CIVIL AVIATION AUTHORITY
OF NEW ZEALAND

# Aviation Safety Summary Report 

## 1 J anuary to 31 March 2012



## Introduction

The purpose of this report is to provide readers with a quarterly snapshot of the aviation industry in terms of its size, shape, activity and safety performance. This complements the more detailed six-monthly "Aviation Industry Safety Update", which is available only on the CAA website.

This report uses calendar years; the first quarter is 1 January to 31 March.

## Overview

## Activity

## Air Transport Flights, Total Hours

Trends
The following graphs show the number of air transport flights and the total number of hours flown (annual data) for the five-year period 1 January 2006 to 31 December 2010 (includes the aircraft classes aeroplane, helicopter and balloon only).


Note that the scales on these graphs do not start at zero.
Note that these assessments include the aircraft classes aeroplane, helicopter and balloon only and exclude other aircraft classes such as hang gliders and parachutes, and foreign registered aircraft that are operated in New Zealand. These assessments are based on Aircraft Operating Statistics for periods up to the quarter ended 31 December 2010 (the most recent quarter for which these data are available).

## Aircraft Movements

## Trends

The following graph shows the number of aircraft movements at certificated aerodromes (annual data) for the five-year period 1 April 2007 to 31 March 2012.


Note that the scale on this graph does not start at zero.
Note that this covers certificated aerodromes only. Includes Auckland, Christchurch, Dunedin, Gisborne, Hamilton, Invercargill, Napier, Nelson, New Plymouth, Ohakea, Palmerston North, Queenstown, Rotorua, Taupo, Tauranga, Wellington and Woodbourne. Excludes Chatham Islands/Tuuta Airport, Hokitika (certificated from Apr 2010), Kerikeri/Bay of Islands, Mount Cook (certificated until Sep 2009), Paraparaumu (certificated from Apr 2009), Te Anau/Manapouri, Timaru, Wanganui, Westport and Whangarei.

## Registered Aircraft

## Trends

The following graph shows the number of registered aircraft at 31 March for each of the five-years 2008 to 2012.


Note that the scale on this graph does not start at zero.
Note that these figures include the sport aircraft statistics category and exclude hang gliders, paragliders and parachutes.

## Accidents

## Trends

The following graphs show the aircraft accident rates (3 year moving average) for the three-year period 1 April 2009 to 31 March 2012 (excluding the aircraft statistics categories Sport Aircraft, Hang Gliders and Parachutes).


## Overall Accident Rate

The following graph shows the overall accident rate per 100,000 hours flown (includes the aircraft classes aeroplane, helicopter and balloon only; excludes other aircraft classes, hang gliders and parachutes) for the five-year period 1 April 2007 to 31 March 2012.


Note that this graph does not show a moving average.

## Safety Outcome Targets for 2014

## Safety Target Structure

The 2014 Safety Targets have all New Zealand aviation classified under three broad group headings: Public Air Transport, Other Commercial Operations, and Non-Commercial Operations.

Thirteen further sub-groups enable differentiation between aeroplanes, helicopters, and sport aircraft, and also allow for different weight groups. A diagram of the grouping is shown in the Definitions section.

The following table displays the social cost for each Safety Target Group for the quarters 1 January to 31 March 2011 and 2012. Social cost is the cost of fatal, serious and minor injuries, and aircraft destroyed, expressed in 2011 dollars.

| Safety Target Group | 1 Jan to 31 Mar | 1 Jan to 31 Mar | Change |
| :--- | :---: | :---: | :---: |
|  | $\mathbf{2 0 1 1}$ | $\mathbf{2 0 1 2}$ |  |
| $\mathbf{\$ m}$ | $\mathbf{\$ m}$ | $\mathbf{\$ m}$ |  |
| Airline Operations - Large Aeroplanes | 0.00 | 0.03 | +0.03 |
| Airline Operations - Medium Aeroplanes | 0.00 | 0.00 | 0.00 |
| Airline Operations - Small Aeroplanes | 0.00 | 0.00 | 0.00 |
| Airline Operations - Helicopters | 0.02 | 0.00 | -0.02 |
| Sport Transport | 0.42 | 40.64 | +40.22 |
|  |  |  |  |
| Other Commercial Operations - Aeroplanes | 0.00 | 0.00 | 0.00 |
| Other Commercial Operations - Helicopters | 1.62 | 0.00 | -1.62 |
|  |  |  |  |
| Agricultural Operations - Aeroplanes | 0.00 | 0.00 | 0.00 |
| Agricultural Operations - Helicopters | 1.25 | 0.00 | -1.25 |
| Agricultural Operations - Sport | 0.00 | 0.00 | 0.00 |
| Private Operations - Aeroplanes |  |  |  |
| Private Operations - Helicopters | 0.00 | 0.00 | 0.00 |
| Private Operations - Sport | 0.31 | $\mathbf{0 . 0 0}$ | -0.31 |
| Total | 9.46 | $\mathbf{5 6 . 5 1}$ | $\mathbf{+ 4 3 . 4 3}$ |

Note that the individual values in the table may not sum exactly to the total shown due to rounding.
Note that the Sport groups include hang gliders and parachutes.

## Safety Target Graphs

Each Safety Target Group has its own target level expressed as social cost per unit of person exposure, the unit being "one seat hour". For Safety Target Groups that are not predominantly passenger carrying a surrogate of 500 kg of aircraft weight is used instead of person exposure. These outcomes represent the maximum level of social cost considered acceptable for each group.

