2020 Aviation Safety Review

United Kingdom – Civil Aviation Authority

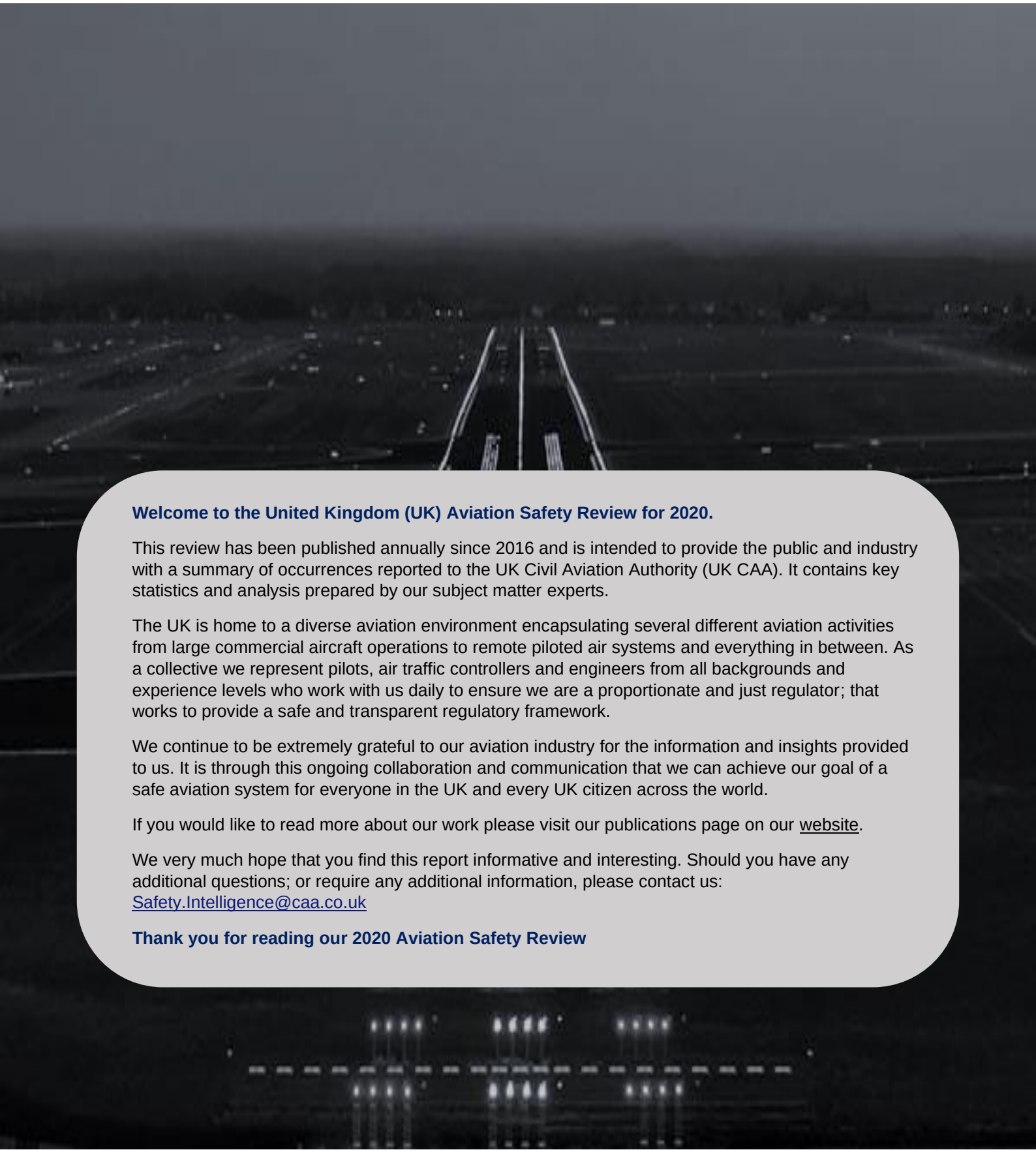
Contents

Glossary of Terms

Name	Description
AAIB	Air Accidents Investigation Branch
ACAS	Airborne Collision Avoidance System
AME	Aeromedical Examiners
AIRPROX	A Situation in which the relative separation between aircraft as well as their relative positions and speeds were such that the safety of the aircraft involved may have been compromised.
ANO	Air Navigation Order
ATC	Air Traffic Control
ATM	Air Traffic Management
BASP	Business Aviation Safety Partnership
BHA	British Helicopter Association
CAT	Commercial Air Transport
CHIRP	Confidential Incident Reporting Program
DfT	Department for Transport
DGP	Dangerous Goods Panel
EASA	European Aviation Safety Agency
ECCAIRS	European Co-ordination Accident & Incident Reporting System
EU376/2014	Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis, and follow-up of occurrences in civil aviation
EU996/2010	Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation
GHOST	Ground Handling Operations Safety Team
HTAWS	Helicopter Terrain Awareness and Warning System

Name	Description
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
MAA	Military Aviation Authority
MAC	Mid-Air Collision
MOR	Mandatory Occurrence Report
OHSAG	Offshore Helicopter Safety Action Group
PART-NCC	Non-commercial flights in complex motor-powered aircraft (European Regulation)
PART-SPO	Specialised Operations (European Regulation)
PBO	Performance Based Oversight
PED	Portable Electronic Device
RPAS	Remote Piloted Air System
SME	Subject Matter Expert
UA	Unmanned Aircraft. See also RPAS
UK376/2014	CAP2034A00: Occurrence Reporting Regulation 376/2014 (caa.co.uk)
UK CAA	United Kingdom Civil Aviation Authority
UKLWG	UK Laser Working Group
VFR	Visual Flight Rules
VOR	Voluntary Occurrence Report
Whistleblower	Protected disclosures made by persons to the UK CAA regarding potentially unsafe practice, policies, or events.

Welcome and Introduction



Welcome to the United Kingdom (UK) Aviation Safety Review for 2020.

This review has been published annually since 2016 and is intended to provide the public and industry with a summary of occurrences reported to the UK Civil Aviation Authority (UK CAA). It contains key statistics and analysis prepared by our subject matter experts.

The UK is home to a diverse aviation environment encapsulating several different aviation activities from large commercial aircraft operations to remote piloted air systems and everything in between. As a collective we represent pilots, air traffic controllers and engineers from all backgrounds and experience levels who work with us daily to ensure we are a proportionate and just regulator; that works to provide a safe and transparent regulatory framework.

We continue to be extremely grateful to our aviation industry for the information and insights provided to us. It is through this ongoing collaboration and communication that we can achieve our goal of a safe aviation system for everyone in the UK and every UK citizen across the world.

If you would like to read more about our work please visit our publications page on our website.

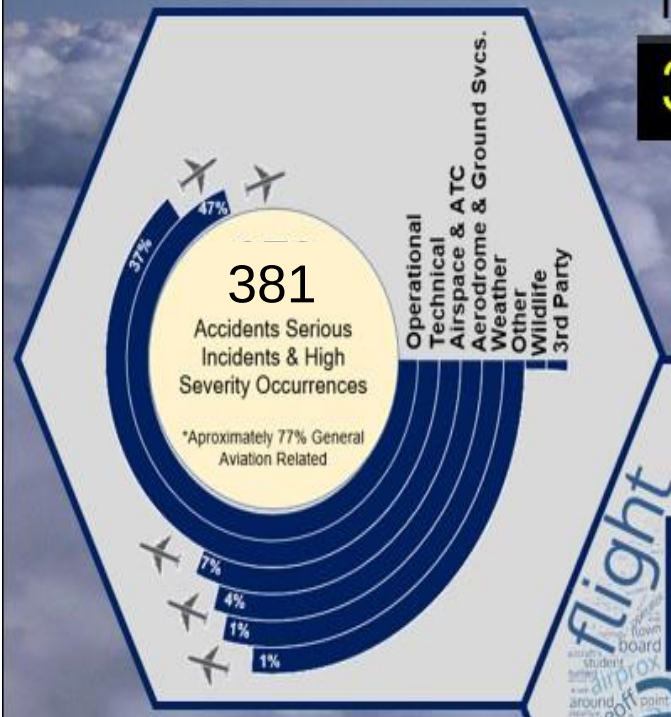
We very much hope that you find this report informative and interesting. Should you have any additional questions; or require any additional information, please contact us: Safety.Intelligence@caa.co.uk

Thank you for reading our 2020 Aviation Safety Review

2020: Aviation Safety Summary

Civil Aviation Authority
Intelligence

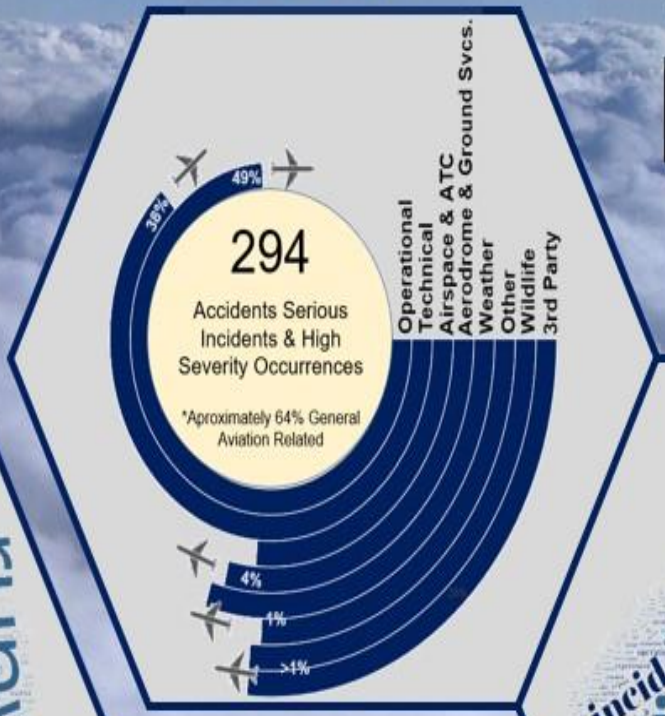
2019



Total Occurrences

3	0	7	7	9

2020



Total Occurrences

1	7	7	4	2

UK Aviation Safety in 2020

2020, a year in history with unparalleled significance for the future of aviation.

2020 began in unremarkable fashion with early reports of a new infection known as Coronavirus (SARS-COV-2) spreading through parts of Asia. At the time, the true impact of this virus was completely unknown to many organisations who continued to plan for a typical year operating, handling, or maintaining aircraft. By March 2020, reality struck as the United Kingdom along with much of the world began to shut down and enter periods of social distancing and lockdown.

For aviation in the UK this saw flight and passenger numbers reduce by around 90% compared to similar months in previous years. Aerodromes closed runways and terminals; while aircraft were parked in various locations globally; awaiting a time when passengers would return to flying, COVID-19 had arrived.

Not all sectors of aviation saw operations reduce however, for corporate aviation demand increased as consumers looked towards other avenues for global travel, offshore helicopter operations also saw increased traffic due to social distancing restrictions; meaning more flights were needed to support mineral exploitation activities offshore, for a time offshore routes were the busiest in the UK.

A slight increase in flight operations gave some reprieve during the summer months, with many able to take holidays in Europe as lockdown restrictions were relaxed; although an increase in reported Coronavirus cases, new variants of Coronavirus being discovered and no vaccine yet ready to roll out; once again led the UK into a period lockdown; and aviation activity to once again reduce as Christmas approached.

With Christmas looming the UK approved the first Coronavirus vaccine, and began the largest mass vaccination effort in our history, the mission being to vaccinate 60+ million UK citizens and bring a swift end to the pandemic…

… 2021, a year of renewed hope for industry regeneration and recovery

The Data in Brief

During a typical year the UK CAA normally receives around 30,000 occurrence reports. During 2020 this reduced by 42% compared to 2019, with around 18,000 reports filed. This reduction would have been greater had it not been for an increase in voluntary occurrence reporting, and reports linked with exemptions issued to support the operation of cargo flights using passenger aircraft.

