0
18-Mar-10	175	1	0	0	0	0	0	13	12	10	14	14	13	12	8	16	10	11	14	8	6	9	3	1	0
19-Mar-10	182	0	0	0	1	0	0	10	15	15	13	20	14	11	13	14	12	5	9	10	9	8	2	1	0
20-Mar-10	180	0	0	0	0	0	0	10	10	14	19	23	13	17	11	15	9	12	5	5	9	6	2	0	0
21-Mar-10	141	1	0	0	1	0	0	6	9	11	15	13	11	8	10	11	10	3	4	5	7	9	6	1	0
22-Mar-10	175	0	0	0	0	0	1	8	11	11	14	14	17	16	8	14	10	11	9	8	6	9	5	2	1
23-Mar-10	182	0	0	0	0	0	1	12	11	18	20	18	18	10	13	17	7	7	6	5	5	8	5	1	0
24-Mar-10	178	0	0	0	0	0	0	11	7	12	17	17	16	14	10	13	13	11	9	7	7	7	3	3	1
25-Mar-10	188	0	2	0	0	0	1	10	13	17	18	16	18	9	11	11	11	12	7	9	9	8	4	2	0
26-Mar-10	193	0	0	0	0	0	0	7	11	13	19	19	12	13	18	12	14	10	11	8	10	10	3	3	0
27-Mar-10	170	0	0	0	0	0	0	9	11	11	14	22	16	11	12	17	11	8	7	5	7	5	3	0	1
28-Mar-10	147	0	0	0	0	1	0	9	7	11	17	11	13	7	6	15	6	12	7	7	6	7	4	1	0
29-Mar-10	149	0	0	0	0	0	1	9	10	10	16	9	7	11	8	14	11	10	11	7	5	5	4	1	0
30-Mar-10	153	0	0	0	0	0	0	8	10	12	10	14	9	12	9	13	10	13	8	5	7	7	4	2	0
31-Mar-10	156	0	0	0	0	0	0	9	10	12	13	17	17	8	11	8	8	15	6	5	6	6	3	2	0
Total	4842	6	5	0	3	2	7	293	299	363	441	470	403	298	305	355	291	267	241	196	214	225	108	44	6
Percentage	100.0	0.1	0.1	0.0	0.1	0.0	0.1	6.1	6.2	7.5	9.1	9.7	8.3	6.2	6.3	7.3	6.0	5.5	5.0	4.0	4.4	4.6	2.2	0.9	0.1



APPENDIX E

Aircraft average noise levels

January to March 2010



**GOLD COAST AIRPORT
Aircraft Average Noise Levels
First Quarter 2010 and Previous Four Quarters
Location: Tugun NMT 1**

TYPE	DESCRIPTION	OPERATION	RUNWAY	MOVEMENTS	CORRELATED NOISE EVENTS	MEAN MAXIMUM SOUND LEVEL (Std Dev) , dB(A)				
						10Q1	RESULTS FROM PREVIOUS QUARTERS*			
							09Q4	09Q3	09Q2	09Q1
A333	Airbus - A330	D	32	22	21	91.5(1.3)	91.8(1.6)	92.7(1.2)	92.7(2.1)	92.0(1.5)
A332	Airbus - A332	D	32	71	68	89.7(3.5)	88.6(3.9)	88.4(4.3)	89.1(4.1)	90.4(4.0)
A332	Airbus - A332	A	14	203	199	86.9(1.9)	86.1(3.0)	85.9(2.0)	86.6(2.3)	86.8(2.3)
B738	Boeing - 737-800	A	14	678	664	86.6(1.2)	86.6(1.1)	86.1(1.8)	86.6(1.7)	86.8(1.8)
A333	Airbus - A330	A	14	65	61	86.4(1.5)	86.6(1.3)	85.7(2.9)	86.8(1.1)	86.4(1.3)
B737	Boeing - 737-700	A	14	574	560	84.7(1.4)	84.3(1.5)	84.1(0.9)	84.4(1.3)	84.6(1.4)
B738	Boeing - 737-800	D	32	251	241	84.7(1.8)	83.3(2.5)	83.8(2.5)	84.2(2.0)	84.9(2.3)
E190	Embraer ERJ-190	A	14	64	65	84.1(1.8)	84.2(1.1)	84.0(1.1)	83.9(1.7)	84.5(2.1)
A321	Airbus - A321	D	32	197	189	84.0(2.0)	83.1(2.8)	84.0(2.0)	84.0(2.2)	84.3(1.6)
A321	Airbus - A321	A	14	484	466	83.7(1.1)	83.5(1.6)	83.5(0.9)	84.0(1.8)	84.1(1.4)
A320	Airbus - A320	A	14	1114	1065	83.0(1.2)	82.8(0.8)	82.6(1.2)	83.1(1.4)	83.2(1.2)
E170	Embraer - ERJ - 170/175	A	14	112	107	83.0(1.5)	82.6(1.0)	82.5(1.2)	82.7(1.4)	83.2(1.7)
E190	Embraer ERJ-190	D	32	24	21	82.7(2.0)	81.7(2.0)	82.1(2.2)	83.5(1.7)	81.9(2.6)
E170	Embraer - ERJ - 170/175	D	32	46	46	82.1(2.1)	80.8(1.9)	80.9(1.9)	81.9(2.0)	80.7(2.1)
B737	Boeing - 737-700	D	32	226	220	81.4(2.2)	79.9(2.4)	79.9(2.6)	81.1(2.5)	81.4(2.4)
A320	Airbus - A320	D	32	434	405	81.0(1.6)	80.5(2.0)	81.2(1.8)	81.4(1.3)	81.1(1.6)
LJ35	Gates Learjet - Learjet 35, 36	D	32	7	7	80.3(3.2)	78.9(4.3)	79.8(2.9)		81.7(2.8)
LJ45	Gates Learjet - Learjet 45	D	14	12	7	79.9(0.6)				
C208	Cessna - Caravan 1- 208	A	14	144	144	79.9(2.8)	80.4(2.7)	80.7(2.5)	80.5(2.7)	80.2(3.2)
LJ45	Gates Learjet - Learjet 45	A	14	11	17	79.7(2.5)	78.7(1.7)	77.2(1.6)	77.9(1.2)	80.2(1.4)
BE20	Beech - Super King Air 200, 1300	A	14	12	12	79.6(1.2)	80.1(1.0)	80.5(1.2)	78.5(3.2)	79.6(1.3)
LJ35	Gates Learjet - Learjet 35, 36	A	14	11	13	79.4(2.2)			79.0(1.3)	77.9(2.0)
PC12	Pilatus Ag - PC-12	A	14	15	15	79.0(1.4)	79.7(0.8)	79.8(1.1)	79.8(1.2)	79.5(1.0)
BE58	Beech - Baron58,Foxstar	D	32	11	10	78.8(3.0)	78.5(3.8)	79.0(3.3)		
BE58	Beech - Baron58,Foxstar	A	14	19	19	78.7(3.8)				

