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(English text at the bottom)

EASA ANNUAL SAFETY REVIEW 2020 - ASR

Gentili Colleghi,
Come panoramica della situazione della sicurezza nel settore dell'aviazione in Europa, l'EASA ha pubblicato ieri l'edizione 2020 del suo Annual Safety Review (ASR).
L'analisi della revisione fornisce un riepilogo statistico in tutti i settori operativi ed è suddivisa in sezioni che riguardano:

- aerei,
- elicotteri,
- palloni aerostatici,
- alianti,
- aeroporti / assistenza a terra e
- gestione del traffico aereo / servizi di navigazione del traffico aereo.

L'ASR identifica le sfide di sicurezza più importanti affrontate oggi nell'aviazione europea e sostiene il processo decisionale per la prossima edizione dell'European Plan for Aviation Safety (EPAS) per migliorare ulteriormente la sicurezza aerea e la protezione ambientale in tutta Europa.
A giugno, l'EASA ha inoltre pubblicato una "Review of Aviation Safety Issues Arising from the COVID-19 Pandemic" che contiene ulteriori informazioni su problemi di sicurezza connessi con la pandemia di COVID-19.
Di seguito il documento EASA.
Buona lettura.

ANPAC – Dipartimento Tecnico
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English Version

EASA ANNUAL SAFETY REVIEW 2020 - ASR

Dear Colleagues,

As an overview of the safety situation in aviation in Europe, EASA published yesterday the 2020 edition of its Annual Safety Review (ASR).
The analysis in the review provides a statistical summary across all domains of operation and is split into sections covering:

- aeroplanes,
- helicopters,
- balloons,
- sailplanes,
- aerodromes / ground handling and
- air traffic management / air traffic navigation services.

The ASR identifies the most important safety challenges faced in European aviation today and supports the decision making for the next edition of the European Plan for Aviation Safety (EPAS) to further improve aviation safety and environmental protection throughout Europe.
In June, EASA also published a 'Review of Aviation Safety Issues Arising from the COVID-19 Pandemic' that contains additional information on safety issues arising from the COVID-19 pandemic.
Here below the EASA document.
Enjoy the reading.

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EASA
European Union Aviation Safety Agency

ANNUAL SAFETY REVIEW 2020

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Disclaimer

The occurrence data presented is strictly for information purposes only. It is obtained from Agency databases comprised of data from ICAO, EASA Member States, Eurocontrol and the aviation industry. It reflects knowledge that was current at the time that the report was generated. Whilst every care has been taken in preparing the content of the report to avoid errors, the Agency makes no warranty as to the accuracy, completeness or currency of the content. The Agency shall not be liable for any kind of damages or other claims or demands incurred as a result of incorrect, insufficient or invalid data, or arising out of or in connection with the use, copying or display of the content, to the extent permitted by European and national laws. The information contained in the report should not be construed as legal advice.

Acknowledgements

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FOREWORD BY PATRICK KY, EXECUTIVE DIRECTOR

Each year brings us new challenges. This year, the COVID-19 pandemic has challenged every aspect of life and industry on earth. As restrictions are eased here in Europe, the economic and human cost of this tragedy is yet to be fully understood. Normally, the aviation system provides a means to connect with those important to us at critical times in their lives. While this function has been significantly interrupted, and many other barriers stop us from meeting up with family and friends, aviation has remained a vital method of ensuring that essential medical expertise and supplies are able to be shipped to where they are most needed in the world, often using modified passenger aircraft that have been specially certified for cargo operations.

Even considering these enhanced cargo operations, travel restrictions have meant that aviation, as an industry, as a service, as a means of bringing people together, has been amongst the hardest hit sectors of the economy. As the initial wave of the pandemic comes slowly under control, EASA is leading efforts in supporting a return to normal operations (RNO) that protects the travelling public, together with airport and airline personnel. The Agency, in defining and coordinating efforts, is supporting the process of connecting people and services while safeguarding health and safety. While the crisis is far from over, it is nevertheless necessary to plan for the new normal and look towards resuming our lives, albeit differently.

Constructing this new normal will be made easier as a result of the robust nature of the EASA-led safety management system. The Agency has led work in identifying COVID-19-specific safety issues, based on valuable input from EU industry and national aviation authorities, and the results have been fully integrated into EASA's RNO project. Using the Agency's Safety Risk Management Process (SRM), the safety issues are being collaboratively assessed and matched with effective risk mitigations, resulting in a safety risk portfolio that will be continuously monitored and refined.

The information presented in the Annual Safety Review, together with this new work, are integral pieces of safety intelligence that will be used in determining the safety priorities for Europe as set out in the European Plan for Aviation Safety (EPAS), which is finalised in the last quarter of each year.

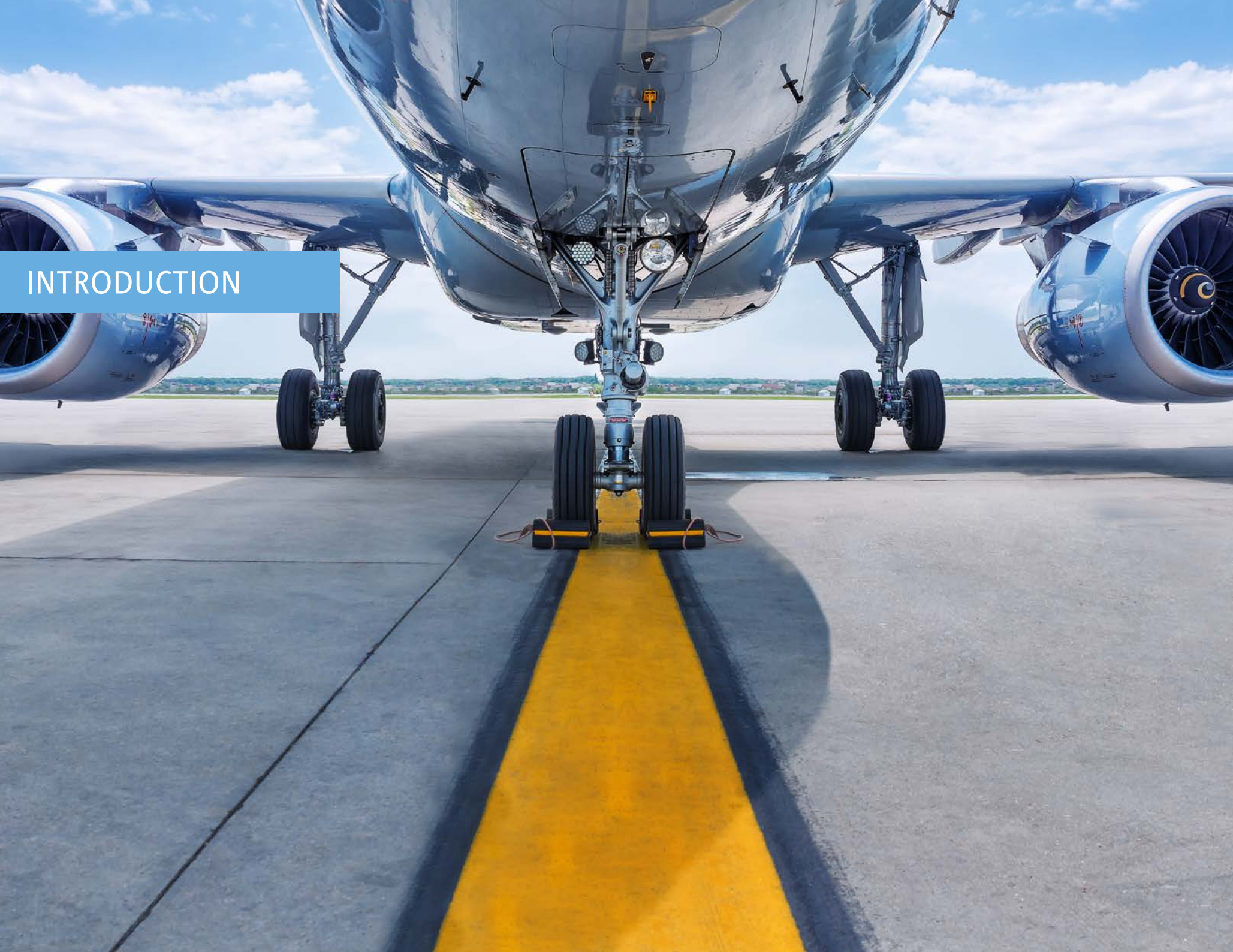
In these uncertain times, in the face of unexpected outcomes, it is recognised that new thinking and approaches are necessary to bolster the European and world aviation system. The past 12 months have not only seen the upheaval that pandemic infection can bring to the world but have also witnessed the most significant grounding of a passenger aircraft for a generation, while 2019 was otherwise one of the safest for aviation in 70 years. The catastrophic failure and crash of two Boeing 737 MAX aircraft with the loss of all those on board, contrasted with the otherwise very good safety data, has caused some aspects of the system to be critically examined.

The European system is fully capable of delivering despite the challenges posed, due in a large part to existing checks and balances. While the future is challenging, both in the context of the MAX tragedies and the ongoing pandemic, these difficulties will be overcome through the cooperative efforts of the EU, Member States and industry working together to protect EU citizens and the European way of life.

CONTENTS

LIST OF TABLES

LIST OF FIGURES



INTRODUCTION

EASA would like to welcome you to the 2020 version of the EASA Annual Safety Review (ASR)[1]. The review has been published since 2005 and is now in its 15th year. The analysis presented in this review provides the data-driven input that supports the decision-making required for the European Plan for Aviation Safety (EPAS).

The Annual Safety Review provides both a statistical summary of aviation safety in the EASA Member States (MS) and identifies the most important safety challenges faced by European aviation today. This analysis drives the development of safety actions for the EPAS and harnesses the experience of EASA Member States and Industry so as to connect the data with the current and future priorities of the Agency.

Data portfolios are provided for each of the aviation domains presented in this edition and build on the work of previous years. They show the safety issues that have been identified in occurrence data, cross referenced with the key risk areas (or main accident outcomes) to which they contribute. The ASR analysis focuses on aviation safety risks based on occurrence data. This work is a part of the ongoing European Safety Risk Management Process, and in particular, the valuable input from the Network of Analysts[2] (NoA) and Collaborative Analysis Groups (CAGs).

1 Publication of the Annual Safety Review is mandated by Article 72(7) of REGULATION (EU) 2018/1139 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency.

2 See Article 14(2) of 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.

How the Safety Review is Produced

Information Sources

The EASA Annual Safety Review is produced by the Safety Intelligence and Performance Department of EASA. The data presented are based on the accidents and serious incidents collected by the Agency under Regulation (EU) 996/2010 on accident and serious incident investigation and Regulation (EU) 376/2014 on occurrence reporting, follow-up and analysis, and through the active search of those events from other official sources. This data collection provides enables the analysis of two specific data sources:

- **EASA's Occurrence Database:** The main source of data is the Agency's own database, which covers occurrences reported to the Agency in its role as competent authority and also accidents and serious incidents reported to the Agency by Safety Investigation Authorities world-wide. This is augmented by information collected by the Agency from other sources.
- **European Central Repository:** The European Central Repository (ECR) is the central database of all occurrences reported to the competent authorities of the EASA MS, the reporting of which is governed by Reg. (EU) 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation.

The figures and analyses presented in the Annual Safety Review may differ from safety reports prepared by other organisations and indeed other regulators. This is due to differences in collection methods, in the definitions of the data collected and subsequently analysed. It is important to identify and understand these differences when comparing safety reports and to keep in mind that each report has its own merits.

European Risk Classification Scheme

Regulation (EU) 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation introduced the requirement for common occurrence risk classification at national and EASA level. As a result, the European Risk Classification Scheme (ERCS) was developed, which measures the risk through a matrix covering 2 dimensions. The ERCS is in the process of being adopted into the legal framework of Regulation (EU) 376/2014.

Firstly, the vertical axis considers what the severity would have been if the occurrence being scored had escalated into a fatal accident. This is done by considering both the size of the aircraft involved and how severe the accident outcome could have been.

Secondly, the horizontal axis measures how close the occurrence was to that fatal accident outcome based on a weighted barrier model.

EASA began using the method in 2017 and has categorised all the accidents and serious incidents in the Annual Safety Review, including those that occurred before 2017. The ERCS is useful because the classification of accidents and serious incidents does not necessarily provide an accurate picture of the risk of those occurrences. For example, a very close near mid-air collision would be classified as a serious incident, while a collision between ground handling vehicle and an aircraft leading to substantial damage of the latter would be classified as an accident. It is clear that in terms of risk, the serious incident in this example would be of a higher risk than the accident. The combination of probability and severity (worst credible outcome) would significantly differ. An analysis using ERCS applied occurrence data provides an overview of the risks for each domain that were present during the period analysed. However, it does not predict the future risks, which will change because of changing circumstances and the remedial effects of safety mitigating actions.

Analysis and Expert Review

The data collected under the two regulations mentioned earlier is coded and analysed by EASA's Safety Intelligence and Performance Department, using the ERCS and the ECCAIRS taxonomy. Once complete, the analysis is circulated to experts both within EASA and, for the relevant chapters, passed to the related Collaborative Analysis Groups (CAGs).

The CAGs are expert groups, responsible for analysing the safety of European aviation. Each CAG works on a particular aviation domain and its membership is derived from key stakeholders in the domain. These stakeholders may come from industry or from EASA's regulatory partners. Each CAG meets up to three times per year to review available safety information, arrange in depth safety issue analyses and to identify emerging issues. They monitor the safety performance of their domain and provide feedback on the effectiveness of actions taken.

Chapter Overview

This document is split into a number of chapters, each of which covers the different operational domains in the European Aviation System. The different domains in each chapter cover the areas for which a specific data portfolio has been developed. The scope of each domain chapter (and corresponding data portfolio) is limited to the EASA MS, either as the state of operator or the state of registry. For the Aerodrome and ATM chapters, this scope is limited to the EASA MS as state of occurrence. The chapters of this review cover the following areas:

Chapter 1 Safety Overview

- **Review of Global Airline Safety:** This provides a review of global safety for large commercial air transport aeroplanes.
- **Cross-domain Safety Overview of EASA MS:** This provides an overview of the most important statistics across all the different domains. It helps to identify which domains are likely to need the greatest focus in the EPAS.

Chapter 2 Aeroplanes

- **Commercial Air Transport Aeroplanes:** This covers all commercial air transport airline (passenger and cargo operators) operations involving aeroplanes, as well as Non-commercially operated complex aircraft flown for business operations. The airline and business operations have the same data portfolio due to the strong commonalities in their safety issues and key risk areas.
- **Specialised Operations:** This covers all aerial work/Part SPO operations involving aeroplanes and involves a wide range of different operational activities including aerial advertising, aerial patrol, agricultural, air shows, parachuting and glider towing.
- **Non-commercial Operations**: The chapter covers all non-commercial operations involving aeroplanes and includes analysis of what would be understood within the traditional definition of general aviation. The chapter also includes flight training and other non-commercial activities.

Chapter 3 Helicopters

- **Commercial Air Transport:** This covers all commercial air transport operations involving helicopters such as such as Helicopter Emergency Medical Service (HEMS), air taxi or sightseeing, as well as those to offshore oil, gas and renewable energy installations.
- **Specialised Operations:** This covers all aerial work/Part SPO operations involving certified helicopters such as sling load, advertisement, or photography with an EASA MS as state of operator or state of registry.
- **Non-commercial Operations:** The chapter covers all non-commercial operations involving certified helicopters with an EASA MS as state of operator or state of registry. This section includes in particular training flights.

Chapter 4 Balloons

This chapter covers all operations involving hot air balloons.

Chapter 5 Gliders/Sailplanes

This chapter covers all operations involving gliders and sailplanes.

Chapter 6 Aerodromes and Ground Handling

This chapter covers aerodrome and ground handling operations that occur within the EASA MS. Therefore the scope for this chapter is EASA MS as state of occurrence.

Chapter 7 ATM/ANS

This chapter covers air traffic management and air navigation services (ATM/ANS) occurrences within the EASA MS. Therefore the scope of the chapter is EASA MS as state of occurrence.

Typical Structure for Each Chapter

Each of the domain chapters in this Annual Safety Review contains specific information, which is useful in understanding the analysis of that domain. The structure of each chapter, as described below, is as similar as possible, providing the ability to compare information in each domain.

KEY STATISTICS: Every chapter begins with a set of key statistics. This provides information on the Tier 1 Safety Performance Indicators (SPIs) for that domain, which includes details on the number of fatal accidents, non-fatal accidents and serious incidents. It also outlines the number of fatalities and serious injuries in the domain. In all cases, the figures for 2019 are provided followed by a comparison with the annual averages over the past 10 years. This helps to provide a reference on how this year's performance relates to historical trends. This information is also provided in a graphical format.

DOMAIN SPECIFIC ANALYSIS: As every domain has different aspects to it, a further analysis of useful domain specific information is included. For example, within the areas of special operations it is useful to provide information on the type of operation involved in safety events, while some chapters include an analysis of the type of propulsion.

New to the Annual Safety Review this year is the inclusion of data relating to human factors and human performance in the domain specific analysis for the aeroplane and sailplane domains. The term human factors describes human characteristics, abilities and limitations. The knowledge of human factors is used throughout the aviation industry to design systems, equipment and work in ways that support humans in performing at their best. Human performance refers to how people perform their tasks. HF and HP knowledge can also be used diagnostically following safety occurrences, to understand what went wrong, what went right and importantly, to understand how to prevent these occurrences from happening again.

Within EASA data, human factors and human performance are identified in accident and serious incident data based on information from investigation reports. The same ECCAIRS taxonomy that helps us to identify our safety issues and key risk areas also provides us with human factors and human performance codes.

This taxonomy groups event types at different levels, so that all the issues relating to personnel are grouped at the highest level into "personnel". The personnel issues are then further subdivided into four categories: Experience and knowledge events, physiological events, situational awareness and sensory events, personnel task performance events. A further two levels of subdivision exist, providing increasing detail on the type of HF or HP identified.

SAFETY RISK ANALYSIS: The next part of the analysis, and the most important in each chapter, is the domain safety risk analysis. This section provides an overview of the relative risk level and frequency of each key risk area, as well as outlining the high risk safety issues for the domain. A data portfolio is then provided, listing the domain's safety issues being cross-referenced with the key risk areas.

The data portfolio tables have 2 axes. Along the top, information is provided on the key risk areas, which are the most frequent accident outcomes or potential accident outcomes in that domain. In the context of a safety performance framework, the key risk areas are the Tier 2 safety performance indicators (SPIs) for the domain. The key risk areas are, in most cases, ordered

on the basis of their risk levels, determined using the ERCS. On the left hand axis of the portfolio are the safety issues, which relate to the causal and contributory factors to the key risk areas (accident outcomes). In terms of safety performance, these are the Tier 2+ SPIs. These are prioritised on the basis of their aggregated risk contribution using ERCS. The occurrences related to the individual safety issues and are identified by mapping event types in the ECCAIRS taxonomy to each safety issue.

The European Plan for Aviation Safety

The European Plan for Aviation Safety (EPAS) is a coordinated safety action plan that is prepared by EASA each year with the support and technical inputs from the member states and the industry. It seeks to further improve aviation safety throughout Europe. The Plan looks at aviation safety in a systemic manner by analysing data on accidents and incidents. It considers not only the direct reasons, but also the underlying or hidden causes behind an accident or incident. Moreover, the Plan takes a longer term view into the future. Although the Plan originates with the EASA Member States, it is intended as a valid reference for all States in the ICAO EUR Region.

In addition to the safety intelligence gained through analysing occurrence data, roadmaps have been developed for the general aviation and the rotorcraft domains. These domain specific roadmaps, which are monitored and will continue to develop, augment the overall safety intelligence picture when determining the safety priorities contained in the EPAS.

The European Plan for Aviation Safety is a key component of the Safety Management System at the European level, and it is constantly being reviewed and improved. It is implemented by the EASA Member States on a voluntary basis through their State Programmes and Plans. The current EPAS covers the 5-year period from 2020 to 2024.

The Safety Risk Management Process

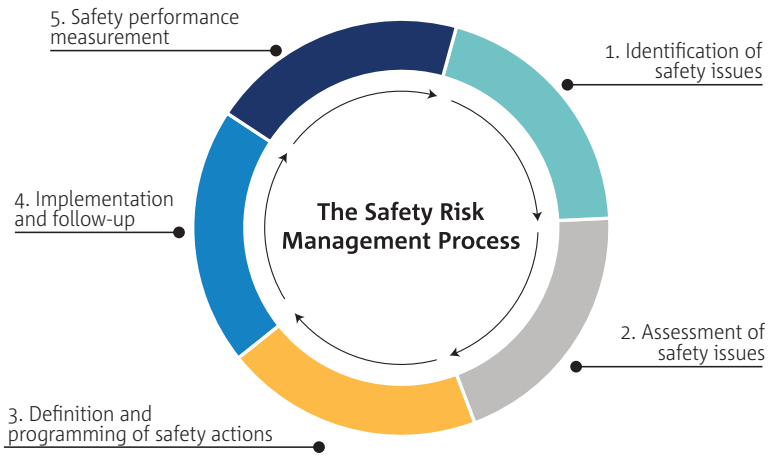
The EPAS is developed through the European Safety Risk Management (SRM) process, which is defined in 5 specific steps below:

Identification of Safety Issues: The identification of safety issues is the first step in the SRM process and it is performed through the analysis of occurrence data and supporting information by the CAGs. These candidate safety issues are formally captured by the Agency and are then subject to a preliminary safety assessment. This assessment then informs the decision on whether a candidate safety issue should be formally included within the relevant safety risk portfolio or be subject to other actions. Advice is taken from the Network of Analysts (NoA) and CAGs. The output of this step in the process are the domain safety risk portfolios. Within the portfolios, both the key risk areas and safety issues are prioritised.