Unlike previous years where the largest proportion of reports were related to events including airspace infringements, runway safety and loss of control; new themes around flight crew fatigue and reports linked with exemptions issued to support industry during the pandemic represented the largest proportion of reports.

Occurrence reporting trends were affected by three periods of national lockdown in the UK meaning that from March 23. 2020 and June 15. 2020 all non-essential activity including travel and recreational flying was severely restricted under law. This is reflected in the data with occurrence reporting volumes mirroring the decrease in activity. Similar periods of lockdown were introduced in November and December 2020, although due to the time of year and seasonality of aviation activity a lesser impact on occurrence reporting volumes was observed.

We also saw an increase in reports involving Remote Piloted Air Systems (RPAS) as this sector continued to grow in popularity, and remote pilots engage with the occurrence reporting system, something strongly supported by the UK CAA.

The Actions in Brief

During a typical year much of the work undertaken by the UK CAA is encapsulated within normal oversight activities conducted by our colleagues in the field, internal safety data & intelligence gathering activities and collaboration groups. However due to periods of national lockdown and social distancing requirements brought about by the Coronavirus pandemic, the UK CAA presence in the field was significantly curtailed to protect our people and adhere to government guidelines.

To this end, the UK CAA evolved significantly during 2020; with several new working groups established to support industry and understand the risks affecting aviation organisations during the pandemic. In addition, our data teams began additional work gathering and analysing new data sources with the aim of filling the data gap left by the reduction in feedback from our oversight teams and the reporting of occurrences.

The UK CAA also started virtual auditing activities to ensure organisations received sufficient oversight and additional support where needed, and released numerous publications designed to support industry.

Additional exemptions were issued to allow organisations to adapt to the new operational conditions including allowing the carriage of cargo on the main deck of passenger aircraft and supporting flight crews in operating for longer periods of time.

Activity centred around the effect of; and recovery from the pandemic continued into 2021 with additional focus placed upon the safe restart of industry operations. To better understand this; the UK CAA has collaborated with other authorities globally, and our industry stakeholders to ensure all appropriate action is taken to ensure a safe and effective recovery. Additional analysis has also been commissioned to model the recovery of other parts of the world; to identify any hazards, risks and lessons that can be fed into the collective process to support the recovery of the UK aviation system.

Focus for 2021

2021 promised to be a unique year as the United Kingdom transitioned from the European Union and the UK CAA became an independent regulator. As part of this transition the UK CAA has published a new suite of regulations aimed to provide a consistent regulatory framework for UK regulated organisations. Additional activity will be undertaken during 2021 to ensure this regulatory framework is embedded within the fabric of our aviation system and enhanced as needed to preserve and improve aviation safety in the UK.

Recovery from the COVID-19 pandemic will continue to be at the forefront of safety activity undertaken by the UK CAA during 2021; as we support industry in returning to normal operations. The working groups and initiatives associated with COVID-19 recovery will also continue into 2021 and beyond if required; and eventually be wound down once normal operational conditions are observed.

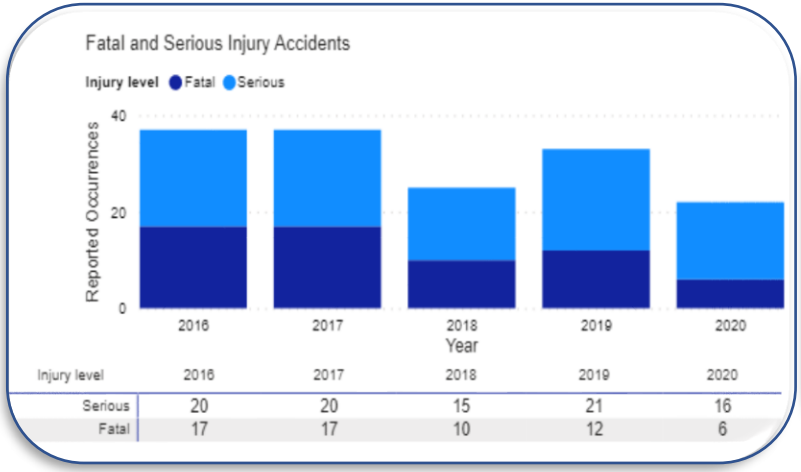
UK Aviation Safety Performance 2020

2020

Total Reported Occurrences

1	7	7	4	2

High Severity	Fatal Injury Accidents	Fatalities
294 Occurrences Reported	**6** Fatal Accidents 6 Involving GA Aircraft	**6** Fatalities



Injury level	2016	2017	2018	2019	2020
Serious	20	20	15	21	16
Fatal	17	17	10	12	6

17,742 occurrences reported to the UK CAA during 2020; a reduction of 42% compared to 2019 in a year that was heavily impacted by the Coronavirus pandemic.

294 high severity occurrences (1.7% of the total occurrences reported) resulting in 6 fatal accidents, all involving General Aviation (GA) aircraft.

6 fatal and 16 serious injury accidents reported during 2020, this is lower than previous years except for 2018 which saw prolonged periods of stable weather, and a notable reduction in high severity occurrences associated with General Aviation (GA) flying.

64% of occurrences were reported in the UK.

36% of reports occurred outside of the UK with China, Germany, and the USA accounting for the largest proportion of non-UK occurrences.

More unusually we also received one report from a research station in Antarctica!

Total Occurrences by Aviation Sector

*Sectors are not mutually exclusive as occurrences may involve multiple aircraft types

25K	1226	173	214	531	388	2841	544
Commercial Air Transport	Corporate Aviation	Specialised Operations	Onshore Helicopter	Offshore Helicopter	Emergency Svcs.	General Aviation	RPAS

Review of Reported Occurrences 2020

Why Occurrence Reporting?

Occurrence reporting is a corner stone of the data used by the UK CAA to monitor and enhance safety performance, it provides key insights that drive regulatory decision making; and allows the identification of root causes and hazards affecting all airspace users. By reporting your occurrences, you are directly contributing to aviation safety performance improvement across the UK and increasingly globally.

The Data

2020 saw a reduction in MORs of 42% compared to 2019 levels in a year that was impacted by restrictions associated with the global coronavirus pandemic.

Reports originating from Commercial Aircraft Transport and General Aviation activities continued to account for the largest proportion of reporting volumes. However, reports associated with the operation of Remote Piloted Air Systems (RPAS) continued to grow with a notable increase in loss of control related events reported.

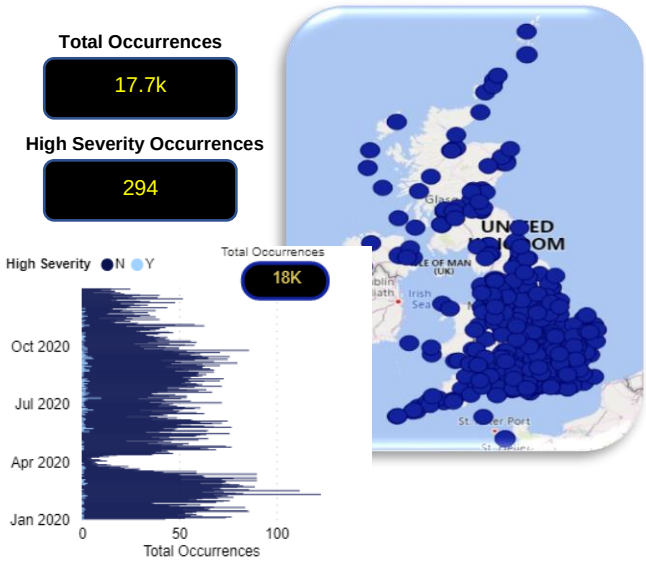
In terms of seasonality; 2020 report volumes trend in line with various restrictions and periods of lockdown in the UK; with a reduction in report volumes noted between April and June 2020 (lockdown 1) and similar reductions in reporting towards November and December 2020, although this will also have been influenced by normal seasonal reporting trends.

64% of reported occurrences happened in the UK with China accounting for the largest proportion of occurrences happening outside of the UK. This contrasts with 2019 and previous years where European states including Spain, France and Italy would have typically been the most frequently observed occurrence locations. This was driven by an increase in cargo only movements between the UK and China and a reduction in holiday flights to popular European destinations because of the pandemic. The introduction of additional cargo screening and associated reporting also saw an increase in reporting from the US West Coast and Canada.

Top 5 Overseas Occurrence Locations (2020)

	2020	Average (2016-2020)	% Chng.
	490	119	310%
	225	563	-61%
	222	652	-66%
	216	1206	-82%
	182	1016	-82%

Reported Occurrences by Month and Location (2020)



Key Safety Actions Taken

2020 presented a unique set of operational and regulatory challenges as our aviation system reacted to the global pandemic. Our teams have invested significant time to support industry through the Coronavirus pandemic which has resulted in new industry working groups being established aimed at monitoring issues related with human performance, continuing airworthiness and emerging issues related to the temporary parking of aircraft and scaling back of operations.

Internally the UK CAA has devoted additional time to support regulated organisations by offering support for recovery, publishing best practice guidelines and the issuing of exemptions which allowed organisations to continue to operate during the pandemic in line with government and international restrictions

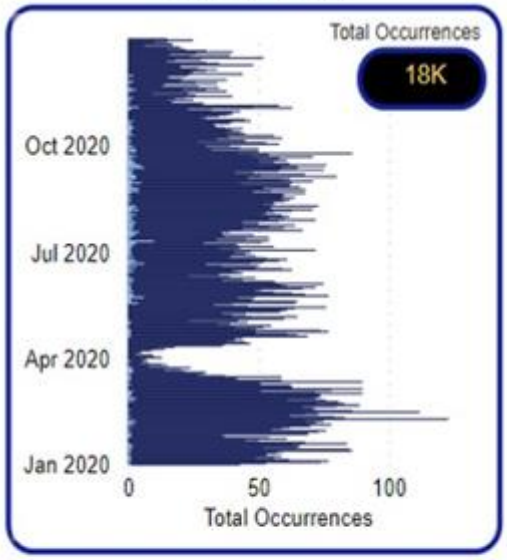
Going forward internal trend monitoring and continued collaboration with our industry and General Aviation community will be enhanced to ensure that together we maintain and improve aviation safety performance in the UK.

Annual Safety Review: Summary Information

2020		2016-2020	
Total Occurrences	High Severity	Total Occurrences	High Severity
18K	294	142K	1646

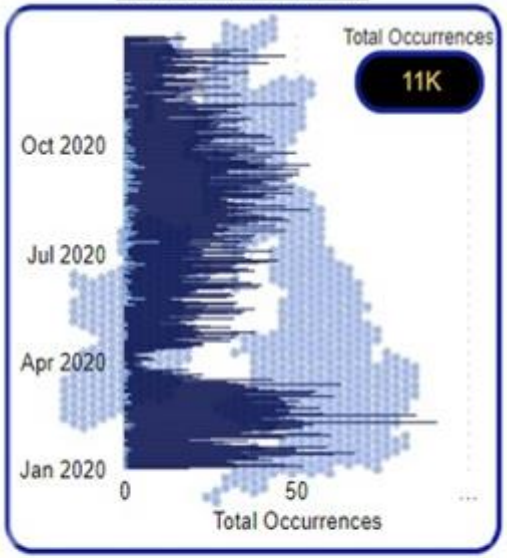
Civil Aviation Authority
Intelligence

All Occurrences

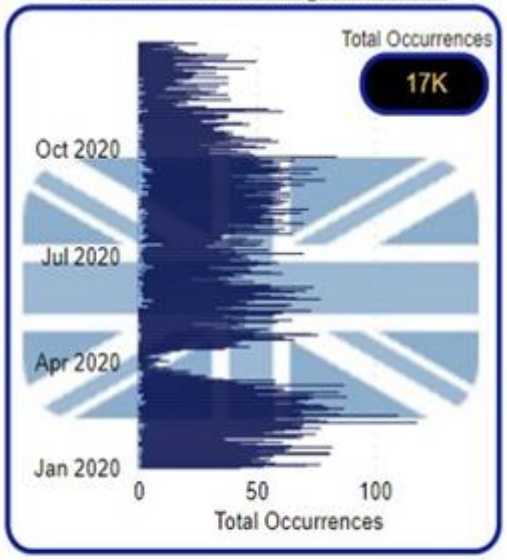


Key Words

Occurrences in the UK



Occurrence involving UK Aircraft



Total Occurrences by Aviation Sector

*Sectors are not mutually exclusive as occurrences may involve multiple aircraft types

Commercial Air Transport	Corporate Aviation	Specialised Operations	Onshore Helicopter	Offshore Helicopter	Emergency Svcs.	General Aviation	UAS
13K	882	118	163	653	391	1958	334

Review of 2020 Reported Occurrences (High Severity)

What is a High Severity Occurrence?

