



# AVIATION SAFETY SUMMARY OCTOBER– DECEMBER 2019

## Introduction

Welcome to the Aviation Safety Summary Report for the spring quarter of 2019, covering the period 1 October to 31 December. This report provides a summary of aviation safety in the period and an overview of the long term safety performance within each aviation sector. The report examines performance in each of the three principal sectors that the Civil Aviation Authority uses to characterise flying activity.

- Commercial Passenger (Air Transport & Part 115 operations)
- Commercial non-passenger operations and.
- Private or recreational operations.

The long term safety performance trends are included to provide context to the recent accidents. The number of accidents over the short term is highly variable and the CAA uses the long term performance of a sector as guide to selecting an appropriate regulatory response.

More than half the accidents in this quarter occurred within the private and recreational sector and all involved sport aircraft in various landing scenarios. Fortunately these occurred without serious injury. Commercial flight training sector suffered one fatality during a night solo exercise.

In the quarter to December 2019 there were no accidents in the commercial passenger transport sector. The 3 year average accident rate for this sector has continued to decline and now sits at 0.74 accidents/100,000 flying hours. This is a reduction of nearly 50% since June 2012 and in 2019 this sector recorded its lowest accident rate in 10 years. Of course in statistics we say 'correlation does not imply causation', and this reduction is due to the concerted effects of many people within industry and CAA. But as I write my last introduction to a CAA quarterly safety report it's a pleasure to report this significant improvement in public transport safety.

Safe Flying,

Jack Stanton  
Manager Intelligence, Safety & Risk Analysis

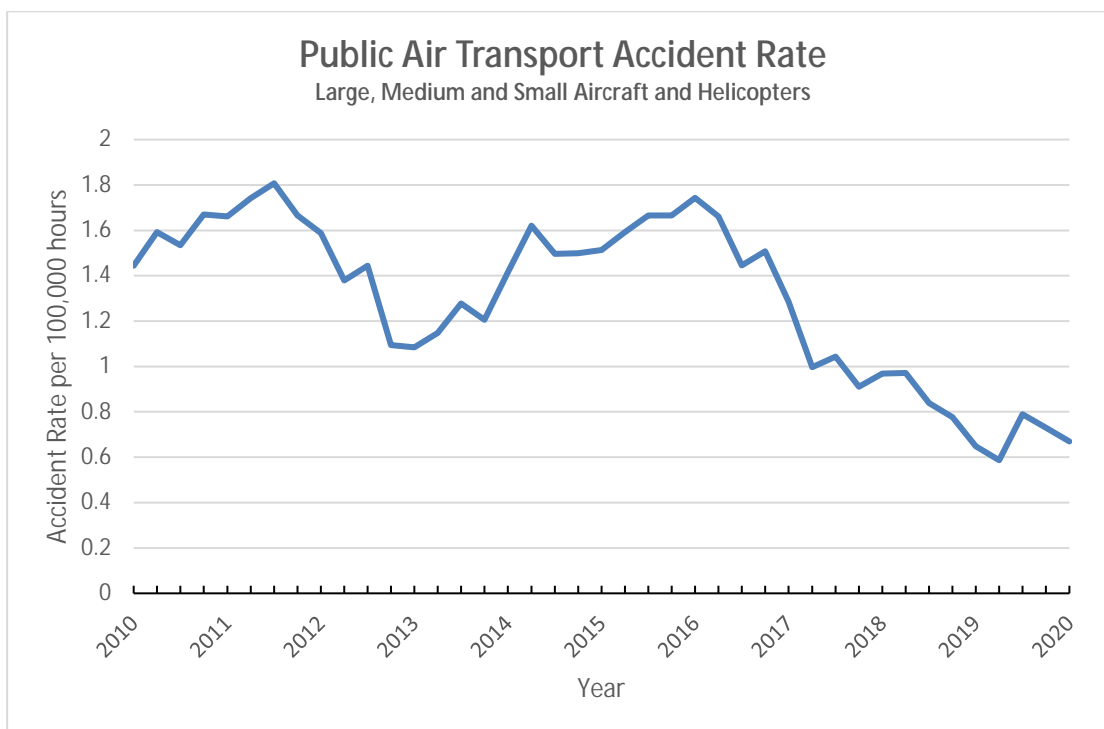
Accidents - 1 October to 31 December 2019					
Commercial Passenger		Commercial Non-Passenger		Private & Recreational	
<b>4</b>	0 Deaths 2 Injuries	<b>3</b>	1 Deaths 0 Injuries	<b>12</b>	0 Deaths 2 Injuries
YTD	26	YTD	25	YTD	56
Last Year	13	Last Year	22	Last Year	57

There were 19 accidents in this quarter compared with 25 in the same quarter last year.