Assessment of Safety Issues: Once a safety issue is identified and captured within the safety risk portfolio, it is subject to a formal safety assessment. These assessments are prioritised within the portfolio. The assessment process is led by EASA and is supported by the NoA and the CAGs. In addition, group members are encouraged to participate in the assessment itself; this external support is vital to achieving the best possible results. Together this forms the Safety Issue Assessment (SIA), which provides potential actions for the EPAS.

This is followed by the Best Intervention Strategy (BIS) assessment, which considers the wider implications and benefits of the proposed actions and makes recommendations on the actions to be implemented in the EPAS.

Definition and Programming of Safety Actions: Using the combined SIA/BIS, formal EPAS actions proposals are then made to the advisory bodies.



Once discussed and agreed upon, the actions are then included in the next version of the EPAS. Prior to publication, the EPAS is approved by the EASA Management Board. Actions that are low cost or require more rapid intervention, are often fast-tracked and appear in the next available update of the EPAS. In some cases more immediate actions are needed that may be completed before the next EPAS would be published, naturally these are not included within EPAS. Such actions could include a Safety Information Bulletin (SIB) or immediate Safety Promotion activities.

Implementation and Follow Up: The next step in the process involves the implementation and follow-up of the actions that have been included within

the EPAS. There are a number of different types of action within the EPAS, including focussed oversight, research, rulemaking and safety promotion.

Safety Performance Measurement: The final stage in the process is then the measurement of safety performance. This serves two purposes, firstly to monitor the changes that have resulted from the implementation of safety actions. Secondly, it also serves to monitor the aviation system so that new safety issues can be identified. To ensure that there is a systematic approach to the work in this step of the SRM process, a Safety Performance Framework has been developed that identifies different tiers of Safety Performance Indicators (SPIs). Tier 1 transversally monitors all the domains and the overview of the performance in each domain. Tier 2 then covers the key risk areas at domain level, whilst Tier 2+ monitors the safety issues. The Annual Safety Review is the annual review of the Safety Performance Framework. It identifies safety trends, highlights priority domains, key risk areas and safety issues. From this step the SRM process begins again.

The timescales of the SRM process are as follows: The safety data of 2009 – 2018, compared with that of 2019 informs the Annual Safety Review published in 2020, which in turn informs the EPAS of 2021. More information on the EPAS can be found on the EASA website.
https://www.easa.europa.eu/easa-and-you/safety-management/european-plan-aviation-safety

CHAPTER 1
CROSS DOMAIN OVERVIEW

1.1 Global Airline Fatal Accidents

This section covers large aeroplane passenger and cargo operations worldwide. The figures show the contribution of EASA Member States' operators to the number of global fatal accidents and fatalities. In Figure 1 it can be seen that whereas the number of fatal accidents has slightly decreased over the eleven year period shown, the number of fatalities varies more. This is because the number of fatalities is principally related to the size of the aircraft involved and the nature of flight (passenger or cargo), and therefore the occupancy of the aircraft.

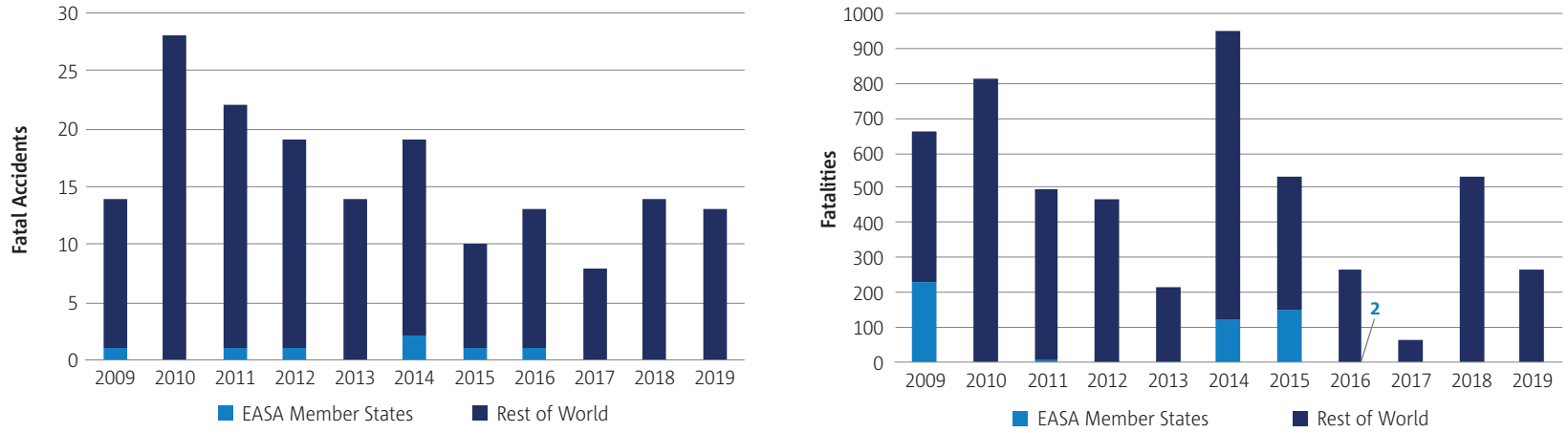
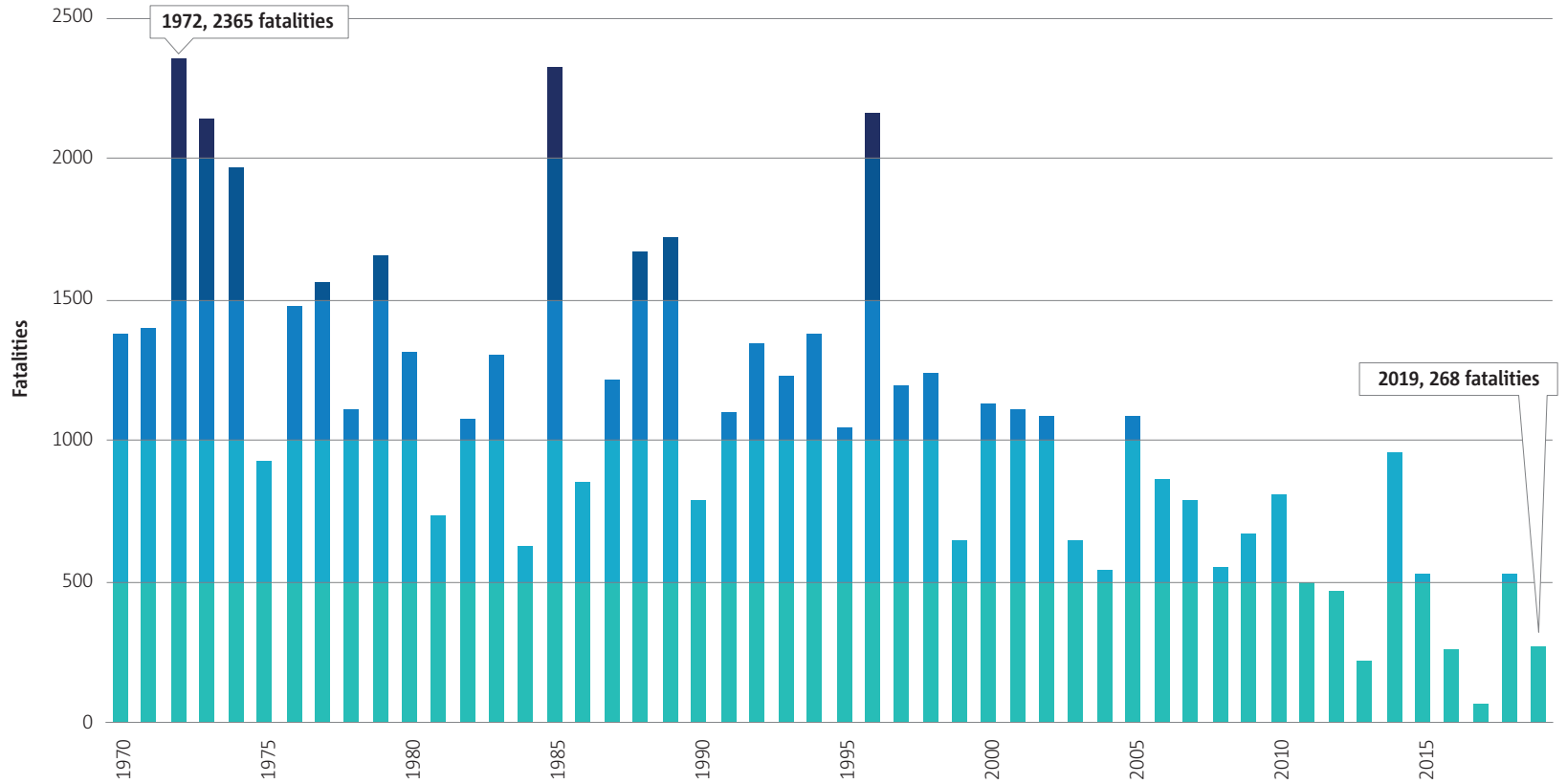


Figure 1 Fatal accidents and fatalities involving large aeroplane passenger and cargo operations, EASA Member States and the rest of the world

Figure 2 Fatalities involving large aeroplane passenger and cargo operations worldwide



The most substantial contribution to the 268 total fatalities in 2019 comes from the accident involving an Ethiopian Airlines Boeing 737 Max 8 that crashed shortly after take-off on 10 March 2019 with the loss of all 157 lives on board the aircraft. This was the second catastrophic accident involving a Boeing 737 Max 8 in six months. On 29 October 2018, a Lion Air Boeing 737 Max 8 crashed shortly after take-off, with the loss of all 189 lives on board the aircraft.

These accidents have led to one of the longest flight suspensions of a large commercial aeroplane type.

EASA is conducting a thorough re-certification of the B737 MAX 8 in order to ensure that the modified aircraft is safe to return to service.

In parallel, EASA is also reviewing systemic issues that may have contributed to the accidents so as to identify improvements that will contribute to a more resilient European and international certification framework.

Under requirements laid down by ICAO, aviation accidents must be investigated with a view to understanding the causes and preventing similar accidents in the future. Based on the information from accident reports and from preliminary information where the investigations are ongoing, the accidents between 2015 and 2019 had the following characteristics:

- Aircraft upset, terrain collision and runway excursion were the most common accident outcomes. Runway excursion is most common during the landing phase of flight.
- The most common underlying cause to these accidents is associated to the flight crews' management of challenging circumstances created by technical failures or poor weather conditions, including wind shear, during approach. Safety management continues to emerge as an important factor in preventing accidents.
- Cargo flights formed a third of the fatal accidents, forming a greater proportion of fatal accidents than commercial air transport flights.

1.2 EASA Member States Cross Domain Safety Overview

Each domain presented in this review provides the number of fatal accidents and fatalities for 2019 as compared with the preceding ten years, 2009-2018. Table 1 reflects the chapter structure of the Annual Safety Review. For the aircraft chapters (aeroplanes, rotorcraft, balloons and sailplanes), the definition relates to aircraft operated by an EASA Member State air operator's certificate (AOC) holder or an aircraft registered in an EASA Member State.

As with the global passenger and cargo data, the number of fatalities in a given domain relates not only to the number of fatal accidents, but also to the number of passengers on board. Over the eleven years shown in Table 1, the number of sailplane fatal accidents is relatively stable each year and the number of fatalities is very similar to the number of fatal accidents. By contrast, the number of fatalities per year in commercial air transport airline or air taxi accidents ranges from 0 to 228.

Looking across the presented domains, the comparison of 2019 to the preceding decade, 2009-2018, shows a normal year without substantial changes to safety, either positive or negative. However, commercial air transport (CAT) helicopter operations had 4 fatal accidents in 2019, equal to the highest number of accidents per year in the preceding ten years. At 17, the number of fatalities was close to the highest number of fatalities per year (22) and higher than the 2009 – 2018 median of 7.5.

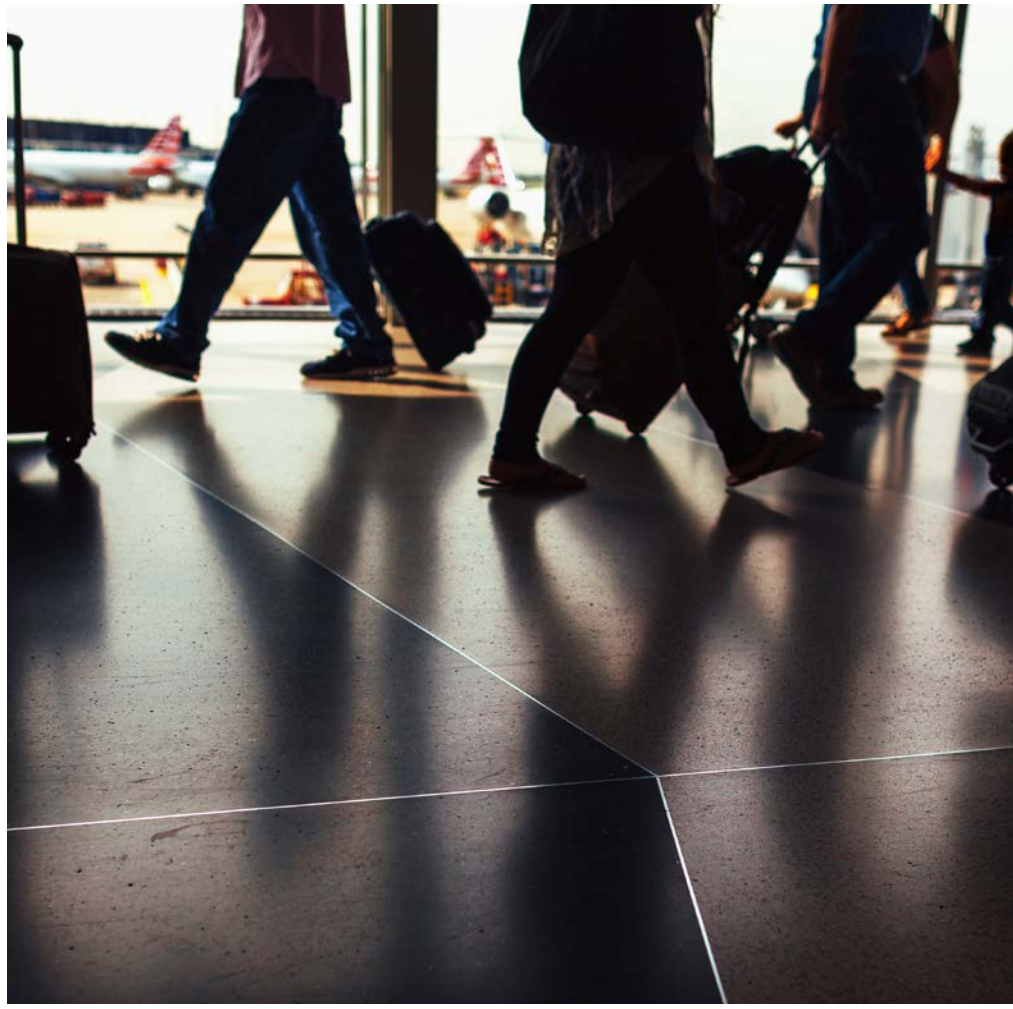


Table 1 Cross domain comparison of EASA Member States aircraft fatal accidents and fatalities

AIRCRAFT DOMAIN	FATAL ACCIDENTS 2019	FATAL ACCIDENTS 2009 - 2018 MIN - MAX	FATALITIES 2019	FATALITIES 2009-2018 MIN - MAX	FATALITIES 2009-2018 MEDIAN
AEROPLANES					
CAT Airlines	0	0 - 2	0	0 - 228	2.5
NCC Business	0	0 - 1	0	0 - 4	0.5
Specialised Operations	5	3 - 9	16	4 - 28	12.5
Non-commercial Operations	37	34 - 61	70	64 - 113	82.0
HELICOPTERS					
CAT Operations	4	1 - 4	17	2 - 22	7.5
Specialised Operations	1	0 - 8	1	0 - 17	5.5
Non-commercial Operations	3	2 - 10	5	2 - 22	13.0
BALLOONS	1	0 - 3	1	0 - 10	1.0
SAILPLANES	28	18 - 30	31	21 - 40	28.0

A separate table is used for aerodromes and ground handling, and ATM/ANS, thereby reflecting that the definition here is different; it includes all fatal accidents and fatalities that happened at aerodromes or in airspace in an EASA Member State. Therefore the infrastructure table not only counts fatal accidents and fatalities that are already in the table for the aircraft chapters, but also some that involve operators or aircraft registered outside of a Member State. There were no fatal accidents in the aerodromes and ground handling domain, however there was one ATM-related fatal accident, with seven fatalities. This represents a degradation in safety levels in this domain in comparison with previous years.

Table 2 Cross domain comparison of EASA Member States infrastructure fatal accidents and fatalities

INFRASTRUCTURE DOMAIN	FATAL ACCIDENTS 2019	FATAL ACCIDENTS 2009 - 2018 MIN - MAX	FATALITIES 2019	FATALITIES 2009-2018 MIN - MAX	FATALITIES 2009-2018 MEDIAN
AERODROMES AND GROUND HANDLING	0	0 - 3	0	0 - 8	0.5
AIR TRAFFIC MANAGEMENT & AIR NAVIGATION SERVICES	1	0 - 2	7	0 - 8	1.0

The following graphs show the number of fatal accidents, non-fatal accidents and serious incidents for each aircraft domain, while providing a visual comparison.

Please note that the scale of the y-axis is not the same for each chart, although they have in some cases been adjusted to make a comparison easier.

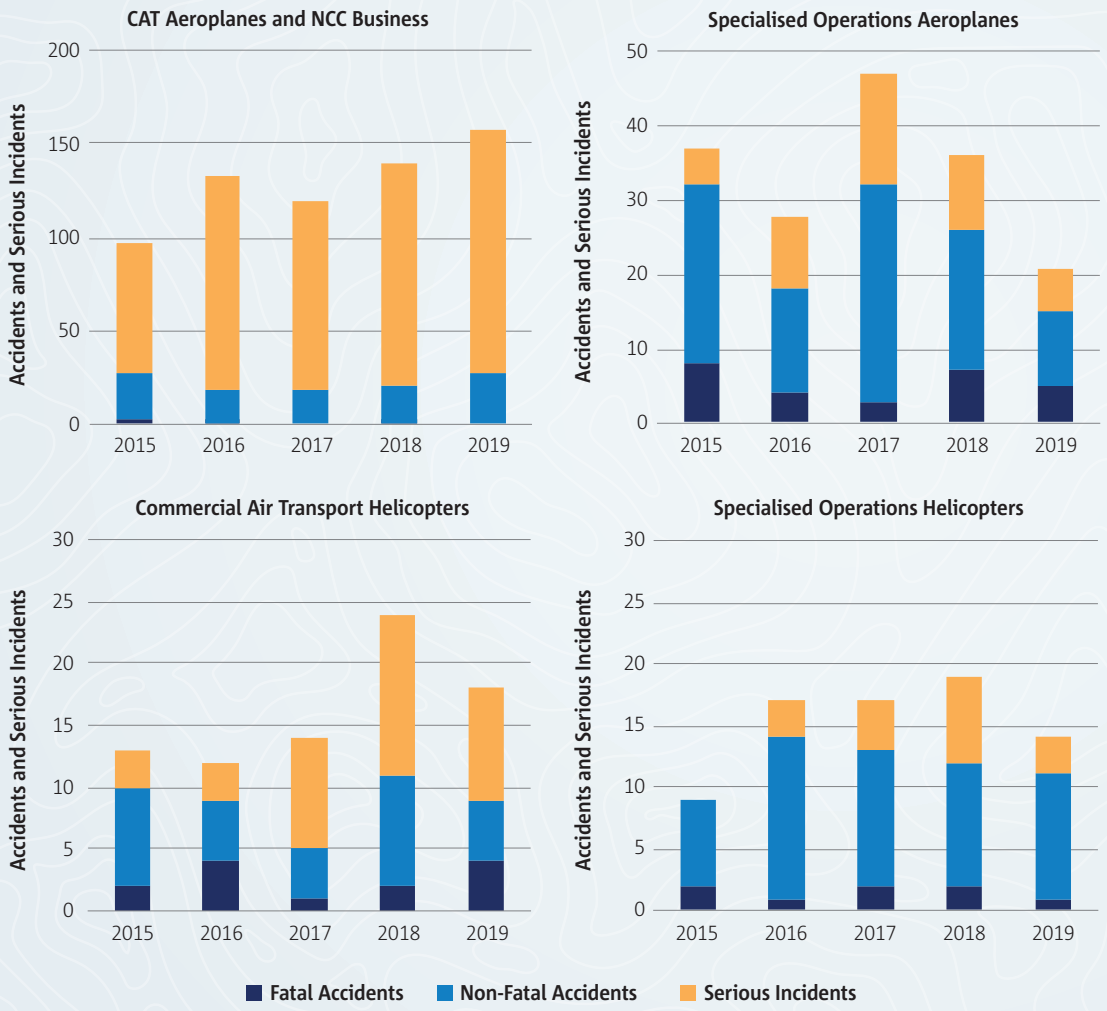


Figure 3 EASA Member States accidents and serious incidents per year for large CAT and NCC business aeroplanes, SPO aeroplanes, CAT helicopters and SPO helicopters

Figure 4 EASA Member States accidents and serious incidents per year for non-commercially operated aeroplanes and helicopters, and all sailplane and balloon operations.