The results for all groups are derived using 3 year averages.
Graphs displaying the Safety Outcome Targets and the progress over each quarter are shown on the following pages.


The outcome for Airline Operations - Large Aeroplanes ( $96.3 \%$ of total seat hours) has been just above the target level of $\$ 0.00$ per hour of exposure since the quarter Jan to Mar 11. There have been 5 minor injuries in this group in the three years Apr 09 to Mar 12.


The outcome for Airline Operations - Medium Aeroplanes is trending down and has been at or below the target level since the quarter Apr to Jun 09 (the data point at $12 / 1$ is $\$ 0.02$ per hour of exposure). The exposure ( $1.4 \%$ of total seat hours) associated with this sector is relatively small. There have been 3 minor injuries in this group during the period Apr 09 to Mar 12.

Social Cost per Seat Hour - 3 Year Moving Average Airline Operations - Small Aeroplanes


The outcome for Airline Operations - Small Aeroplanes ( $0.2 \%$ of total seat hours) shows an upward trend. There have been 1 serious and 2 minor injuries during the period Apr 09 to Mar 12. The safety outcome for this group is now at the target level.


The outcome for Airline Operations - Helicopters is now below the target level. There have been 1 serious and 4 minor injuries in this group in the three years Apr 09 to Mar 12.

Social Cost per Seat Hour - 3 Year Moving Average
Sport Transport


The outcome for Sport Transport is above the target level. There have been 11 fatal, 11 serious and 14 minor injuries in the three years Apr 09 to Mar 12.
Note that this group includes hang gliders and parachutes used on transport operations.
For quarters from Jul to Sep 11 the method for calculating the seat hours for this group has been amended, hence reducing the number of seat hours used in the calculation of social cost per seat hour. This means that if the social cost for this group remains the same in future quarters, the social cost per seat hour will gradually increase.


The outcome for Other Commercial Operations - Aeroplanes is well above the target of $\$ 6.50$. During the three years Apr 09 to Mar 12 there have been 12 fatal and 3 serious injuries in this group.
The outcome for Other Commercial Operations - Helicopters is also well above the target level. There have been 7 fatal, 1 serious and 3 minor injuries in this group in the three years Apr 09 to Mar 12.


The outcome for Agricultural Operations - Aeroplanes is now below the target level of $\$ 14.00$. During the three years Apr 09 to Mar 12 there have been 1 serious and 2 minor injuries in this group.


The outcome for Agricultural Operations - Helicopters has been below the target level since the quarter Oct to Dec 10. There have been 2 minor injuries in the three years Apr 09 to Mar 12.
For quarters from Jul to Sep 11 the value for the 'load factor' used in the calculation of seat hours for this group has been reduced, hence reducing the number of seat hours used in the calculation of social cost per seat hour (seat hours are calculated using hours flown multiplied by the average number of seats multiplied by the load factor). This means that if the social cost for this group remains the same in future quarters, the social cost per seat hour will gradually increase.


The outcome for Private Operations - Aeroplanes is well above the target level of \$10.00. There have been 3 fatal and 2 serious injuries and 1 minor injury in the three years Apr 09 to Mar 12.
The outcome for Private Operations - Helicopters is also well above the target level. There have been 1 fatal, 3 serious and 5 minor injuries in the three years Apr 09 to Mar 12.


The outcome for Private Operations - Sport is well above the target of $\$ 20.00$. There have been 14 fatal, 26 serious and 27 minor injuries in the three years Apr 09 to Mar 12.
Note that this group includes hang gliders and parachutes used on private operations.
For quarters from Jul to Sep 11 the method for calculating the seat hours for this group has been amended, hence increasing the number of seat hours used in the calculation of social cost per seat hour. This means that if the social cost for this group remains the same in future quarters, the social cost per seat hour will gradually decrease.

## Social Cost

## Trends

The following graphs show the annual social cost (3 year moving average) for each Safety Target Group for the four-year period 1 April 2008 to 31 March 2012. Social cost is the cost of fatal, serious and minor injuries, and aircraft destroyed, expressed in 2011 dollars. Note that the Sport groups include hang gliders and parachutes.


Annual Social Cost-3 Year Moving Average Sport Transport


Annual Social Cost-3 Year Moving Average Agricultural Operations - Aeroplanes \& Helicopters


Annual Social Cost - 3 Year Moving Average Airline Operations-Small Aeroplanes \& Helicopters


Annual Social Cost-3 Year Moving Average Other Commercial Operations - Aeroplanes \& Helicopters


Annual Social Cost - 3 Year Moving Average Private Operations - Aeroplanes \& Helicopters



Annual Social Cost－ 3 Year Moving Average Public Air Transport，Other Commercial \＆ Non－Commercial Operations


Quarter
ーーー Public Air Transport
－ーーー・ Other Commercial Operations
$\ldots \ldots .$. Non－Commercial Operations

Annual Social Cost－3 Year Moving Average Total

$\square$

## Activity

## Air Transport Flights, Total Hours

Quarterly Comparison

| Activity | 1 Oct to 31 Dec | 1 Oct to 31 Dec | Change |  |
| :--- | :---: | :---: | :---: | ---: |
|  | $\mathbf{2 0 0 9}$ | $\mathbf{2 0 1 0}$ | Number | Percentage |
| Air Transport Flights | 97,144 | 100,146 | $+3,002$ | +3.1 |
| Hours | 240,179 | 242,091 | $+1,912$ | +0.8 |

Note that these assessments include the aircraft classes aeroplane, helicopter and balloon only and exclude other aircraft classes such as hang gliders and parachutes, and foreign registered aircraft that are operated in New Zealand. These assessments are based on Aircraft Operating Statistics for periods up to the quarter ended 31 December 2010 (the most recent quarter for which these data are available).