A high severity occurrence is an occurrence in which an accident level outcome was only prevented by luck or providence; or was not prevented at all. For safety performance purposes these occurrences represent events that caused injury to aircraft occupants, or in rarer cases third parties on the ground, or where significant damage was caused to an aircraft.

The Data

294 high severity occurrences were reported to the UK CAA during 2020, high severity occurrences represented 1.7% of all occurrences received during 2020.

As observed in previous years, occurrences associated with operations and technical events were the most frequently observed categories analysed.

For operations linked occurrences, loss of control in flight events, accidents and incidents related to stall/spins at low altitude and pilot error events were the most common themes noted. Loss of control events are typically one of the more frequently observed high severity occurrences, this is normally traced to aircraft handling errors related to human performance limitations, skill fade or diminished pilot currency/recency.

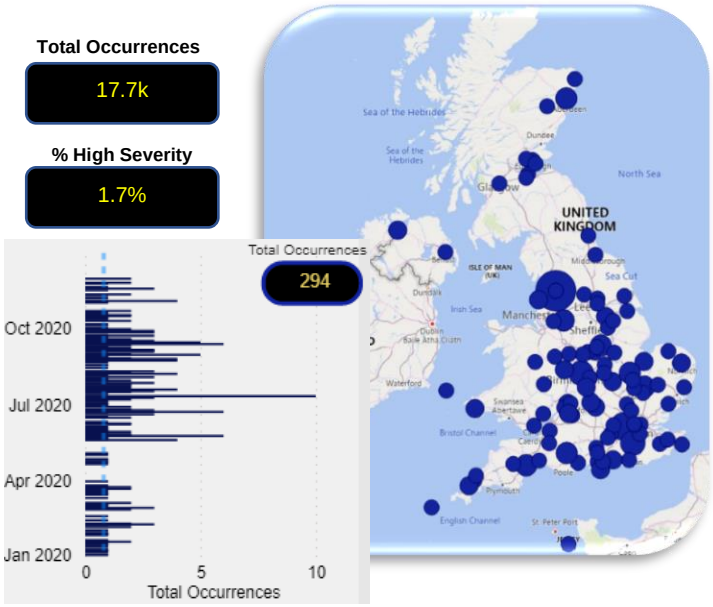
Technical occurrences included engine failure and under carriage related events (most notably on general aviation aircraft) and general component failures during normal operation of an aircraft. This may have been exacerbated by prolonged periods of aircraft parking during the early part of 2020.

From a Key Risk Area (KRA) perspective loss of control and runway safety continue to be the most prevalent risk areas for the UK aviation system, although when segmenting by aviation sector; aircraft environment emerges are the largest single contributor to high severity occurrences involving commercial and corporate air transport. Our teams hold regular working groups to monitor trends involving loss of control, runway safety and aircraft environment and engage regularly with industry to mange the risks associated with them.

For General Aviation runway safety events manifesting as runway incursion and excursions represented the largest risk area for this sector.

RPAS experienced a continued increase in occurrence reporting as this sector becomes more established within the UK aviation system. In terms of high severity occurrences, loss of control events were observed to be the most frequently reported occurrences for this sector.

High Severity Occurrences by Month and Location (2020)



Key UK CAA initiatives to improve Aviation Safety

Aircraft operators benefited from additional support from our teams to react to operational restrictions brought about by the Coronavirus pandemic and to support continued operations during this time.

Additional oversight and support was provided by our teams to ensure the UK fleet remained airworthy and any issues related to aircraft parking were identified as quickly as possible. Temporary changes to airspace were made to reflect the reduction in activity, and regular engagement with our aerodromes and the air traffic controller community was undertaken to better monitor safety performance during lockdown and plan for a return to normal operations.

Our General Aviation Unit held multiple return to flying webinars and released numerous publications aimed at promoting a safe return to recreational flying. Additional resource was devoted to support smaller organisations and aircraft owners to reactive aircraft that had been inactive during the lockdown periods.

Annual Safety Review: Occurrence Information (High Severity Only)

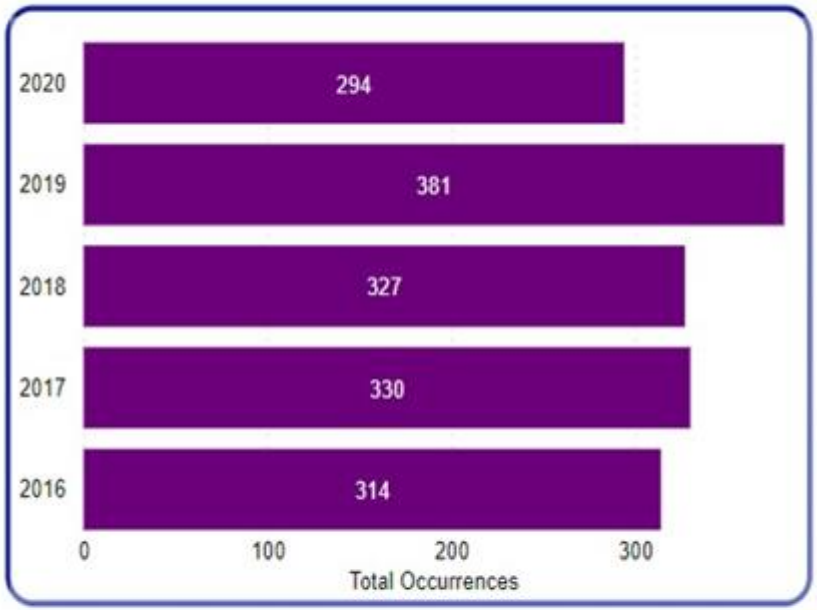
2020			2016-2020		
Total Occurrences	High Severity	%High Severity	Total Occurrences	High Severity	%High Severity
18K	294	1.7%	142K	1646	1.2%

Civil Aviation Authority
Intelligence

Commercial Air Transport | Corporate Aviation | Specialised Operations | Onshore Helicopter | Offshore Helicopter | Emergency Svcs. | General Aviation | UAS

	2020	2016-2020
Operational	144	818
Technical	112	573
Aerodrome & Ground Services	4	36
Airspace & ATC	11	94

High Severity Occurrences by Year



	2020	2016-2020
Weather	14	91
Wildlife	2	8
3rd Party	3	6
Other & Unknown	4	20

Focus on Coronavirus

The Impact of Coronavirus

The rise of Coronavirus globally brought about a period of change never before experienced by the UK aviation system. The introduction of new social distancing requirements, restrictions on travel (both domestic and international) led to an inevitable collapse in passenger demand, this resulted in many aircraft being parked up, and individuals working for aviation organisations to be furloughed or to leave the industry.

There was a notable rise in cargo demand which led some air carriers to begin to convert passenger aircraft into interim freighter aircraft, and additional flights being operated by offshore and corporate aircraft; as the demand profile for air travel evolved.

Impact on Reported Passenger & Flight Numbers

During 2020 there was a 64% reduction in flight numbers, and a 75% reduction in passengers carried compared to 2019: coinciding with the first national lookdown starting on March 23. 2020. This saw a reduction in activity associated with commercial and recreational flying, and a reduction in the number of safety related occurrences being reported.

Reported freight volumes reduced by 21% during 2020 which reflects the evolution of airline operations which continued to increase their respective cargo offerings to supplement for the reduction in passenger flying.

Top 10 Origin Airports by flights (2020)

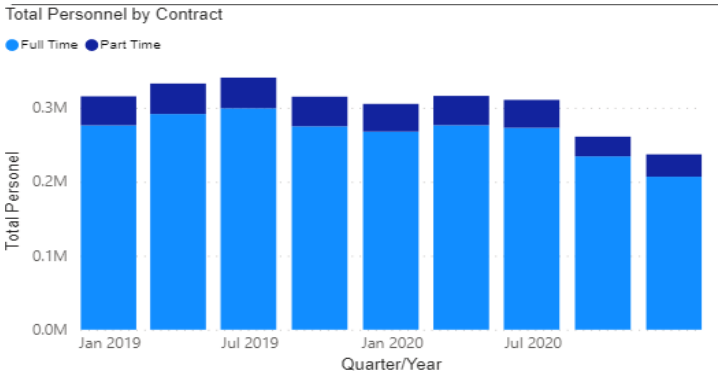
Origin	Flights	Passengers	Freight (Kg)
HEATHROW	108983	11696301	567447835
GATWICK	42584	5449354	16895102
STANSTED	39858	3914486	122466462
MANCHESTER	34854	3681226	24633417
EDINBURGH	31284	2372580	29325150
ABERDEEN	30079	717420	5484819
LUTON	24504	2952070	4984090
EAST MIDLANDS INTERNATIONAL	22995	463049	235550852
OIL RIGS	21653	217233	639558
GLASGOW	21378	1487077	4458714

Impact on Personnel

Global aviation is an industry which operates on thin financial margins and as such is especially sensitive to changes in the commercial environment. With this sensitivity comes volatility in headcount and organisations were forced to reduce costs as the effects of the pandemic became more prevalent.

During 2020 overall headcount for the larger UK operators reduced by an average of 21%, with part time headcount reducing by 19% and full-time headcount reducing by 23%.

Although this reduction may seem significant it should be noted that from modelling employment levels in other states (particularly the USA) recovery in headcount appears to occur as rapidly as the observed reduction.



Source: Aviation Statistics (2021)

Pivoting towards recovery

To support our aviation system during the Coronavirus pandemic the UK CAA initiated a number of internal initiatives and working groups aimed at providing additional support for change management, oversight and the enabling of the diversification of operations (e.g. operating of cargo flights with passenger aircraft).

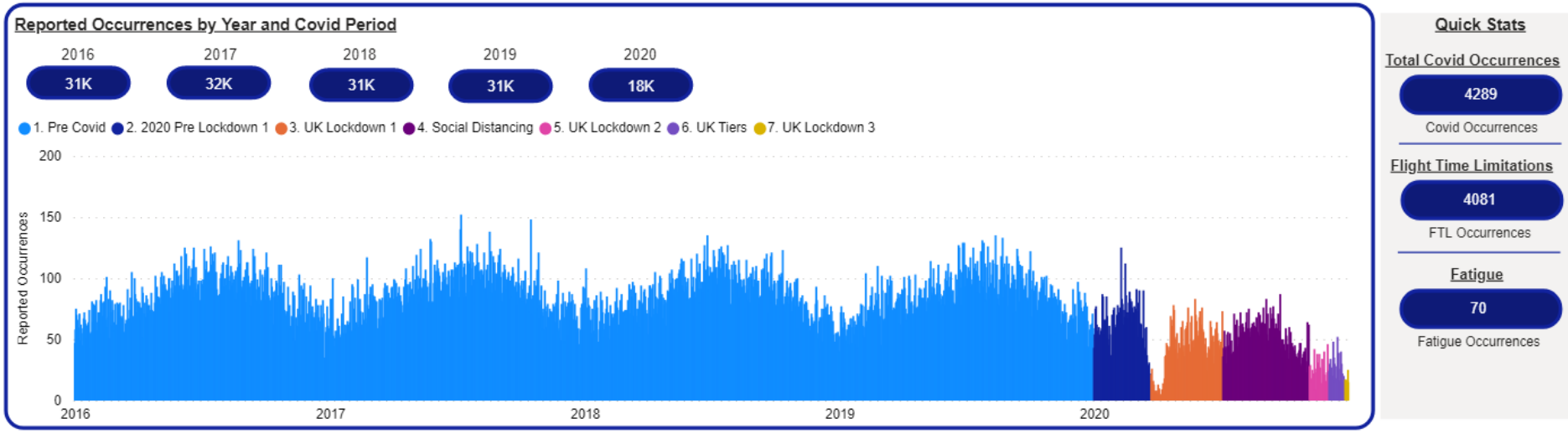
The safe recovery of commercial and general aviation flying remains a core focus of our Coronavirus working groups, who are looking particularly at human performance elements around skill fade, the safe reactivation of aircraft that have been parked, the reopening of aerodromes, and reactivation of UK airspace. Ground safety is also a particular area of interest as this industry has also be adversely affected by the pandemic, however, the activities of this sector is not directly overseen by the UK CAA.