- In the commercial passenger sector there were four accidents. The accidents in this sector were all from adventure aviation passenger operations.
- In the commercial non-passenger sector there were three accidents, a helicopter that rolled while conducting a precautionary landing, a fatal accident during VFR night flying, and helicopter experiencing power loss during an agricultural operation.
- In private and recreational flying there were twelve accidents but no fatalities in the spring quarter. This was lower than the 17 accidents reported in the same quarter last year.

## Passenger Air Transport Operations – Accidents

There were no Passenger Air Transport Operations accidents in the reporting period.



### Public Air Transport Accident Rate

This chart displays the long term accident rate for all public air transport operations, which includes passenger transport in large, medium and small aeroplanes and helicopters. It does not include Part 115 adventure aviation. The accident rate in this sector continues to decline. The 3 year average has now declined by 60% since 2011. This

downwards trend has continued this quarter with no accidents in this this sector between October - December quarter of 2019.

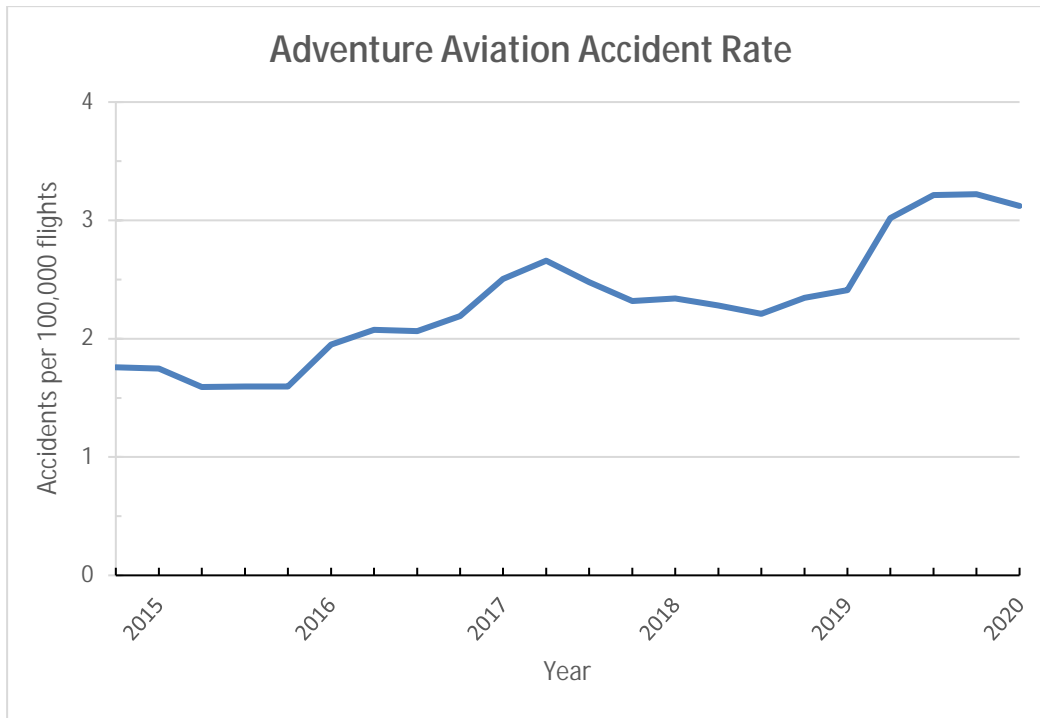
### Nature of Accidents this Quarter

While there were no passenger transport accidents in the reporting period (outside of adventure aviation). This industry sector continues to be a key area of focus for the Authority's efforts, consistent with public expectations of safety in air transport.