## Aircraft Movements

## Quarterly Comparison

| Activity | 1 Jan to 31 Mar | 1 Jan to 31 Mar | Change |  |
| :--- | :---: | :---: | :---: | ---: |
|  | 2011 | 2012 | Number | Percentage |
| Aircraft Movements | 256,398 | 252,533 | $-3,865$ | -1.5 |

Note that this covers certificated aerodromes only. Includes Auckland, Christchurch, Dunedin, Gisborne, Hamilton, Invercargill, Napier, Nelson, New Plymouth, Ohakea, Palmerston North, Queenstown, Rotorua, Taupo, Tauranga, Wellington and Woodbourne. Excludes Chatham Islands/Tuuta Airport, Hokitika, Kerikeri/Bay of Islands, Paraparaumu, Te Anau/Manapouri, Timaru, Wanganui, Westport and Whangarei.

## Registered Aircraft

## Quarterly Comparison

| Aircraft Statistics Category | $\mathbf{3 1}$ March | 31 March | Change |  |
| :--- | :---: | :---: | ---: | ---: |
|  | $\mathbf{2 0 1 1}$ | $\mathbf{2 0 1 2}$ | Number | Percentage |
| Large Aeroplanes | 126 | 128 | +2 | +1.6 |
| Medium Aeroplanes | 86 | 84 | -2 | -2.3 |
| Small Aeroplanes | 1,508 | 1,517 | +9 | +0.6 |
| Agricultural Aeroplanes | 112 | 109 | -3 | -2.7 |
| Helicopters | 770 | 771 | +1 | +0.1 |
| Sport Aircraft | 1,878 | $\mathbf{1 , 9 0 7}$ | +29 | +1.5 |
| Total | $\mathbf{4 , 4 8 0}$ | $\mathbf{4 , 5 1 6}$ | $\mathbf{+ 3 6}$ | $\mathbf{+ 0 . 8}$ |

Note that these figures include the sport aircraft statistics category and exclude hang gliders, paragliders and parachutes.

## Industry Size and Shape

The following graph and table show the size and shape of the aviation industry as determined from Aircraft Operating Statistics in the relevant 2014 Safety Target Group categories for the period 1 October to 31 December 2010 (the most recent quarter for which Aircraft Operating Statistics data are available). For each Safety Target Group the total number of hours flown is multiplied by the average number of seats and the appropriate load factor, to give the number of seat hours utilised by the group (person exposure). For Safety Target Groups that are not predominantly passenger carrying a surrogate of 500 kg of aircraft weight is used instead of person exposure. For the Sport Safety Target Groups a standard estimate of seat hours offered is used as well as reported data for such aircraft in these groups, as most sport aircraft do not report hours or seats.

## Percentage Sector Seat Hours



| $\square$ Airline Operations - Large Aeroplanes | $\square$ Airline Operations - Medium Aeroplanes |
| :--- | :--- |
| $\square$ Airline Operations - Small Aeroplanes | $\square$ Airline Operations - Helicopters |
| $\square$ Sport Transport | $\square$ Other Commercial Operations - Aeroplanes |
| $\square$ Other Commercial Operations - Helicopters | םAgricultural Operations - Aeroplanes |
| $\square$ Agricultural Operations - Helicopters | $\square$ Private Operations - Aeroplanes |
| $\square$ Private Operations - Helicopters | $\square$ Private Operations - Sport |


| Safety Target Group | Percentage Sector <br> Seat Hours |
| :--- | :---: |
| Airline Operations - Large Aeroplanes | 96.31 |
| Airline Operations - Medium Aeroplanes | 1.44 |
| Airline Operations - Small Aeroplanes | 0.20 |
| Airline Operations - Helicopters | 0.30 |
| Sport Transport | 0.23 |
| Other Commercial Operations - Aeroplanes | 0.45 |
| Other Commercial Operations - Helicopters | 0.15 |
| Agricultural Operations - Aeroplanes | 0.08 |
| Agricultural Operations - Helicopters | 0.24 |
| Agricultural Operations - Sport | - |
| Private Operations - Aeroplanes | 0.12 |
| Private Operations - Helicopters | 0.08 |
| Private Operations - Sport | 0.39 |

Note that the percentages may not sum exactly to $100.00 \%$ due to rounding.

## Accidents

## Quarterly Comparison

## Number of Accidents

| Aircraft Statistics Category | 1 Jan to 31 Mar <br> 2011 | 1 Jan to 31 Mar <br> $\mathbf{2 0 1 2}$ | Change |
| :--- | :---: | :---: | :---: |
| Large Aeroplanes | 1 | 0 | -1 |
| Medium Aeroplanes | 0 | 0 | 0 |
| Small Aeroplanes | 4 | 3 | -1 |
| Agricultural Aeroplanes | 3 | 0 | -3 |
| Helicopters | 5 | 2 | -3 |
| Sport Aircraft | 17 | 9 | -8 |
| Unknown Aircraft | 1 | 1 | 0 |
| Hang Gliders | 6 | 4 | -2 |
| Parachutes | $\mathbf{1}$ | 4 | +3 |
| Total | $\mathbf{3 8}$ | $\mathbf{2 3}$ | $\mathbf{- 1 5}$ |

The accident in the 'Unknown Aircraft' statistics category in the 1 January to 31 March 2012 quarter involved a foreign registered small aeroplane on a private flight.