Coronavirus & Occurrence Reporting

Impact on Safety Data

The rise of Coronavirus brought with it a reduction in traffic volumes and an associated reduction in occurrence activity. In addition, the introduction of social distancing requirements drove a reduction in onsite oversight activity. From a data and intelligence perspective this represented a significant challenge as to how the safety of our aviation system could be managed with a reduced dataset to work from. Moreover, the requirement for data and insight to facilitate a safe return to flying become evermore important as we approached the end of 2020.

Reporting volumes during 2020 reduced by 42% compared to levels observed in prior years, the graphic below illustrates the impact of the various Coronavirus restrictions had on occurrence reporting levels. it should be noted that not all industry sectors saw a reduction in occurrence reporting. Rotary wing operations (Offshore/Onshore and Emergency Services) and RPAS saw stable or increasing reporting levels as these sectors continued to operate throughout the pandemic. The nature of reports also evolved during this period as organisations reported on their utilisation of exemptions related to flight time limitations and any associated fatigue.



Evolving our Data/Intelligence Approach

To cover the reducing pool of safety data the UK CAA developed several new analytical tools and approaches designed to provide insights into the operation and safety performance of the UK aviation system. These included collecting additional information from our regulated entities and incorporating new data sources from other regulators. This approach was further supported by the establishment of new working groups focusing on safety issues and industry performance prevalent during the pandemic, and planning for an eventual return to normal operations.

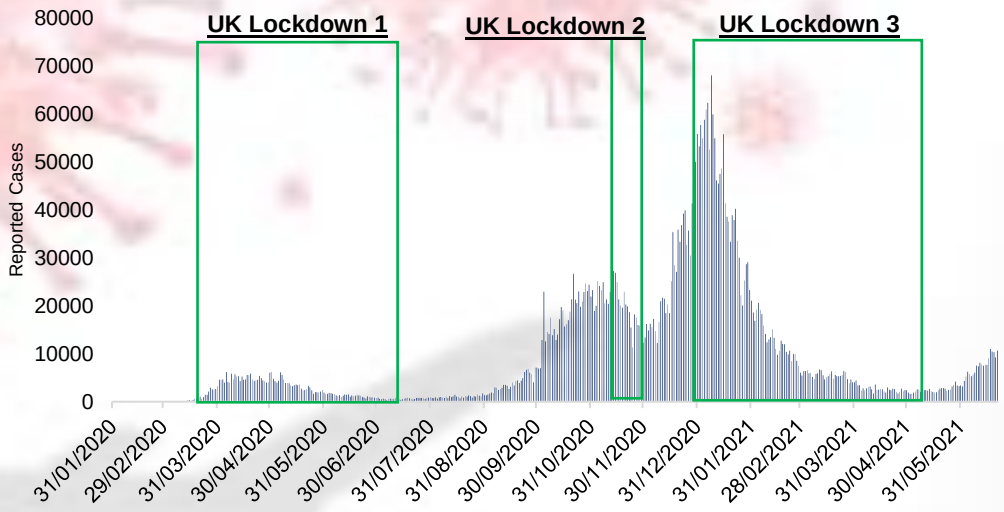
Coronavirus Timeline

The impact of the global pandemic brought about by the rise of Coronavirus (SARs-Cov-2) is far reaching, particularly for aviation which is inherently a globally facing industry.

During 2020 there was a reduction in flying activity coinciding with the first national lookdown starting on March 2020. This saw a reduction in activity associated with commercial and recreational flying and a reduction in the number of safety related occurrences being filed.

Not all areas of aviation saw this reduction in flying; our rotary and business aviation sectors in many cases saw an increase in activity during 2020. that being stated; the effects of the global pandemic are predicted to be prevalent well into 2021 and potentially beyond this.

Daily Reported Coronavirus Cases (UK Reported Cases)



Source: coronavirus.data.gov.uk (May 2021)

Coronavirus Timeline

January – March

- First confirmed COVID-19 case in UK
- National Lockdown 1 begins March 23. 2020
- Airlines reduce operations in the wake of restrictions
- General Aviation flying also restricted
- Operators park/retire aircraft

April – June

- First exemptions issued to support aviation activity during the pandemic
- Lockdown restrictions progressively lifted, and some recreational travel permitted
- UK major aerodromes temporarily close terminals and runways to reflect reduction in operations.
- Some UK Airspace suspended temporarily
- Return of General Aviation Flying

July – September

- Lockdown 1 officially ends on July 04. 2020
- Marginal increase in commercial flying during July/Aug 2020
- British Airways retire last Boeing 747-400

October – December

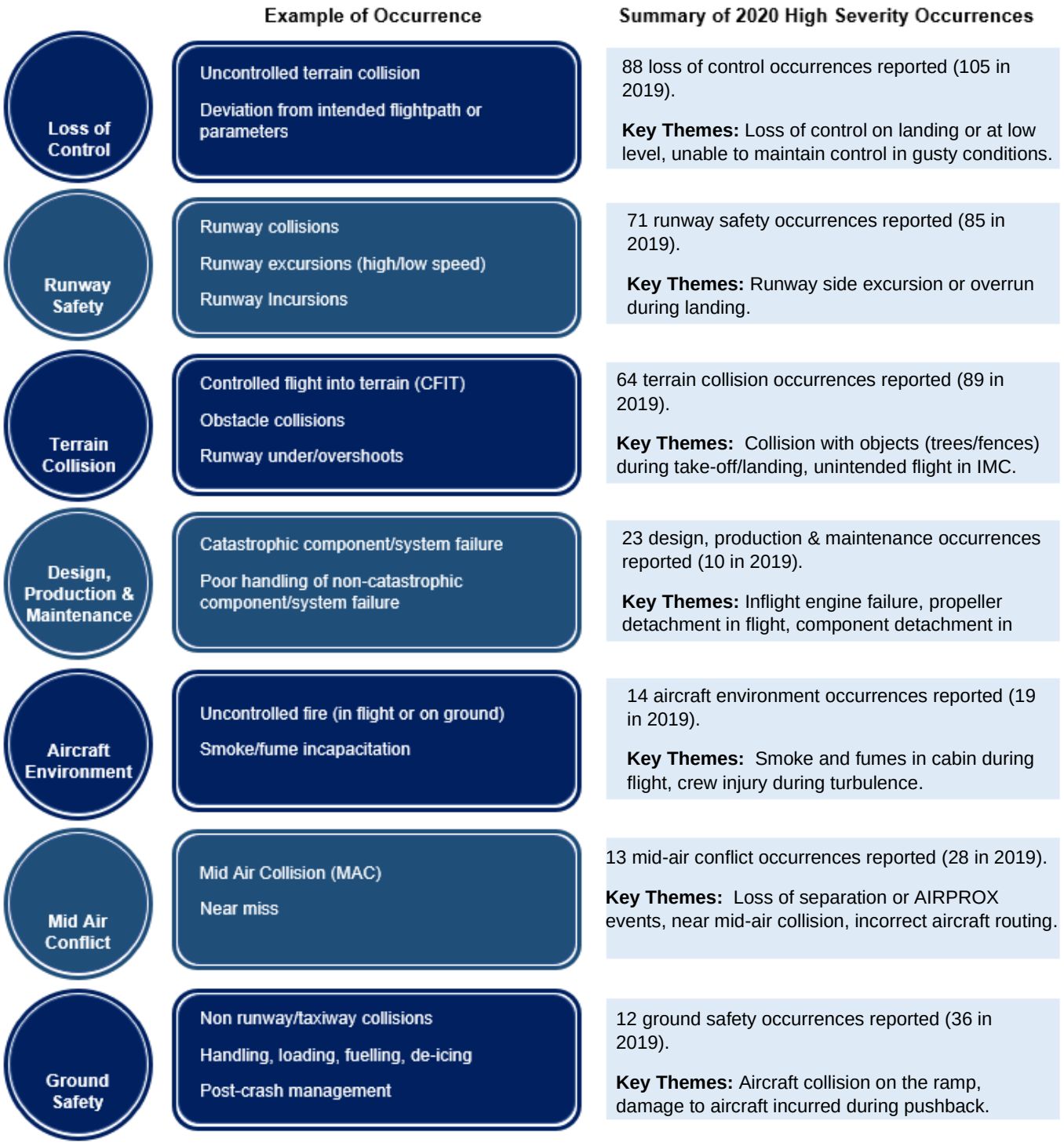
- First COVID19 vaccine approved for use in the UK
- Circuit breaker lockdown begins for four weeks ending December 04. 2020
- National Lockdown 3 begins December 26. 2020
- Last Boeing 747-400 retired from Virgin Atlantic
- Second COVID-19 Vaccine approved for use in the UK

Key Risk Areas (KRAs)

Introducing KRAs

Key Risk Areas are accident outcomes that the UK CAA seeks to monitor and work with the wider aviation system to manage with the intent of preventing each outcome from occurring, or reducing the potential for each outcome happening to a level that is As Low As Reasonably Practicable (ALARP).

The UK CAA has defined seven key risk areas that are defined below:



Annual Safety Review: Key Risk Areas

2020		2016-2020	
Total Occurrences	High Severity	Total Occurrences	High Severity
18K	294	142K	1646

Civil Aviation Authority
Intelligence


Commercial Air Transport


Corporate Aviation


Specialised Operations


Onshore Helicopter

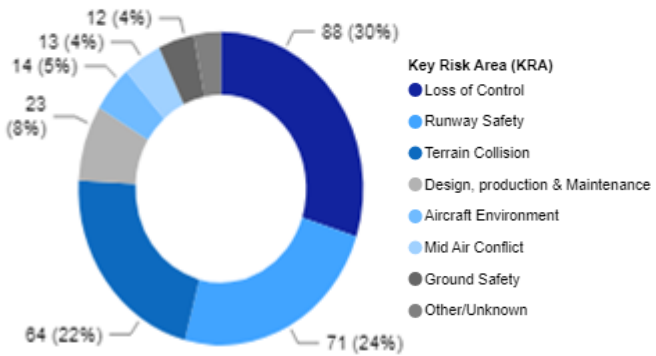

Offshore Helicopter


Emergency Svcs.