### Part 115 Adventure Aviation – Accidents

There were four accidents in Part 115 Adventure Aviation this quarter

Ref	Location	Aircraft Model	Fatalities	Injuries	Description
19/7114	Coronet Peak	Falcon 4 Tandem	0	0	Minor take-off incident. After two small walking steps the passenger let herself drop into the harness without running. As a consequence the left wing dropped abruptly and the pilot didn't have the speed to correct the trajectory. The left wing tip started scratching the ground in a stalled left turn and the pilot managed to slow the glider down before the unavoidable impact. No Injuries. Minor damage to the Glider.  <b>CAA RESPONSE:</b> No immediate action
19/7715	Coronet Peak, Queens	Falcon 4 Tandem	0	0	Wind gust caused unexpected turn towards hill, and an aggressive right hand correction but the height loss was unexpectedly large and struck a tree with the left wing. From here in the right hand turn the right wing collided with another tree/ trees. The glider then pointed straight down and fell to the ground. The fall was from approximately 20-25 feet, no injuries.  <b>CAA RESPONSE:</b> No immediate action
19/8906	Jardines	Sigma Micro	0	1	Hard landing due to unexpected sink, resulting in passenger suspected dislocated ankle  <b>CAA RESPONSE:</b> No immediate action
19/8917	Treble Cone Ski Area	Magnum II	0	1	Ground Crew injured assisting tandem pilot to launch in strong thermal cycle by holding onto to passenger. Ground crews right shoulder dislocated. This same shoulder had already dislocated from an unrelated fall in June 2019 and the ground crew had only just returned to full duties. The launch was successful and the subsequent flight was safe and trouble free. Preliminary Investigation. Pre-existing medical issue was the primary cause.  <b>CAA RESPONSE:</b> No immediate action



### **Adventure Aviation Accident Rate**

The adventure aviation accident rate, calculated in accidents per flight/jump has decreased slightly in this quarter and is now just over 3 accidents per 100,000 jumps, (or 1 accident every 33,000 jumps).

### **Nature of Accidents this quarter**

Two of the four accidents in this quarter were without injury and the other two involved moderate but non-life threatening injuries, a suspected dislocated ankle and a dislocated shoulder. These accidents illustrate a fundamental difference between the foot launched segments of adventure aviation sector, and more conventional aircraft operations.

These accidents typically occur when the glider and parachute pilots experience difficulty during the landing or take-off phases of flight. In these flight phases, foot launched aircraft are travelling at much lower speeds than conventional aircraft and the energy involved is much lower, which reduces the probability of death or serious injury.

This offset by the lack of passenger protection inherent to foot launched aircraft, which makes minor or moderate injury more likely. Breaking an ankle or leg in foot launched aircraft can occur on an otherwise normal landing while in a conventional aircraft it would require circumstances resembling a 'crash'.

Taken together these two effects mean that events meeting the definition of 'accident' occur more frequently in Part 115 foot launched operations but are less likely to cause death or serious injury than an accident in a conventional aircraft.

This is one of the reasons the accident rates for adventure aviation are not directly comparable to the conventional aircraft accident rate.

## Commercial Non Passenger Operations- Accidents

Ref	Location	Aircraft Model	Fatalities	Injuries	Description
19/8168	Lake Ellesmere	C172P	1	0	<p>ELT alert at 09:19 UTC, student conducting a VFR night flight. Helicopter search located aircraft wreckage with the pilot deceased.</p> <p><b>CAA RESPONSE:</b> The CAA is investigating this accident. As of late January the focus has been on information gathering. The investigation will continue and include close attention to the night flying training program. To date the operator has already initiated some new processes, such as restricting night flying to 'glass' cockpit aircraft only and the placement of the V2 Track system TV monitors to provide visibility of what the fleet is doing 'live'.</p>
19/8608	Nasby	Hu269C	0	0	<p>A/c rolled over during precautionary landing attempt due to loss of rotor RPM</p> <p><b>CAA RESPONSE:</b> No immediate action</p>