## Severity of Accidents

| Severity | 1 Jan to 31 Mar | 1 Jan to 31 Mar |  |
| :--- | :---: | :---: | :---: |
| 2011 | Change |  |  |
|  | $\mathbf{2 0 1 2}$ |  |  |
| Critical | 14 | 11 | -3 |
| Major | 22 | 11 | -11 |
| Minor | 2 | 1 | -1 |

No accidents in the 'Large Aeroplanes’ statistics category were classified as Critical in the 1 January to 31 March 2011 or 2012 quarters.

No accidents in the 'Medium Aeroplanes' statistics category were classified as Critical in the 1 January to 31 March 2011 or 2012 quarters.

## Significant Accidents and Other Injury Accidents

## Significant Injury Accidents

This section describes significant injury accidents that occurred during the period 1 January to 31 March 2012.

## Sport Aircraft

## Sport Transport

- A balloon on a passenger transport A to B flight struck power lines, the basket caught fire and the balloon subsequently crashed and was destroyed. The pilot and 10 passengers were killed.


## Private Operations - Sport

- An aeroplane crashed into a park killing the pilot and passenger. The aircraft was destroyed.
- A power glider was observed to roll and descend striking the ground in a slightly inverted attitude. The pilot was killed and the aircraft destroyed.
- A speed wing paraglider collided with terrain, fatally injuring the pilot.


## Significant Non-Injury Accidents

There were no significant non-injury accidents during the period 1 January to 31 March 2012.

## Other Injury Accidents

This section describes other injury accidents that occurred during the period 1 January to 31 March 2012.

## Sport Aircraft

## Private Operations - Sport

- The pilot of a hang glider was seriously injured when the hang glider's ears were briefly released shortly before landing, causing the hang glider to pitch forward.
- A parachutist misinterpreted the wind conditions and also encountered turbulence leading to a heavy landing. The parachutist was seriously injured.
- A skydiver received minor injuries from falling 20 metres.


## Injuries

Number of Fatal Accidents and Number of Fatal Injuries

| Aircraft Statistics Category | 1 Jan to 31 Mar 2011 |  | 1 Jan to 31 Mar 2012 |  | Change |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Fatal Accidents | Fatal Injuries | Fatal <br> Accidents | Fatal Injuries | Fatal Accidents | Fatal Injuries |
| Large Aeroplanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Medium Aeroplanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Small Aeroplanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Agricultural Aeroplanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Helicopters | 0 | 0 | 0 | 0 | 0 | 0 |
| Sport Aircraft | 1 | 1 | 3 | 14 | +2 | + 13 |
| Unknown Aircraft | 0 | 0 | 0 | 0 | 0 | 0 |
| Hang Gliders | 1 | 1 | 1 | 1 | 0 | 0 |
| Parachutes | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 2 | 2 | 4 | 15 | + 2 | +13 |

## Number of Serious Injuries

| Aircraft Statistics Category | 1 Jan to 31 Mar <br> 2011 | 1 Jan to 31 Mar <br> $\mathbf{2 0 1 2}$ | Change |
| :--- | :---: | :---: | :---: |
| Large Aeroplanes | 0 | 0 | 0 |
| Medium Aeroplanes | 0 | 0 | 0 |
| Small Aeroplanes | 0 | 0 | 0 |
| Agricultural Aeroplanes | 0 | 0 | 0 |
| Helicopters | 1 | 0 | -1 |
| Sport Aircraft | 1 | 0 | -1 |
| Unknown Aircraft | 0 | 0 | 0 |
| Hang Gliders | 5 | 1 | -4 |
| Parachutes | 0 | 1 | +1 |
| Total | $\mathbf{7}$ | $\mathbf{2}$ | $\mathbf{- 5}$ |

## Number of Minor Injuries

| Aircraft Statistics Category | 1 Jan to 31 Mar <br> 2011 | 1 Jan to 31 Mar <br> $\mathbf{2 0 1 2}$ | Change |
| :--- | :---: | :---: | :---: |
| Large Aeroplanes | 0 | 0 | 0 |
| Medium Aeroplanes | 0 | 0 | 0 |
| Small Aeroplanes | 0 | 0 | 0 |
| Agricultural Aeroplanes | 0 | 0 | 0 |
| Helicopters | 1 | 0 | -1 |
| Sport Aircraft | 2 | 0 | -2 |
| Unknown Aircraft | 0 | 0 | 0 |
| Hang Gliders | 0 | 0 | 0 |
| Parachutes | $\mathbf{1}$ | $\mathbf{1}$ | 0 |
| Total | $\mathbf{4}$ | $\mathbf{1}$ | $\mathbf{- 3}$ |

## Accident Causal Factors by Aircraft Statistics Category

The following graph shows the number of causal factors recorded for accidents that occurred during the 12-month period 1 January 2011 to 31 December 2011 for the various aircraft statistics categories.
Causal factors have been assigned to 55 (52\%) of the 106 accidents.
Note that causes are not yet available for all accidents that occurred in the 1 January to 31 March 2012 period.

Causal Factors


## Defect Incidents

## Trends

The following graphs show the defect incident rates (3 year moving average) for the three-year period 1 April 2009 to 31 March 2012 (excluding the Sport Aircraft statistics category).



