UK Civil Aviation Authority

# Annual Safety Review 2023

CAP 3035

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# Contents

# Definitions

## MOR

Mandatory Occurrence Reports. Reporting safety-related events which are reported to the CAA which relate to incidents considered as reportable.

## Serious Injury[1]

An injury sustained by a person in a reportable accident which:

a) requires hospitalisation for more than 48 hours, commencing within seven days from the date the injury was received; or

b) results in a fracture of any bone (except simple fractures of fingers, toes or nose); or

c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or

d) involves injury to any internal organ; or

e) involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; or

f) involves verified exposure to infectious substances or injurious radiation.

## Fatal injury/Fatality[2]

An injury which is sustained by a person in an accident and which results death within 30 days of the date of the accident.

For the purposes of this document[3], a fatal or serious injury is defined as an occurrence associated with the operation of an aircraft which:

- in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked,

[1] Regulation No. 996/2010

[2] Regulation No. 996/2010

[3] Annex 13 - Aircraft Accident and Incident Investigation (icao.int)

- in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such a time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which a person is fatally or seriously injured as a result of:
- being in the aircraft
- direct contact with any part of the aircraft, including parts which have become detached from the aircraft; or
- direct exposure to jet blast,

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew.

If the fatality occurs to persons outside the aircraft, then these are treated as third party fatalities and are not always reportable to the CAA. Occupational health and safety related occurrences are reported to and investigated by the Health and Safety Executive (HSE).

## Serious Incident[4]

An event involving circumstances indicating that there was a high probability of an accident and is associated with the operation of an aircraft, which:

- in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked.
- in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time it comes to rest at the end of the flight and the primary propulsion system is shut down.

The International Civil Aviation Organisation (ICAO) defines that the *difference between a reportable accident and a serious incident lies only in the result*.

## Reportable Accident

An event associated with the operation of an aircraft resulting in fatal or serious injuries or significant damage to the aircraft.

[4] Regulation No. 996/2010

## Safety Issue

Safety deficiencies related to one or more hazards. They are the actual manifestation of a hazard or a combination of several hazards in a specific context.

## Key Risk Area

Groupings of the most likely type of accident that a safety issue or event could escalate to, for example, the type of safety risk.

# Types of Flight

## Business Aviation

Flights conducted predominantly on small jets on types with a small number of seats (generally 20 or fewer) where this is privately owned.

## Commercial Air Transport

Flights conducted for hire and reward purposes where a check-in desk is present at the airport.

## General Aviation

Private flights conducted not for hire and reward and predominantly carried out on small aircraft types.

## Military

Flights conducted by UK or other state military services. This is not overseen by the CAA.

# Acronyms and Abbreviations

| | |
|---|---|
| AAIB | Air Accident Investigations Branch |
| AOC | Air Operators Certificate |
| ATM | Air Traffic Management |
| ATS | Air Traffic Services |
| CAT | Commercial Air Transport |
| DfT | Department for Transport |
| KRA | Key Risk Area |
| MOR | Mandatory Occurrence Report |
| NASP | National Aviation Safety Plan |
| RSMS | Regulatory Safety Management System |
| RPAS | Remotely Piloted Aircraft Systems |
| SMS | Safety Management System |
| SPI | Safety Performance Indicator |
| SRM | Safety Risk Management |
| SSP | State Safety Programme |

# Introduction

This Annual Safety Review for United Kingdom is compiled by the Safety Intelligence Team of the UK Civil Aviation Authority (CAA). It presents the safety performance of UK civil aviation of 2023.

Data is subject to change as ongoing investigations are completed. This review is prepared using MOR data collected in accordance with UK EU 376/2014. Data is collected from MORs that have been reported to the CAA and have occurred in or outside the UK involving UK registered aircraft.

UK airspace and UK airlines are among the safest in the world. There has not been a fatal accident involving a commercial airline in the UK since 1989. The CAA is not complacent; the government is committed, through the UK state safety system, to maintaining and improving the high safety standards in aviation.

# Use of MORs

In 2023, the CAA received more than 47,000 MORs, of which 230 were reported as accidents and 73 were reported as serious incidents.

Of notable increase in 2023 was the number of MORs received in relation to GPS jamming. In 2023, GPS jamming MORs accounted for approximately 21% of all MORs. This marks a significant increase compared to previous years: 11% in 2022, 1% in both 2021 and 2020, and 0.5% in 2019. GPS jamming currently affects large areas surrounding conflict zones and sensitive geopolitical areas. Aircraft can still operate safely in areas of GPS interference, with crews briefed on what to expect and standard procedures are in place to navigate when GPS is unavailable.

Internally, we perform statistical analysis to primarily support the UK's State Safety Programme (SSP) and subsequently inform oversight regulatory actions and interventions, policy decisions and safety promotion. More specifically we perform:

- descriptive analysis of MOR event types and occurrence category analysis by aviation sector in support of risk-based audit activities
- specific risk analyses in support of the Regulatory Safety Management System (RSMS).
- monitoring of Safety Performance Indicators (SPIs) to identify trends and patterns and inform safety risk management.

We also respond to external MOR data requests submitted through SRG1605 and SRG1604 forms and requests made via the Freedom of Information Act (FOIA). In 2023, the most common requests for MORs related to:

- Technical failures, mainly for the military
- Airspace infringements, for private pilots
- Operational incidents, mainly for industry
- Disruptive passengers, for government bodies
- Wildlife strikes, mainly for industry

These five categories accounted for 60% of the responses. The remaining 40% (in response to requests from industry, government bodies, academia, and the military) covered a wide variety of other topics.

We also publish number of reports every year based on the aviation safety data we collect. Areas covered include:

- Birdstrike data
- Laser incidents
- Data for Passengers

Finally, analysis of MORs informs the development of safety promotion material such as CAA publications and leaflets. In 2023, we published content and campaigns including:

- Flying over gliding sites
- Helping drone users to fly safely
- Carbon Monoxide in General Aviation
- Dangerous Goods
- Airspace safety

Comms publications aim to raise awareness about key risk areas, and seasonal events and high severity occurrences. Furthermore, investigation findings and outputs of severe occurrences that lead to the identification of causal factors and root causes also contribute to the development of bespoke safety publications. Examples of such publications can be found:

- Safety Notices
- The Importance of Occurrence Reports
- Airspace & Safety Initiative
- Air Safety Support International

Handling, processing, and investigation of MORs sometimes involves different business areas at the CAA who may have an interest in the event from different perspectives, such as the type of aircraft flown, the location or the type of event. For the purposes of this document, individual MORs may be featured in more than one business area.