### Nature of Accidents this Quarter

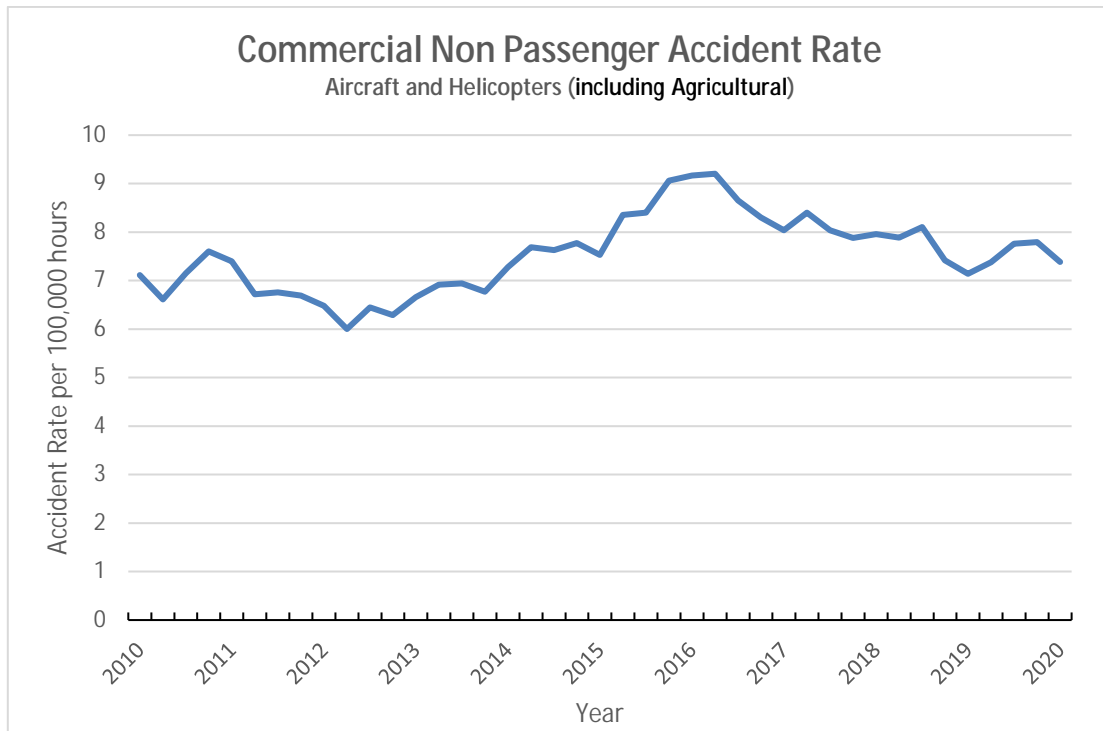
There were two accidents this quarter. The fatal accident at Lake Ellesmere involved a flight training student on a solo night VFR exercise and the investigation is continuing. The Hughes 269 was a landing accident without serious injury.

## Commercial Non Passenger Operations (Agricultural) - Accidents

Ref	Location	Aircraft Model	Fatalities	Injuries	Description
19/8772	Western Bays	R44 II	0	0	<p>Ag ops incident. Helicopter Rotor RPM decayed, helicopter sank so airspeed increased to gain lift, helicopter continued to sink. With no landing options in front elected to do a gentle left turn down a small gully to further increase airspeed. Helicopter RPM continued to decay past the point of recovery, load was jettisoned just before skids and spray gear contacted hillside. Helicopter rose back into the air and was able to be landed to the right of initial impact on the side of a small mound. Helicopter was shut down in a normal fashion.</p> <p><b>CAA RESPONSE:</b> No immediate action</p>

### Nature of Accidents this Quarter

There was only one accident in agricultural operations, an R44 which lost rotor rpm and contacted the ground as described above. No CAA action anticipated as the limitations of small piston helicopters on agricultural operations are already well known.