## Quarterly Comparison

Number of Defect Incidents

| Aircraft Statistics Category | 1 Jan to 31 Mar | 1 Jan to 31 Mar | Change |
| :--- | :---: | :---: | :---: |
|  | $\mathbf{2 0 1 1}$ | $\mathbf{2 0 1 2}$ |  |
| Large Aeroplanes | $\mathbf{1 7 1}$ | 197 | +26 |
| Medium Aeroplanes | 40 | 22 | -18 |
| Small Aeroplanes | 58 | 59 | +1 |
| Agricultural Aeroplanes | 15 | 18 | +3 |
| Helicopters | 60 | 33 | -27 |
| Sport Aircraft | 8 | 11 | +3 |
| Unknown Aircraft | $\mathbf{1 6}$ | 10 | $\mathbf{- 6}$ |
| Total | $\mathbf{3 6 8}$ | $\mathbf{3 5 0}$ | $\mathbf{- 1 8}$ |

## Severity of Defect Incidents

| Severity | 1 Jan to 31 Mar | 1 Jan to 31 Mar | Change |
| :--- | :---: | :---: | :---: |
|  | $\mathbf{2 0 1 1}$ | $\mathbf{2 0 1 2}$ |  |
| Critical | 0 | 1 | +1 |
| Major | 79 | 81 | +2 |
| Minor | 289 | 268 | -21 |

No defect incidents in the 'Large Aeroplanes' statistics category were classified as Critical in the 1 January to 31 March 2011 or 2012 quarters.
No defect incidents in the 'Medium Aeroplanes' statistics category were classified as Critical in the 1 January to 31 March 2011 or 2012 quarters.

## Rate Monitoring

Defect incident rate monitoring of individual types of large and medium air transport aircraft has been carried out against the CAA standard for the period ended 31 December 2011. Analysis shows that three of the 15 monitored aircraft types have defect rates above the "trigger level" for CAA action.

## Aircraft Incidents

## Trends

The following graphs show the aircraft incident rates (3 year moving average) for the three-year period 1 April 2009 to 31 March 2012 (excluding the Sport Aircraft statistics category).



## Quarterly Comparison

Number of Aircraft Incidents

| Aircraft Statistics Category | 1 Jan to 31 Mar <br> $\mathbf{2 0 1 1}$ | 1 Jan to 31 Mar <br> $\mathbf{2 0 1 2}$ | Change |
| :--- | :---: | :---: | :---: |
| Large Aeroplanes | 87 | 71 | -16 |
| Medium Aeroplanes | 7 | 21 | +14 |
| Small Aeroplanes | 14 | 22 | +8 |
| Agricultural Aeroplanes | 6 | 3 | -3 |
| Helicopters | 9 | 11 | +2 |
| Sport Aircraft | 3 | 11 | +8 |
| Unknown Aircraft | $\mathbf{7 5}$ | 26 | $\mathbf{- 4 9}$ |
| Total | $\mathbf{2 0 1}$ | $\mathbf{1 6 5}$ | $\mathbf{- 3 6}$ |

## Severity of Aircraft Incidents

| Severity | 1 Jan to 31 Mar | 1 Jan to 31 Mar | Change |
| :--- | :---: | :---: | :---: |
|  | $\mathbf{2 0 1 1}$ | $\mathbf{2 0 1 2}$ |  |
| Critical | 1 | 0 | -1 |
| Major | 17 | 26 | +9 |
| Minor | 183 | 139 | -44 |

No aircraft incidents in the 'Large Aeroplanes’ statistics category were classified as Critical in the 1 January to 31 March 2011 or 2012 quarters.
No aircraft incidents in the 'Medium Aeroplanes’ statistics category were classified as Critical in the 1 January to 31 March 2011 or 2012 quarters.

## Airspace Incidents

## Trends

The following graphs show the airspace incident rates (3 year moving average) for the three-year period 1 April 2009 to 31 March 2012 (excluding the Sport Aircraft statistics category).



## Quarterly Comparison

Number of Airspace Incidents

| Aircraft Statistics Category | 1 Jan to 31 Mar <br> 2011 | 1 Jan to 31 Mar <br> 2012 | Change |
| :--- | :---: | :---: | :---: |
|  | Large Aeroplanes | 28 | 29 |
| Medium Aeroplanes | 22 | 26 | +1 |
| Small Aeroplanes | 90 | 108 | +4 |
| Agricultural Aeroplanes | 1 | 0 | +18 |
| Helicopters | 13 | 17 | -1 |
| Sport Aircraft | 20 | 28 | +4 |
| Unknown Aircraft | 96 | 139 | +8 |
| Total | $\mathbf{2 7 0}$ | $\mathbf{3 4 7}$ | +43 |

## Severity of Airspace Incidents

| Severity | 1 Jan to 31 Mar | 1 Jan to 31 Mar | Change |
| :--- | :---: | :---: | :---: |
|  | $\mathbf{2 0 1 1}$ | $\mathbf{2 0 1 2}$ |  |
| Critical | 1 | 3 | +2 |
| Major | 65 | 48 | -17 |
| Minor | 204 | 296 | +92 |

No airspace incidents in the 'Large Aeroplanes’ statistics category were classified as Critical in the 1 January to 31 March 2011 or 2012 quarters.
No airspace incidents in the 'Medium Aeroplanes' statistics category were classified as Critical in the 1 January to 31 March 2011 or 2012 quarters.