The analysis of data presented in this Annual Safety Review may differ from reports published by other organisations and regulators. This is a result of different data collection methods and analysis used to interpret the data. This includes year on year changes to data from historic CAA reports and publications. Each report has its own merits and contributes to the analysis and data landscape of safety reporting.

# Aerodromes

This section includes reportable accidents and serious incidents with an aerodrome involvement at UK certified and licensed aerodromes, involving civil aircraft. Lists of the aerodromes that hold a UK Certificate and UK Licensed Aerodromes are available on the CAA's website.

An aerodrome occurrence may be described as those involving an aerodrome's infrastructure, or personnel working at the aerodrome (although they may be employed by a third party such as a ground handler or an airline). Events such as technical malfunctions on aircraft are only included if there are factors directly related to the aerodrome that influence the outcome of the occurrence. Security events are not covered by this document, therefore events such as bomb threats and stowaways have been excluded. The involvement of an aerodrome in an occurrence does not imply that the aerodrome was at fault or the cause of the MOR.

The types of MORs which may be classed as related to aerodromes include runway excursion, abnormal runway contact, loss of control – ground, ground collision, collision with obstacle during take-off and landing and ramp/ground handling.

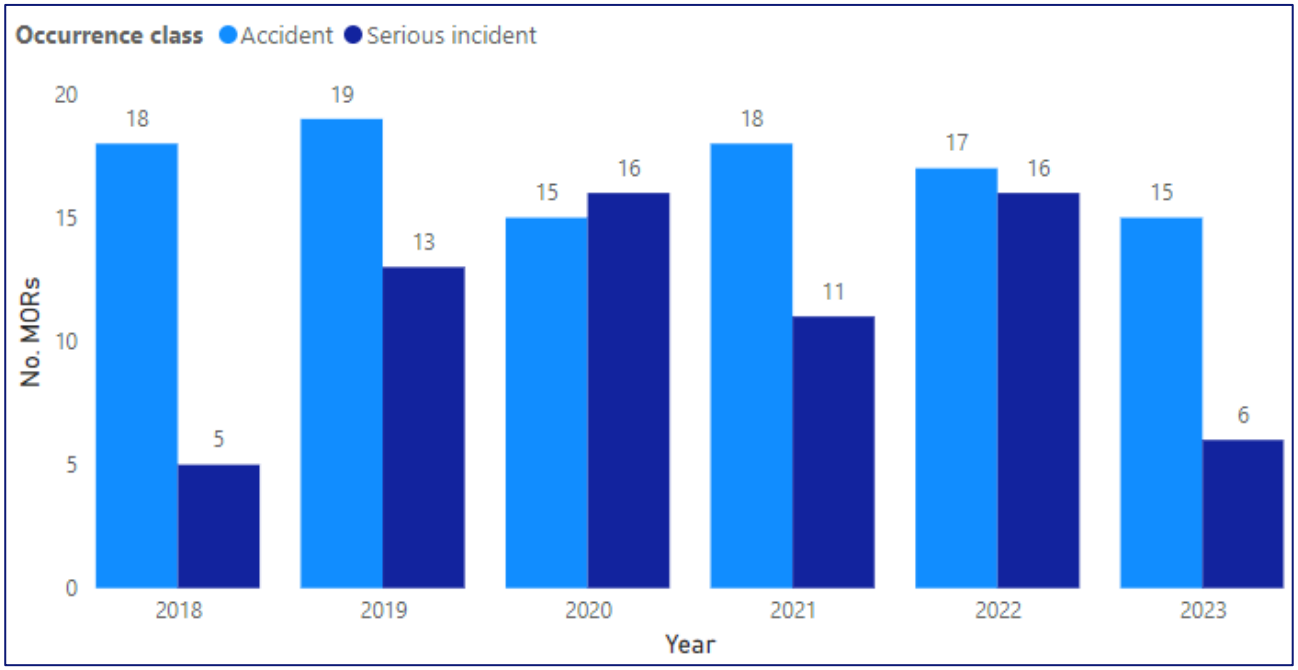
In 2023 there were 21 MORs reported to the CAA classed as a reportable accident or serious incident relating to aerodromes, 15 were reportable accidents and six were serious incidents. Some of the top reasons for report of accidents and serious incidents in 2023 were runway excursion, ground collision and loss of control – ground. The number of reportable accidents related to aerodromes has remained consistent between 15 and 19 per year during the data period 2018-2023. The number of serious incidents related to aerodromes in 2023 was lower than in recent years at six.

There were no reportable accidents resulting in serious injury reported to the CAA in 2023, the last MOR relating to a reportable accident resulting in serious injury occurred in 2021.

There were no MORs relating to reportable accidents resulting in fatality between 2018 and 2023 at UK certified or licensed aerodromes. If the injury or fatality occurs to persons outside the aircraft, then these are treated as third party injury or fatalities and are not always reportable to the CAA. Occupational health and safety related occurrences are reported to and investigated by the Health and Safety Executive (HSE).

The graph below gives a visual representation of reportable accidents and serious incidents related to aerodromes in the years between 2018 and 2023.

# Aerodrome Accidents and Serious Incidents 2018-2023




| Year | Reported Accidents | Reported Serious Incidents |
|---|---|---|
| 2018 | 18 | 5 |
| 2019 | 19 | 13 |
| 2020 | 15 | 16 |
| 2021 | 18 | 11 |
| 2022 | 17 | 16 |
| 2023 | 15 | 6 |

# Air Traffic Management/Air Navigation Services (ANS)

This section includes reportable accidents and serious incidents with an ATM/ANS involvement that occurred within UK airspace. The involvement of ATM/ANS in an occurrence does not imply that ATM/ANS were at fault or the cause of the MOR.