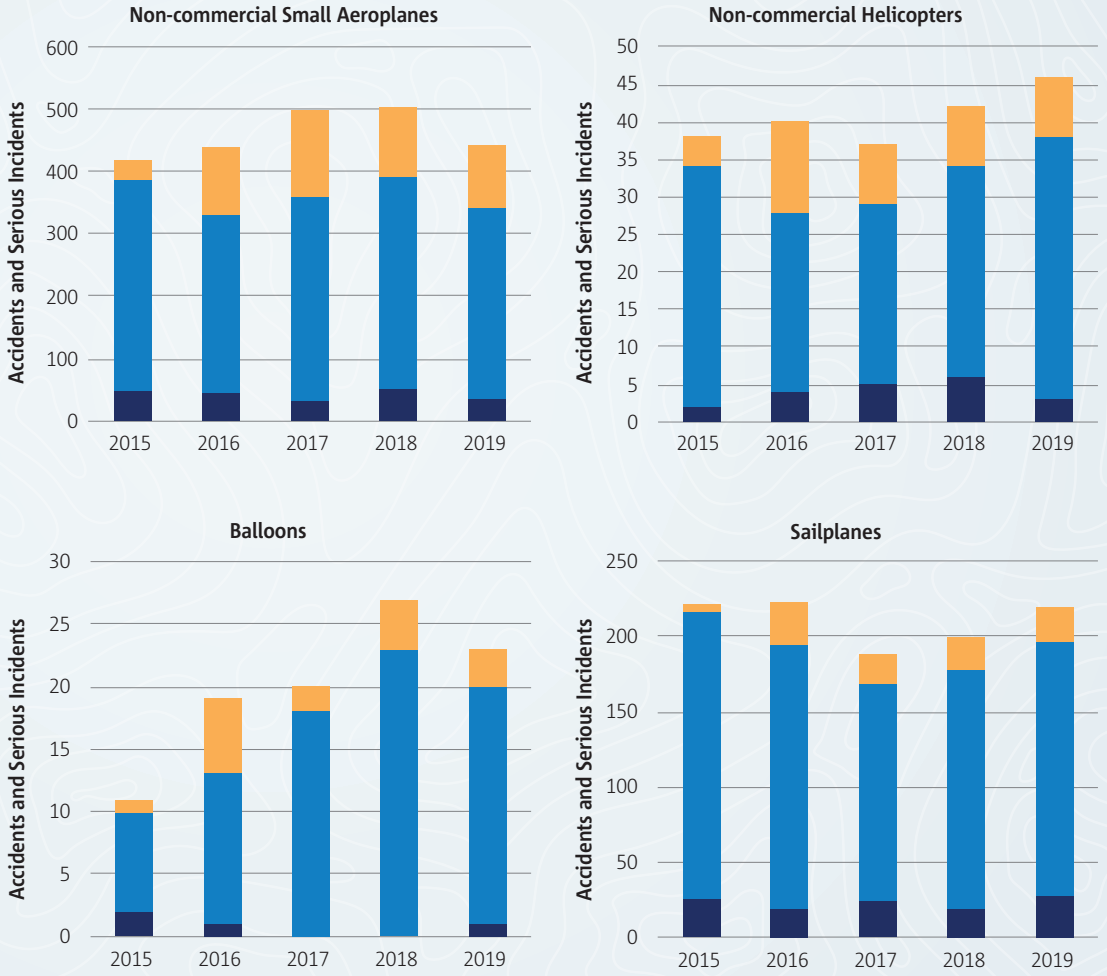
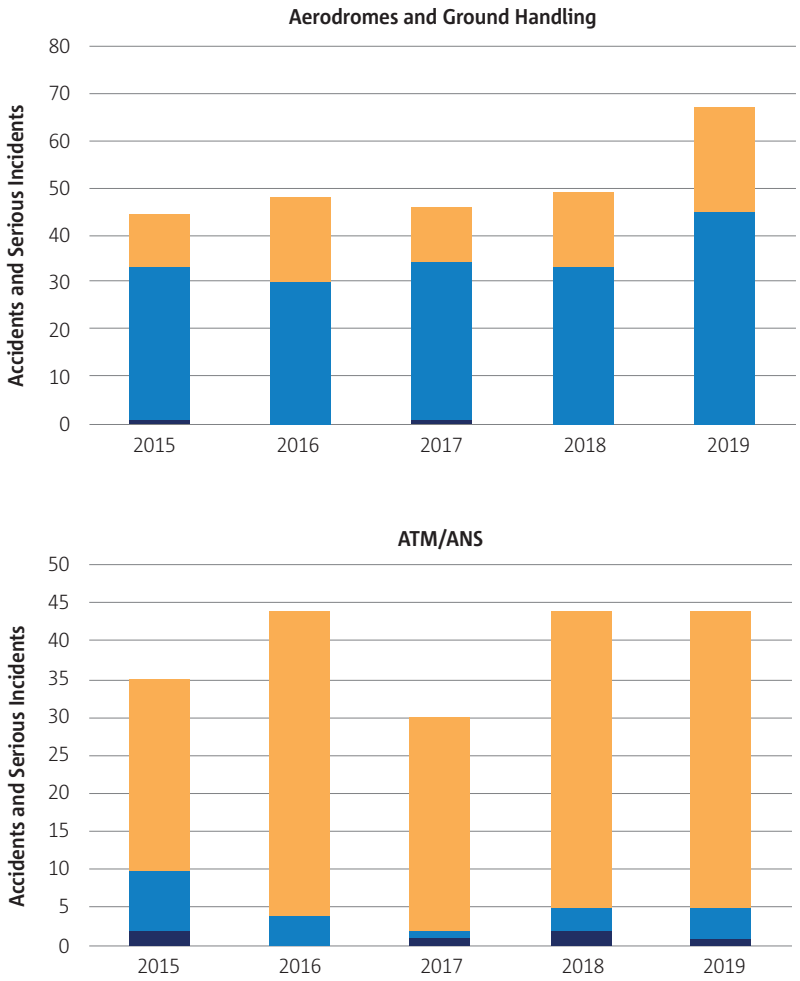


Figure 5 EASA Member States infrastructure related accidents and serious incidents per year



CHAPTER 2
AEROPLANES

This chapter covers all aeroplane operations. The chapter is divided in three main sections:

1. Airline and air-taxi passenger and cargo operations conducted by EASA Air Operators Certificate (AOC) holders with aeroplanes of a maximum take-off mass above 5 700 kg and EASA Member State registered complex aeroplanes operating non-commercial operations (NCC);

2. Specialised Operations (SPO) conducted by EASA Member States registered aeroplanes or EASA Member States AOC holders. Examples include air ambulance, advertisement, photography, etc.;

3. Non-commercial operations conducted by EASA Member States registered non-complex aeroplanes, having a maximum take-off mass below 5 700 kg and not covered in the sections above.

The data presented are based on the accidents and serious incidents collected by the Agency under Regulation (EU) 996/2010 on accident and serious incident investigation and Regulation (EU) 376/2014 on occurrence reporting, follow-up and analysis, and through the active search of those events from other official sources.

For each section, the key statistics are presented. Each section contains an individual data portfolio, providing an overview of the main safety risk for these types of operations at the European level based on occurrence data.

2.1 Commercial Air Transport – Airlines and Air Taxi – Large Aeroplanes

This section covers the airline and air-taxi passenger and cargo operations of EASA AOC holders with aeroplanes of a maximum take-off mass above 5 700 kg.

Key Statistics

The key statistics for this domain are in the tables below and include comparison of the number of accidents (fatal and non-fatal) and serious incidents for the 10-year period (2009-2018) [3] and the last year (2019). It also includes the comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe. In 2019, there was no fatal accident involving European Commercial Air Transport (CAT) AOC holders. The number of non-fatal accidents was higher than the average of the previous 10-year period. In 2019, there was an increase in serious incidents in comparison with the previous year and the average of the previous 10-year period.

Table 3 Key Statistics for commercial air transport airline and air-taxi aeroplanes

2009 - 2018 TOTAL	TIMESPAN	2019	2019 vs 2009-2018
7	Fatal Accidents	0	↓
223	Non-fatal Accidents	27	↑
865	Serious Incidents	117	↑

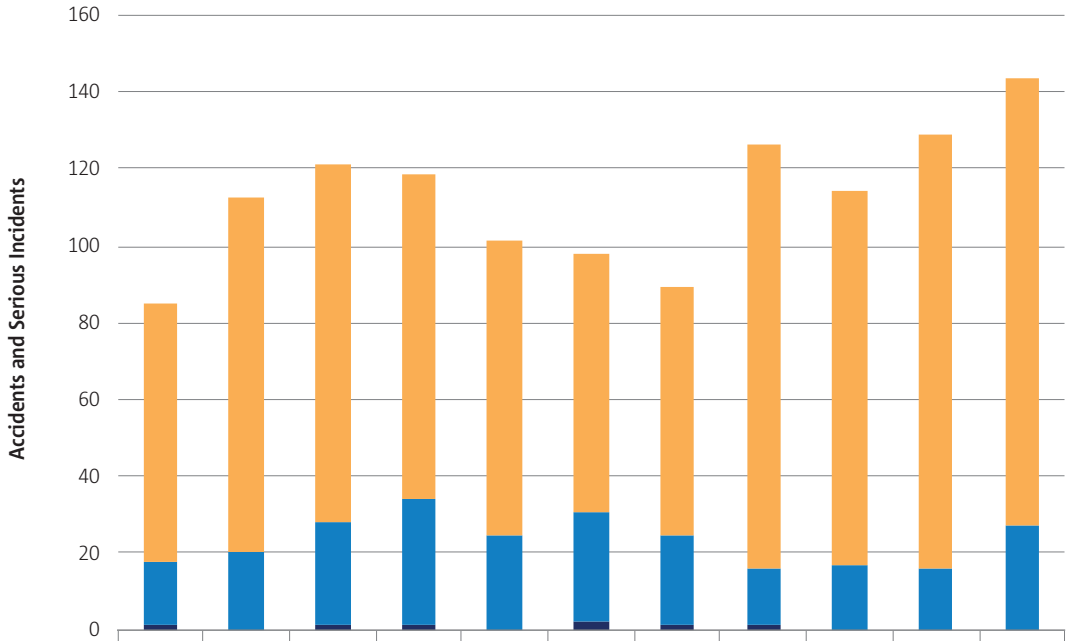
Table 4 Fatalities and serious injuries involving commercial air transport airline and air-taxi aeroplanes

	FATALITIES	SERIOUS INJURIES
2009 - 2018 Total	509	100
2009 - 2018 Max	228	18
2009 - 2018 Min	0	4
2019	0	8

3 On 4 August 2018, a Junker-52 crashed in the Swiss Alps while performing a sightseeing flight resulting in 20 fatalities. Due to the type of aircraft involved (not certified by EASA and an "Annex I aircraft" of Regulation (EU) 2018/1139) and the specific type of operation being carried, this accident has not been included in the statistics of this chapter.

Figure 6 shows that the numbers of non-fatal accidents and serious incidents in 2019 have increased in comparison with the average of the previous 10-year period (2009-2018).

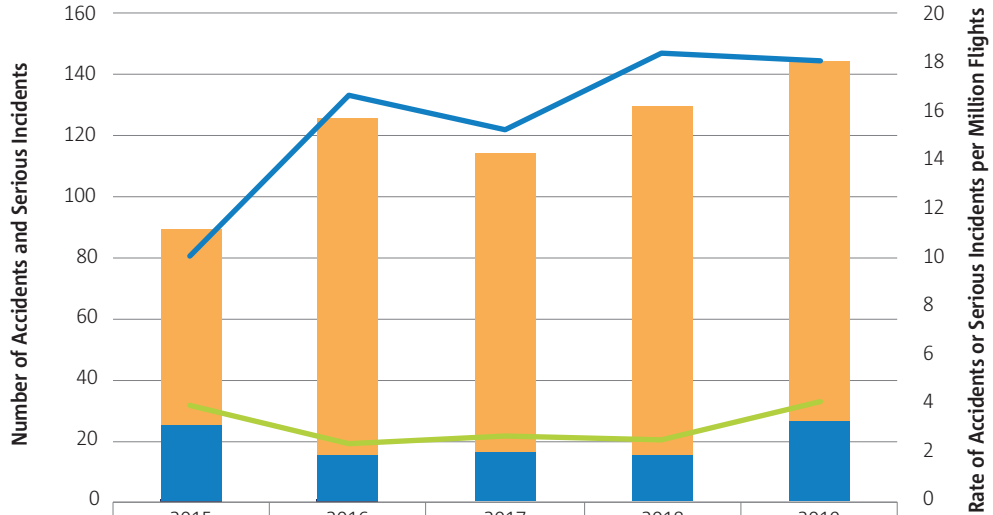
Figure 6 Fatal accidents, non-fatal accidents and serious incidents per year involving commercial air transport airline and air-taxi aeroplanes



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	67	93	93	85	76	67	64	110	97	113	117
Non-Fatal Accidents	17	20	27	33	25	29	24	15	17	16	27
Fatal Accidents	1	0	1	1	0	2	1	1	0	0	0

Figure 7 shows that the rate of accidents that has increased slightly in 2019 and returned to the 2015 level, while the rate of serious incidents has remained at the same level as for 2018. The increase since 2016 is the result of the more stringent classification of separation minima infringements by the Members State Aviation and Safety Investigation Authorities, after the entry into force of the Regulation (EU) 376/2014. In addition, updates and improvements in the accuracy of the exposure data used has had an impact on the calculated accident and serious incident rates.

Figure 7 Numbers and rates of fatal accidents, non-fatal accidents and serious incidents per million flights involving commercial air transport airline and air-taxi aeroplanes

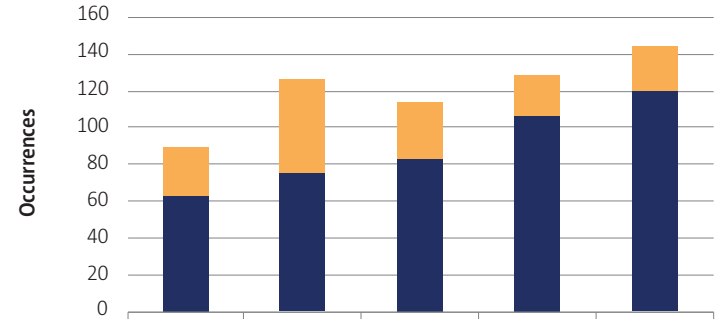


	2015	2016	2017	2018	2019
Serious Incidents	64	110	97	113	117
Non-Fatal Accidents	24	15	17	16	27
Fatal Accidents	1	1	0	0	0
Serious Incident Rate	10	17	15	18	18
Accident Rate	4	2	3	3	4

Figure 8 shows occurrences that have been risk scored, grouped by higher and lower risk, based on the ERCS methodology. An explanation of the ERCS and why it is useful is provided in the introduction to the review. The aggregated ERCS scores by higher risk and lower risk occurrences show a different pattern than the representation of accidents and serious incidents. This is because some occurrences classified as serious incidents have inherent risk profiles that may be equal or even exceed the risk of some accidents. There has been a steady increase in the number of higher risk occurrences since 2015.

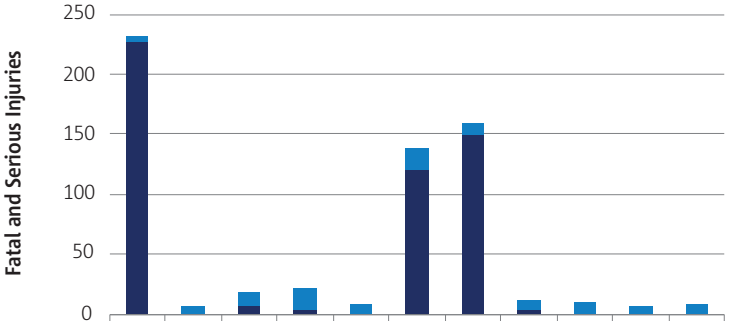
The number of serious injuries in 2019 remains below the average of the previous 10-year period. The number of fatalities per year relates to the size and occupancy of the aeroplane involved in the accident. The most common cause of injuries in this period was encounters with turbulence during flight.

Figure 8 ERCS higher and lower risk occurrences per year involving commercial air transport airline and air-taxi aeroplanes



	2015	2016	2017	2018	2019
Lower Risk (ERCS)	26	50	31	23	24
Higher Risk (ERCS)	63	76	83	106	120

Figure 9 Fatal and serious injuries per year involving commercial air transport airline and air-taxi aeroplanes

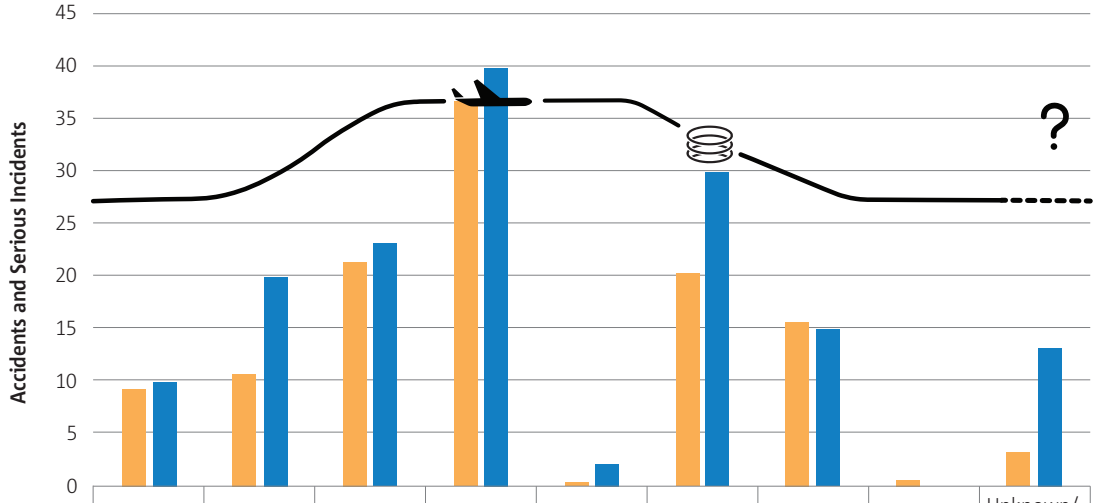


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries	4	6	11	18	8	18	10	9	10	6	8
Fatalities	228	0	6	3	0	120	150	2	0	0	0

Phase of Flight

The numbers for 2019 in Figure 10 show a similar distribution of accidents and serious incidents per flight phase to the 10-year average with a greater number in en route, during approach, and take-off due to the critical nature of those flight phases. En route was also the flight phase where the majority of accidents and serious incidents occurred in 2019. It is close to the 2009-2018 average but this is the phase of flight with the highest exposure (longest time) in comparison with other phases. In 2019 there were almost twice as many accidents and serious incidents during the taxi phase compared with the average. The unknown/blank flight phase corresponds to those occurrences where no data was available and it normally relates to the second aircraft in some of the occurrences (e.g. In a general aviation leisure flight leading to a loss of separation with an airliner, the missing information on the specific flight phase may be for the general aviation flight).

Figure 10 Accidents and serious incidents by phase of flight involving commercial air transport airline and air-taxi aeroplanes

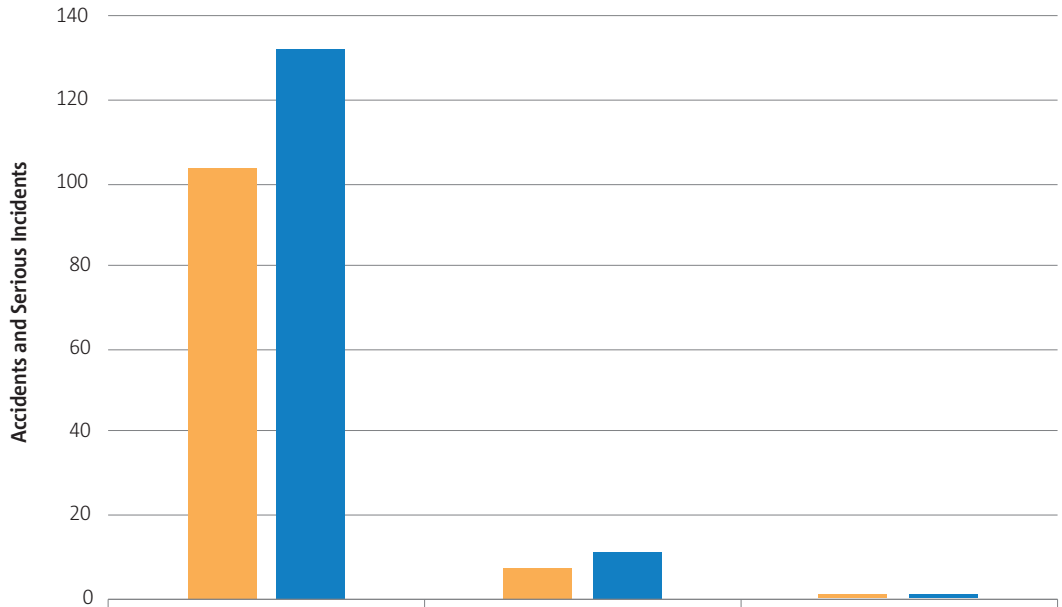


	Standing	Taxi	Take-off	En route	Manoevring	Approach	Landing	Tow	Unknown/ Blank
Average 2009-2018	9.2	10.5	21.5	36.6	0.2	20.3	15.5	0.5	3.2
2019	10	20	23	40	2	30	15	0	13

Operation Type

As depicted in Figure 11, the numbers for 2019 show a similar distribution pattern between operation types (passenger or cargo) compared with the 10 year average (2009-2018), with an increase for the figures for 2019. Unknown/blank corresponds to those occurrences where no data on the operation type was available and it normally relates to the second aircraft in some of the occurrences (e.g. loss of separation between an airliner and another aircraft).