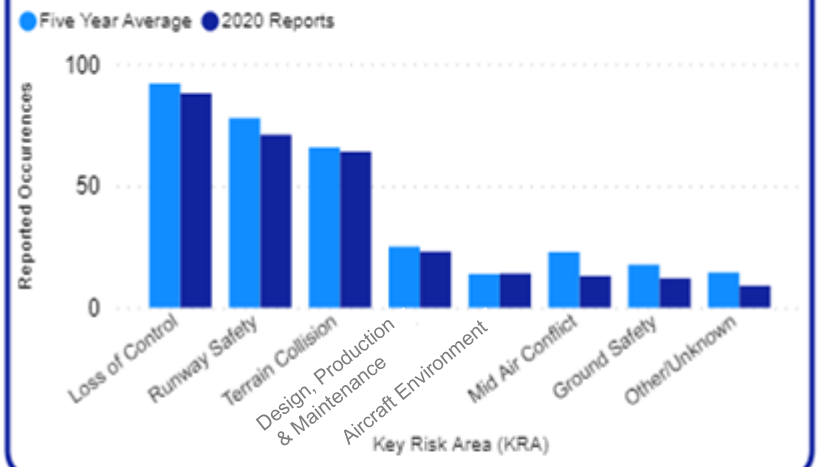

General Aviation


RPAS

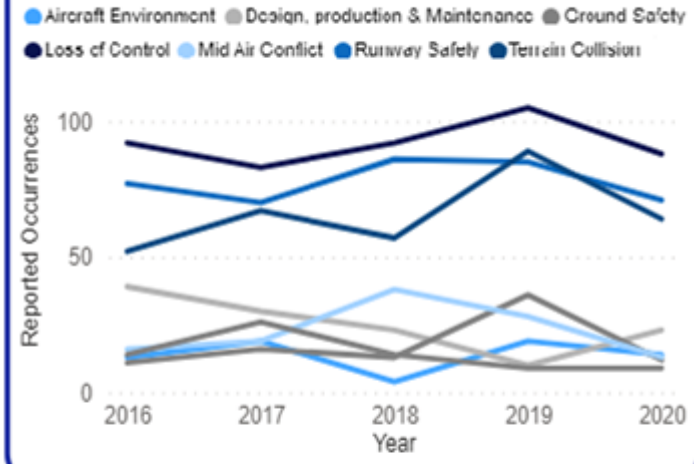
Proportion of 2020 Reports by Key Risk Area



Five Year Average and 2020 Reports by Key Risk Area



Reported Occurrences by Key Risk Area



KRA Actions

The monitoring of Key Risk Area (KRA) performance supports regulatory and safety actions taken by the UK CAA to maintain and improve industry safety performance. An overview of each KRA is presented each month within our capability teams; and a consolidated view is then prepared for our leadership team. The contributory factors and required actions are then defined and monitored.

Underpinning this approach is our 3P's model into which the various activities and actions can be implemented and assessed. The three P's are Program, Publication, and Promotion.

The UK CAAs safety promotion activity ranges from collaboration and engagement with our industry partners through regular & targeted oversight activity, creation of podcasts and interactive content to raise awareness of safety issues and mitigating actions.

During 2020 much of this work was focused around the support for industry during the pandemic, and the safe resumption of operations.

The UK CAA regularly publishes safety related information through our CAP documents and Skywise alerts.

These documents are designed to formalise any regulatory requirements, provide guidance & best practice for members of the aviation system.

More information about the publications about our Key Risk Areas have been listed in the next section of this document.

Our safety programs allow a more collaborative approach to safety risk identification and management and are often attended by subject mater experts outside of the UK CAA and by our industry partners.

Like our publications, these working groups focus on areas of aviation safety and collaborate to share insights.

More information about our Safety working groups can be found in the following section of this document.

KRA Related Publications

The monitoring of our key risk areas is only part of the process for our work to preserve & enhance aviation safety in the UK. Below you will find a series of publications aligned under our KRAs; designed to provide additional information and guidance to our aviation system. New publications are released regularly and can be found on our website.

Loss of Control

Avoidance of Loss of Control In-flight Pilot Awareness of Aircraft State, During Periods of Multiple System Malfunctions and Flight Control Issues

Unmanned Aircraft – Responses to abnormal operations and in-flight failures

Laser Attacks

Awareness of Skill Fade and Suggested Mitigations

Emergency Parachutes in Ex-Military Jets

Mid Air Conflict

Airspace Infringement Statistics - Airspace Safety

Airspace Infringements: review and actions

Airspace Infringement Avoidance

Director UKAB monthly Update

Airspace Change and Classification

Design, Production and Maintenance

Airworthiness of Aging Ex-Military Aircraft

Lockable Gascolator Drain Valves on General Aviation Aircraft

Ageing Aircraft Component Reliability and Associated Acceptance of Replacement Parts

Non-Part 21 General Aviation Aircraft Safety Harness Integrity

Small Unmanned Aircraft – Water Ingress

Components Strips Report

Undercarriage Leg Support Bracket Avions Max Holst MH.1521 “Broussard” (All Marks)

Pitot Blockage Events

Engine Valve Springs - Rolls-Royce and Packard Merlin (All Marks)

Ground Safety

Dangerous goods guidance

UK ACC3 Scheme (inbound cargo) Guidance

Guidance on delivering an effective Airport Rescue and Fire Fighting Service (RFFS)

Runway Safety

Assessment, Measurement and Reporting of Runway Surface Conditions for Licensed Aerodromes

Assessment, Measurement and Reporting of Runway Surface Conditions for Certificated Aerodromes

Aircraft Environment

Carbon Monoxide Contamination Minimisation & Detection in General Aviation Aircraft

Covid-19 Recovery

Effective Change Management for Organisations During Covid-19

Operational Measures to Prevent the Spread of Coronavirus COVID-19 Virus Infection

Human Factors Considerations During Covid-19 Restart Activities

Fatigue Management - Guidance for Aerodrome Operators and Third-Party Operators During Covid-19 Changing Conditions

Fatigue Management – Guidance for AOC Holders During Covid-19 Changing Conditions

The Effect on Aviation Mental Health from the Covid-19 Pandemic and Return to Re-defined ‘Normal’ Flight Operations

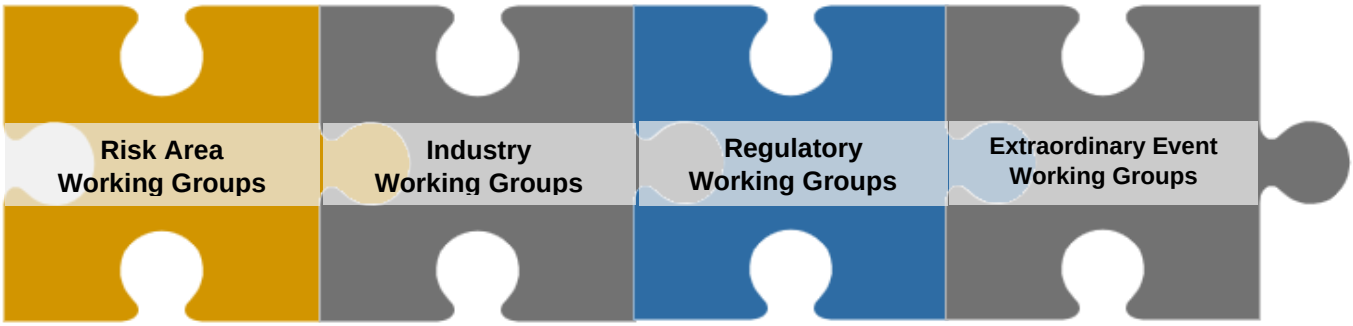
Returning Aircraft to Service from ‘Extended Parking’

Our Working Groups and Review Meetings

Why Working Groups?

To better understand safety performance at a more granular level, the UK CAA holds a series of working groups. Many of these are attended by industry and representatives from the various associations and delegated authorities that work with us.

The principle aim of these working groups is to monitor safety performance, identify new hazard/risk areas, discuss/define mitigating actions (if required) and disseminate knowledge to the wider aviation community.



Risk Area Working Groups

Risk area working groups are focused on a particular risk area or theme (e.g. Runway Safety or Loss of Control). These groups typically meet quarterly (although more frequent meetings and sub-groups are held as required), and review safety data and insights from industry professionals and subject matter experts to assess overall risk area performance, and define relevant safety actions to maintain or improve safety performance and industry risk management activities.

Some examples of our Risk Area Working Groups can be found below:

Airspace Infringement Working Group (AIWG)
- Reviews all airspace infringement occurrence reports submitted to the UK CAA.

Ground Handling Operations Safety Team (GHOST):
- Attended by industry this group reviews and discusses the various underlying risk themes and emerging trends associated with ground handling operations.

Level Bust Working Group (LBWG):
- Reviews all level bust occurrence reports and causal factors to identify trends and define corrective actions.

MAC Challenge group (MAC CG & MAC SG):
- Attended by industry; this group reviews risks and issues related to mid-air conflict events in the UK.

Runway Safety Working Group:
- Reviews reports and root causes of runway incursions, excursions and other runway safety events reported to the UK CAA.

Industry Working Groups

Industry working groups focus more on specific aviation sectors; and are often attended by industry stakeholders, associations, and subject matter experts. The remit of these groups is review and discuss safety trends and issues affecting specific industry sectors; and allows for collaboration and contribution from an industry perspective.

Examples of our Industry Working Groups can be found below:

Business Aviation Operations Leadership Group (BA-FOLG):
- Reviews safety performance and issues affecting business aviation operations.

Flight operations working group (FOLG):
- Attended by industry; this group focuses on the safety performance of commercial air transport operations.

General Aviation Safety Partnership (GASP):
- Engages with representatives from the general aviation community to share safety information and review safety performance affecting recreational flying in the UK.

London Helicopter Working Group:
- Focuses on rotary wing operations in London, reviews, and trends occurrences in this area to identify and monitor risk areas and define safety actions as required.

Regulatory Working Groups

Regulatory working groups provide an opportunity for different aviation regulatory bodies to work together. These groups are held to discuss risk issues, themes, actions, and activities not regulated by the UK CAA are shared collaboratively; to ensure safety insights are shared as widely as possible.

Examples of our Regulatory Working Groups can be found below:

UK CAA/MAA Collaboration Group:
- Collaboration group held between the UK CAA and Military Aviation Authority (MAA), reviews safety issues from across the military and civilian aviation systems; including aircraft that are deployed in both civilian and military use.

UK CAA/AAIB Collaboration Group:
- Collaboration group held between the UK CAA and Air Accidents Investigation Branch (AAIB), reviews processes and shared areas of interest to promote collaboration and coherence between the two organisations.

State Safety Partnership (SSP):
- State Safety Partnership meetings are facilitated through CAA International (CAAi) and held with other authorities across the world.

Extraordinary Event Working Groups

Extraordinary event working groups are stood up in response to a extraordinary event (e.g. COVID-19 pandemic) to review and assess any additional actions or mitigations that may be required to ensure the safety performance of the UK aviation system is not adversely affected.

Examples of our extraordinary event working groups can be found below:

COVID19 Working Group:
- Established in 2020 to review and monitor safety issues associated with the global coronavirus pandemic and risk associated with return to flying.

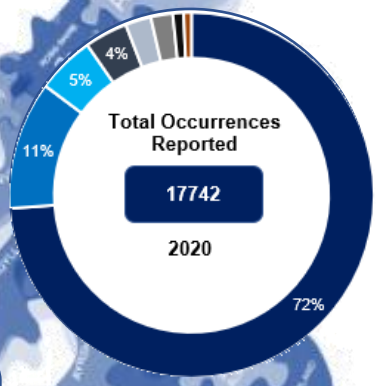
Operational Recovery Task Force:
- This group was established in 2021 to focus on industry recovery from the COVID-19 pandemic; and is supported by the UK CAA, industry, and other regulatory bodies.

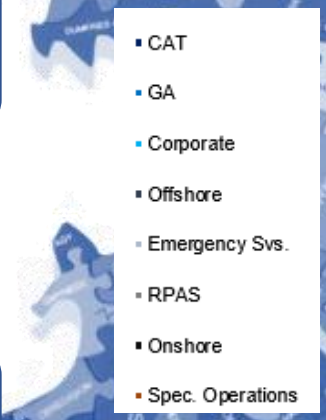
The UK Aviation System

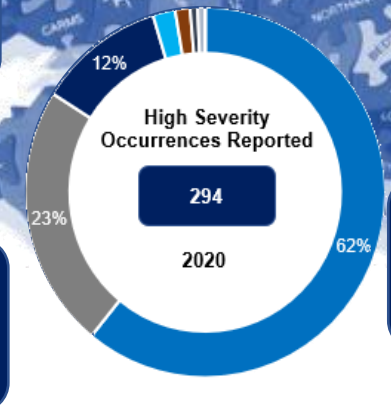
The UK aviation system can be broadly split into 8 categories ranging from Commercial Air Transport operations including mainline and low-cost airlines operations across to recreational flying. Military aviation is not included in this document as the regulation of this activity falls to the Military Aviation Authority (MAA).