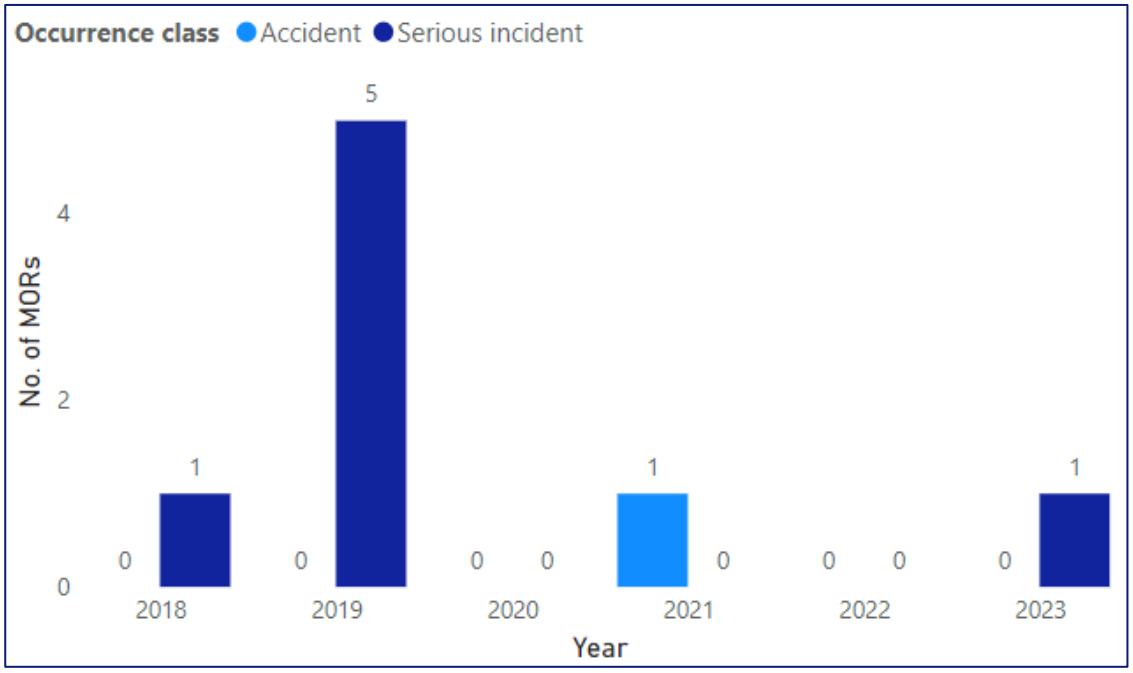
The types of MORs which may be classed as related to ATM/ANS include mid-air conflict, runway incursions, losses of separation, airspace infringements, Air traffic control engineering problems and difficulties with communication.

The graph below gives a visual representation of reportable accidents and serious incidents related to the provision of ATM/ANS in the United Kingdom between 2018 and 2023.

In 2023 there were no MORs reported to the CAA as a reportable accident, the last reportable accident reported was in 2021. One serious incident involving ATM/ANS was reported to the CAA relating to fuel.

There were no MORs involving serious injuries or fatalities reported under ATM/ANS in 2023, the last fatal reportable accident with ATM/ANS involvement occurred in 2021.

## ATM/ANS Accidents and Serious Incidents 2018-2023



| Year | Reported Accidents | Reported Serious Incidents |
|---|---|---|
| 2018 | 0 | 0 |
| 2019 | 0 | 1 |
| 2020 | 0 | 5 |
| 2021 | 1 | 0 |
| 2022 | 0 | 0 |
| 2023 | 0 | 1 |

# General Aviation (GA)

The UK GA sector covers around 17,000 aircraft (mainly with a maximum take-off mass below 5,700 kg), including specialist activities such as pilot training, balloon operations, gliding, ex-military aircraft operations, parachuting and air displays. Overall, while the risk associated with GA is greater than commercial aviation, the safety level of GA in the UK is still acceptable given the nature of activity undertaken.

The CAA's GA Unit exists to help people avoid potential harm when they encounter GA, and our team is committed to delivering protection now and in future as effectively and efficiently as possible. The unit is responsible for safety promotion activities aimed at the GA industry including:

- podcasts,
- safety animations,
- a variety of safety publications, including the SkyWay Code and the series of Safety Sense Leaflets, and
- attending GA community events.

Owners and/or operators of close to 11,000 UK GA aircraft (of which around 60% were aeroplanes[5]) reported approximately 700,000 hours of flying in 2023. This activity remains below pre-pandemic levels, with flying hours below 2019 levels.

In 2023 the CAA received over 2,000 GA related occurrence reports, of which around 7.5% were classified as reportable accidents or serious incidents (high severity occurrences). Many of the reportable accidents and serious incidents are reported to and investigated by the Air Accidents Investigation Branch (AAIB) and some are still under investigation.

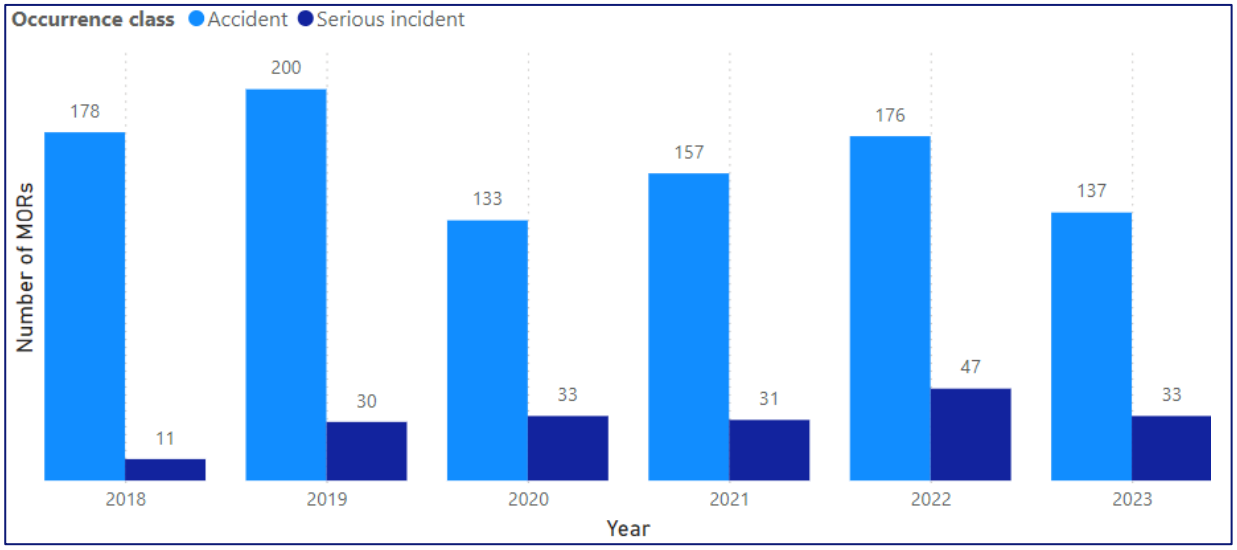
There were 170 reportable accidents and serious incidents involving GA aircraft in 2023, of which 82% resulted in no injuries (this is similar to the previous five-year average). However, 11 reportable accidents that occurred during this time caused 12 people to sustain fatal injuries. There were also eight reportable accidents which resulted in serious injuries to nine people.