Figure 11 Accidents and serious incidents by operation type involving commercial air transport airline and air-taxi aeroplanes

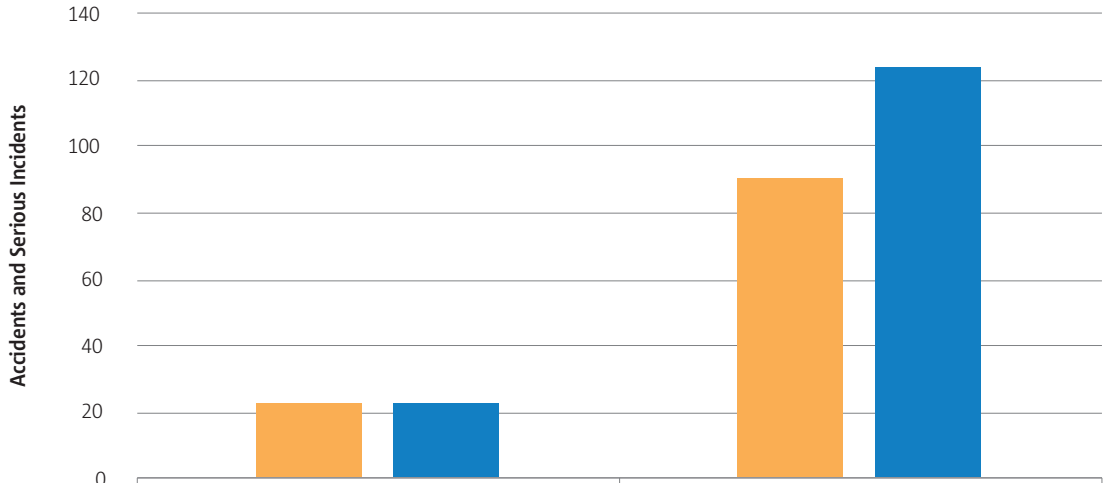


	Passenger	Cargo	Unknown/ Blank
Average 2009-2018	103.4	7.4	0.1
2019	133	11	1

Propulsion Type

Figure 12 illustrates that the split by propulsion type shows a similar pattern between the figures in 2019 and the 10-year average (2009-2018). The split between turbofan and turboprop is consistent with the aircraft fleet sizes and its different exposure figures.

Figure 12 Accidents and serious incidents by propulsion type involving commercial air transport airline and air-taxi aeroplanes

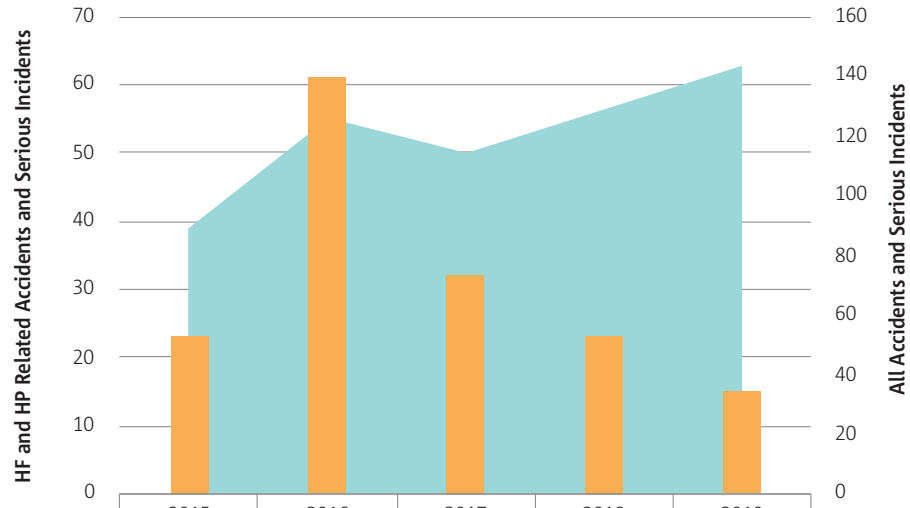


	Turboprop	Turbofan
Average 2009-2018	21.9	90
2019	22	123

Human Factors and Human Performance

Approximately a quarter of commercial air transport large aeroplane accident and serious incident reports identify human factors (HF) or human performance (HP) issues. Looking at the figures for the past five years, there is an apparent increase in 2016. The figure for 2019 should be viewed as preliminary and is likely to increase, since HF or HP issues are often not recorded within accident and serious incident reports until the final report is published.

Figure 13 Human factors and human performance accidents and serious incidents involving commercial air transport airline and air-taxi aeroplanes



	2015	2016	2017	2018	2019
Accidents and Serious Incidents	89	126	114	129	144
HF/ HP Accidents and Serious Incidents	23	61	32	23	15

The application of HF or HP codes at a high level can be seen in Figure 14. Clearly, task performance issues are more easily diagnosable following an accident or serious incident than the factors that cause them.

Figure 14 High level human factors and human performance event codes applied to accidents and serious incidents involving commercial air transport airline and air-taxi aeroplanes

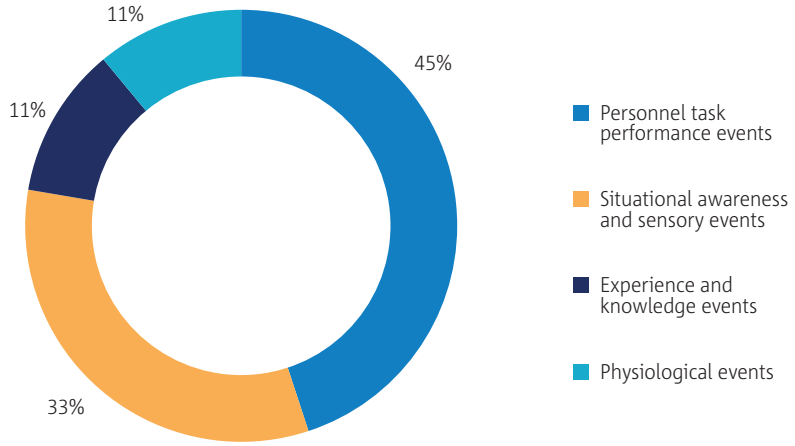
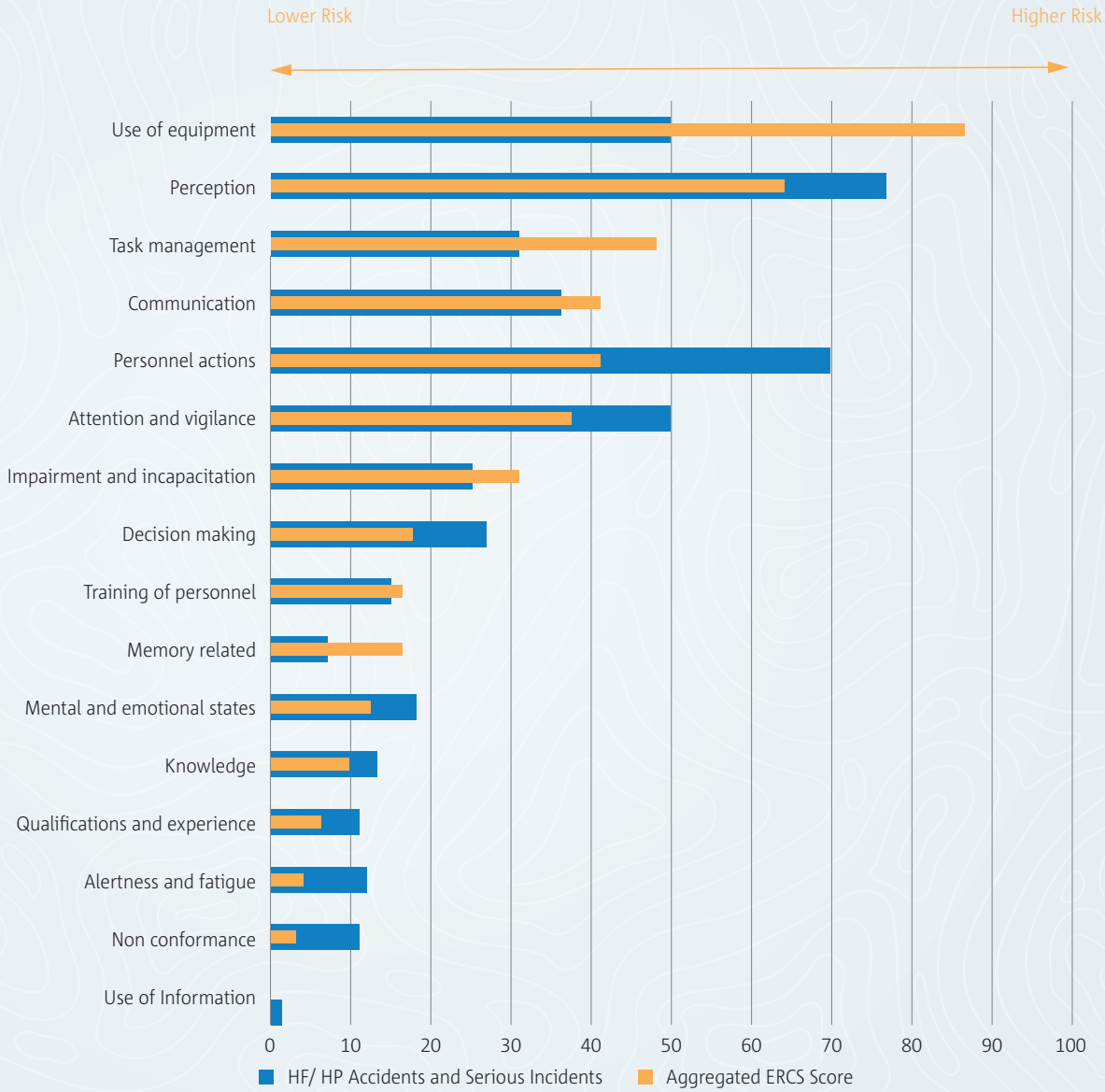


Figure 15 compares the number of accidents and serious incidents with the aggregated ERCS risk score of those occurrences, using detailed HF and HP event codes. It can be seen that some events have a greater risk than others, as indicated where the aggregated risk score is far higher than the number of accidents and serious incidents. In particular, use of equipment stands out as the HP event type with the highest aggregated risk score, despite being joint third in the number of accidents and serious incidents.

Figure 15 Detailed human factors and human performance event codes by aggregated ERCS score and numbers of accidents and serious incidents involving commercial air transport airline and air-taxi aeroplanes



2.2 Non-commercial Complex Business Aeroplanes

This section covers the safety performance of EASA MS registered complex aeroplanes operating non-commercial operations (NCC).

Key Statistics

The key statistics for this domain are in Table 5 and include a comparison of the numbers of accidents (fatal and non-fatal) and serious incidents in 2019 with the 10-year period 2009-2018.

Table 5 Key Statistics for non-commercial complex business aeroplanes

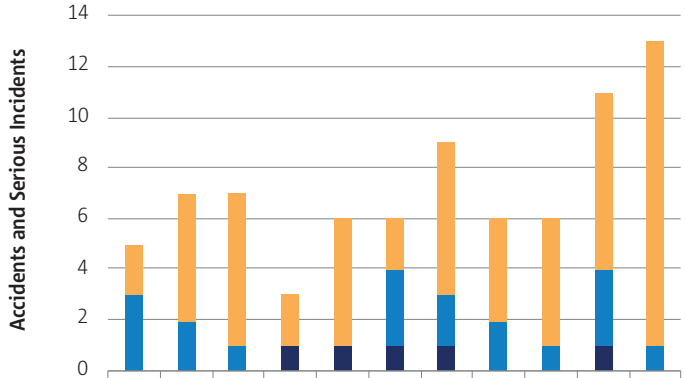
2009 - 2018 TOTAL	TIMESPAN	2019	2019 vs 2009-2018
5	Fatal Accidents	0	↓
17	Non-fatal Accidents	1	↓
44	Serious Incidents	12	↑

Table 6 Fatalities and serious injuries involving non-commercial complex business aeroplanes

	FATALITIES	SERIOUS INJURIES
2009 - 2018 Total	10	2
2009 - 2018 Max	4	2
2009 - 2018 Min	0	0
2019	0	0

During 2019, there were no fatal accidents involving an EASA MS registered NCC business aeroplane. The number of non-fatal accidents has decreased but the number of serious incidents has increased in comparison with the average of the previous 10-year period (2009-2018).

Figure 16 Fatal accidents, non-fatal accidents and serious incidents per year involving non-commercial complex business aeroplanes

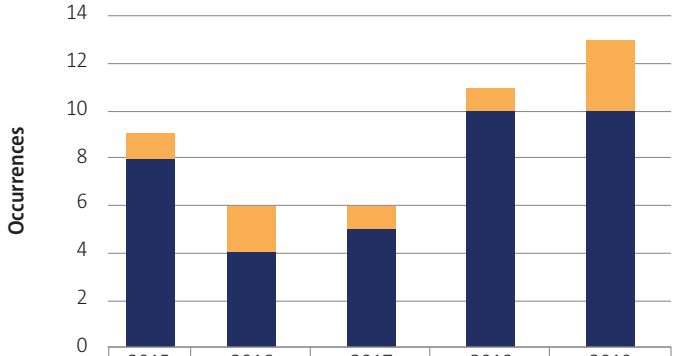


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	2	5	6	2	5	2	6	4	5	7	12
Non-Fatal Accidents	3	2	1	0	0	3	2	2	1	3	1
Fatal Accidents	0	0	0	1	1	1	1	0	0	1	0

Figure 17 shows occurrences that have been risk scored and grouped by higher and lower risk, based on the ERCS methodology. As can be seen in the figure, there is a low number of lower risk occurrences. This is likely due to the low reporting in this domain, where only high risk accidents and serious incidents, normally very visible and with severe outcomes, are being reported and investigated.

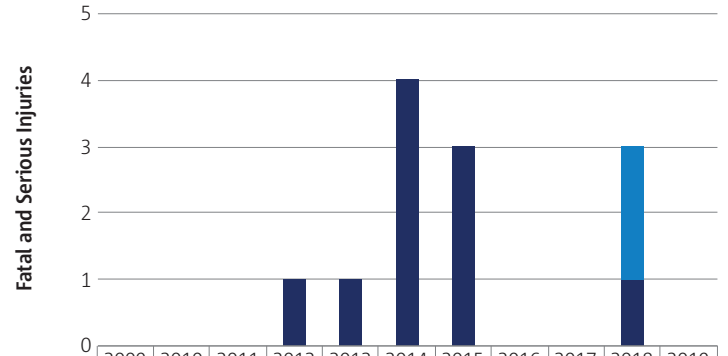
Due to the size of the aeroplanes used for the majority of this type of operation, the number of fatalities is low, though still with a consolidated average of around 1 fatality per year. As can be seen in Figure 18, there has been approximately 1 fatal accident every 2 years.

Figure 17 ERCS higher and lower risk occurrences involving non-commercial complex business aeroplanes



	2015	2016	2017	2018	2019
Lower Risk (ERCS)	1	2	1	1	3
Higher Risk (ERCS)	8	4	5	10	10

Figure 18 Fatal and serious injuries per year involving non-commercial complex business aeroplanes

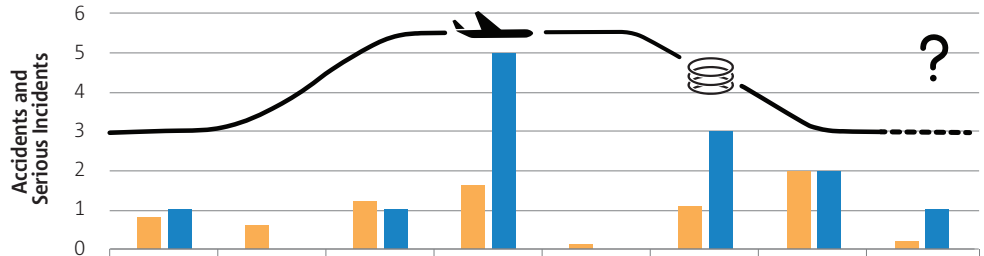


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries	0	0	0	0	0	0	0	0	0	2	0
Fatalities	0	0	0	1	1	4	3	0	0	1	0

Phase of Flight

The low numbers in this domain do not allow any comparison in terms of flight phase. However, the data is still presented for information in Figure 19.

Figure 19 Accidents and serious incidents by phase of flight involving non-commercial complex – business aeroplanes

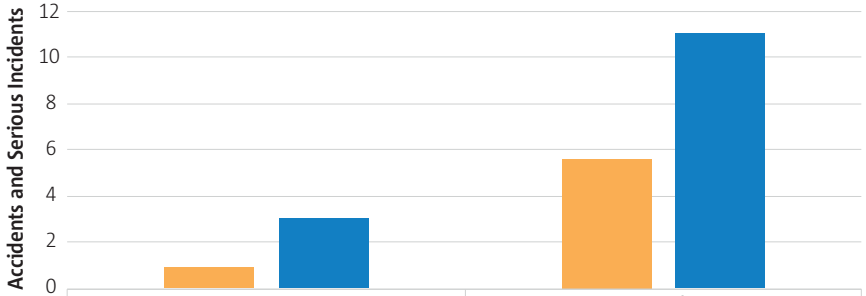


	Standing	Taxi	Take-off	En route	Manoevring	Approach	Landing	Unknown/ blank
Average 2009-2018	0.8	0.6	1.2	1.6	0.1	1.1	2	0.2
2019	1	0	1	5	0	3	2	1

Propulsion Type

The low figures in this domain do not allow any comparison between the two main propulsion types. However, the data are still presented for information in Figure 20.

Figure 20 Accidents and serious incidents by propulsion type involving non-commercial complex business aeroplanes



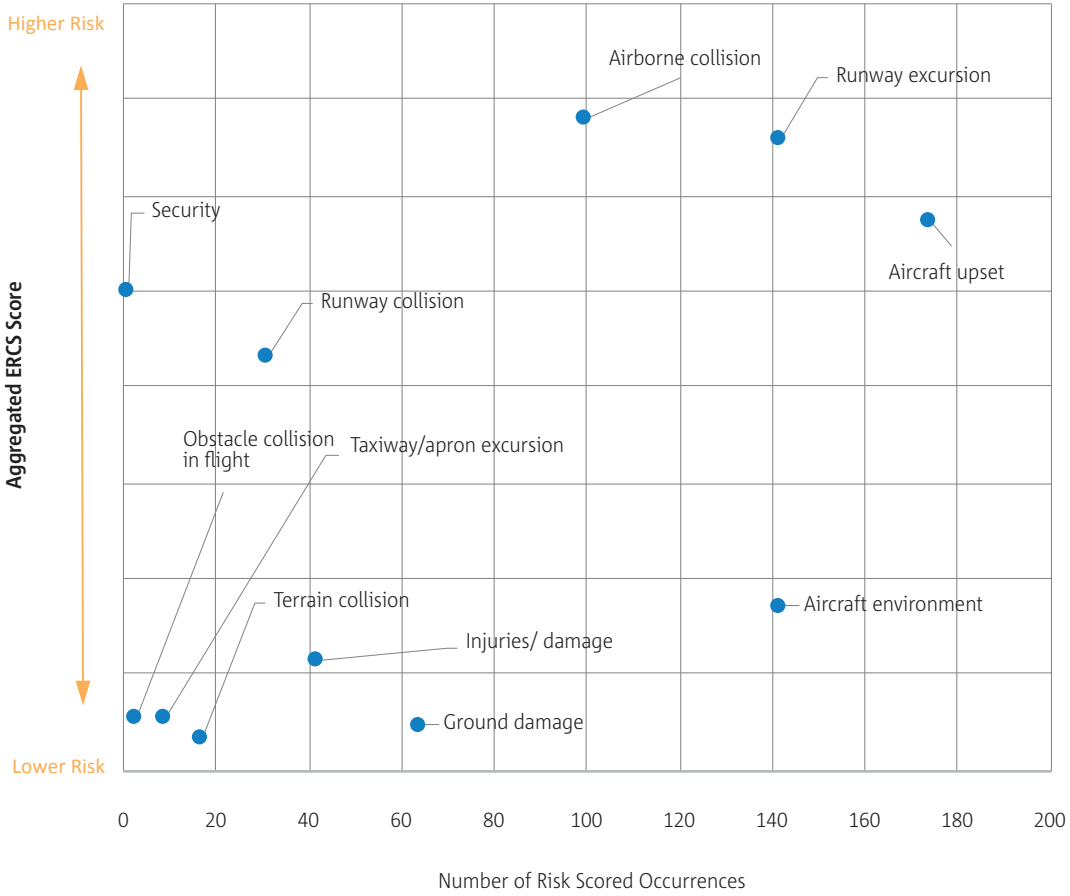
	Turboprop	Turbofan
Average 2009-2018	0.9	5.6
2019	3	11

2.3 Safety Risks for Large Aeroplanes (CAT Airlines, Air Taxi and NCC Business)

CAT airlines, air-taxi and NCC business operations are covered by a single data portfolio due to the similarity of the main risk areas and safety issues for these operation types, and the small amount of data available for NCC business. The data portfolio is derived from occurrence data from the EASA occurrence repository and the European Central Repository (ECR). ECCAIRS queries have been constructed for each safety issue in order to identify the occurrences associated with each safety issue, and these form the data portfolio as presented in this review.