## Attributability

Of the 347 airspace incidents in the 1 January to 31 March 2012 quarter, $17 \%$ are Air Traffic Service (ATS) attributable, $74 \%$ are pilot attributable, $2 \%$ are ATS and pilot attributable, and $7 \%$ are unknown attributable. (Note that the percentages may not sum exactly to $100 \%$ due to rounding.)
Since April 2009 the long-term trend of the ATS attributable airspace occurrence rate is upward (but the slope of the trend line is close to zero) and the long-term trend of the pilot attributable rate is upward.

## Bird Incident Rates

Bird hazard monitoring has been carried out against the CAA standard for the period ended 31 March 2012.

There were two aerodromes with strike rates in the high risk category of the CAA standard (10.0 and above bird strikes per 10,000 aircraft movements), one having a long-term upward trend and one having a long-term downward trend. Seven aerodromes had strike rates in the medium risk category ( 5.0 to 10.0 per 10,000 movements), five having long-term upward trends, one having a long-term constant trend and one having a long-term downward trend. 18 aerodromes had strike rates in the low risk category (below 5.0 per 10,000 aircraft movements), seven having long-term upward trends, five having long-term constant trends and six having long-term downward trends.

## Quarterly Statistics

| Quarter | 2009/2 | 2009/3 | 2009/4 | 2010/1 | $2010 / 2$ | 2010/3 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Air Transport Flights ${ }^{1}$ | 85,482 | 83,353 | 97,144 | 108,108 | 86,009 | 84,869 |
| Number of Hours Flown ${ }^{1}$ | 226,574 | 229,894 | 240,179 | 255,742 | 221,719 | 212,044 |
| Number of Aircraft Movements ${ }^{2}$ | 282,900 | 278,588 | 261,753 | 276,062 | 252,639 | 240,033 |
| Number of Aircraft on the Register ${ }^{3}$ | 4,406 | 4,393 | 4,415 | 4,428 | 4,440 | 4,438 |
| Number of Licences (Type of Medical Certificate) ${ }^{4}$ |  |  |  |  |  |  |
| Recreational Pilot Licence (RPL Medical) | 103 | 120 | 133 | 141 | 132 | 128 |
| Private Pilot Licence (Class 1 \& 2) | 3,799 | 3,850 | 3,829 | 3,795 | 3,757 | 3,750 |
| Commercial Pilot Licence (Class 2 only) | 1,909 | 1,919 | 1,969 | 1,990 | 2,066 | 2,027 |
| Commercial Pilot Licence (Class 1) | 2,300 | 2,344 | 2,359 | 2,403 | 2,344 | 2,397 |
| Airline Transport Pilot Licence (Class 2 only) | 893 | 975 | 976 | 922 | 913 | 986 |
| Airline Transport Pilot Licence (Class 1) | 1,152 | 1,069 | 1,068 | 1,135 | 1,134 | 1,075 |
| Air Traffic Controller Licence (Class 3) | 345 | 363 | 363 | 366 | 363 | 358 |
| Aircraft Maintenance Engineer Licence (N/A) | 2,378 | 2,402 | 2,424 | 2,445 | 2,463 | 2,479 |
| Number of Part 119 Certificated Operators |  |  |  |  |  |  |
| Air Operator - Large Aeroplanes | 10 | 10 | 10 | 10 | 10 | 10 |
| Air Operator - Medium Aeroplanes | 15 | 15 | 15 | 15 | 15 | 15 |
| Air Operator - Helicopters and Small Aeroplanes | 171 | 170 | 173 | 172 | 174 | 175 |
| Number of Part 115 Adventure Aviation Operators | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of Part 137 Agricultural Aircraft Operators | 108 | 105 | 107 | 108 | 108 | 106 |
| Number of Part 141 Training Organisations | 53 | 56 | 55 | 55 | 58 | 57 |
| Number of Part 149 Recreation Organisations | 9 | 9 | 9 | 9 | 9 | 9 |
| Number of Aircraft Accidents ${ }^{5}$ |  |  |  |  |  |  |
| Large Aeroplanes | 0 | 1 | 1 | 0 | 0 | 2 |
| Medium Aeroplanes | 0 | 1 | 0 | 1 | 0 | 0 |
| Small Aeroplanes | 5 | 8 | 7 | 2 | 9 | 6 |
| Agricultural Aeroplanes | 1 | 1 | 1 | 0 | 3 | 0 |
| Helicopters | 1 | 4 | 6 | 9 | 3 | 4 |
| Sport Aircraft | 6 | 5 | 16 | 9 | 6 | 5 |
| Unknown Aircraft | 0 | 0 | 0 | 0 | 0 | 0 |
| Hang Gliders | 2 | 4 | 6 | 10 | 5 | 2 |
| Parachutes | 3 | 1 | 2 | 2 | 1 | 1 |
| Number of Fatal Accidents ${ }^{5}$ | 0 | 1 | 5 | 1 | 0 | 3 |
| Number of Fatal Injuries ${ }^{5}$ | 0 | 1 | 6 | 1 | 0 | 12 |
| Number of Serious + Minor Injuries ${ }^{5}$ | 7 | 12 | 11 | 16 | 10 | 6 |
| Social Cost \$ million ${ }^{6}$ | 1.61 | 6.50 | 24.82 | 7.22 | 1.95 | 48.84 |
| Number of Incidents ${ }^{7}$ | 1,130 | 1,120 | 1,083 | 1,118 | 1,154 | 1,166 |
| Number of Aviation Related Concerns | 83 | 105 | 97 | 124 | 153 | 153 |