**Commercial Non Passenger Accident Rate**

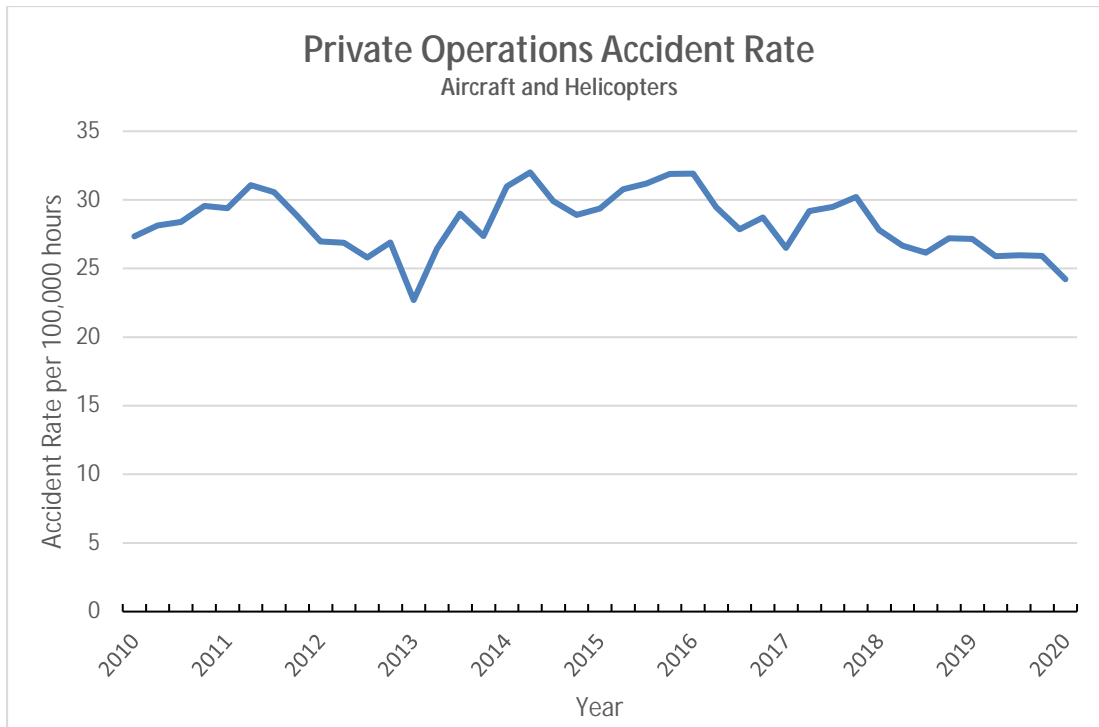
This chart shows the accident rate for all commercial non-passenger operations including agricultural aeroplanes and agricultural helicopters. Despite the fatal accident in the commercial flight training sub sector the overall trend in this sector has been improving in the three years since 2016. Nonetheless the accident rate in this sector is slightly higher than it was 10 years ago..

## Private & Recreational Operations – Accidents

Ref	Location	Aircraft Model	Fatalities	Injuries	Description
19/8836	Motueka	NA	0	1	Landed on seal runway, bounced and lost control tipping over to land inverted onto grass verge.  <b>CAA RESPONSE:</b> No immediate action
19/7656	Big Bay	MX-7-180B	0	0	Minor landing accident. Landing on the beach at Big Bay with a light and variable crosswind (6-8 Knot). During latter part of the landing roll out the windward wing was picked up ever so gently. Pilot unable to get it to come down and the down wind wing tip touched the shingle, which swung the aircraft and put it on its nose. Resulting in a prop strike.  <b>CAA RESPONSE:</b> No immediate action
19/8852	Whenuapai	G103 Twin II	0	0	Forced landing accident. The PIC was completing a local flight with another qualified pilot as passenger. On the tow he decided he did not have sufficient height to comfortably clear a stand of trees so elected to release from the tow. Turned left to avoid a fence and ground looped on landing, the tail of the glider hit the fence and broke at the rear end of the fuselage. Nil injuries.  <b>CAA RESPONSE:</b> No immediate action
19/9393	Omarama	Discus-2b	0	0	The glider suffered damage to the undercarriage during a heavy landing following a low-level circuit.  <b>CAA RESPONSE:</b> No immediate action
19/8851	Te Kowhai Airfield	B22 Bantam	0	0	Forced landing accident. Suffered engine power loss in the climb after take-off, on return to land on RWY23 aircraft lost momentum and landed heavily. Damage to aircraft, no injuries.  <b>CAA RESPONSE:</b> Investigation opened in order to capture any technical issues regarding the fuel supply system. The accident itself is straightforward and the pilot knows he landed heavily on one wheel- he was aiming for a landing back at the field safely- which he achieved. The loss of engine power was not unexpected as he had been having issues with the fuel system and testing to see if rectified.
19/7510	Papawai	ASW 20	0	0	Minor landing accident. Failed to make the runway threshold, substantial damage to both wings. No injuries.  <b>CAA RESPONSE:</b> No immediate action
19/8060	Waihi	NA	0	1	News report of person struck by microlight propellor -  <b>CAA RESPONSE:</b> No immediate action