Within the next few years, it is anticipated that the UK aviation system will evolve further and include new sectors including space transportation and urban air mobility.

UK Aviation Sector – Safety Performance 2020







Commercial Air Transport

72% of occurrence reports filed in 2020 involved a Commercial Air Transport aircraft.

12% of high severity reports filed in 2020 related to Commercial Air Transport.

Corporate Air Transport

5% of all occurrence reports filed in 2020 involved a corporate aircraft.

2% of high severity reports filed in 2020 related to corporate aircraft.

Specialised Air Operations

1% of all occurrence reports filed in 2020 involved a specialised operations aircraft.

1% of high severity reports filed in 2020 related to specialised operations aircraft.

Onshore Helicopter

1% of all occurrence reports filed in 2020 involved an onshore helicopter.

0% of high severity reports filed in 2020 related to onshore helicopters.

Offshore Helicopter

4% of all occurrence reports filed in 2020 involved an offshore helicopter.

1% of high severity reports filed in 2020 related to offshore helicopters.

General Aviation

11% of all occurrence reports filed in 2020 involved a General Aviation aircraft.

62% of high severity reports filed in 2020 related to General Aviation.

Emergency Services

2% of all occurrence reports filed in 2020 involved an emergency services aircraft.

1% of high severity reports filed in 2020 related to emergency services aircraft.

RPAS

2% of all occurrence reports filed in 2020 involved an RPAS.

23% of high severity reports filed in 2020 related to RPAS.

Annual Safety Review: Occurrence Information (High Severity Only)

Commercial Air Transport

2020			2016-2020		
Total Occurrences	High Severity	%High Severity	Total Occurrences	High Severity	%High Severity
13K	34	0.3%	115K	312	0.3%

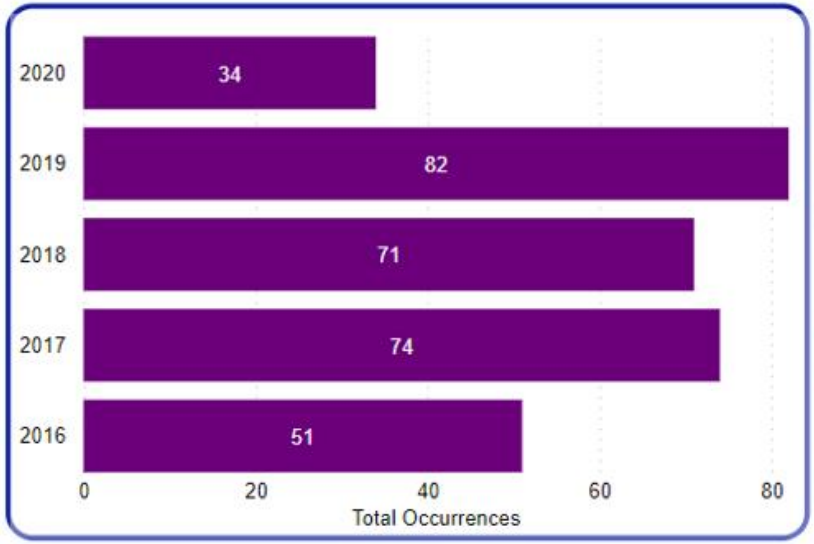
Civil Aviation Authority
Intelligence

Commercial Air Transport

- Commercial Air Transport (CAT) covers any aircraft operation undertaken for the purposes of transporting either; passengers, freight or mail for commercial reward or gain.
- During 2020 there we 34 high severity occurrences reported, a little more than half of the five year average (62 reports per year).
- The proportion of high severity occurrences remained consistent with the proceeding five years with the majority of high severity reports related to operational issues including human performance.

	2020	2016-2020
Operational	14	123
Technical	11	101
Aerodrome & Ground Services	1	14
Airspace & ATC	5	54

High Severity Occurrences by Year



	2020	2016-2020
Weather	1	13
Wildlife	0	2
3rd Party	1	3
Other & Under Investigation	1	2

Annual Safety Review: Occurrence Information (High Severity Only)

Corporate Aviation

2020			2016-2020		
Total Occurrences	High Severity	%High Severity	Total Occurrences	High Severity	%High Severity
882	6	0.7%	5074	34	0.7%

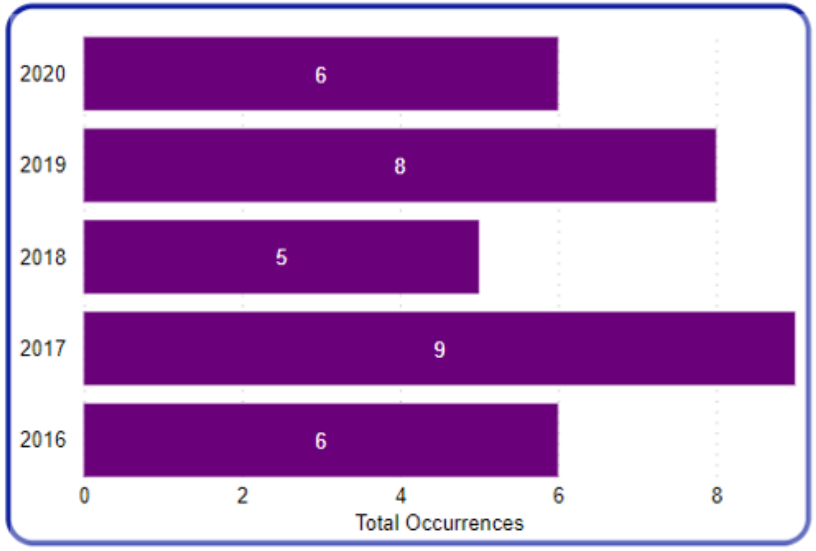
Civil Aviation Authority
Intelligence

Corporate Aviation

- Corporate Aviation is typically the use of an aircraft for the transportation of passengers related to business requirements, typically this involves small business jet aircraft, but can also include larger commercial aircraft that have been configured for luxury travel.
- During 2020 there were 6 high severity occurrences reported, broadly in line with the five year average (typically 7 high severity reports are filed per year).
- The proportion of high severity occurrences remained consistent with the proceeding five years with the majority of high severity reports related to technical issues related to either aircraft or equipment.

	2020	2016-2020
OPERATIONAL	1	8
TECHNICAL	4	19
AERODROME & GROUND SERVICES	0	1
AIRSPACE & ATC	1	6

High Severity Occurrences by Year



	2020	2016-2020
WEATHER	0	0
WILDLIFE	0	0
3RD PARTY	0	0
OTHER & UNDER INVESTIGATION	0	0

Annual Safety Review: Occurrence Information (High Severity Only)

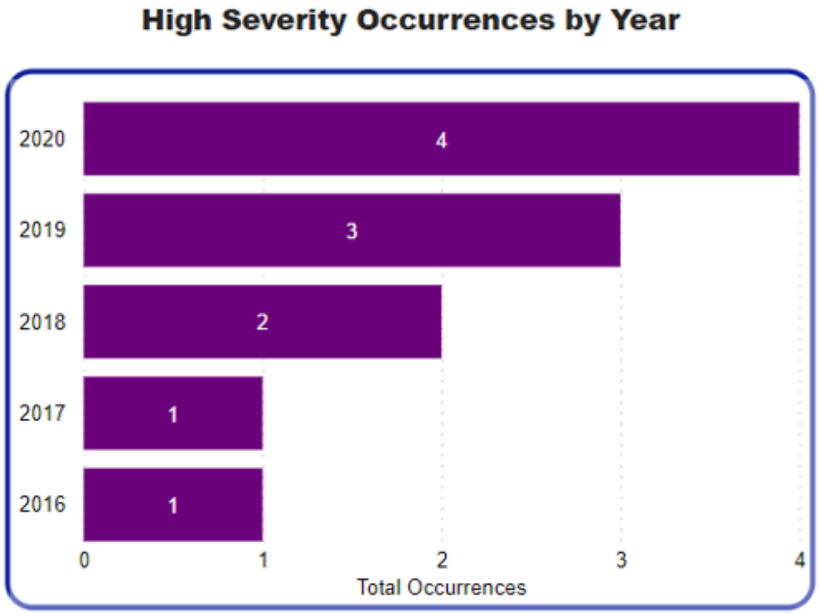
Specialised Operations

2020			2016-2020		
Total Occurrences	High Severity	%High Severity	Total Occurrences	High Severity	%High Severity
118	4	3.4%	674	11	1.6%

Specialised Operations

- Specialised operations include the transportation of underslung loads, flight calibration flights, aerial surveillance and environmental response work (e.g. aerial firefighting/oil spillage etc).
- During 2020 there were 4 high severity occurrences reported, higher than the five year average (an average of 2 high severity reports were filed a year based on the last five years).
- Due to the low volume of high severity reports filed it is not possible to draw any meaningful trends from this sample size.

	2020	2016-2020
OPERATIONAL	1	5
TECHNICAL	3	4
AERODROME & GROUND SERVICES	0	0
AIRSPACE & ATC	0	2



	2020	2016-2020
WEATHER	0	0
WILDLIFE	0	0
3RD PARTY	0	0
OTHER & UNDER INVESTIGATION	0	0

Annual Safety Review: Occurrence Information (High Severity Only)

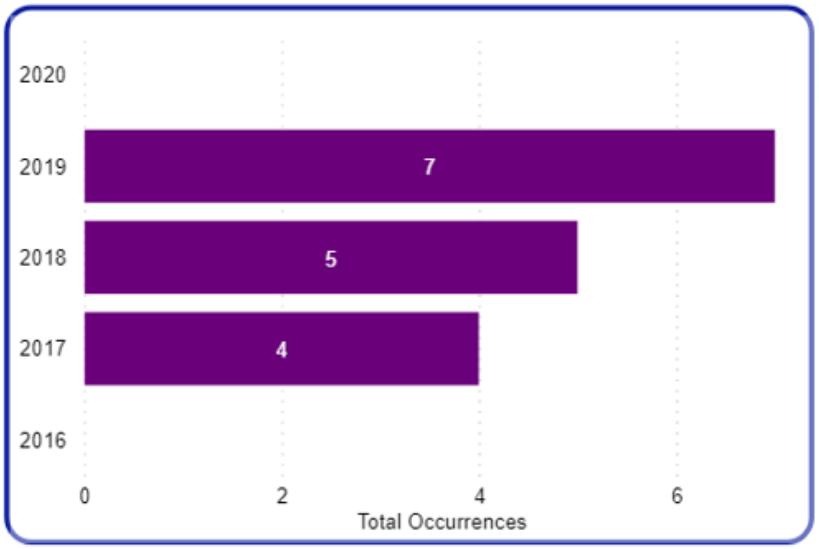
Onshore Helicopter

2020			2016-2020		
Total Occurrences	High Severity	%High Severity	Total Occurrences	High Severity	%High Severity
163	0	0.00%	789	16	2.03%

Onshore Helicopter

- Onshore Helicopter operations are typically undertaken for the purposes of transporting people short distances overland (e.g. VIP travel to/from an event).
- During 2020 there were 0 high severity occurrences reported, lower than the five year average (an average of 3 high severity reports were filed a year based on the last five years).
- Due to the low volume of high severity reports filed it is not possible to draw any meaningful trends from this sample size.