The main key risk areas for this domain are highlighted in Figure 21 and are defined by their potential accident outcome and by the immediate precursors of that accident outcome.

Figure 21 Key risk areas by aggregated ERCS score and number of risk-scored occurrences involving commercial air transport – airlines and air-taxi



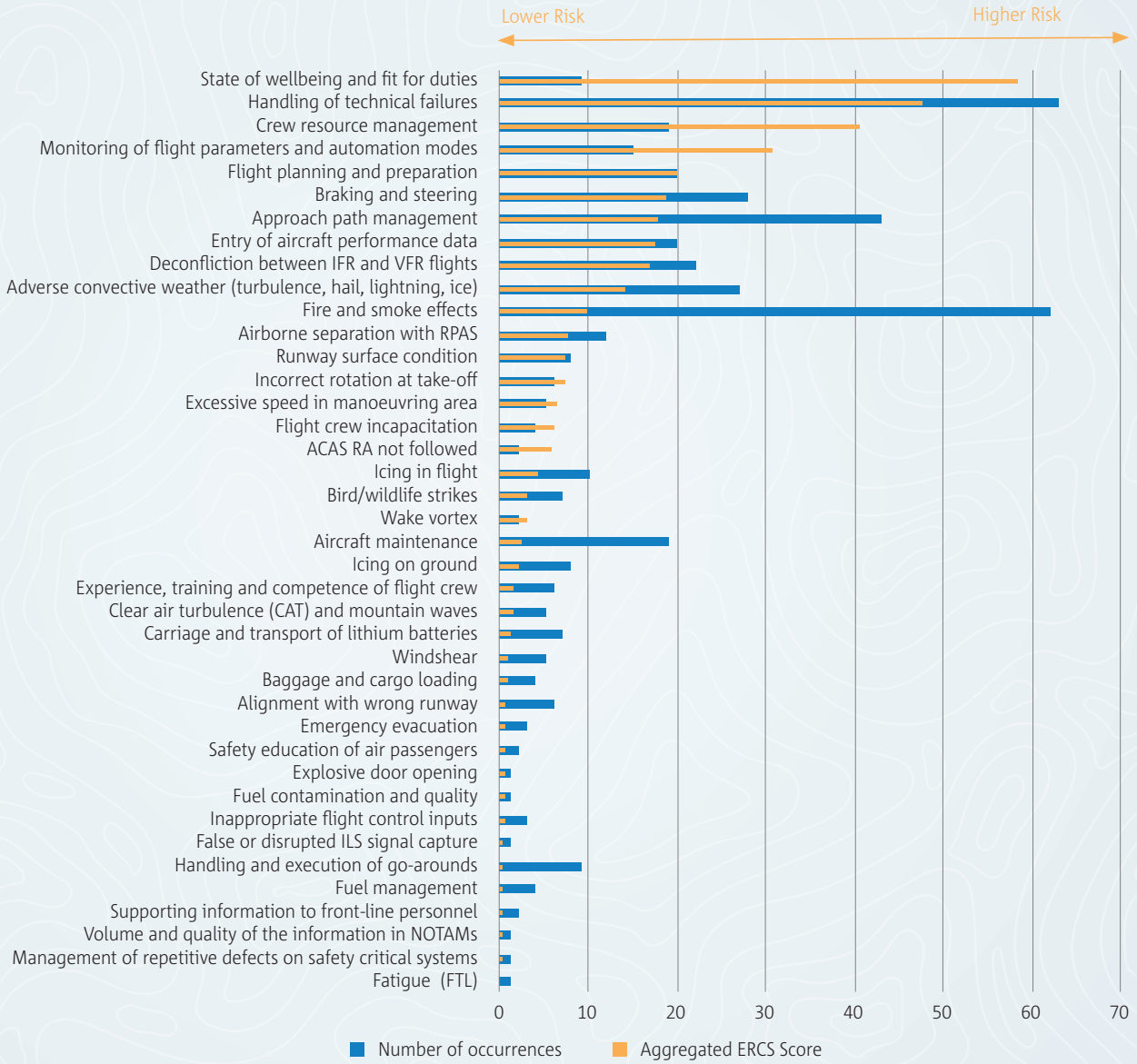
1. **Airborne collision** includes all occurrences involving actual or potential airborne collisions between aircraft while both aircraft are airborne and between aircraft and other airborne objects (excluding birds and wildlife). This also includes all separation-related occurrences caused by either air traffic control or cockpit crew, AIRPROX reports and genuine ACAS alerts. It does not include false ACAS alerts caused by equipment malfunctions, or loss of separation with at least one aircraft on the ground, which may be coded as ground damage if the occurrence meets the criteria and usage notes for those categories.

2. **Runway excursion** covers actual or potential runway excursions, both at high and low speed, and occurrences where the flight crew had difficulties maintaining the directional control of the aircraft or of the braking action during landing, where the landing occurred long, fast, off-centred or hard, or where the aircraft had technical problems with the landing gear (not locked, not extended or collapsed) during landing.

3. **Aircraft upset** includes all occurrences involving an actual or potential loss of control inflight, which includes situations where unintended deviations from the flight path has occurred. This covers only occurrences during the airborne phase of flight and may occur as a result of a deliberate manoeuvre (e.g., stall/spin practice). It includes occurrences involving configuring the aircraft (e.g., flaps, slats, on-board systems, etc.) as well as stalls on fixed wing aircraft.

Similar to the approach adopted for key risk areas, Figure 22 lists the safety issues in the large aeroplanes data portfolio and shows both the number of occurrences and the risk score. However, in this case, the aggregated ERCS score is not considered a complete risk indicator. This is because the finer granularity of the safety issue renders this indicator more vulnerable to the reactiveness of the data type used (only accidents and serious incidents).

Figure 22 Safety issues by aggregated ERCS score and numbers of accidents and serious incidents involving commercial air transport – airline and air-taxi



The data portfolio is shown in Table 7 and lists the safety issues for the domain and cross-references these with the key risk areas, highlighting the most important key risk areas and safety issues. The key risk areas are sorted by the aggregated risk score. The safety issues are listed on the left of the table and are also sorted from the top by decreasing aggregated ERCS risk score. The different colour bands denote high to low risk of the safety issues.

The highest contributions to the airborne collision key risk area are deconfliction between IFR and VFR flights and airborne separation with RPAS. For the runway excursion and aircraft upset key risk areas, the main contributing safety issues are approach path management, entry of aircraft performance data, handling of technical failures and aircraft braking and steering.

Table 7 Data portfolio for large aeroplanes (CAT Airlines, Air Taxi and NCC business)

SAFETY ISSUE	KEY RISK AREAS (ERCS)										
	AIRBORNE COLLISION	RUNWAY EXCURSION	AIRCRAFT UPSET	SECURITY	RUNWAY COLLISION	AIRCRAFT ENVIRONMENT	INJURIES / DAMAGE	TAXIWAY/ APRON EXCURSION	OBSTACLE COLLISION IN FLIGHT	GROUND DAMAGE	TERRAIN COLLISION
State of wellbeing and fit for duties		o	o	o							o
Handling of technical failures	o	x	x		o	x		o			o
Crew resource management	o	o	o		o	o			o	o	
Monitoring of flight parameters and automation modes	o	o	x								o
Flight planning and preparation	o	o	x			o	o			o	

X = stronger contributor to the key risk area
O = weaker contributor to the key risk area.

Priority 1 Priority 2 Priority 3 Priority 4

SAFETY ISSUE	KEY RISK AREAS (ERCS)										
	AIRBORNE COLLISION	RUNWAY EXCURSION	AIRCRAFT UPSET	SECURITY	RUNWAY COLLISION	AIRCRAFT ENVIRONMENT	INJURIES / DAMAGE	TAXIWAY/ APRON EXCURSION	OBSTACLE COLLISION IN FLIGHT	GROUND DAMAGE	TERRAIN COLLISION
Braking and steering		x	o					o		o	
Approach path management	o	x	x		o				o		o
Entry of aircraft performance data		x	x								o
Deconfliction between IFR and VFR flights	x										
Adverse convective weather (turbulence, hail, lightning, ice)	o	o	o				x				o
Fire and smoke effects		o	o			x	o				
Airborne separation with RPAS	x										
Runway surface condition		o	o								
Incorrect rotation at take-off		o	o								
Excessive speed in manoeuvring area		o						o			
Flight crew incapacitation			o								

SAFETY ISSUE	KEY RISK AREAS (ERCS)										
	AIRBORNE COLLISION	RUNWAY EXCURSION	AIRCRAFT UPSET	SECURITY	RUNWAY COLLISION	AIRCRAFT ENVIRONMENT	INJURIES / DAMAGE	TAXIWAY/ APRON EXCURSION	OBSTACLE COLLISION IN FLIGHT	GROUND DAMAGE	TERRAIN COLLISION
ACAS RA not followed	o										o
Icing in flight			o			o					o
Bird/wildlife strikes		o	o		o						
Wake vortex	o		o				o				
Aircraft maintenance		o	o			o	o			o	o
Icing on ground			o			o				o	
Experience, training and competence of flight crew		o	o		o					o	
Clear air turbulence (CAT) and mountain waves			o				o				
Carriage and transport of lithium batteries						o					
Windshear	o	o	o								
Baggage and cargo loading			o							o	
Alignment with wrong runway		o			o			o	o	o	o
Emergency evacuation						o	o				
Safety education of air passengers						o					

SAFETY ISSUE	KEY RISK AREAS (ERCS)										
	AIRBORNE COLLISION	RUNWAY EXCURSION	AIRCRAFT UPSET	SECURITY	RUNWAY COLLISION	AIRCRAFT ENVIRONMENT	INJURIES / DAMAGE	TAXIWAY/ APRON EXCURSION	OBSTACLE COLLISION IN FLIGHT	GROUND DAMAGE	TERRAIN COLLISION
Fuel contamination and quality			o								
Explosive door opening							o				
Inappropriate flight control inputs			o				o				
False or disrupted ILS signal capture		o			o				o		o
Handling and execution of go-arounds	o	o	o			o					o
Fuel management			o								
Supporting information to front-line personnel		o	o								
Volume and quality of the information in NOTAMs										o	
Management of repetitive defects on safety critical systems			o								
Fatigue (FTL)			o								

2.4 Specialised Operations Aeroplanes

The scope of this section covers Specialised Operations (SPO) involving aeroplanes of all mass categories having an EASA Member State as State of Registry or State of Operator.

Key Statistics

The key statistics for this domain are in Table 8 and Table 9. The numbers of accidents and serious incidents in 2019 were lower than the average of the preceding 10-year period. The number of fatalities was higher than the 2009-2018 average, whereas the number of serious incidents in 2019 was lower than any year in the preceding decade.

Table 8 Key statistics for specialised operations aeroplanes

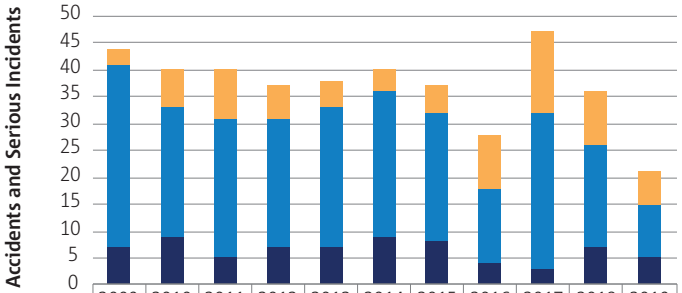
2009 - 2018 TOTAL	TIMESPAN	2019	2019 vs 2009-2018
66	Fatal Accidents	5	↓
247	Non-fatal Accidents	10	↓
74	Serious Incidents	6	↓

Table 9 Fatalities and serious injuries involving specialised operations aeroplanes

	FATALITIES	SERIOUS INJURIES
2009-2018 total	133	77
2009-2018 max	28	17
2009-2018 min	4	4
2019	16	1

The number of accidents and serious incidents per year is shown in Figure 23. The number of non-fatal accidents in 2019 was lower than in any year in the preceding decade. The number of fatal accidents in 2019 was low, in only two of the years (2016 and 2017) in the previous 10-year period was the number lower.

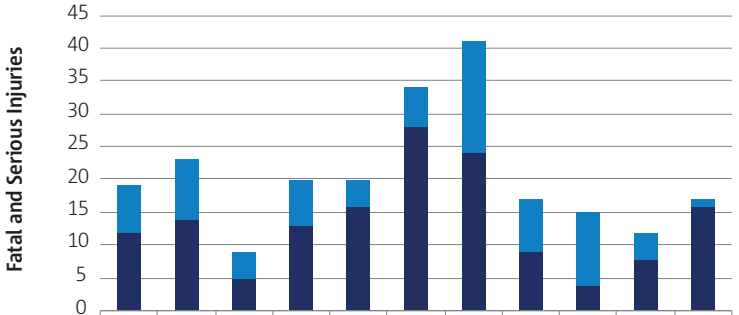
Figure 23 Fatal accidents, non-fatal accidents and serious incidents per year involving specialised operations aeroplanes



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	3	7	9	6	5	4	5	10	15	10	6
Non-Fatal Accidents	34	24	26	24	26	27	24	14	29	19	10
Fatal Accidents	7	9	5	7	7	9	8	4	3	7	5

The numbers of fatalities and serious injuries per year is shown in Figure 24. The number of fatalities in 2019 is high in relation to the number of fatal accidents. This is mostly due to one accident in Sweden with 9 fatalities. Only 1 serious injury was recorded in 2019, lower than any year in the preceding decade.

Figure 24 Fatal and serious injuries per year involving specialised operations aeroplanes

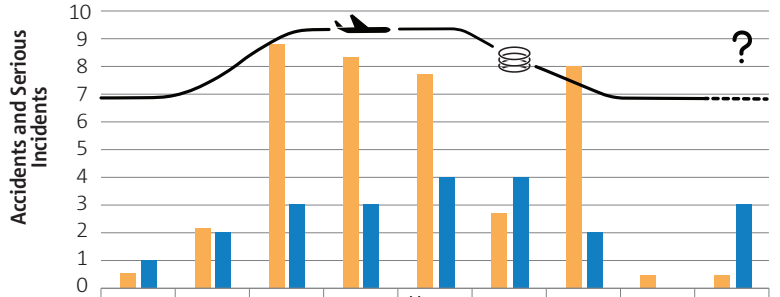


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries	7	9	4	7	4	6	17	8	11	4	1
Fatalities	12	14	5	13	16	28	24	9	4	8	16

Phase of Flight

Figure 25 shows the distribution of accidents and serious incidents by flight phase. In 2019 the numbers of accidents and serious incidents in the approach phase and the standing phase were higher than the averages of the preceding decade. The number of unknown flight phases (based on available information) is also higher than normal. For all other flight phases the 2019 numbers were lower than the 2009-2018 average.

Figure 25 Accidents and serious incidents by phase of flight involving specialised operations aeroplanes

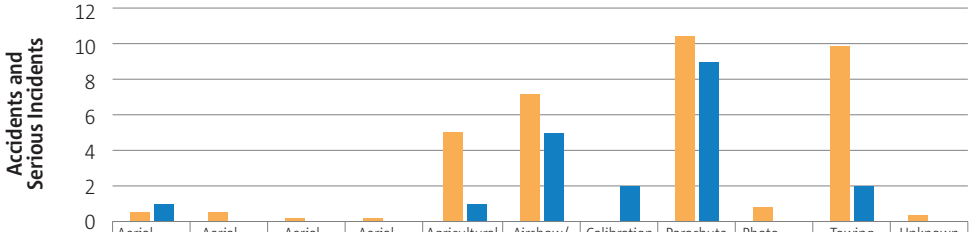


	Standing	Taxi	Take-off	En route	Manoe-vring	Approach	Landing	Tow	Unknown
Average 2009-2018	0.6	2.2	8.8	8.3	7.7	2.7	8	0.5	0.5
2019	1	2	3	3	4	4	2	0	3

Operation Type

Figure 26 shows the numbers of accidents and serious incidents per specialised operation. The numbers of accidents and serious incidents in 2019 are lower than the 2009-2018 average in all types of specialised operations, except aerial advertising and calibration[4]. Parachute drop continues to be the type of specialised operation with the highest number of accidents, and the aforementioned fatal accident in Sweden with 9 fatalities is included there.

Figure 26 Accidents and serious incidents by specialised operation type involving aeroplanes

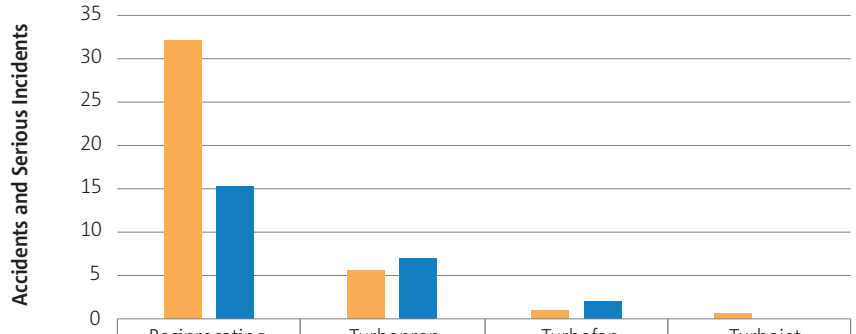


	Aerial Advertising	Aerial Obser-vation	Aerial Patrol	Aerial Survey	Agricultural	Airshow/ Race	Calibration	Parachute drop	Photo-graphy	Towing	Unknown
Average 2009-2018	0.6	0.6	0.2	0.2	5.1	7.2	0	10.5	0.8	9.9	0.4
2019	1	0	0	0	1	5	2	9	0	2	0

Propulsion Type

Figure 27 shows the numbers of accidents and serious incidents per propulsion type. The number of occurrences involving aircraft with reciprocating engines was considerably lower in 2019 compared to the preceding decade. For turboprop and turbofan engines the 2019 numbers were slightly higher than the 2009-2018 averages.

Figure 27 Accidents and serious incidents by propulsion type involving specialised operations aeroplanes



	Reciprocating	Turboprop	Turbofan	Turbojet
Average 2009-2018	32.2	5.6	0.9	0.4
2019	15	7	2	0

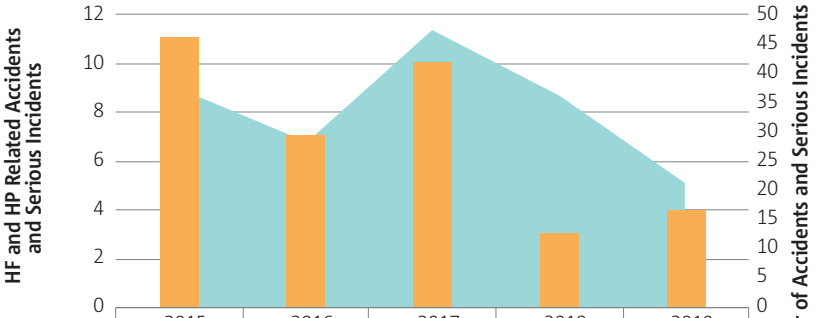
4 Calibration flights are flights for the purpose of calibrating ground based instrument approach support systems.

Human Factors and Human Performance

Approximately a fifth of specialised operations aeroplane accident and serious incident reports identify human factors (HF) or human performance (HP) issues. In this domain, the figures for both 2018 and 2019 should be viewed as preliminary and likely to increase, since HF or HP issues are often not recorded within accident and serious incident reports until the final report is published.

The application of HF or HP codes at a high level can be seen in Figure 29. The codes in this domain are split between situational awareness and sensory events and personnel task performance events.