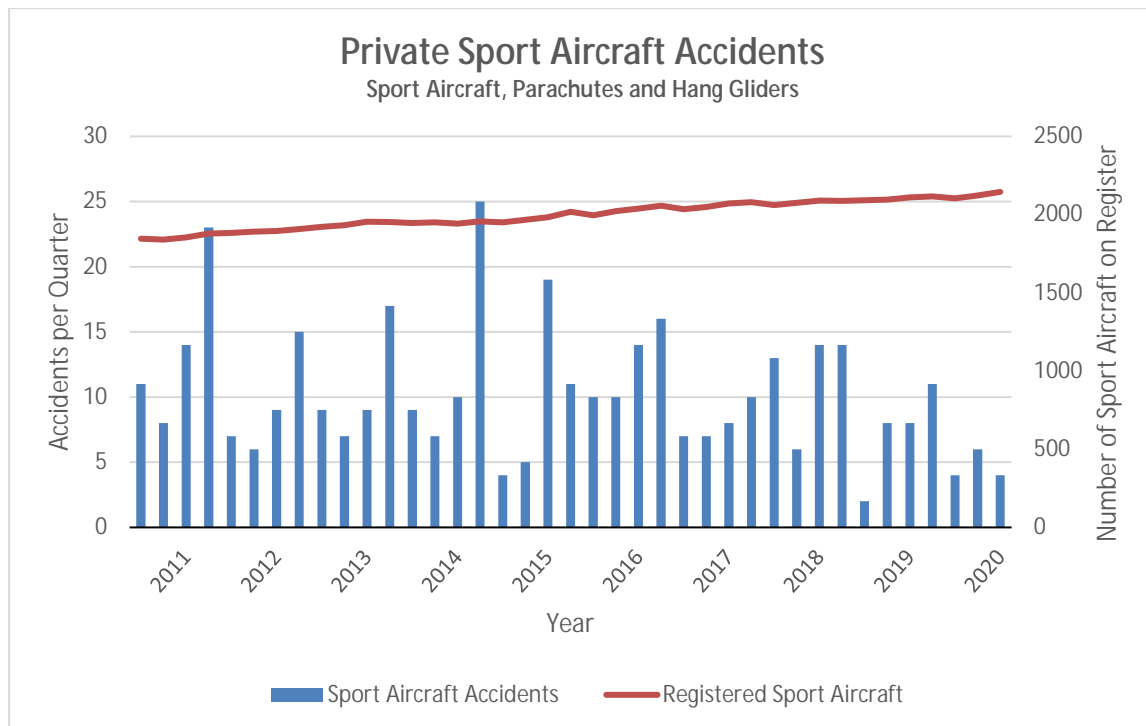
Ref	Location	Aircraft Model	Fatalities	Injuries	Description
19/8389	Whangarei	Sportcruiser	0	0	<p>Minor landing accident. The cockpit canopy unlatched on take-off, re-circuited. A nearby rescue helicopter training rotor wash created unstable air resulting in a hard landing, with the front wheel detaching, followed by a prop strike. No injuries.</p> <p><b>CAA RESPONSE:</b> No immediate action</p>
19/8484	Dunstan Peaks Statio	G102 Standard Astir III	0	0	<p>Minor glider out landing accident. Overran selected paddock into a ditch, no injuries, damage to glider.</p> <p><b>CAA RESPONSE:</b> No immediate action</p>
19/9388	Approx Tokonui	CH701 SP	0	0	<p>After landing wingtip leading edge slat made contact with a small tree branch during taxi to parking. This caused the slat to buckle a little and dented the left hand slat.</p> <p><b>CAA RESPONSE:</b> No immediate action</p>
19/9304	Whenuapai	FK 9 Mk IV	0	0	<p>Minor landing accident. Aircraft landed heavily resulting in the left main u/c leg failing, with the port wing tip digging into the grass. Pilot suspects windshear. No injuries.</p> <p><b>CAA RESPONSE:</b> No immediate action</p>
19/9391	Raglan beach	CH701 SP	0	0	<p>Attempting to land on beach 8 miles north Raglan in turbulent conditions caused the plane to drop and bounce. Decided to go around and not land. Returned to Raglan and landed no problem. Noticed plane not quite level on taxiing. Main landing gear leg right hand side bent. This has been reported to SAC as an incident of minor damage.</p> <p><b>CAA RESPONSE:</b> No immediate action</p>