	2020	2016-2020
OPERATIONAL	0	7
TECHNICAL	0	5
AERODROME & GROUND SERVICES	0	0
AIRSPACE & ATC	0	3



	2020	2016-2020
WEATHER	0	0
WILDLIFE	0	1
3RD PARTY	0	0
OTHER & UNDER INVESTIGATION	0	0

Annual Safety Review: Occurrence Information (High Severity Only)

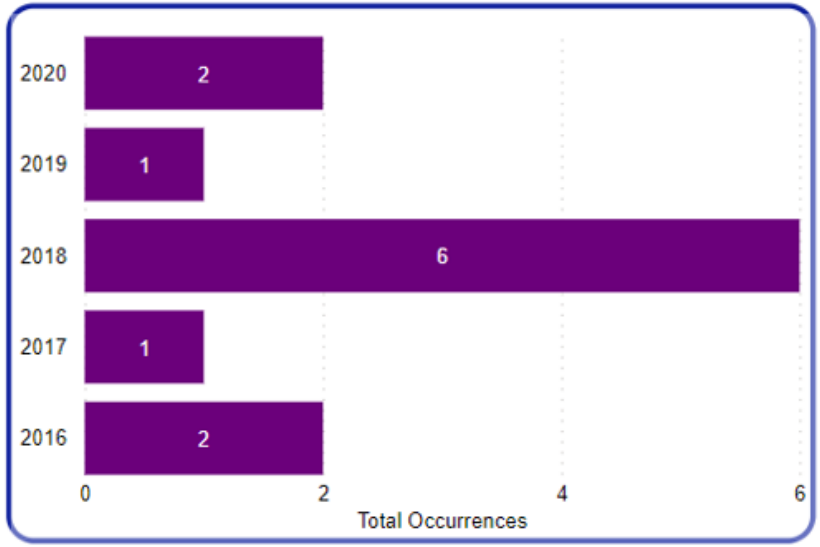
Offshore Helicopter

2020			2016-2020		
Total Occurrences	High Severity	%High Severity	Total Occurrences	High Severity	%High Severity
653	2	0.3%	3244	12	0.4%

Offshore Helicopter

- Offshore Helicopter operations are typically undertaken for the purposes of transporting personnel and equipment from the mainline to locations offshore (e.g. North Sea oil platforms).
- During 2020 there were 2 high severity occurrences reported, similar to the five year average (an average of 2-3 high severity reports were filed a year based on the last five years).
- Due to the low volume of high severity reports filed it is not possible to draw any meaningful trends from this sample size.

	2020	2016-2020
OPERATIONAL	0	2
TECHNICAL	1	6
AERODROME & GROUND SERVICES	0	0
AIRSPACE & ATC	0	2



	2020	2016-2020
WEATHER	0	1
WILDLIFE	0	0
3RD PARTY	1	1
OTHER & UNDER INVESTIGATION	0	0

Annual Safety Review: Occurrence Information (High Severity Only)

Emergency Services

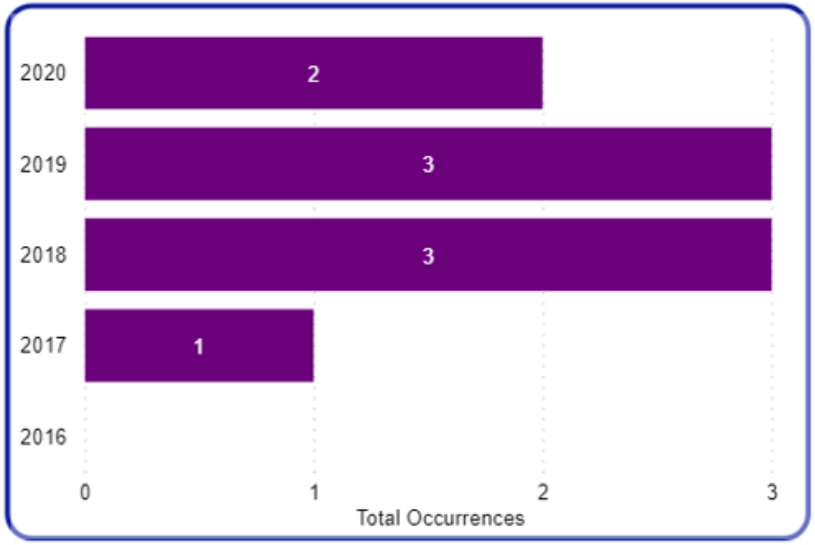
2020			2016-2020		
Total Occurrences	High Severity	%High Severity	Total Occurrences	High Severity	%High Severity
391	2	0.51%	1644	9	0.55%

Civil Aviation Authority
Intelligence

Emergency Svcs.

- Emergency Services aircraft typically include police helicopters or air ambulance flights that operate in support of the emergency services in the UK.
- During 2020 there were 2 high severity occurrences reported, similar to the five year average (an average of 2 high severity reports were filed a year based on the last five years).
- Due to the low volume of high severity reports filed it is not possible to draw any meaningful trends from this sample size.

	2020	2016-2020
OPERATIONAL	0	2
TECHNICAL	1	5
AERODROME & GROUND SERVICES	0	0
AIRSPACE & ATC	0	1



	2020	2016-2020
WEATHER	0	0
WILDLIFE	0	0
3RD PARTY	0	0
OTHER & UNDER INVESTIGATION	1	1

Annual Safety Review: Occurrence Information (High Severity Only)

General Aviation

2020			2016-2020		
Total Occurrences	High Severity	%High Severity	Total Occurrences	High Severity	%High Severity
1958	182	9.3%	12K	1166	9.7%

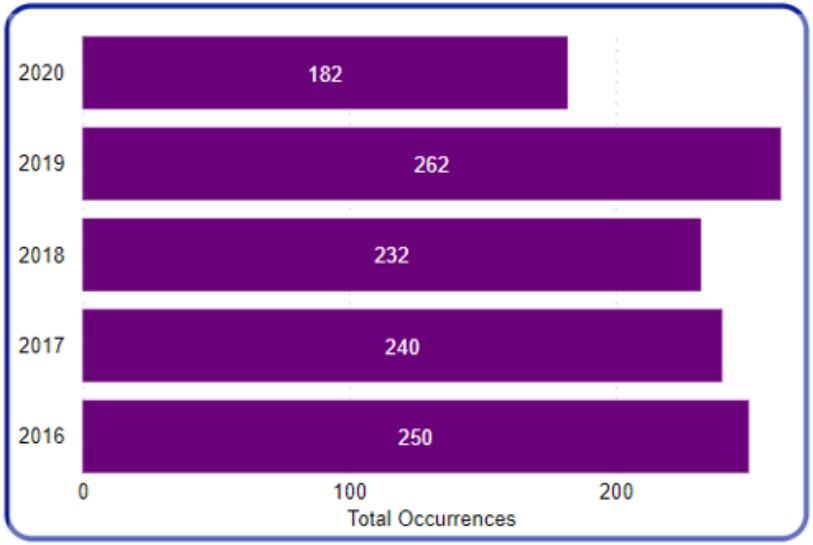
Civil Aviation Authority
Intelligence

General Aviation

- General Aviation covers the largest proportion of the UK aviation system in terms of fleet size. Activity in this area varies from the operation of light sport aircraft for the purposes of recreation and training to performing at air displays with larger ex-military jets.
- During 2020 there were 182 high severity occurrences reported, roughly two thirds of the volume of the five year average (an average of 233 high severity reports were filed a year based on the last five years).
- The proportion of high severity occurrences tracked slightly lower with the proceeding five years with the majority of high severity reports related to operational issues including human performance.

	2020	2016-2020
OPERATIONAL	99	630
TECHNICAL	61	375
AERODROME & GROUND SERVICES	3	21
AIRSPACE & ATC	5	44

High Severity Occurrences by Year



	2020	2016-2020
WEATHER	12	77
WILDLIFE	0	1
3RD PARTY	1	2
OTHER & UNDER INVESTIGATION	1	16

Annual Safety Review: Occurrence Information (High Severity Only)

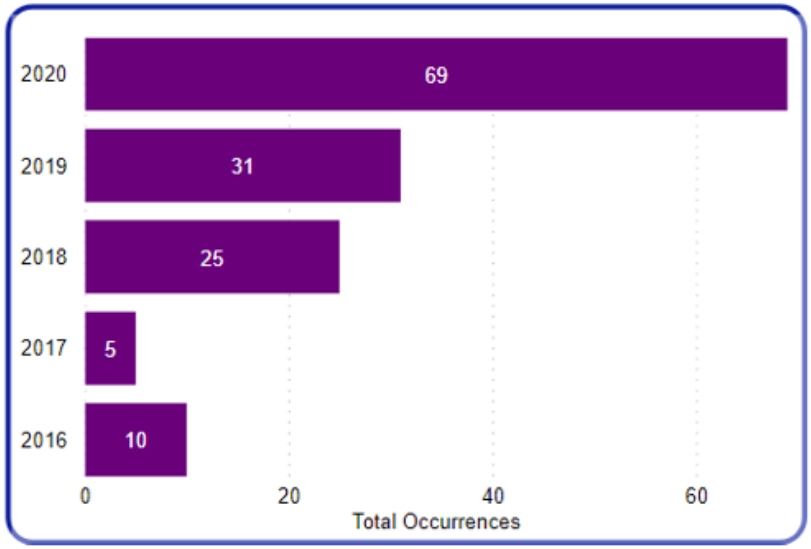
RPAS

2020			2016-2020		
Total Occurrences	High Severity	%High Severity	Total Occurrences	High Severity	%High Severity
334	69	20.7%	2190	140	6.4%

RPAS

- RPAS operations can be undertaken for recreational purposes or increasingly for commercial use (e.g. filming of events or other Aerial reconnaissance work).
- During 2020 there were 69 high severity occurrences reported, higher than the five year average (an average of 28 high severity reports were filed a year based on the last five years).
- The largest proportion of high severity reports were associated with aircraft technical issues and failures, with a similar proportion being linked with operational issues including human performance.

	2020	2016-2020
OPERATIONAL	29	46
TECHNICAL	31	57
AERODROME & GROUND SERVICES	0	0
AIRSPACE & ATC	5	32



	2020	2016-2020
WEATHER	1	1
WILDLIFE	2	3
3RD PARTY	0	0
OTHER & UNDER INVESTIGATION	1	1

Focus on Aerodromes and Ground Safety

Aerodrome and Ground Safety Summary

UK aerodromes and ground service providers experienced a unique 2020 with the majority adjusting the scale of their operations in line with activity/demand. Many aerodromes closed runways and terminals and reduced ground service provisions. This reduction also affected headcount as aerodromes and ground handlers scaled back their resourcing.

The Data

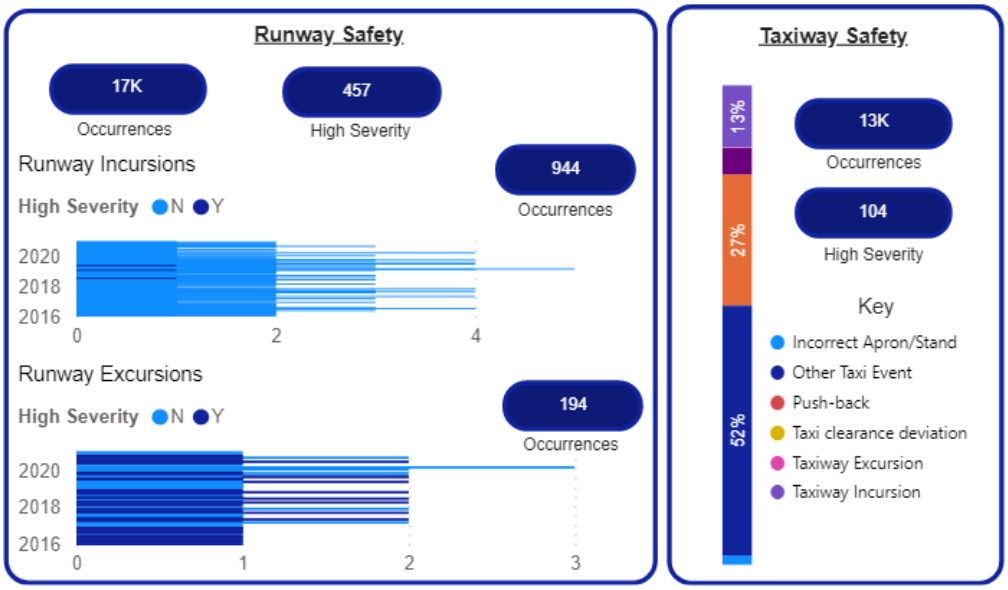
An average of 3,300 runway safety reports are submitted to the UK CAA each year, in 2020 this number reduced to 1,961 broadly in line with the overall reduction in occurrence report volumes.