Figure 28 Human factors and human performance accidents and serious incidents involving specialised operations aeroplanes



	2015	2016	2017	2018	2019
Accidents and Serious Incidents	37	28	47	36	21
HF/ HP Accidents and Serious Incidents	11	7	10	3	4

Figure 29 High level human factors and human performance event codes applied to accidents and serious incidents involving specialised operations aeroplanes

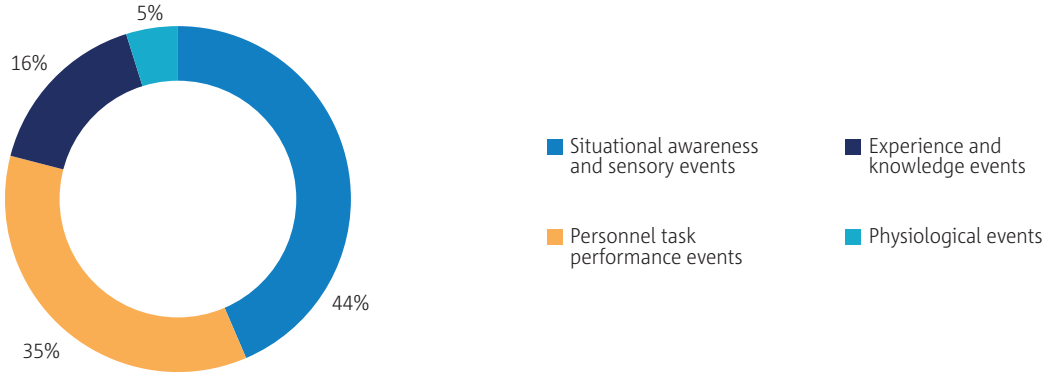
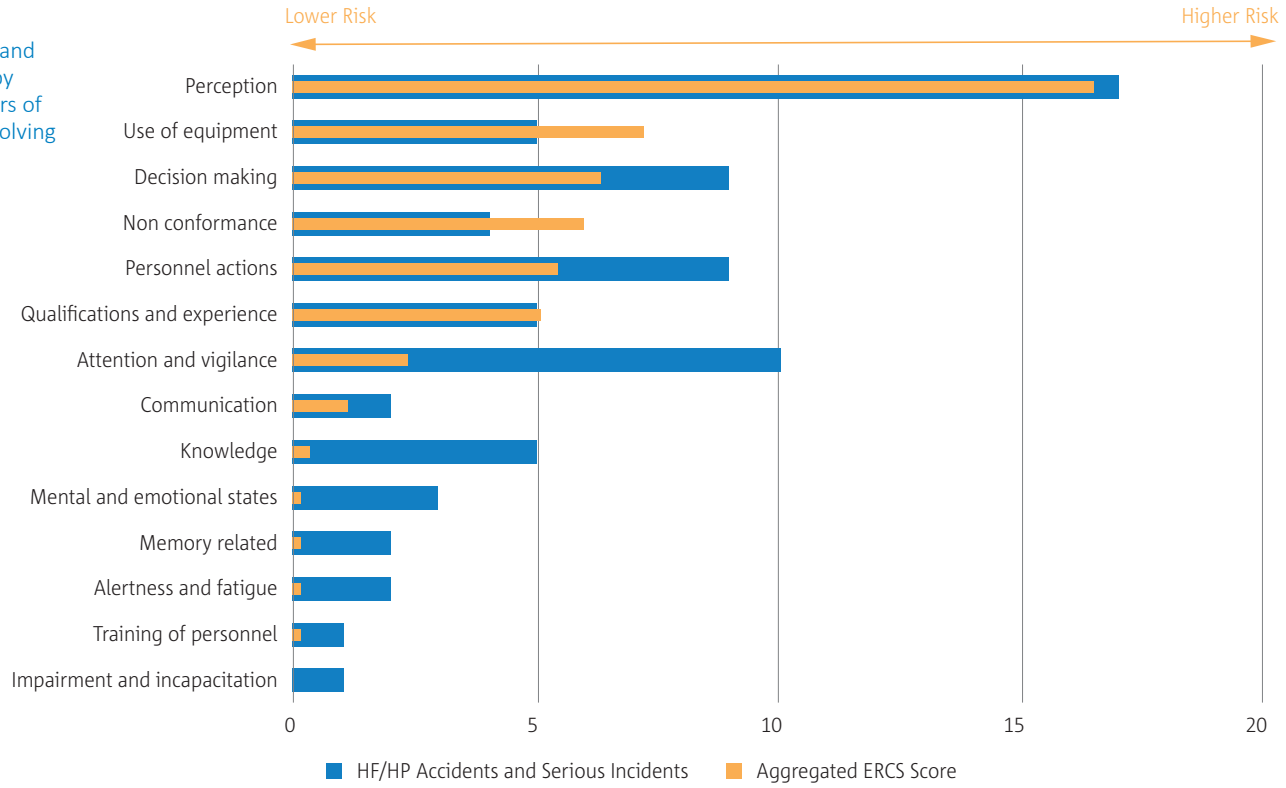


Figure 30 compares the numbers of accidents and serious incidents with the aggregated ERCS risk score of those incidents, using detailed HF and HP event codes. It can be seen that some events have a greater risk than others, as indicated where the aggregated risk score is far higher than the number of accidents and serious incidents. Perception stands out as being both the most numerous and highest risk occurrence type, while the use of equipment is the second highest risk occurrence type, but it is only the 7th most common in terms of the number of accidents and serious incidents.

Figure 30 Detailed human factors and human performance event codes by aggregated ERCS score and numbers of accidents and serious incidents involving specialised operations aeroplanes



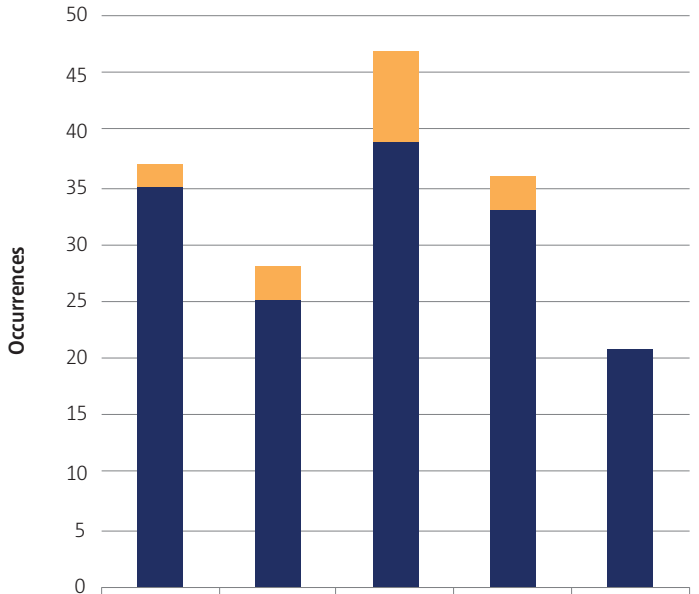
Safety Risks for Specialised Operations Aeroplanes

The safety risks for specialised operations aeroplanes have been identified by EASA. They are derived from occurrence data from the EASA occurrence repository and the European Central Repository (ECR). ECCAIRS queries have been constructed for each safety issue in order to identify the occurrences associated with each safety issue, and these form the data portfolio as presented in this review.

EASA has reviewed the accidents, serious incidents and incidents pertaining to specialised operations – aeroplanes for 2015-2019 with regard to risk. All occurrences within the scope have been risk assessed using the European Risk Classification Scheme (ERCS) methodology and have been given an ERCS score. The number of ERCS scored occurrences per year is shown in Figure 31.

The key risk areas for specialised operations involving aeroplanes are shown in Figure 32. It can be observed that aircraft upset is the highest risk and most common type of accident or serious incident in this domain. There have been approximately 50 occurrences where runway excursion is the key risk area, however the aggregated ERCS risk score of those occurrences is lower than, for example, the risk scores of potential airborne collisions and terrain collisions.

Figure 31 ERCS higher and lower risk occurrences per year involving specialised operations aeroplanes



	2015	2016	2017	2018	2019
Lower Risk (ERCS)	2	3	8	3	0
Higher Risk (ERCS)	35	25	39	33	21

Figure 32 Key Risk Areas by aggregated ERCS score and number of risk-scored occurrences involving specialised operations aeroplanes

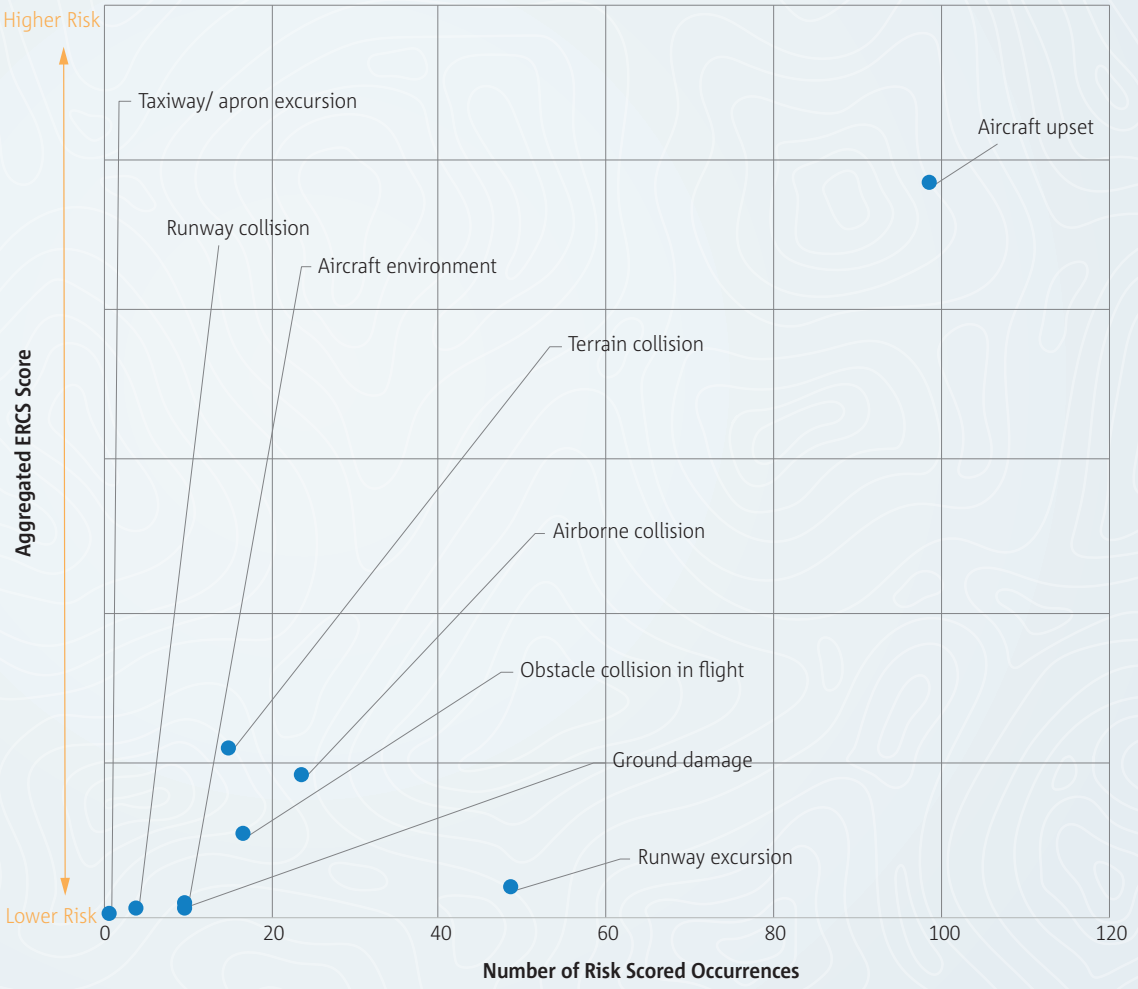


Figure 33 shows a comparison between the number of occurrences per safety issue and their aggregated ERCS score. A yellow bar in the graph that is considerably long in comparison with the underlying blue bar indicates a low number of occurrences contributing to a high risk.

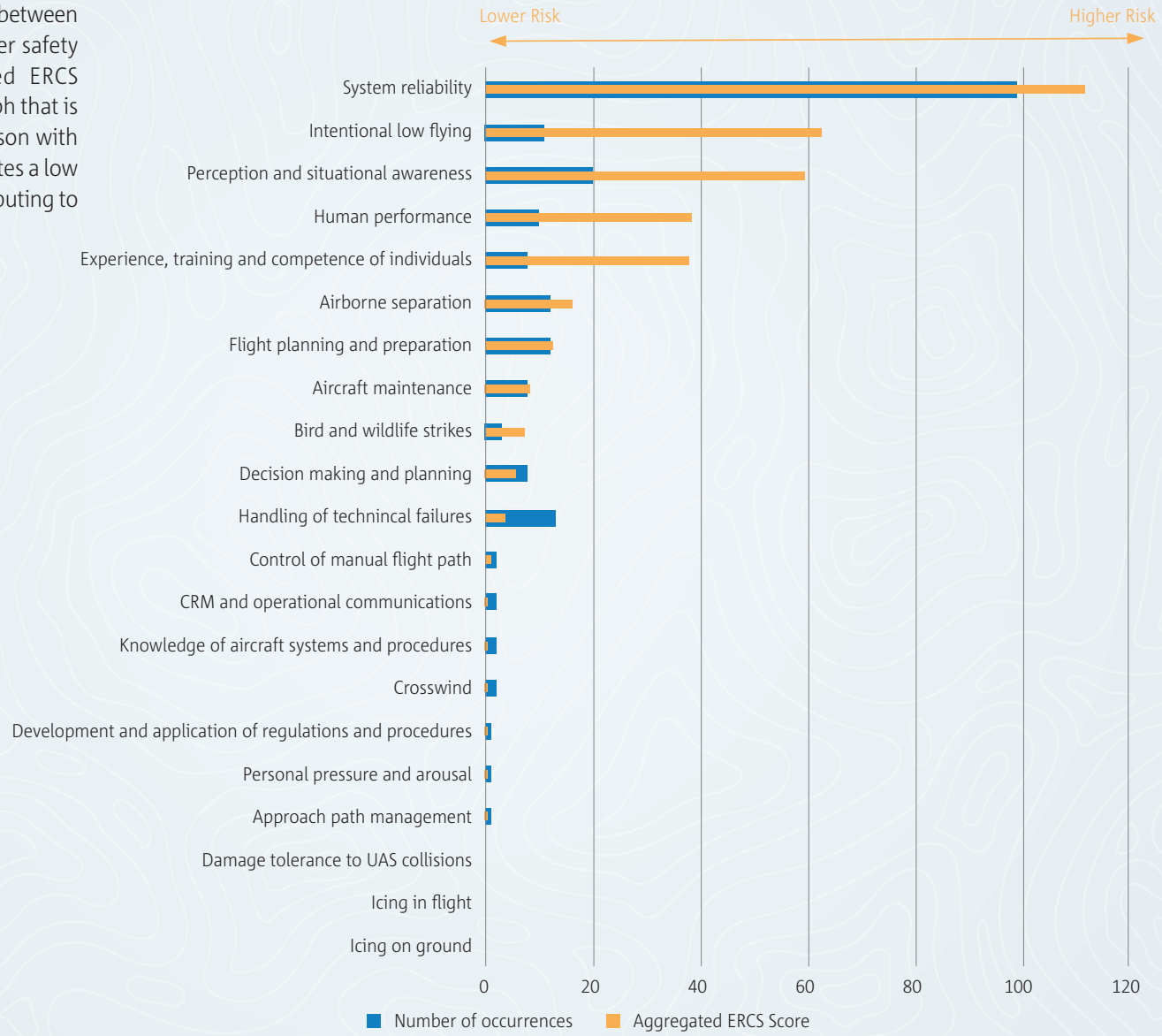


Figure 33 Safety Issues by aggregated ERCS score and number of occurrences involving specialised operations aeroplanes

The data portfolio is shown in Table 10 and lists the safety issues for the domain and cross-references these with the key risk areas, highlighting the most important key risk areas and safety issues. The key risk areas are sorted by the aggregated risk score. The safety issues are listed on the left of the table and are also sorted from the top by decreasing aggregated ERCS risk score. The different colour bands denote high to low risk of the safety issues.

From a strict data point of view, system reliability is the safety issue with the highest aggregated risk score. Perception and situational awareness is the safety issue that affects the most key risk areas, as occurrences for this safety issue could be linked to all key risk areas, except aircraft environment.

Table 10 Data portfolio for specialised operations aeroplanes

SAFETY ISSUE	AIRCRAFT UPSET	TERRAIN COLLISION	AIRBORNE COLLISION	OBSTACLE COLLISION IN FLIGHT	RUNWAY EXCURSION	GROUND DAMAGE	AIRCRAFT ENVIRONMENT	RUNWAY COLLISION	TAXIWAY/ APRON EXCURSION
System reliability	X	X	O	O	X		X		
Intentional low flying	X	O		O		O			
Perception and situational awareness	X	O	O	O	O	O		O	O
Human performance	X			O	O		O	O	
Experience, training and competence of individuals	O			O	O				
Airborne separation	O		X						

X = stronger contributor to the key risk area
O = weaker contributor to the key risk area.

Priority 1 Priority 2 Priority 3 Priority 4

SAFETY ISSUE	AIRCRAFT UPSET	TERRAIN COLLISION	AIRBORNE COLLISION	OBSTACLE COLLISION IN FLIGHT	RUNWAY EXCURSION	GROUND DAMAGE	AIRCRAFT ENVIRONMENT	RUNWAY COLLISION	TAXIWAY/ APRON EXCURSION
Flight planning and preparation	x		o	o	o	o			
Aircraft maintenance	x				o		o		
Bird and wildlife strikes	o								
Decision making and planning	o	o	o	o	o				
Handling of technical failures	x	o	o	o	o		o		
Control of manual flight path	o		o						
CRM and operational communications	o				o				
Knowledge of aircraft systems and procedures	o				o				
Crosswind					o				
Development and application of regulations and procedures				o					
Personal pressure and arousal								o	
Approach path management	o			o	o				

2.5 Non-Commercially Operated Small Aeroplanes

The scope of this section covers non-commercial operations (NCO) involving aeroplanes with a maximum take-off mass below 5 700 kg with an EASA Member State as the state of registry.

Key Statistics

The key statistics for this domain are shown in Table 11 and include a comparison of the numbers of accidents (fatal and non-fatal) and serious incidents for 2019 with the preceding 10-year period (2009-2018). Table 12 also includes the comparison of fatalities and serious injuries sustained in those accidents during the same time frame. At 37, there were fewer fatal accidents in 2019 when compared to the 10-year average and also fewer non-fatal accidents with 307. The number of fatalities is 19% lower than the 10-year average and there were 16% fewer serious injuries than during the preceding decade.

Table 11 Key statistics for non-commercially operated small aeroplanes

2009 - 2018 TOTAL	TIMESPAN	2019	2019 vs 2009-2018
477	Fatal Accidents	37	↓
3547	Non-fatal Accidents	307	↓
587	Serious Incidents	99	↑

Table 12 Numbers of fatalities and serious injuries involving non-commercially operated small aeroplanes

	FATALITIES	SERIOUS INJURIES
2009 - 2018 Total	868	465
2009 - 2018 Max	113	65
Min	64	36
2019	70	39

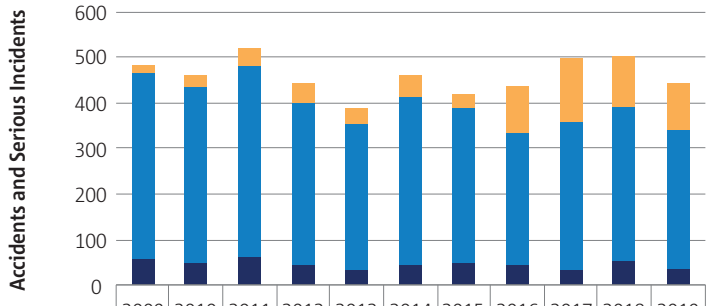
The highest number of fatalities in a single accident in 2019 occurred in Italy where a mid-air collision occurred between a GA aircraft and a helicopter resulting in 7 fatalities. Another three accidents resulted in 9 further fatalities; meaning 3 fatalities per accident. Of those accidents, one occurred in Germany, one in Austria and one in Switzerland. It is worth noting that the numbers of serious incidents both in 2018 and 2019 are close to twice the decade average.

When considering the trend across the period, it can be seen that there has been very little change in the overall number of occurrences. While the number of accidents has declined slightly, there is a corresponding increase in the number of serious incidents.

When considering Figure 34, a slight downward trend in the number of accidents over time can be observed. The number of non-fatal accidents has decreased by 24% since 2009.

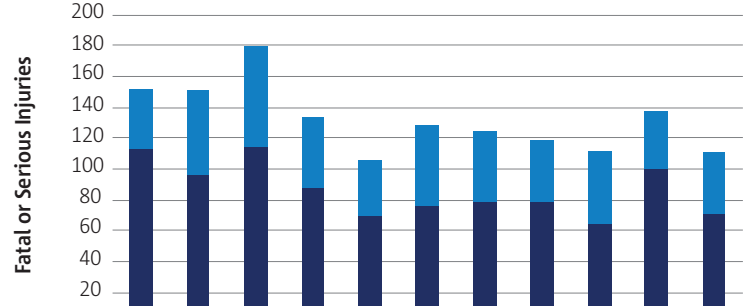
The number of fatalities in 2019 decreased compared with 2018. There were 70 fatalities last year and 99 in 2018. Compared to the 10-year average the number of fatal accidents has decreased by 22%. There were 39 serious injuries in 2019, compared with 38 in 2018. When looking at the period 2009-2018 per Figure 35, a gradual reduction can be seen in the combined number of fatalities and serious injuries.

Figure 34 Numbers of fatal accidents, non-fatal accidents and serious incidents per year involving non-commercially operated small aeroplanes



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	16	27	36	41	33	48	33	105	138	110	99
Non-Fatal Accidents	405	386	423	358	319	369	337	285	326	339	307
Fatal Accidents	59	49	61	45	35	44	50	47	34	53	37

Figure 35 Numbers of fatal and serious injuries per year involving non-commercially operated small aeroplanes



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries	39	55	65	45	36	53	47	40	47	38	39
Fatalities	112	95	113	87	69	75	77	77	64	99	70

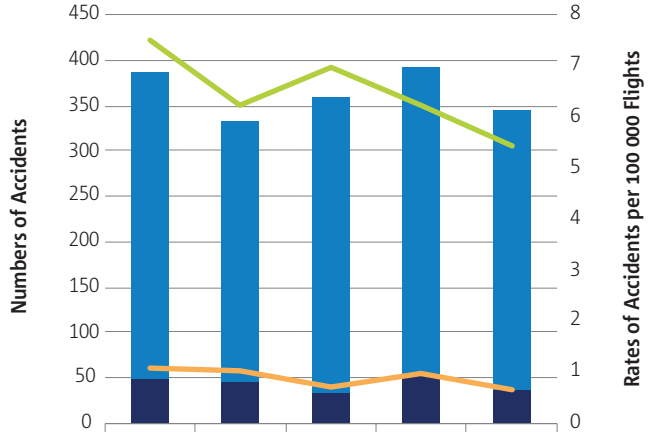
Rates of accidents

Three years ago EASA published accident rates for non-commercial small aeroplanes for the first time. These rates were based on responses from 12 EASA Member States to a joint EASA/AOPA survey in 2014, with estimates made for the remaining EASA Member States. Last year, the Agency used figures derived from a survey performed by AOPA[5] and GAMA [6] in early 2019. This year, however, the results from this year´s survey were not available for inclusion in this document. Instead the EU GDP has been used to adjust for the number of movements. This is reflected in Figure 36.