${ }^{1}$ New Zealand registered aircraft. Includes the aircraft classes aeroplane, helicopter and balloon only; excludes other aircraft classes, hang gliders and parachutes. Estimated for 2011/1, 2011/2, 2011/3, 2011/4 and 2012/1.
${ }^{2}$ Certificated aerodromes. Includes Auckland, Christchurch, Dunedin, Gisborne, Hamilton, Invercargill, Napier, Nelson, New Plymouth, Ohakea, Palmerston North, Queenstown, Rotorua, Taupo, Tauranga, Wellington and Woodbourne. Excludes Chatham Islands/Tuuta Airport, Hokitika (certificated from Apr 2010), Kerikeri/Bay of Islands, Mount Cook (certificated until Sep 2009), Paraparaumu, Te Anau/Manapouri, Timaru, Wanganui, Westport and Whangarei.
${ }^{3}$ As at the last day of the quarter. Includes the sport aircraft statistics category, excluding hang gliders, paragliders and parachutes.

| Quarter | $2010 / 4$ | 2011/1 | 2011/2 | 2011/3 | 2011/4 | 2012/1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Air Transport Flights ${ }^{1}$ | 100,146 | 105,597 | 82,102 | 86,884 | 94,155 | 100,865 |
| Number of Hours Flown ${ }^{1}$ | 242,091 | 267,331 | 225,068 | 229,317 | 230,664 | 256,906 |
| Number of Aircraft Movements ${ }^{2}$ | 256,474 | 256,398 | 242,338 | 256,117 | 242,744 | 252,533 |
| Number of Aircraft on the Register ${ }^{3}$ | 4,442 | 4,480 | 4,490 | 4,495 | 4,499 | 4,516 |
| Number of Licences (Type of Medical Certificate) ${ }^{4}$ |  |  |  |  |  |  |
| Recreational Pilot Licence (RPL Medical) | 146 | 162 | 180 | 189 | 205 | 222 |
| Private Pilot Licence (Class 1 \& 2) | 3,655 | 3,611 | 3,603 | 3,577 | 3,513 | 3,479 |
| Commercial Pilot Licence (Class 2 only) | 2,083 | 2,131 | 2,229 | 2,236 | 2,284 | 2,325 |
| Commercial Pilot Licence (Class 1) | 2,385 | 2,372 | 2,339 | 2,380 | 2,362 | 2,350 |
| Airline Transport Pilot Licence (Class 2 only) | 981 | 928 | 909 | 965 | 962 | 925 |
| Airline Transport Pilot Licence (Class 1) | 1,096 | 1,155 | 1,188 | 1,118 | 1,124 | 1,166 |
| Air Traffic Controller Licence (Class 3) | 362 | 363 | 361 | 361 | 362 | 370 |
| Aircraft Maintenance Engineer Licence (N/A) | 2,496 | 2,511 | 2,519 | 2,540 | 2,549 | 2,563 |
| Number of Part 119 Certificated Operators |  |  |  |  |  |  |
| Air Operator - Large Aeroplanes | 10 | 9 | 9 | 9 | 9 | 9 |
| Air Operator - Medium Aeroplanes | 16 | 15 | 15 | 15 | 15 | 15 |
| Air Operator - Helicopters and Small Aeroplanes | 175 | 173 | 174 | 174 | 175 | 176 |
| Number of Part 115 Adventure Aviation Operators | 0 | 0 | 0 | 0 | 1 | 1 |
| Number of Part 137 Agricultural Aircraft Operators | 108 | 107 | 104 | 106 | 105 | 101 |
| Number of Part 141 Training Organisations | 56 | 55 | 54 | 55 | 57 | 58 |
| Number of Part 149 Recreation Organisations | 8 | 9 | 9 | 9 | 8 | 9 |
| Number of Aircraft Accidents ${ }^{5}$ |  |  |  |  |  |  |
| Large Aeroplanes | 0 | 1 | 0 | 0 | 0 | 0 |
| Medium Aeroplanes | 0 | 0 | 1 | 1 | 0 | 0 |
| Small Aeroplanes | 4 | 4 | 4 | 4 | 6 | 3 |
| Agricultural Aeroplanes | 1 | 3 | 3 | 0 | 1 | 0 |
| Helicopters | 3 | 5 | 6 | 4 | 8 | 2 |
| Sport Aircraft | 13 | 17 | 5 | 5 | 6 | 9 |
| Unknown Aircraft | 0 | 1 | 1 | 1 | 0 | 1 |
| Hang Gliders | 2 | 6 | 3 | 0 | 1 | 4 |
| Parachutes | 2 | 1 | 3 | 2 | 3 | 4 |
| Number of Fatal Accidents ${ }^{5}$ | 1 | 2 | 4 | 0 | 3 | 4 |
| Number of Fatal Injuries ${ }^{5}$ | 2 | 2 | 5 | 0 | 4 | 15 |
| Number of Serious + Minor Injuries ${ }^{5}$ | 7 | 11 | 6 | 3 | 8 | 3 |
| Social Cost \$ million ${ }^{6}$ | 9.79 | 13.08 | 21.54 | 1.73 | 19.48 | 56.51 |
| Number of Incidents ${ }^{7}$ | 1,173 | 1,230 | 1,238 | 1,228 | 1,116 | 1,273 |
| Number of Aviation Related Concerns | 203 | 243 | 155 | 271 | 228 | 219 |

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## Definitions

## Accident

Means an occurrence that is associated with the operation of an aircraft and takes place between the time any person boards the aircraft with the intention of flight and such time as all such persons have disembarked and the engine or any propellers or rotors come to rest, being an occurrence in which-
(1) a person is fatally or seriously injured as a result of-
(i) being in the aircraft; or
(ii) direct contact with any part of the aircraft, including any part that has become detached from the aircraft; or
(iii) direct exposure to jet blast-
except when the injuries are self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to passengers and crew; or
(2) the aircraft sustains damage or structural failure that-
(i) adversely affects the structural strength, performance, or flight characteristics of the aircraft; and
(ii) would normally require major repair or replacement of the affected component-
except engine failure or damage that is limited to the engine, its cowlings, or accessories, or damage limited to propellers, wing tips, antennas, tyres, brakes, fairings, small dents, or puncture holes in the aircraft skin; or
(3) the aircraft is missing or is completely inaccessible.