Reportable accidents and serious incidents in 2023 largely involved GA aeroplanes and were mostly attributed to an obstacle (tree, hedge, fence, etc) as a result of hard/heavy landings or long/fast landings. In 2023 the injury related accident rate was mainly driven by gliders with two accidents[6] in August.

[5] According to data from the UK aircraft register

[6] AAIB investigation reports to accident at Dunstable Airfield, Bedfordshire, 16 August 2023 and accident at

## GA Accidents and Serious Incidents 2018-2023




| Year | Reported Accidents | Reported Serious Incidents |
|---|---|---|
| 2018 | 178 | 11 |
| 2019 | 200 | 30 |
| 2020 | 133 | 33 |
| 2021 | 157 | 31 |
| 2022 | 176 | 47 |
| 2023 | 137 | 33 |

Melton Mowbray, Leicestershire, 17 August 2023.

# Non-Scheduled Commercial Air Transport (CAT)

Non-scheduled CAT covers a variety of related flight operations, including various corporate flights, air taxi and aerial works.

The main difference from the scheduled sector is that aircraft in the non-scheduled area are smaller with fewer or no passengers and they do not operate to a set timetable.

The safety issues and risks of these operations are often similar to the ones in scheduled operations but with a different variety of aircraft types and locations that they operate from.

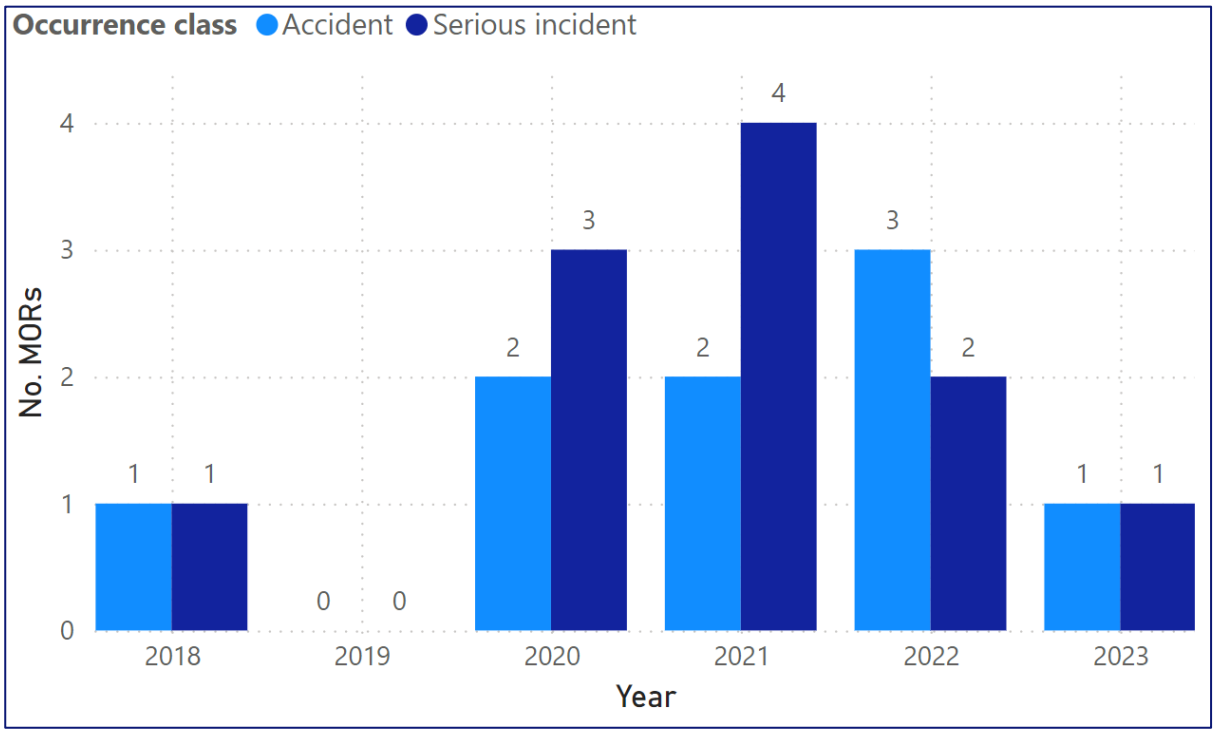
The UK non-scheduled CAT sector involves close to 30 operators with approximately 22,000 flights in 2023.

In 2023 there was one reportable accident and one serious incident. This is a reduction from recent years. There have been no fatal or serious injuries in the past five years.

The main causes for reportable accidents and serious incidents in 2023 were technical malfunctions: the serious incident involved an elevator control restriction, and the accident involved an aircraft sustaining damage to the horizontal stabiliser from cabin windows detaching. Neither event resulted in any injuries.

The graph below gives a visual representation of reportable accidents and serious incidents for non-scheduled CAT in the years between 2018 and 2023.