#### Private Operations Accident Rate

The number of accidents in private & recreational sector this spring quarter was less than last spring (12 against 16 in 2018). The long term safety performance for private operations is steadily improving but note this graph excludes sport aircraft (gliders, microlights) so does not include the 6 accidents which occurred this quarter,

The 12 accidents this quarter all involved 'sport' aircraft which includes microlights and homebuilt aircraft as well as gliders and parachutes. Sport aircraft are not required to provide activity returns so it is not possible to calculate an accident rate per flying hour. Instead the following chart compares the number of sport aircraft accidents each quarter along with the number of sport aircraft on the register (right-hand axis).



This chart indicates that the number of accidents involving sport aircraft is declining even as the number of sport aircraft on the register increases slowly. While the amount of flying activity is not known, it is reasonable to assume activity is proportional to the number of sport aircraft on the register, from which it can be inferred the accident rate in this sector is probably reducing in the long term.

#### Nature of Accidents this Quarter

All of the 12 accidents this quarter occurred during the landing phase. Four of them involved gliders making landings off field or attempting to make the field. The other eight accidents involving powered sport aircraft, also consisted of landing mishaps. Two of these were landings on beaches and two were forced landings, an engine failure and an unlatched canopy. The forced landings have an inherent degree of risk because of the urgency to land. The beach landings also have an inherent risk as the surface conditions are more difficult to predict than regular aerodromes. It should be noted the two forced landings were initiated by discrete mechanical problems which can be reasonably well mitigated.

Quarter	2017/1	2017/2	2017/3	2017/4	2018/1	2018/2
<b>Social Cost \$ million<sup>1</sup></b>	15.49	30.14	1.02	20.46	20.58	10.80
<b>Number of Fatal Accidents<sup>2</sup></b>	2	5	0	3	3	2
<b>Number of Fatal Injuries<sup>2</sup></b>	2	6	0	4	3	2
<b>Number of Serious + Minor Injuries<sup>2</sup></b>	20	12	7	15	23	7
<b>Number of Aircraft Accidents<sup>2</sup></b>						
Large Aeroplanes	0	1	0	0	0	0
Medium Aeroplanes	0	0	0	0	0	1
Small Aeroplanes	6	0	4	4	7	4
Agricultural Aeroplanes	4	0	0	2	1	1
Helicopters	10	2	1	2	4	3
Sport Aircraft	8	8	3	11	7	3
Unknown Aircraft	0	2	0	1	0	0
Hang Gliders	4	4	3	6	7	1
Parachutes	7	2	1	4	2	1
<b>Number of Incidents<sup>3</sup></b>	1,879	1,815	1,730	1,755	2,096	2,042
<b>Number of Aviation Related Concerns<sup>4</sup></b>	253	278	231	322	371	323
<b>Number of Hours Flown<sup>5</sup></b>	243,721	216,424	197,623	241,231	239,837	201,676
<b>Number of Air Transport Flights<sup>5</sup></b>	99,330	82,766	89,074	114,244	118,635	94,147
<b>Number of Aircraft Movements<sup>6</sup></b>	233,701	222,907	221,296	249,554	244,396	234,833
<b>Number of Aircraft on the Register<sup>7</sup></b>	4,734	4,704	4,751	4,779	4,773	4,770
<b>Number of Part 119 Certificated Operators</b>						
Air Operator – Large Aeroplanes	6	6	6	6	6	13
Air Operator – Medium Aeroplanes	13	13	13	13	13	12
Air Operator – Helicopters and Small Aeroplanes	166	166	165	167	166	167
<b>Number of Part 137 Agricultural Aircraft Operators</b>	102	102	103	105	104	104
<b>Number of Part 115 Adventure Aviation Operators</b>	31	29	29	29	27	27
<b>Number of Part 102 Unmanned Aircraft Operators</b>	86	89	94	105	105	105
<b>Number of Part 141 Training Organisations</b>	53	52	52	50	51	51
<b>Number of Part 149 Recreation Organisations</b>	8	8	8	8	8	8
<b>Number of Licences (Type of Medical Certificate)<sup>8</sup></b>						
Recreational Pilot Licence (RPL Medical)	446	442	440	456	426	363
Private Pilot Licence (Class 1 & 2)	2,402	2,358	2,348	2,367	2,402	2,408
Commercial Pilot Licence (Class 2 only)	2,094	2,108	1,992	1,927	1,864	1,863
Commercial Pilot Licence (Class 1)	2,085	2,032	2,096	2,100	2,129	2,143
Airline Transport Pilot Licence (Class 2 only)	990	996	1,031	1,064	1,077	1,057
Airline Transport Pilot Licence (Class 1)	1,252	1,261	1,232	1,201	1,206	1,228
Air Traffic Controller Licence (Class 3)	360	364	371	364	357	361
Aircraft Maintenance Engineer Licence (N/A)	2,842	2,852	2,867	2,882	2,891	2,898