The data received from GAMA and AOPA contains an estimated number of flight hours on single engine piston aircraft. The composition of the data is significantly different from the data in the 2014 survey, in that it contains significantly more inputs from flight clubs and flight schools. That means that the utilisation of each aircraft is significantly higher than for a privately owned aircraft.

A comparison between safety of small aeroplane operations and other transport modes such as automobiles shows that the fatality rate per million passenger kilometres of general aviation aircraft is lower than the fatality rate of automobiles by a factor of 3.

Figure 36 Numbers and rates of accidents involving non-commercially operated small aeroplanes



	2015	2016	2017	2018	2019
Non-Fatal Accidents	337	285	326	339	307
Fatal Accidents	50	47	34	53	37
Fatal Accident Rate	7.49	6.22	6.96	6.22	5.41
Non-Fatal Accident Rate	1.09	1.02	0.73	0.96	0.68

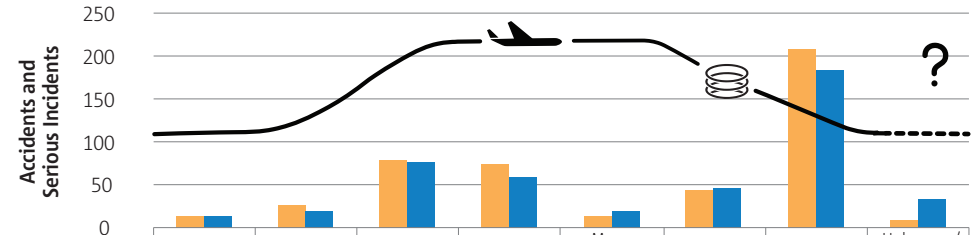
5 Aircraft Owner and Pilot Association

6 General Aviation Manufacturers Association

Phase of Flight

Figure 37 provides an overview of small aircraft operations by flight phase. It can be observed that most small aircraft accidents and serious incidents occurred during the landing phase of the flight. In 2019 there were 183 landing related accidents. This is over 11% fewer accidents and serious incidents than the 10-year average. The numbers of occurrences during the take-off and en route phases also decreased last year and the number of occurrences during approach are on par with the 10-year average. The numbers of accidents and serious incidents where the flight phase is unknown were significantly higher last year, which is considered normal as many of those occurrences are still being investigated by the authorities.

Figure 37 Accidents and serious incidents by phase of flight involving non-commercially operated small aeroplanes

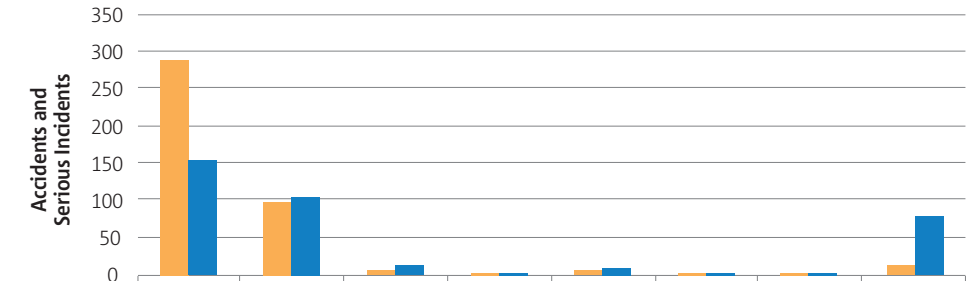


	Standing	Taxi	Take-off	En route	Manoe-vring	Approach	Landing	Unknown / Blank
Average 2009-2018	12.4	26.3	78.8	73.7	14.3	44.4	207.4	9.9
2019	13	20	76	60	19	45	183	32

Operation Type

Figure 38 provides an overview of the operation types for small aeroplanes. Most common operation types are pleasure flying and training flights. The aggregate number of accidents and serious incidents during pleasure flying was 156 in 2019, which is slightly more than half the 10-year average. Flight training, however, shows a slight increase. Occurrences where the operation type is unknown number 80 in total. Many of these occurrences are still being investigated by the authorities and have therefore not yet been fully coded.

Figure 38 Accidents and serious incidents by operation type involving non-commercially operated small aeroplanes

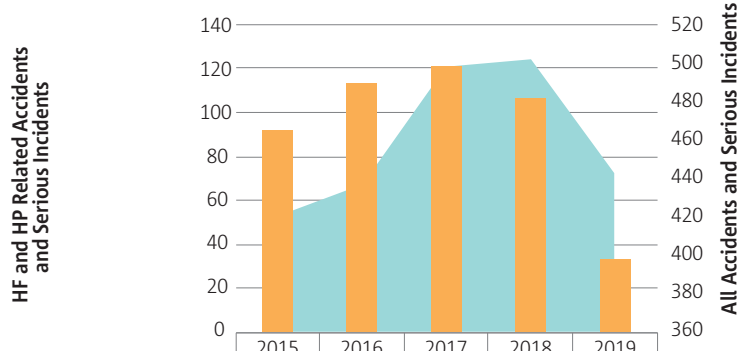


	Pleasure	Flight Training/ Instructional	Business	Passenger	Relocation	Test flight	Other	Unknown
Average 2009-2018	286.8	97.4	9.3	4.9	7.1	5.9	6	14
2019	156	106	14	3	10	1	1	80

Human Factors and Human Performance

Approximately a fifth of non-commercially operated small aeroplane accident and serious incident reports identify human factors (HF) or human performance (HP) issues. The figures for 2015 – 2018 are relatively stable in terms of the number of HF/HP issues identified, whereas the figure for 2019 should be viewed as preliminary and likely to increase. This is because HF and HP issues are often not recorded within accident and serious incident reports until the final report is published. In addition, there are often less data available to investigators owing to the lack of recording devices on board the aircraft in question.

Figure 39 Human factors and human performance accidents and serious incidents involving non-commercially operated small aeroplanes



	2015	2016	2017	2018	2019
Accidents and Serious Incidents	420	437	498	502	443
HF/ HP Accidents and Serious Incidents	92	113	121	106	33

The application of HF or HP codes at a high level can be seen in Figure 40. Clearly, events relating to task performance are easier to diagnose following an accident or serious incident than the underlying factors relating to the task performance.

Figure 40 High level human factors and human performance event codes applied to accidents and serious incidents involving non-commercially operated small aeroplanes

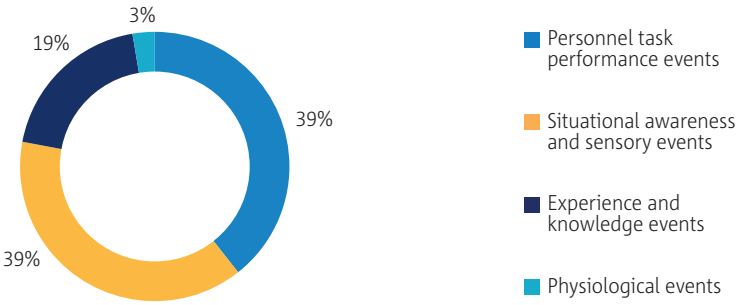


Figure 41 compares the numbers of accidents and serious incidents with the aggregated ERCS risk score of those incidents, using detailed HF and HP event codes. It can be seen that some events carry a greater risk than others, as indicated where the aggregated risk score is far higher than the number of accidents and serious incidents.

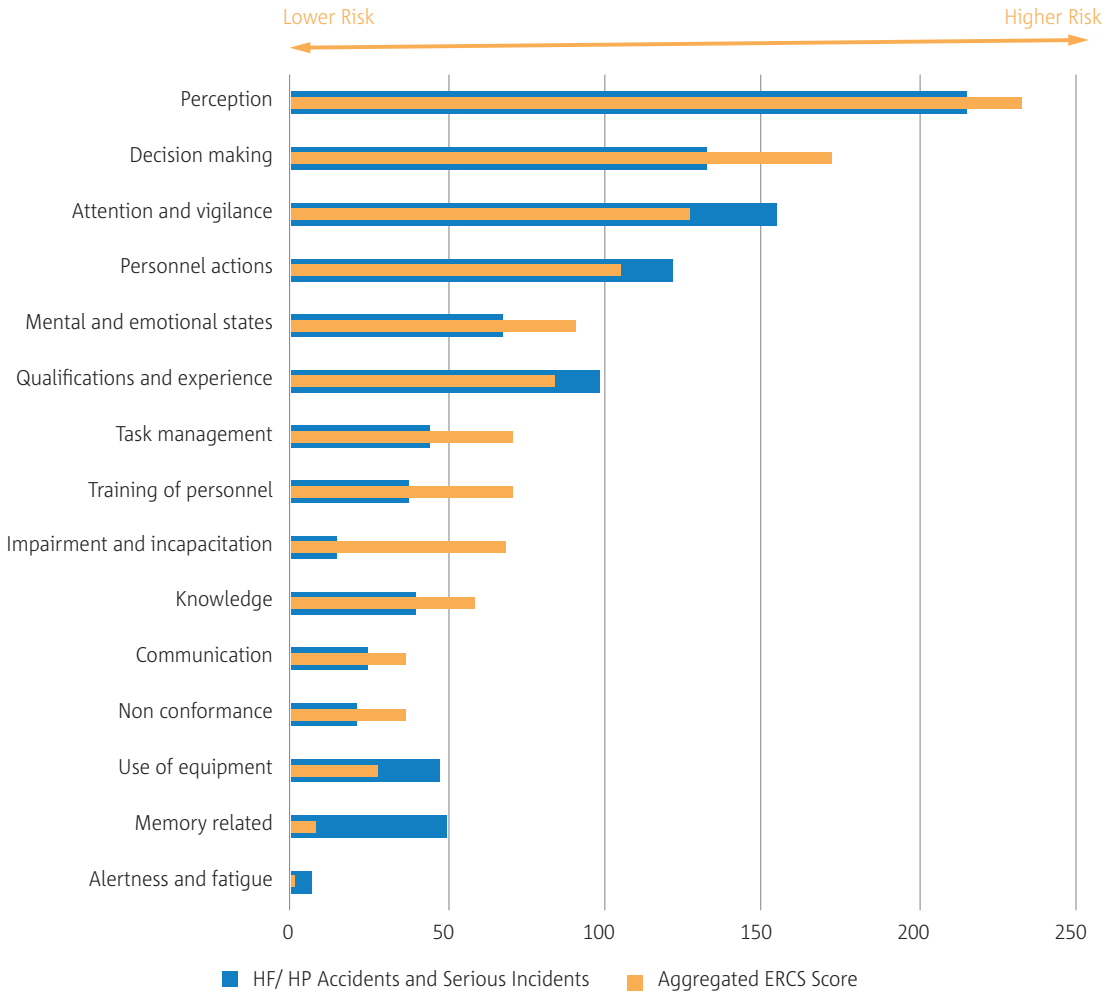
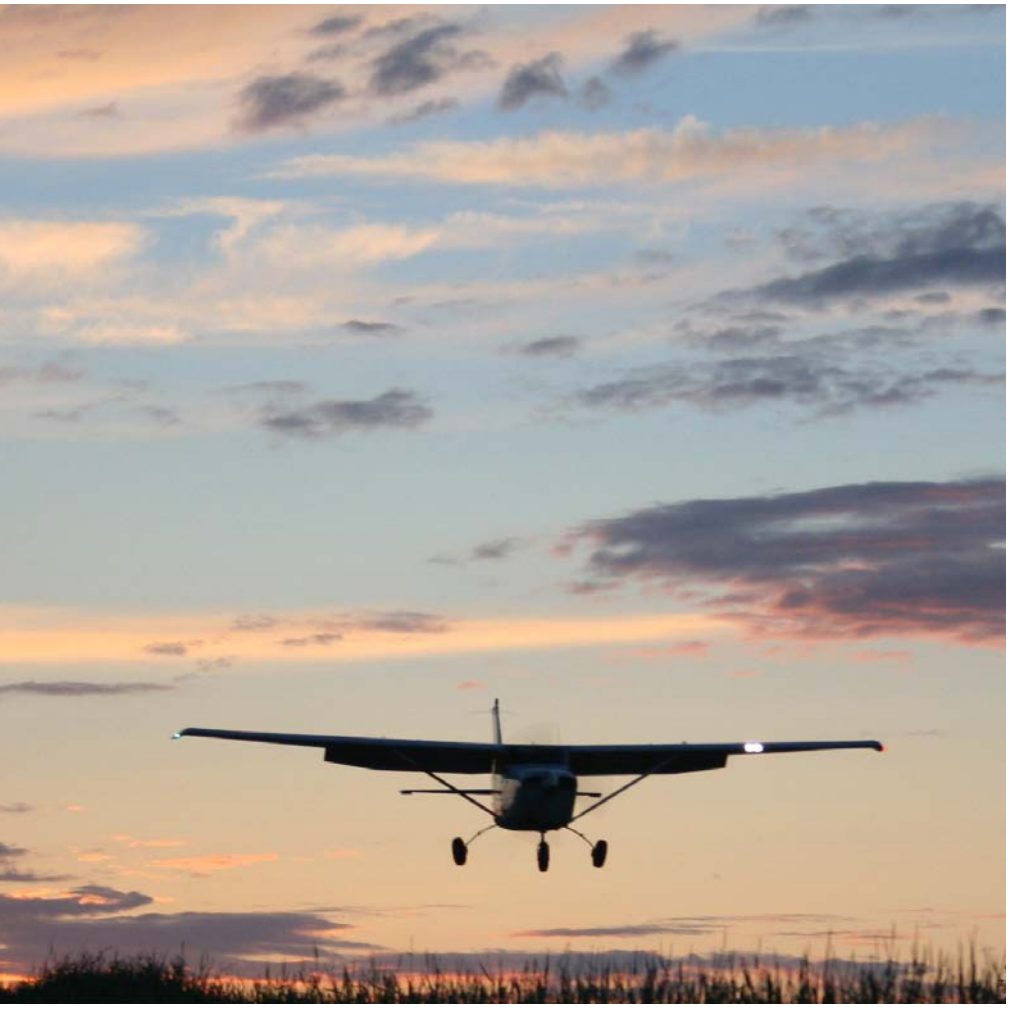


Figure 41 Detailed human factors and human performance event codes by aggregated ERCS score and numbers of accidents and serious incidents involving non-commercially operated small aeroplanes



Safety Risks for Non-commercially Operated Small Aeroplanes

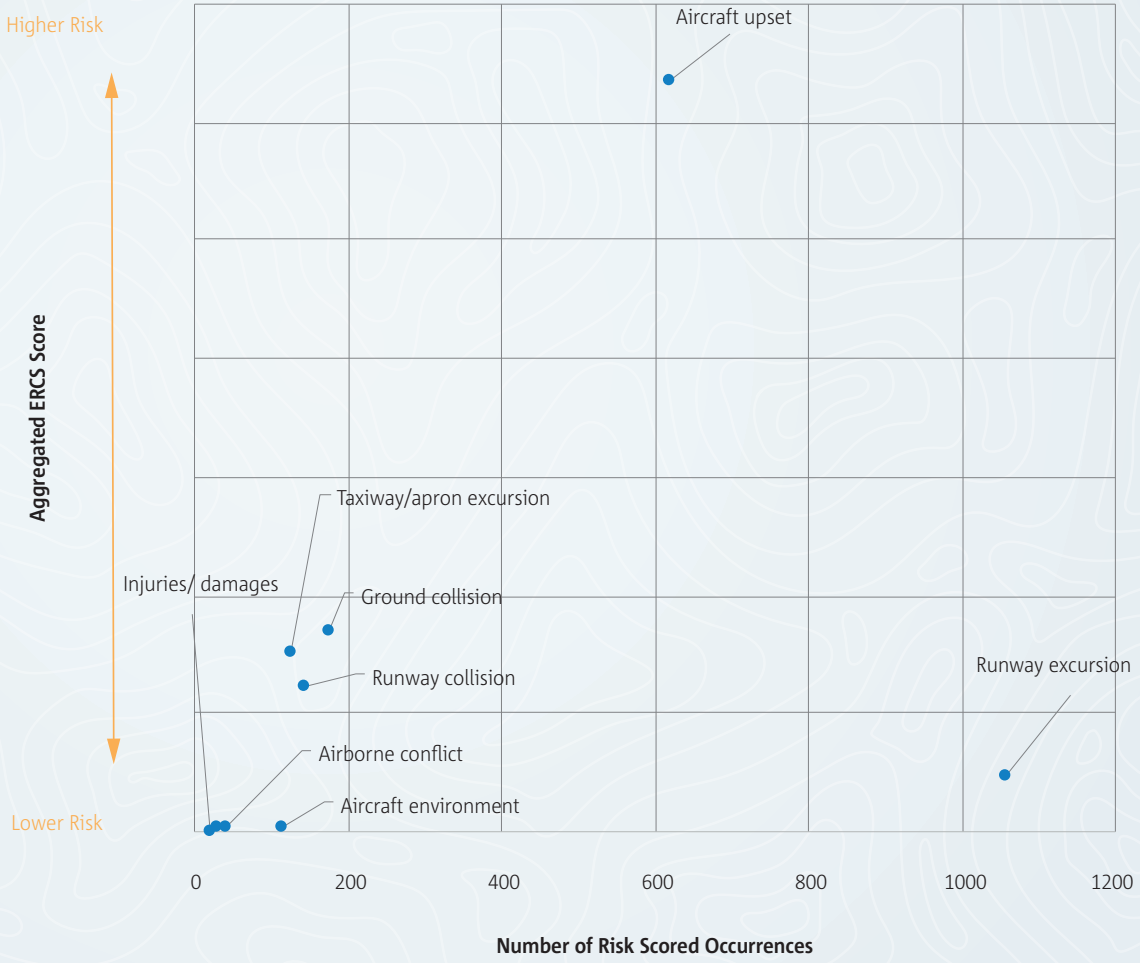
The safety risks for non-commercially operated small aeroplanes have been identified by EASA. They are derived from occurrence data from the EASA occurrence repository. ECCAIRS queries have been constructed for each safety issue in order to identify the occurrences associated with each safety issue, and these form the data portfolio as presented in this review.

EASA has risk assessed all accidents in this domain using the European Risk Classification Scheme (ERCS). Figure 37 shows the key risk areas (KRA) in relation to the number of accidents compared to the aggregated ERCS score. The figure clearly shows that the KRA showing the highest risk is aircraft upset. While runway excursions are common, there is a low risk of fatal or serious injuries associated with them.

The safety issues identified in the non-commercially operated small aeroplane data portfolio are shown in Figure 43. This year, it was decided to show the portfolio in a different format from last year. The portfolio has also been updated to better differentiate between outcomes and safety issues. The stall and loss of control (other) safety issues in the 2018 Annual Safety Review have been removed as they are outcomes and fall under the aircraft upset key risk area.

Figure 43 shows that the safety issue system reliability is the highest both in terms of number of occurrences and risk. A part of those occurrences contain engine failures and engine performance problems that force the aircraft to land. There is also a problem created by insufficient information coming from the investigation reports, creating the illusion that the problem has to

Figure 42 Key Risk Areas by aggregated ERCS score and number of risk-scored occurrences, involving non-commercially operated small aeroplanes



do with the aircraft systems due to lack of HF/HP coding. In general, engine failure by itself is not an issue that should cause a fatal outcome as the glide ratio of general aviation aircraft is generally good and should enable pilots to find a suitable landing area, given their pre-flight preparation and sufficient altitude at the time of the failure. This issue has strong links to another safety issue called 'handling of technical failures'. The latter issue focuses on the pilot´s actions after the engine failure. Many of the accidents under this issue are fatal accidents, therefore high risk score has been attributed. The safety issues of perception and situational awareness, decision making and planning, and flight planning and preparation all relate to the 'handling of technical failures safety issue, which highlights that it is the pilot's actions that are either precursors or resulting actions in their attempt to recover the situation. These three HF/HP issues highlight the importance of planning each flight carefully and of anticipating various scenarios in the planning. Such scenario planning will allow the pilot can react correctly to the safety critical situation and perhaps avoid a serious outcome – specifically loss of control situations. This is supported in Figure 42 where we see aircraft upset bearing the highest risk. Other safety issues that also play a part in aircraft upset are 'approach path management', 'inappropriate control inputs', 'handling and execution of go-arounds' and 'control of manual flight path'.

In preparing the next edition, consideration will be given to splitting the system reliability issue between engine failures on the one side and all other equipment failures on the other for better clarity. Another aspect of the system reliability issue requiring further consideration relates to equipment failures, as many involve runway excursions due to hard landings and result in damage to landing gears, wings and engines/propellers. It can therefore be argued that the system reliability issue is touching many other safety issues and should not be considered in isolation from the other issues in the list.

The seventh issue, being airborne conflict, concerns both actual collisions and near-misses. Due to the nature of the issue, it often bears high risk and is therefore high on the list.

The next three safety issues in the data portfolio relate to human performance. All three, decision making and planning, perception and situational awareness, and flight planning and preparation, play a major role in general aviation accidents and serious incidents.

The data presented in Figure 43 has been used to formulate the data portfolio presented in Table 13 and lists the safety issues for the domain and cross-references these with the key risk areas, highlighting the most important key risk areas and safety issues. The key risk areas are sorted by the aggregated risk score. The safety issues are listed on the left of the table and are also sorted from the top by decreasing aggregated ERCS risk score. The different colour bands denote high to low risk of the safety issues. However, as many of the occurrences in 2019 are still being investigated, the conclusions and safety priorities may change as the data is further analysed.