## Non-Scheduled CAT Accidents and Serious Incidents 2018-2023



| Year | Reported Accidents | Reported Serious Incidents |
|---|---|---|
| 2018 | 1 | 1 |
| 2019 | 0 | 0 |
| 2020 | 2 | 3 |
| 2021 | 2 | 4 |
| 2022 | 3 | 2 |
| 2023 | 1 | 1 |

# Non-UK Operators in UK Airspace

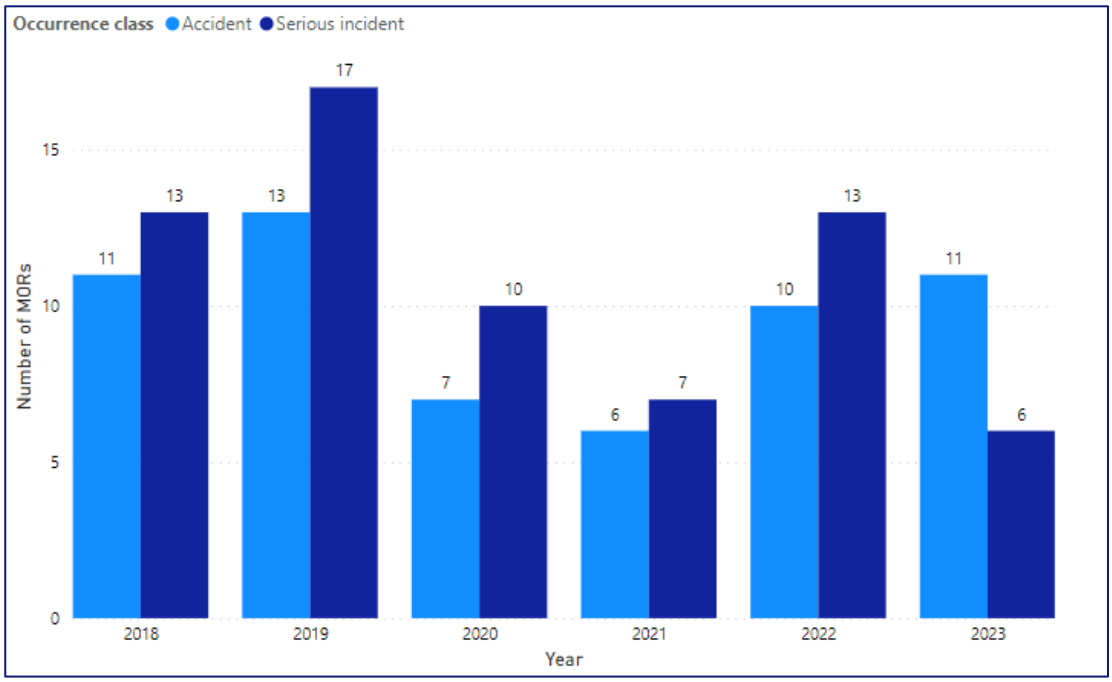
Within this section of the report, we display reportable accidents and serious incidents involving non-UK operated aircraft (anything conducted on an operator not registered in the UK) within UK airspace (including Isle of Man and the Channel Islands). This section also includes multiple sectors such as General Aviation and Business Aviation as well as Commercial Air Transport sectors.

The chart below displays the number of reportable accidents and serious incidents, by year. 2023 was lower on reportable accidents and serious incidents than pre-pandemic (2019).

In 2023, 23.5% (4) of reportable accidents and serious incident MORs were reported as loss of control incidents. This was the most frequently reported MOR category in 2023, this is an increase on 2018-2022 reports where loss of control events made up 12.5% (19) of all reports. Abnormal runway contact, ground collision and system/component failure or malfunction [non-powerplant] were the second most common with 17.65% (3) of the reports each.

None of the 2023 reports resulted in fatalities. All three serious injuries in 2023 were sustained within the GA Sector from two accidents. These are currently under investigation by the AAIB.

## Non-UK in UK Accidents and Serious Incidents 2018-2023



| Year | Reported Accidents | Reported Serious Incidents |
|---|---|---|
| 2018 | 11 | 13 |
| 2019 | 13 | 17 |
| 2020 | 7 | 10 |
| 2021 | 6 | 7 |
| 2022 | 10 | 13 |
| 2023 | 11 | 6 |

# Remotely Piloted Aircraft Systems (RPAS)

The use of drones and model aircraft continues to grow as new technologies and capabilities are introduced. As of 30th June 2024, there are 601,980 active registered drone flyers and operators (a 17.1% increase on 2023) which consists of:

- 236,709 Active Operators: of which 7,569 are Organisations and 229,140 are Individuals
- 365,271 Active Flyers: of which 7,441 are under 13 and 357,830 are aged 13+

The CAA also has current authorisations for:

- Approximately 18,500 Active Remote Pilot Competency Qualification Holders
- 2947[7] Active Specific Category Operational Authorisation Holders
- 26 Active Recognised Assessment Entities
- 4 Independent Flying Associations

In December 2022, the CAA published an updated version of CAP 722: guidance and policy on the operation of unmanned aircraft systems within the UK, this was updated in 2023 with guidance for Registered Assessment Entities. In 2023 the CAA published CAP2012 which details requirements for flying drones in the Open Category, along with a Drone Educational and Safety series. A full list of RPAS CAA publications is available on our website.

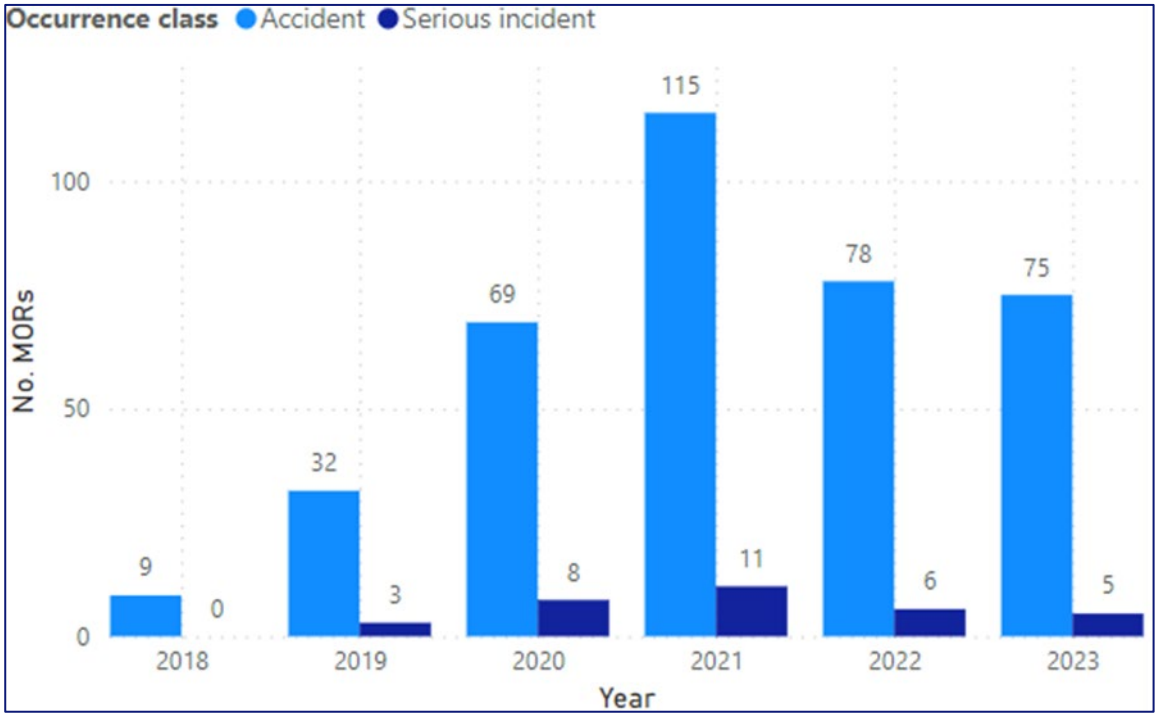
There were 80 accidents / serious incidents involving RPAS reported to the CAA during 2023. This is a decrease from 2022 where 84 reportable accidents / serious incidents were reported.