*Data in the first 6 columns apply to the current quarter only.



GOLD COAST AIRPORT
Aircraft Average Noise Levels
First Quarter 2010 and Previous Four Quarters
Location: Banora Point NMT 3

TYPE	DESCRIPTION	OPERATION	RUNWAY	MOVEMENTS	CORRELATED NOISE EVENTS	MEAN MAXIMUM SOUND LEVEL (Std Dev) , dB(A)				
						10Q1	RESULTS FROM PREVIOUS QUARTERS*			
							09Q4	09Q3	09Q2	09Q1
A332	Airbus - A332	A	32	61	60	79.0(1.8)	79.2(2.2)	78.9(3.0)	78.3(1.7)	76.8(3.0)
A333	Airbus - A330	A	32	20	16	77.5(2.8)	77.3(3.7)	77.2(4.8)		76.5(4.2)
B738	Boeing - 737-800	A	32	265	254	76.7(1.9)	77.0(2.0)	77.4(1.8)	77.1(1.5)	76.8(2.8)
E190	Embraer ERJ-190	A	32	24	22	76.2(1.1)	75.8(2.2)	76.3(2.0)	76.6(1.9)	74.0(2.9)
A321	Airbus - A321	A	32	202	193	75.6(1.4)	76.1(2.4)	76.5(1.5)	75.8(1.0)	75.0(3.7)
B737	Boeing - 737-700	A	32	243	231	75.1(1.7)	75.4(1.8)	75.7(1.4)	75.4(1.8)	74.9(2.3)
A320	Airbus - A320	A	32	443	399	75.0(1.5)	75.3(1.8)	75.4(1.6)	74.9(1.8)	75.1(2.1)
A332	Airbus - A332	D	14	193	111	74.0(3.8)	74.7(3.6)	75.6(3.5)	74.7(3.8)	75.0(4.2)
E170	Embraer - ERJ - 170/175	A	32	47	43	73.9(1.6)	74.5(1.1)	74.5(1.8)	74.1(1.7)	74.0(1.8)
A321	Airbus - A321	D	14	489	430	73.5(1.5)	74.4(1.4)	74.5(1.4)	74.9(1.7)	75.1(1.1)
E190	Embraer ERJ-190	D	14	64	51	72.9(1.5)	73.4(1.2)	73.9(1.2)	73.2(1.2)	72.6(0.8)
B738	Boeing - 737-800	D	14	693	541	72.7(1.4)	73.1(1.3)	73.2(1.3)	72.8(1.3)	73.2(1.7)
A320	Airbus - A320	D	14	1117	629	72.6(2.1)	73.2(2.1)	73.3(2.2)	73.2(2.0)	73.3(2.1)
A333	Airbus - A330	D	14	63	19	72.2(4.8)	74.2(3.3)	74.0(3.5)	74.2(3.8)	77.7(4.5)
C172	Cessna - Skyhawk 172/Cutlass/Mescalero	A	32	176	6	71.8(3.2)	70.2(3.4)	68.9(3.0)	69.7(3.9)	
SW4	Fairchild - Metro, Merlin 4	A	32	22	13	71.6(2.5)	69.7(2.0)	71.2(1.9)	71.2(1.7)	69.4(2.3)
E170	Embraer - ERJ - 170/175	D	14	111	55	71.5(2.4)	72.3(2.1)	72.4(2.2)	72.2(1.8)	72.5(1.5)
B737	Boeing - 737-700	D	14	590	422	71.0(1.4)	71.3(1.1)	71.3(1.2)	71.3(1.5)	71.5(2.2)
C525	Cessna - Citationjet C525	A	32	6	6	70.8(2.2)	70.8(3.1)	70.9(2.3)		
BE76	Beech - Duchess76	A	32	42	16	69.5(3.4)	69.7(3.3)	71.2(3.5)	69.4(3.6)	69.6(3.7)

*Data in the first 6 columns apply to the current quarter only.