## Aircraft Incident

Means any incident, not otherwise classified, associated with the operation of an aircraft.

## Aircraft Statistics Category

The following table shows the definition of each aircraft statistics category and the aircraft classes included.

| Aircraft Statistics Category | Definition | Aircraft Class |
| :--- | :--- | :--- |
| Large Aeroplanes | Aeroplanes that must be operated under <br> Part 121 when used for air transport | Aeroplane |
| Medium Aeroplanes | Aeroplanes that must be operated under <br> Part 125 when used for air transport, <br> except for those required to operate under <br> Part 125 solely due to operating SEIFR | Aeroplane |
| Small Aeroplanes | Other Aeroplanes with Standard Category <br> Certificates of Airworthiness | Aeroplane |
| Agricultural Aeroplanes | Aeroplanes with Restricted Category <br> Certificates of Airworthiness limited to <br> agricultural operations <br> Helicopters with Standard or Restricted <br> Category Certificates of Airworthiness <br> All aircraft not included in the groups <br> above | Aeroplane |
| Sport Aircraft | Aelicopter <br> Amateur Built Glider, Amateur Built, |  |
| Helicopter, Balloon, Glider, Gyroplane, <br> Helicopter, Microlight Class 1, |  |  |
| Microlight Class 2, Power Glider |  |  |

## Other Aircraft Types (not included on the NZ Aircraft Register)

## Hang Glider

Means a glider, including a powered glider, that is capable of being launched and landed solely by the use of the pilot's legs, and includes paragliders. Paraglider means a hang glider with no rigid primary structure.

## Parachute

Means any device, without a motor in operation, comprising a flexible drag, or lift/drag, surface from which a load is suspended by shroud lines capable of controlled deployment from a packed condition.

## Airspace Incident

Means an incident involving deviation from, or shortcomings of, the procedures or rules for-
(1) avoiding a collision between aircraft; or
(2) avoiding a collision between aircraft and other obstacles when an aircraft is being provided with an Air Traffic Service.

## Bird Incident

Means an incident where-
(1) there is a collision between an aircraft and one or more birds; or
(2) when one or more birds pass sufficiently close to an aircraft in flight to cause alarm to the pilot.

## Defect Incident

Means an incident that involves failure or malfunction of an aircraft or aircraft component, whether found in flight or on the ground.

## Fatal Injury

Means any injury which results in death within 30 days of the accident.

## Incident

Means any occurrence, other than an accident, that is associated with the operation of an aircraft and affects or could affect the safety of operation.

| Incident Sub-Types |  |
| :--- | :--- |
| Aerodrome Incident | Dangerous Goods Incident |
| Aircraft Incident | Defect Incident |
| Airspace Incident | Facility Malfunction Incident |
| Bird Incident | Promulgated Information Incident |
| Cargo Security Incident | Security Incident |

## Occurrence

Means an accident or incident.

## Serious Injury

Means any injury that is sustained by a person in an accident and that-
(1) requires hospitalisation for more than 48 hours, commencing within 7 days from the date the injury was received; or
(2) results in a fracture of any bone, except simple fractures of fingers, toes, or nose; or
(3) involves lacerations which cause severe haemorrhage, nerve, muscle, or tendon damage; or
(4) involves injury to an internal organ; or
(5) involves second or third degree burns, or any burns affecting more than 5\% of the body surface; or
(6) involves verified exposure to infectious substances or injurious radiation.

## Severity

The following definitions apply to the severity accorded to accidents and incidents as the result of investigation of occurrences:

| Severity | Definition |
| :--- | :--- |
| Critical | An occurrence or deficiency that caused, or on its own <br> had the potential to cause, loss of life or limb; |
| Major | An occurrence or deficiency involving a major system <br> that caused, or had the potential to cause, significant <br> problems to the function or effectiveness of that system; |
| An isolated occurrence or deficiency not indicative of a <br> significant system problem. |  |

## Safety Target Structure




[^0]:    ${ }^{4}$ As at the last day of the quarter. For RPL holders, a medical fitness certificate, in accordance with the NZTA medical fitness standards that are applicable for a Class 2, 3, 4 or 5 driver licence with a passenger endorsement. For PPL, CPL \& ATPL holders, an active class 1 or active class 2 medical certificate; this means that for CPL and ATPL licences, the number with a class 2 medical only, must only be exercising PPL privileges (or not flying at all). For ATCL holders, an active class 3 medical certificate. This does not show the number of licence holders as each client may hold more than one licence.
    ${ }^{5}$ All accidents. All aircraft statistics categories. Includes hang gliders and parachutes.
    ${ }^{6}$ All aircraft statistics categories. Includes hang gliders and parachutes. Cost of fatal, serious and minor injuries, and aircraft destroyed, in June 2011 dollars.
    ${ }^{7}$ All incident sub-types.