In 2023, 70% (56) of reportable accidents and serious incident MORs were reported as loss of control incidents. This was the most frequently reported MOR category in 2023, and between 2018 and 2022 where loss of control accounted for 63.4% (210) of accidents and serious incidents. System or component failure was the second most frequently reported event in 2023 (21.3% of 2023's MORs) and the five years prior (27.2%)

The graph below gives a visual representation of reportable accidents and serious incidents related to RPAS in the years between 2018 and 2023.

[7] Numbers accurate as of 19th of September 2024.

## RPAS Accidents and Serious Incidents 2018-2023




| Year | Reported Accidents | Reported Serious Incidents |
|---|---|---|
| 2018 | 9 | 0 |
| 2019 | 32 | 3 |
| 2020 | 69 | 8 |
| 2021 | 115 | 11 |
| 2022 | 78 | 6 |
| 2023 | 75 | 5 |

# Scheduled CAT

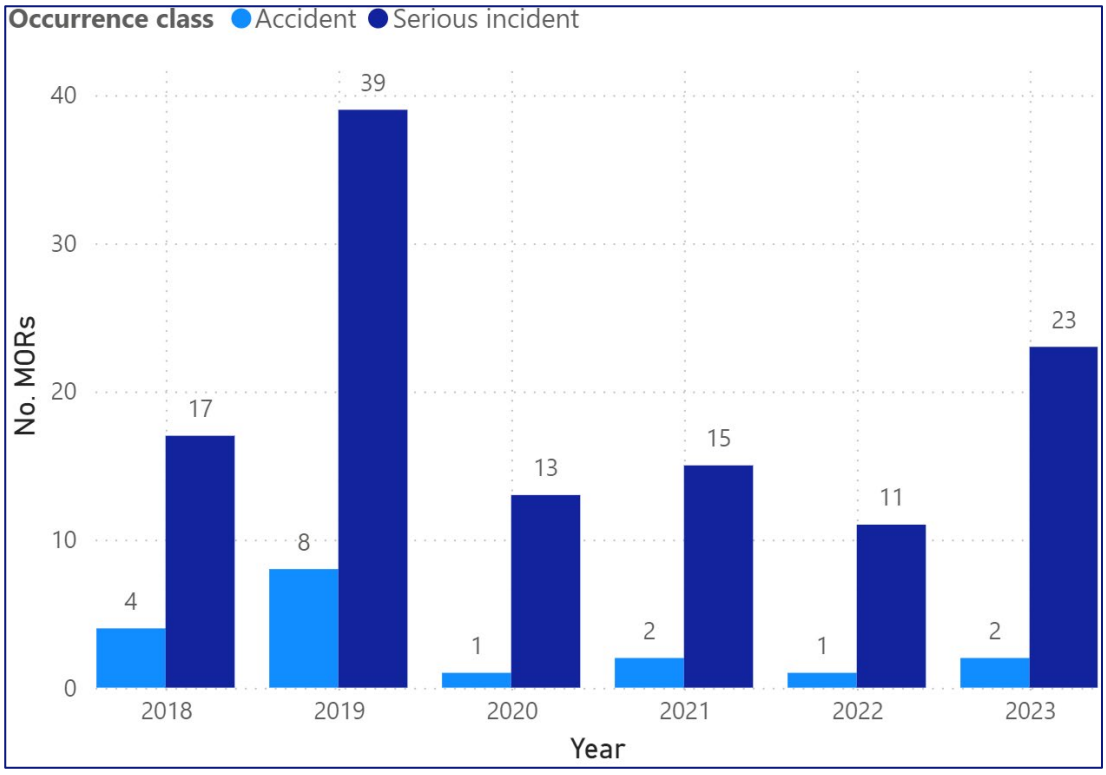
Scheduled CAT accounts for the majority of passenger and cargo flights in the UK. This sector consists of seventeen airlines operating in the region of 800 large fixed-wing aircraft and is the most common way the public interact with the aviation system.

In 2023 this sector flew over 118 million passengers on just over 839 thousand flights. This is still below pre-pandemic levels, where in 2019 this sector operated over 1 million flights and carried over 140 million passengers.

In 2023 there were two reportable accidents and 23 serious incidents. Two serious incidents resulted in serious injuries to cabin crew, both of these occurrences were due to severe turbulence encounters. The reportable accidents involved a severe turbulence encounter and loss of a nose gear wheel on take-off.

Technical malfunctions of the aircraft were the most commonly identified cause of serious incidents in 2023, aligning with previous years' data. 2023 saw several accidents and serious incidents related to severe turbulence, which came to the fore in 2024 with several high-profile events occurring internationally.

## Scheduled CAT Accidents and Serious Incidents 2018-2023



| Year | Reported Accidents | Reported Serious Incidents |
|---|---|---|
| 2018 | 4 | 17 |
| 2019 | 8 | 39 |
| 2020 | 1 | 13 |
| 2021 | 2 | 15 |
| 2022 | 1 | 11 |
| 2023 | 2 | 23 |

# Vertical Take Off & Landing (VTOL)

The VTOL sector within Airworthiness is responsible for the oversight of rotorcraft and Urban Air Mobility aircraft. We oversee a vast array of organisations from training schools, CAT, and Search and Rescue to Police and Helicopter Emergency Medical Services operations. The sector is split in Onshore and Offshore operations.

There are approximately 50 onshore helicopter operators that have been granted an Air Operators Certificate (AOC) and approximately 100 helicopters carrying out combined commercial special operations and non-commercial operations in the UK.