Like previous years, runway incursions continue to account for the largest proportion of runway safety events. The most common themes observed with runway incursion reports were associated with aircraft entering the runway without permission, or aircraft being given clearance to enter the runway area whilst occupied of another aircraft was on final approach to land.

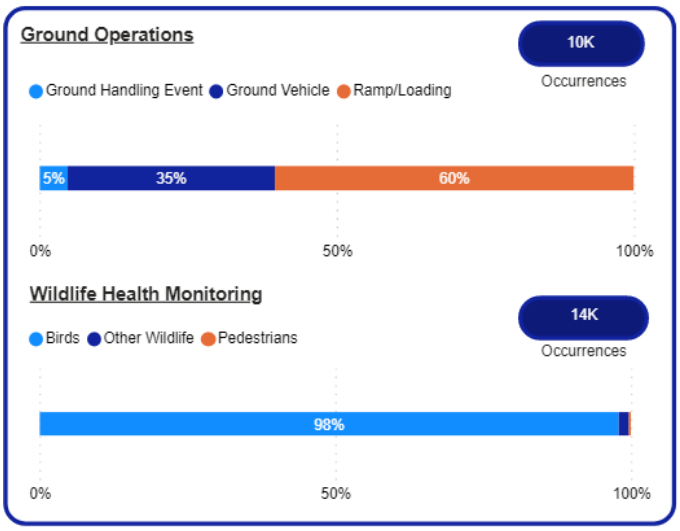
Ground handling related occurrences were dominated largely by ramp and loading reports consisting of unsecured loading of cargo, doors not secured prior to departure, freight documentation and handling of dangerous goods.

Birdstrikes continued to account for the largest proportion of wildlife occurrences during 2020. It was noted wildlife activity was likely to increase around aerodromes during periods of low activity and this area that is being proactively monitored by the UK CAA as industry begins to recover.

Runway/Taxiway Safety Performance (2016-20)



Ground Safety Performance (2016-2020)



The Actions

Regular runway safety working groups are held with industry representatives to review runway safety occurrences and the associated causal factors. These groups collaborate to identify areas of focus for the improvement of runway safety and define relevant safety actions to focus safety improvement activity.

The UK CAA also conducts routine oversight activity at UK aerodromes and collaborates directly with organisations to highlight safety issues and promote best practices.

CAP 738 was updated during 2020 to further promote the Safeguarding of Aerodromes.

Our Ground Handling Operations Safety Team (GHOST) is attended by industry representatives; and is held periodically throughout the year to raise safety issues and engage with industry about ground activity (an area that is not directly overseen by the UK CAA),

Focus on Airspace & Air Traffic Management

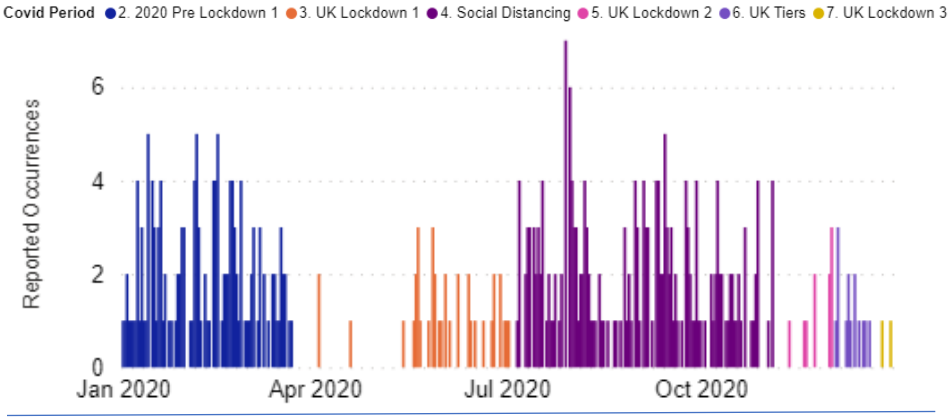
Airspace & Air Traffic Management (ATM)

2020 brought with it several temporary airspace changes to reflect the changes in operational profile across the UK. As 2020 progressed these areas were reactivated as needed to support to the safe transit of all airspace users. The UK CAA tracks airspace and ATM occurrences through metrics including airspace infringements, loss of separation, TCAS RA, and airborne collision occurrences.

A summary of these occurrences is presented below:

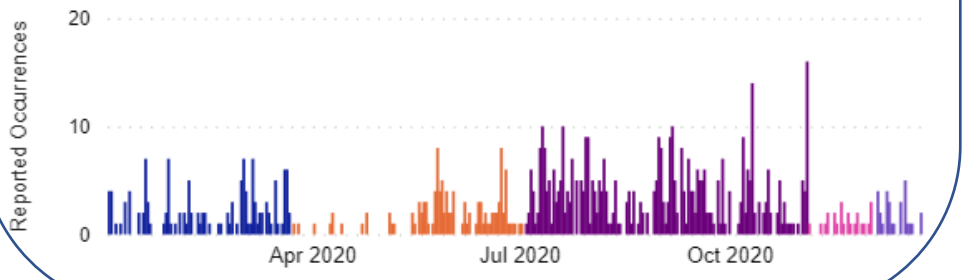
2020 Mid Air Conflict Occurrences (excl. airspace infringements)

Occurrences	High Severity Occurrences	High Severity %
403	9	2.23%



2020 Airspace Infringement Occurrences

Occurrences	YoY Change
748	↓41%



The Data

Just over 400 occurrences involving mid air conflict (TCAS RA, Loss of Separation or AIRPROX) were reported during 2020, a reduction of 67%. This reduction has been linked with reduced traffic volumes during 2020.

There were zero airborne collisions reported during 2020, for the period between 2016-2019 there were an average of 2 per year all involving GA or RPAS aircraft.

748 airspace infringements were reported during 2020, a reduction of 41% compared to 2019. This reduction is in line with the overall reduction in occurrence reports during 2020 and infringement occurrences elicit a similar trend when compared to overall occurrence reporting volumes.

An increase in airspace infringement occurrences was noted around newly established airspace near Farnborough and was mainly associated with GA aircraft.

More information about airspace infringements can be found on our website or in CAP 1404.

The Actions

- The UK CAA monitors occurrences involving airspace closely and has several internal groups tasked with reviewing their respective causal factors & root causes. These groups are also attended by Air Navigation Service Providers (ANSPs) who provide additional insight into our regulatory decision-making activities.
- The UK CAA have stood up a future airspace team who are actively analysing safety data related to UK airspace usage to define the future airspace classification in the UK.
- Technical standards for mapping and electronic conspicuity devices have been produced and can be found in CAP 1391.
- The UK CAA continues to advocate the use of electronic conspicuity devices on all aircraft operating in UK airspace as this ensures that the aircraft is visible to air traffic controllers on the ground.

Explanations

Please note that for some of the terms presented in the list below, there may be no formal definition, or the existing definitions may be complex. In such cases, we have used simplified explanations instead of the definitions.

Name	Explanation
Accident	An occurrence associated with the operation of an aircraft which 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 which: a) a person is fatally or seriously injured as ahttps://www.skybrary.aero/index.php/Accident result of: being in the aircraft, or 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; or b) the aircraft sustains damage or structural failure which: adversely affects the structural strength, performance or flight characteristics of the aircraft, and would normally require major repair or replacement of the affected component, would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or c) the aircraft is missing or is completely inaccessible

Name	Explanation
Large cargo aeroplanes	Scheduled and unscheduled cargo commercial air transport services in aircraft with maximum allowed take-off weight of more than 5,700 kilograms

Aerial work	Aircraft used for specialised operations, such as agriculture, construction, photography, surveying, observation, patrol, and aerial advertisement
Airborne collision avoidance systems	Aircraft system providing advice to pilots for the purpose of avoiding potential collisions
Commercial air transport	Aircraft operation to transport passengers, cargo or mail for remuneration or other valuable consideration
Commercial operation (aviation)	Operation of an aircraft, in return for remuneration or other valuable consideration, which is available to the public or, when not made available to the public, which is performed under a contract between an operator and a customer, where the latter has no control over the operator
Complex motor-powered aircraft	An aeroplane: with a maximum certificated take-off mass exceeding 5700 kg, or certificated for a maximum passenger seating configuration of more than nineteen, or certificated for operation with a minimum crew of at least two pilots, or equipped with (a) turbojet engine(s) or more than one turboprop engine, or a helicopter certificated: for a maximum take-off mass exceeding 3175 kg, or for a maximum passenger seating configuration of more than nine, or for a maximum passenger seating configuration of more than nine, or for operation with a minimum crew of at least two pilots, or a tilt rotor aircraft
Confirmed birdstrike	Any reported collision between a bird and an aircraft for which evidence, in the form of a carcass, or other remains is found on the ground, or damage and/or other evidence is found on the aircraft
Large commercial aeroplanes	Scheduled and unscheduled passenger and cargo commercial air transport services in aircraft with maximum allowed take-off weight of more than 5,700 kilograms
Large passenger aeroplanes	Scheduled and unscheduled passenger commercial air transport services in aircraft with maximum allowed take-off weight of more than 5,700 kilograms
Loss of separation	Occurs whenever specified separation minima between airborne aircraft in controlled airspace are breached. Minimum separation standards for airspace are specified by Air Traffic Services
Mandatory occurrence reports	An occurrence means any safety-related event which endangers or which, if not corrected or addressed, could endanger an aircraft, its occupants, or any other person
Member State	European Aviation Safety Agency Member States
Non-commercial operation (aviation)	Operation of aircraft for private flying consisting of business or corporate, personal transport, recreational and sporting activity

Control area	Area normally established in the vicinity of one or more major airports, with specified lower and upper limits
Control zone	Controlled airspace extending upwards from the surface of the earth to a specified upper limit, normally around an airport
Danger area	Airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times
Emergency services	Emergency operations with helicopters, such as Search and Rescue, Police and emergency medical services
Engine cowl	Engine protective covering
General aviation	Aeroplanes, Airships, Balloons, Gliders, Gyroplanes, Helicopters and Microlights used for private flying consisting of personal transport, recreational and sporting activity. Includes commercial operations with Balloons
G-Registered aircraft	Aircraft registered in the UK, by the UK CAA (registration mark contains the prefix "G-"), including other aircraft operated in the UK that do not require a registration mark
Ground roll	The movement of an aircraft on the ground, under its own power, until it becomes airborne on take-off, or after touchdown on landing
Non-G-registered aircraft	Aircraft not registered by the UK CAA or State of registry is not the UK (registration mark does not contain the prefix "G-")
Offshore helicopters	Scheduled and non-scheduled offshore commercial operation of helicopters (predominantly for the Oil & Gas industry)
Onshore helicopters	Onshore commercial and non-commercial operation of helicopters, including Business/Corporate flights and excluding General Aviation operations
Propeller (or rotor) wash	The force or wind generated behind a propeller, particularly when high/full power is set
Runway excursion	Occurs when an aircraft departs the runway in use during the take-off or landing phase
Serious incident	An incident involving circumstances indicating that there was a high probability of an accident and 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, or 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 as it comes to rest at the end of the flight and the primary propulsion system is shut down
Small commercial and business aeroplanes	Scheduled and unscheduled passenger and cargo commercial air transport services in aircraft with maximum allowed take-off weight of 5,700 kilograms or below, or commercial and non-commercial operations with aircraft engaged in Business/Corporate flights, with no maximum allowed take-off weight threshold
Tail strike	Occurs when the tail of an aircraft impacts the runway during the take-off or landing phase

Hazard	Any condition that can cause or contribute to an aircraft incident or accident
High severity occurrences	MORs that involve fatalities or serious injuries, the inability to continue safe flight and landing, a significant increase in flight crew workload, a serious loss of separation, a serious ATM system failure or a serious degradation of aircraft strength / integrity / handling / performance and a potential catastrophic outcome

UK airline	UK registered or operated scheduled and unscheduled commercial air transport services
UK aviation	UK Aviation represents all the occurrences reported to the UK CAA in the UK or involving G-Registered or UK operated aircraft overseas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