Quarter	2018/3	2018/4	2019/1	2019/2	2019/3	2019/4
<b>Social Cost \$ million<sup>1</sup></b>	13.89	33.22	19.61	17.98	4.36	4.56
<b>Number of Fatal Accidents<sup>2</sup></b>	2	3	2	0	1	1
<b>Number of Fatal Injuries<sup>2</sup></b>	2	3	2	0	2	1
<b>Number of Serious + Minor Injuries<sup>2</sup></b>	9	8	18	4	1	3
<b>Number of Aircraft Accidents<sup>2</sup></b>						
Large Aeroplanes	0	0	0	2	0	0
Medium Aeroplanes	0	0	0	0	0	0
Small Aeroplanes	4	4	10	3	3	2
Agricultural Aeroplanes	0	0	0	1	1	0
Helicopters	2	4	5	5	2	2
Sport Aircraft	8	8	9	5	5	9
Unknown Aircraft	1	0	1	1	0	2
Hang Gliders	3	5	11	1	1	3
Parachutes	3	4	10	4	2	1
<b>Number of Incidents<sup>3</sup></b>	1,630	1,788	2,041	1,885	1,683	1,868
<b>Number of Aviation Related Concerns<sup>4</sup></b>	338	334	389	317	278	280
<b>Number of Hours Flown<sup>5</sup></b>	210,183	229,274	229,914	207,089	210,183	229,274
<b>Number of Air Transport Flights<sup>5</sup></b>	88,986	112,671	110,134	110,134	110,134	110,134
<b>Number of Aircraft Movements<sup>6</sup></b>	242,644	252,758	256,334	256,334	256,334	256,334
<b>Number of Aircraft on the Register<sup>7</sup></b>	4,789	4,825	4,843	4,812	4,861	4,893
<b>Number of Part 119 Certificated Operators</b>						
Air Operator – Large Aeroplanes	6	5	5	5	5	3
Air Operator – Medium Aeroplanes	12	11	11	11	11	14
Air Operator – Helicopters and Small Aeroplanes	165	163	160	160	160	156
<b>Number of Part 137 Agricultural Aircraft Operators</b>	105	106	106	105	105	104
<b>Number of Part 115 Adventure Aviation Operators</b>	27	27	27	26	25	24
<b>Number of Part 102 Unmanned Aircraft Operators</b>	110	100	105	110	126	121
<b>Number of Part 141 Training Organisations</b>	48	48	48	48	44	44
<b>Number of Part 149 Recreation Organisations</b>	8	8	8	8	8	8
<b>Number of Licences (Type of Medical Certificate)<sup>8</sup></b>						
Recreational Pilot Licence (RPL Medical)	342	348	332	300	294	295
Private Pilot Licence (Class 1 & 2)	2,418	2,406	2,428	2,419	2,412	2,358
Commercial Pilot Licence (Class 2 only)	1,824	1,799	1,837	1,865	1,830	1,858
Commercial Pilot Licence (Class 1)	2,189	2,203	2,168	2,126	2,188	2,193
Airline Transport Pilot Licence (Class 2 only)	1,034	1,122	1,134	1,194	1,136	1,169
Airline Transport Pilot Licence (Class 1)	1,166	1,217	1,195	1,138	1,215	1,187
Air Traffic Controller Licence (Class 3)	361	365	369	371	372	369
Aircraft Maintenance Engineer Licence (N/A)	2,914	2,918	2,937	2,940	2,958	2,982