On the other hand, offshore helicopter operations cater to the needs of the energy industry. These operations require specialised skills due to the challenging maritime environment. Helicopters transport personnel to and from offshore platforms, often navigating adverse weather conditions, demanding precise flight planning and execution.

The offshore helicopter industry contributes significantly to the UK economy, as it supports the offshore energy sector – a vital source of energy to the UK. There are approximately 100 helicopters used in the support of offshore operations, spread between five air operators.

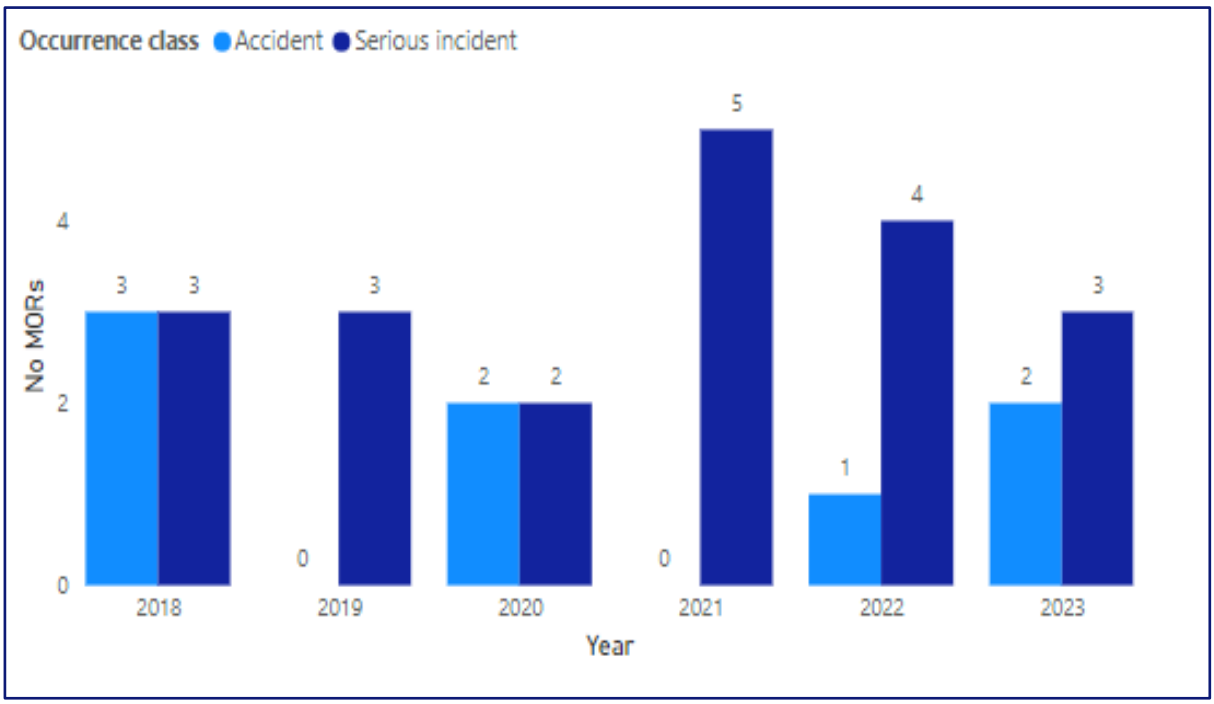
In absolute numbers, there were more serious incidents in 2023 when comparing against 2022. Despite the increase in the numbers there were no fatalities or serious injuries reported in 2023.

Within the VTOL sector the main causes for reportable accidents and serious incidents in 2023 were related to system/component failures, powerplant failure/malfunction, abnormal runway contact, collision with obstacles and loss of control – ground.

The 2023 distribution of serious incidents between onshore and offshore operations is three onshore vs three offshore. There was a slight increase in these occurrences for the offshore sector when comparing against 2022.

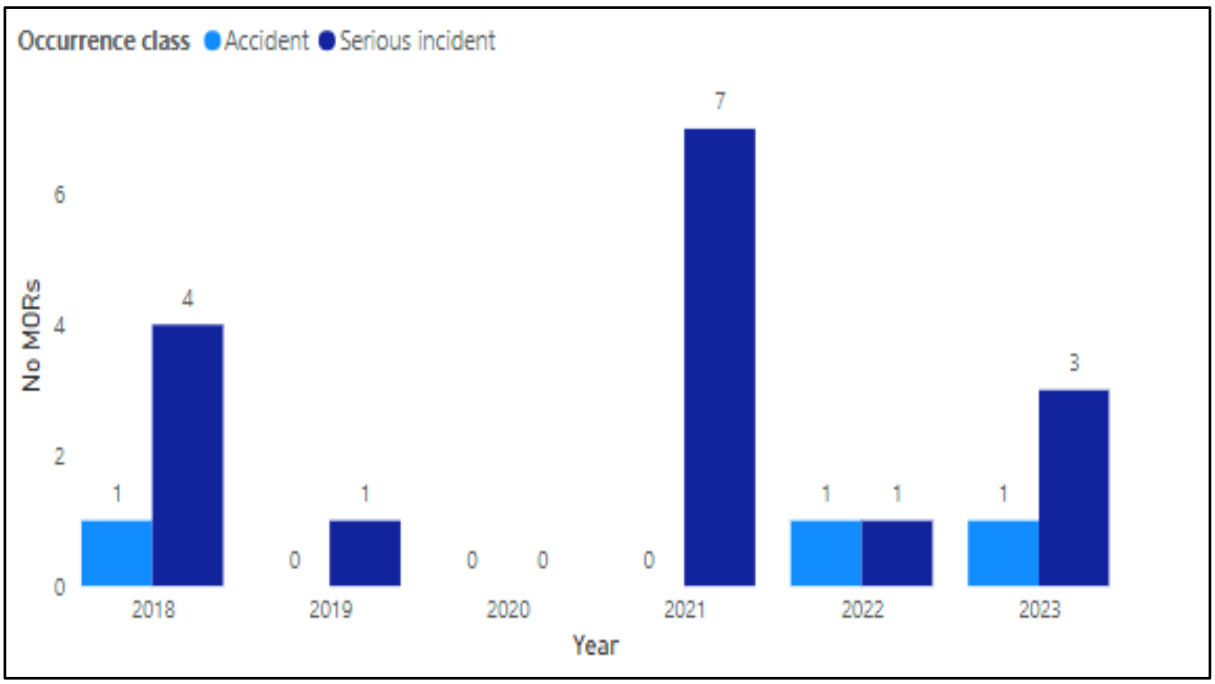
The two following graphs give a visual representation of reportable accidents and serious incidents (onshore and offshore operations) related to helicopters in the years between 2018 and 2023.

## Onshore VTOL Accidents and Serious Incidents 2018-2023




| Year | Reported Accidents | Reported Serious Incidents |
|---|---|---|
| 2018 | 3 | 3 |
| 2019 | 0 | 3 |
| 2020 | 2 | 2 |
| 2021 | 0 | 5 |
| 2022 | 1 | 4 |
| 2023 | 2 | 3 |

## Offshore VTOL Accidents and Serious Incidents 2018-2023




| Year | Reported Accidents | Reported Serious Incidents |
|---|---|---|
| 2018 | 1 | 4 |
| 2019 | 0 | 1 |
| 2020 | 0 | 0 |
| 2021 | 0 | 7 |
| 2022 | 1 | 1 |
| 2023 | 1 | 3 |

# Safety Performance Indicators (SPIs)

SPIs are data-based measurements which are used to monitor safety performance over time. Safety data is trended in order to understand any areas of particular interest within the aviation system. Effective SPIs measure, monitor and trigger action when necessary; reviewing organisational and operational attributes that contribute to safety management activities.

SPIs are key components of data to support decision making. By creating a robust suite of insightful SPIs they can influence the strategic direction of safety management, highlighting priority areas to address, monitor or develop further actions against.

Examples of SPIs in operation:

- Level bust
- Category A and B airprox
- Birdstrike
- Reach of stakeholder engagement activity

Successful and effective measuring of safety performance uses a combination of leading and lagging indicators.

## Lagging Indicators

Measurement of events which have already occurred and are based on safety-related events which endangered or if not corrected or addressed could have endangered an aircraft, its occupants, or other persons.

Our main data source for lagging indicators are occurrence reports. These include accidents, serious incidents, incidents, and contributing factors[8]. Analysis of these reports and the use of SPIs assist in the effectiveness assessment of safety actions and risk controls.

## Leading Indicators

Analysis of factors which are aimed to contribute positively to aviation safety, they can also highlight negative effects on the safety system. Leading indicators are used to understand

[8] UK Reg (EU) No 376/2014

if industry is taking actions or have embedded processes to effectively lower safety risk, as part of an effective SMS.

Leading indicators anticipate emerging weaknesses and vulnerabilities by monitoring the extent to which certain activities required for safety are being performed.

Leading indicator sources are obtained from CAA engagement, entity SMS and Risk-Based Oversight.

SPIs are monitored periodically and can be broken down further to understand if the data trends towards a particular area of aviation that needs focusing on related to a particular KRA. They be broken down into a number of areas:

- Domain; e.g. RPAS, GA, CAT
- Operator/entity; e.g. airlines, training organisations
- State of operator; initial country of registry/operation
- Aircraft type
- Human/systems/environment; additional factors; e.g. contributing factors such as human factors, equipment, weather

SPI dashboards built to focus into an SPI and understand the nature of the event it is measuring.

## Work in progress

- Development of internal SPI governance policy
- Identification and mapping of SPIs from across the CAA
- Mapping SPIs to KRAs

## Future work

As our work on the development of SPIs matures, we will aim to publish guidance and progress updates to our stakeholders We will also aim to feed SPI work into the development of additional State Safety Objectives and/or National High-Risk Categories for the NASP.

# Key Risk Areas (KRAs)

To facilitate the appropriate regulatory approach to industry safety risks, the CAA has a Safety Risk portfolio, which is an advanced and processed form of a data portfolio augmented by qualitative analysis and subject matter expertise.

KRAs are a new core concept in the CAA Safety Risk Management (SRM) process and are closely aligned with the ICAO approach. The KRAs provide insights to the most common potential accident outcomes, and the immediate precursors that may lead to an accident outcome; they use a common taxonomy to facilitate cohesive approaches to managing cross-domain[9] safety risks and issues. The SRM process applies prioritisation for treatment of the safety risks and safety issues associated with each KRA, based upon their potential for harmful effect. The intent is to maximise 'resource to risk' allocation of finite regulatory assets and focus industry effort on meaningful safety improvements.

Each safety risk and safety issue are therefore associated with one, or most of the time, several KRAs. For example, the safety issue 'Incorrect aircraft performance data' may have as an outcome (i.e. KRA) 'Runway Excursion' or 'Loss of Control-Inflight'.

There are seven KRAs specified by the CAA, which are listed below with brief definitions:

1. **Airborne Conflict:** An event that could lead to a collision between aircraft[10] / space vehicles whilst in flight[11].
2. **Aircraft Environment:** A condition where the aircraft / space vehicle environment is unsurvivable for people.
3. **Ground Safety:** Incursions (e.g. taxiway or apron incursion, but not runway incursions), excursions (e.g. taxiway or apron excursions but not runway excursions) and collisions between aircraft / space vehicles, ground vehicles and/or people.
4. **Loss of Control-inflight:** An event that could cause an uncontrolled collision with terrain/obstacle due to unintentional deviation from aircraft/space vehicle flight path or parameters.
5. **Runway[12] Excursion:** Departure from designated take-off/landing area, without achieving flight; this also applies to rotorcraft/VTOL, balloons/airships, and space vehicles.

[9] Domains are groupings of specific types of the operational aviation/space environment, e.g. Aerodromes, CAT Aeroplanes.

[10] Aircraft is a term inclusive of all aviation flight platforms.

[11] Airborne/flight are terms inclusive of all aviation/space travel activity.

[12] Runway is a term inclusive of all forms of take-off/launch and landing/recovery areas.

6. **Runway Incursion:** An event that could cause a collision on the take-off/landing area between aircraft/space vehicles, ground vehicles, and/or people.

7. **Terrain[13] & Obstacle[14] Collision:** An event that leads to flight into terrain or an obstacle whilst the aircraft/space vehicle is under full control of the pilot, i.e. the flight platform is exactly following pilot commands.

The CAA KRA approach is still in development, although they are now referenced in the NASP.

[13] Terrain is a term inclusive of all forms of land or water on the surface of the Earth.

[14] Obstacle is a term inclusive of all forms of construction that are attached to the surface of the Earth.