Figure 43 Safety Issues by aggregated ERCS score and numbers of accidents and serious incidents involving non-commercially operated small aeroplanes

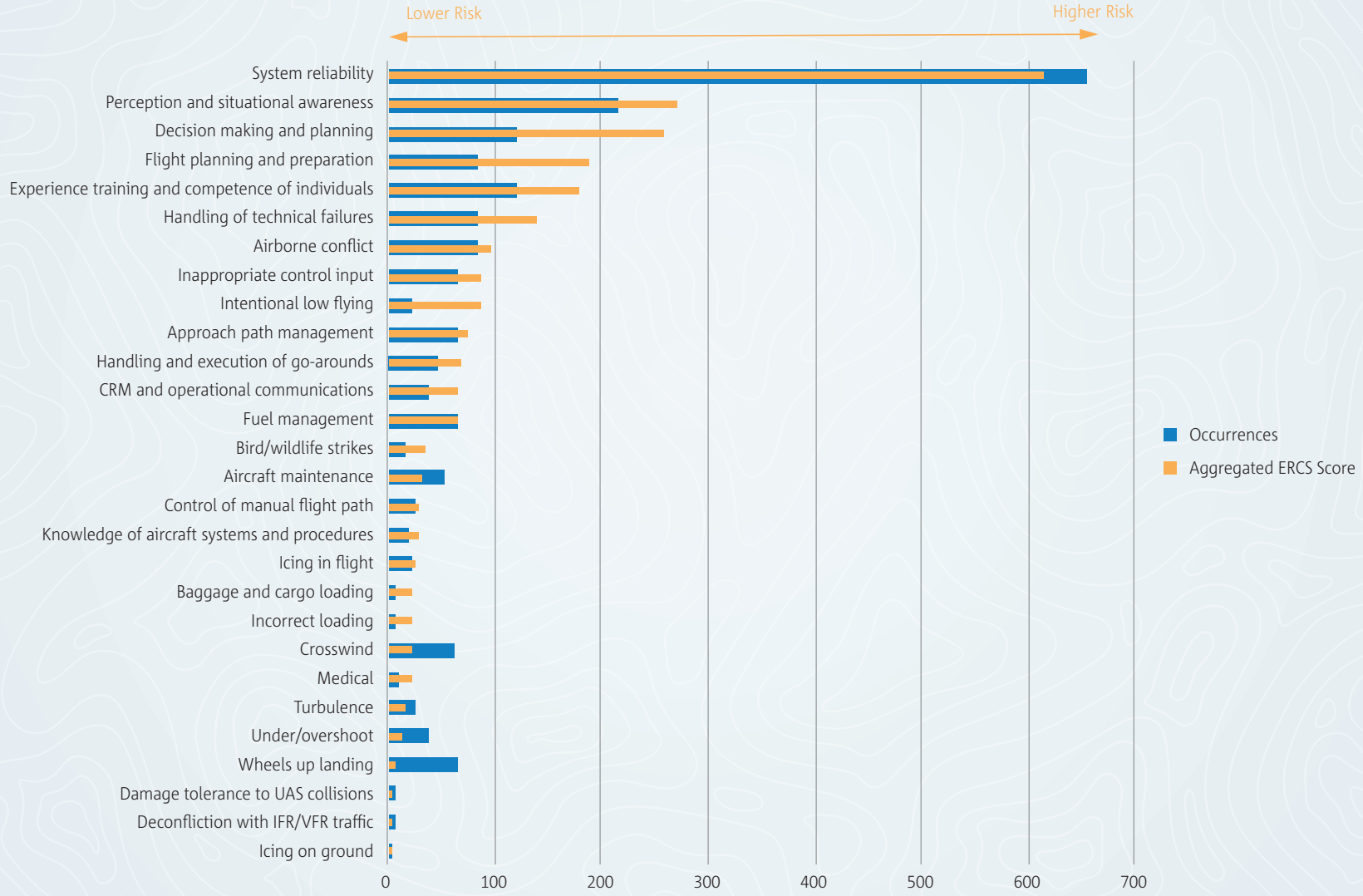


Table 13 Data portfolio for non-commercially operated small aeroplanes

SAFETY ISSUE	KEY RISK AREAS (ERCS)								
	AIRCRAFT UPSET	TERRAIN COLLISION	OBSTACLE COLLISION IN FLIGHT	AIRBORNE COLLISION	RUNWAY EXCURSION	AIRCRAFT ENVIRONMENT	GROUND DAMAGE	RUNWAY COLLISION	TAXIWAY/APRON EXCURSION
System reliability	x	x	x	x	x	x	x	o	x
Decision making and planning	x	x	x	o	x	o		o	
Perception and situational awareness	x	x	x	x	x	o	x	x	o
Flight planning and preparation	x	x	x	x	x	o	o	x	o
Experience, training and competence of individuals	x	x	x	o	x	o	x	o	o
Handling of technical failures	x	x	o	o	x	o	o	o	
Intentional low flying	x	x	x	o	o				
Airborne separation	o		o	x					
Inappropriate control input	x	x	o	o	x		x	o	
CRM and operational communications	x	o	o	x	x		o	o	
Approach path management	x	x	x		x				
Fuel management	x	x	x	o	x			o	
Bird and wildlife strikes	x		x		x	o			

X = stronger contributor to the key risk area
O = weaker contributor to the key risk area.

Priority 1 Priority 2 Priority 3 Priority 4

SAFETY ISSUE	KEY RISK AREAS (ERCS)								
	AIRCRAFT UPSET	TERRAIN COLLISION	OBSTACLE COLLISION IN FLIGHT	AIRBORNE COLLISION	RUNWAY EXCURSION	AIRCRAFT ENVIRONMENT	GROUND DAMAGE	RUNWAY COLLISION	TAXIWAY/APRON EXCURSION
Control of manual flight path	x	o	o		x		o		
Aircraft maintenance	x	x	o	o	x	x	o		o
Icing in flight	x	x	o	o	o	o	o	o	
Baggage and cargo loading	x		o		o			o	
Crosswind	x	o	x		x				
Turbulence	x	o	o	o	x		o	o	
Knowledge of aircraft systems and procedures	x	o	o		x	o	o		
Damage tolerance to UAS collisions				o					
Deconfliction with IFR/VFR traffic				x					
Icing on ground	o		o						

CHAPTER 3
HELICOPTERS

This chapter covers all helicopter operations. The chapter is divided into three main sections:

1. **Commercial air transport flights** conducted by EASA Air Operators Certificate (EASA AOC) holders and using certified helicopters. This section brings together commercial air transport helicopter operations for both onshore flights and includes HEMS, air taxi or sightseeing, and those flights to offshore oil, gas and renewable energy installations;

2. **Specialised operations** involving certified helicopters, such as sling load, advertisement, photography with an EASA MS as state of operator or state of registry;

3. **Non-commercial operations** involving certified helicopters, with an EASA MS as state of operator or state of registry. This section includes in particular training flights.

The data presented are based on the accidents and serious incidents collected by the Agency under Regulation (EU) 996/2010 on accident and serious incident investigation and Regulation (EU) 376/2014 on occurrence reporting, and through actively searching for those events from other official sources.

For each section, the key statistics are presented. Each section contains an individual data portfolio, which provides an overview of the main safety risk for these types of operations at the European level based on occurrence data.

3.1 Commercial air transport helicopters

The scope of this section covers the key safety statistics for certified helicopters performing commercial air transport and operated by an EASA MS AOC holder.

Key Statistics

The key statistics for this domain are in Table 14 and Table 15 here below. The numbers of fatal accidents and fatalities in 2019 were considerably higher than the average of the preceding decade.

Table 14 Key Statistics for commercial air transport helicopters

2009 - 2018 TOTAL	TIMESPAN	2019	2019 vs 2009-2018
22	Fatal Accidents	4	↑
56	Non-fatal Accidents	5	=
47	Serious Incidents	9	↑

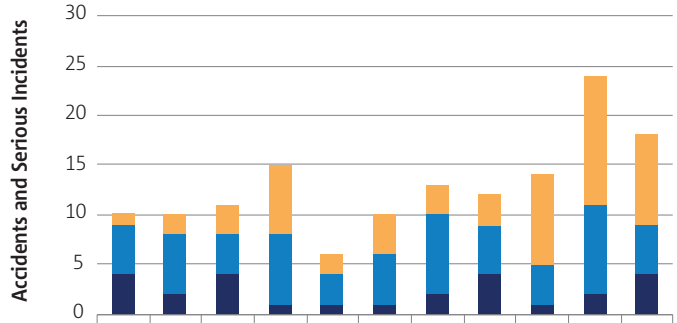
Table 15 Fatalities and serious injuries involving commercial air transport helicopters

	FATALITIES	SERIOUS INJURIES
2009 - 2018 Total	96	43
2009 - 2018 Max	22	7
Min	2	0
2019	17	2

The numbers of accidents and serious incidents per year are shown in Figure 44. The total number of accidents and serious incidents in 2019 was higher than for all the years of the preceding decade, except 2018. The number of fatal accidents has been increasing since 2017 and was in 2019 equal to 2009, 2011 and 2016, the years with the highest number of the decade, with 4 fatal accidents.

Among the 4 fatal accidents of 2019 involving commercial air transport helicopters, 2 were airborne collisions between a helicopter and a small fixed wing aircraft, 1 was a terrain collision in a mountainous area, and 1 was a near miss between a helicopter and a paraglider causing the loss of control and crash of the paraglider. More information on these fatal accidents is provided in the Annex to this document.

Figure 44 Fatal accidents, non-fatal accidents and serious incidents per year involving commercial air transport helicopters

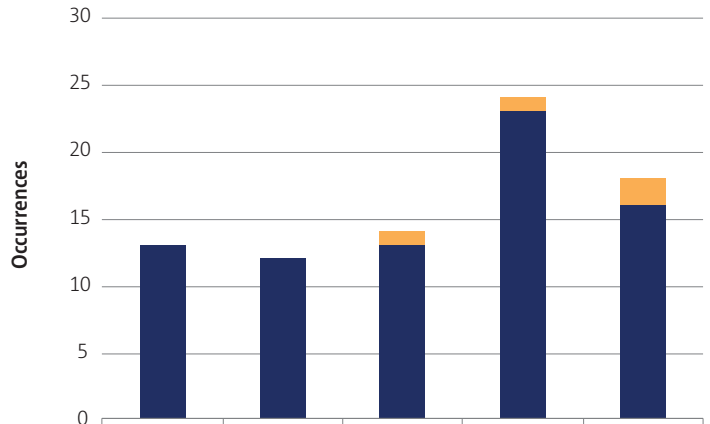


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	1	2	3	7	2	4	3	3	9	13	9
Non-Fatal Accidents	5	6	4	7	3	5	8	5	4	9	5
Fatal Accidents	4	2	4	1	1	1	2	4	1	2	4

All accidents and serious incidents within the scope have been risk assessed using the European Risk Classification Scheme (ERCS) methodology and have been given an ERCS score. The number of ERCS scored occurrences per year is shown in Figure 45.

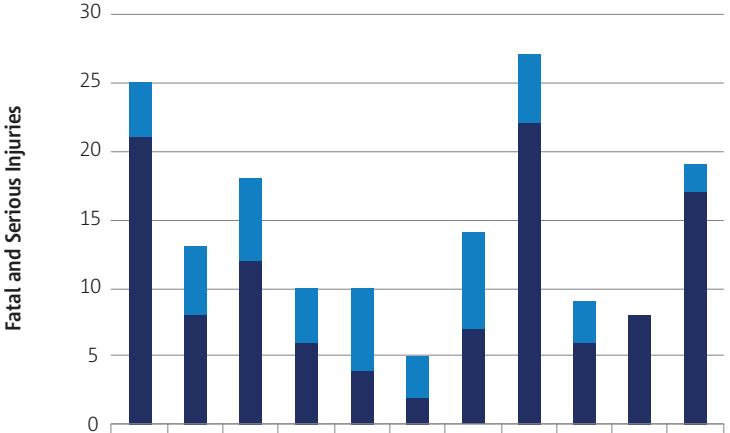
The numbers of fatalities and serious injuries per year are shown in Figure 46. With 17 fatalities, 2019 presents the highest number of fatalities since 2016 and is the third most fatal year since 2009. The number of serious injuries in 2019 was lower than the average of the preceding decade.

Figure 45 ERCS higher and lower risk occurrences per year involving commercial air transport helicopters



	2015	2016	2017	2018	2019
Lower Risk (ERCS)	0	0	1	1	2
Higher Risk (ERCS)	13	12	13	23	16

Figure 46 Fatal and serious injuries per year involving commercial air transport helicopters

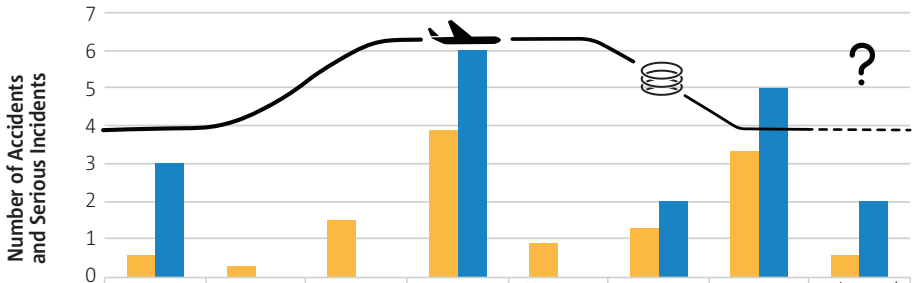


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries	4	5	6	4	6	3	7	5	3	0	2
Fatalities	21	8	12	6	4	2	7	22	6	8	17

Phase of Flight

Figure 47 shows the distribution of accidents and serious incidents by flight phase. As with the average of the last 10-year period, the highest proportion of accidents and serious incidents in 2019 occurred during the en route and landing phases.

Figure 47 Accidents and serious incidents by phase of flight involving commercial air transport helicopters

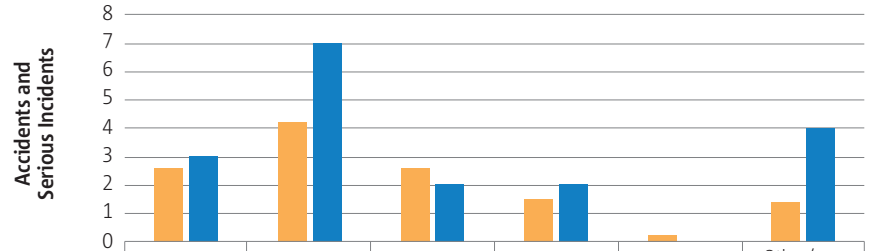


	Standing	Taxi	Take-off	En route	Manoe-vring	Approach	Landing	Unknown/ Blank
Average 2009-2018	0.6	0.3	1.5	3.9	0.9	1.3	3.3	0.6
2019	3	0	0	6	0	2	5	2

Operation Type

Figure 48 shows the numbers of accidents and serious incidents per type of operation. Whereas the average numbers of accidents and serious incidents in offshore, air taxi and sightseeing operations were similar in 2019 to the preceding 10 years, this number increased in 2019 for HEMS operations.

Figure 48 Accidents and serious incidents by operation type involving commercial air transport helicopters

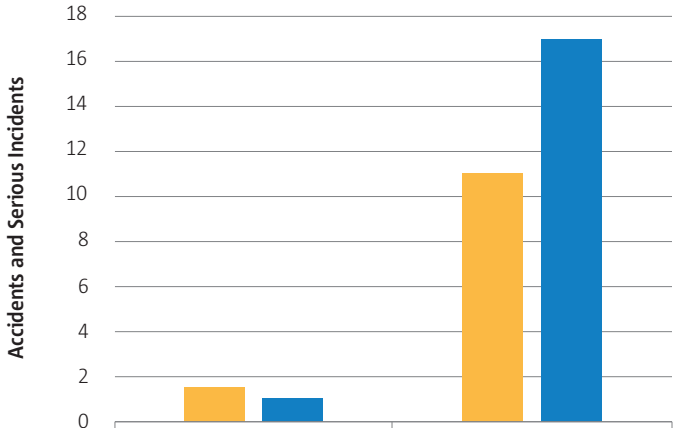


	Offshore	HEMS	Air Taxi	Sightseeing	Airline	Other/ Unknown
Average 2009-2018	2.6	4.2	2.6	1.5	0.2	1.4
2019	3	7	2	2	0	4

Propulsion Type

Figure 49 shows the numbers of accidents and serious incidents per propulsion type. Similarly to the average of the preceding 10-year period, a vast majority of occurrences in commercial air transport helicopters involved turboshaft helicopters.

Figure 49 Accidents and serious incidents by propulsion type involving commercial air transport helicopters



	Reciprocating	Turboshaft
Average 2009-2018	1.5	11
2019	1	17

Safety Risks for Commercial Air Transport Helicopters

The safety risks for commercial air transport helicopters are derived from the data of accidents and serious incidents from the 5-year period 2015-2019 (81 occurrences). They are derived from occurrence data from the EASA occurrence repository and the European Central Repository (ECR). ECCAIRS queries have been constructed for each safety issue in order to identify the occurrences associated with each safety issue, and these form the data portfolio as presented in this review.

The relative comparison between key risk areas for commercial air transport helicopters is shown in Figure 50. Note that one single occurrence can be associated with more than one key risk area.

From the data, it can be observed that the aircraft upset accident scenario is the top key risk area, both in terms of number of occurrences, and aggregated risk. Terrain collisions, airborne collisions and obstacle collisions in flight are also forming the other main key risk areas of the commercial air transport helicopters domain.

An important trend to highlight here, which is not visible in the figure, is the increase of fatalities caused by airborne collisions over the last 2 years, with 4 fatalities in 2018 and 10 fatalities in 2019. Even if, over the 5-year timeframe considered, aircraft upset and terrain collision present the highest cumulated risk, airborne collision is the top key risk area of the last 2 years.

The key risk area ‘injuries’ includes the occurrence scenarios that do not fit in other key risk areas, but that can still cause actual or potential injury

to persons. It includes, for example, injuries due to turbulence encounters, ground operators' injuries, in particular persons being injured on the ground from falling loads, or from any part falling from an aircraft in flight.

Figure 51 lists the safety issues identified from the occurrence data, and shows a comparison between the number of occurrences per safety issue and their aggregated ERCS score. A yellow bar in the graph that is considerably long when compared with the underlying blue bar indicates a low number of occurrences contributing to a high risk.

The data portfolio shown in Table 16 links the safety issues with the key risk areas to which they contribute. The key risk areas are listed at the top of the table and are prioritised from the left to right based on the aggregated ERCS-risk score. The safety issues are listed on the left of the table and are also sorted from the top by decreasing aggregated ERCS risk score. The different colour bands denote high to low risk of the safety issues.

Figure 50 Key Risk Areas by aggregated ERCS score and number of risk-scored occurrences, involving commercial air transport helicopters

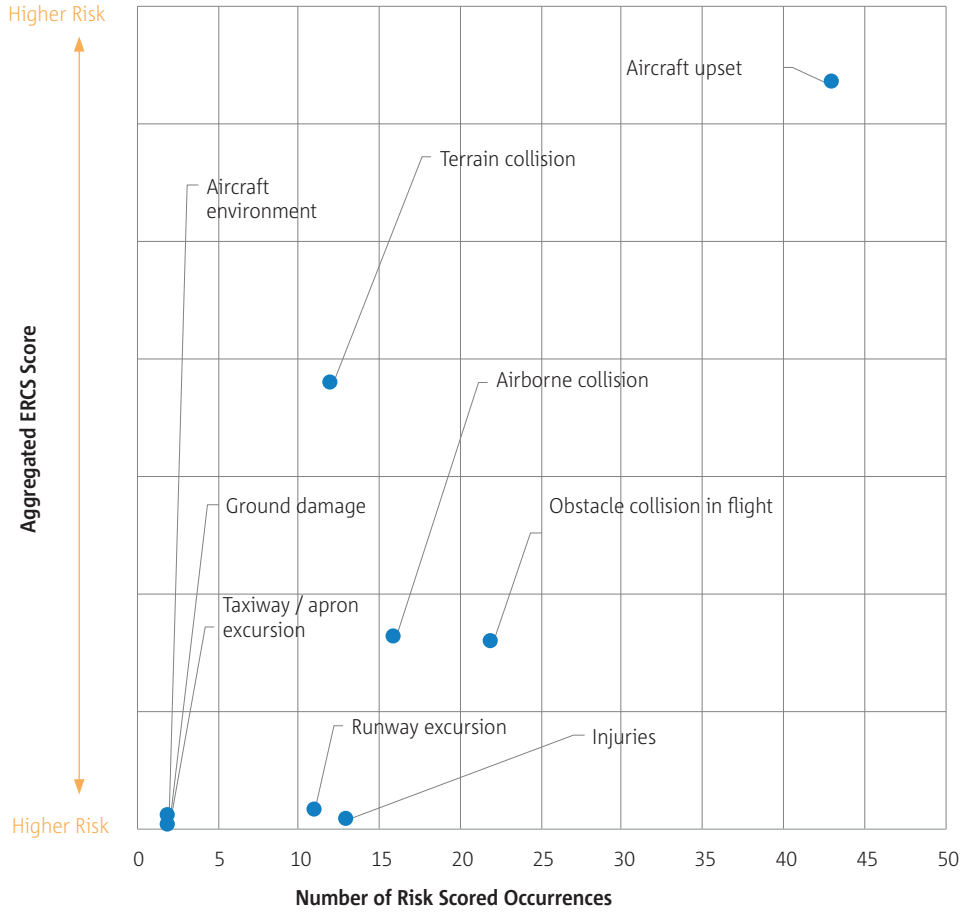


Figure 51 Safety Issues by aggregated ERCS score and number of accidents and serious incidents involving commercial air transport helicopters

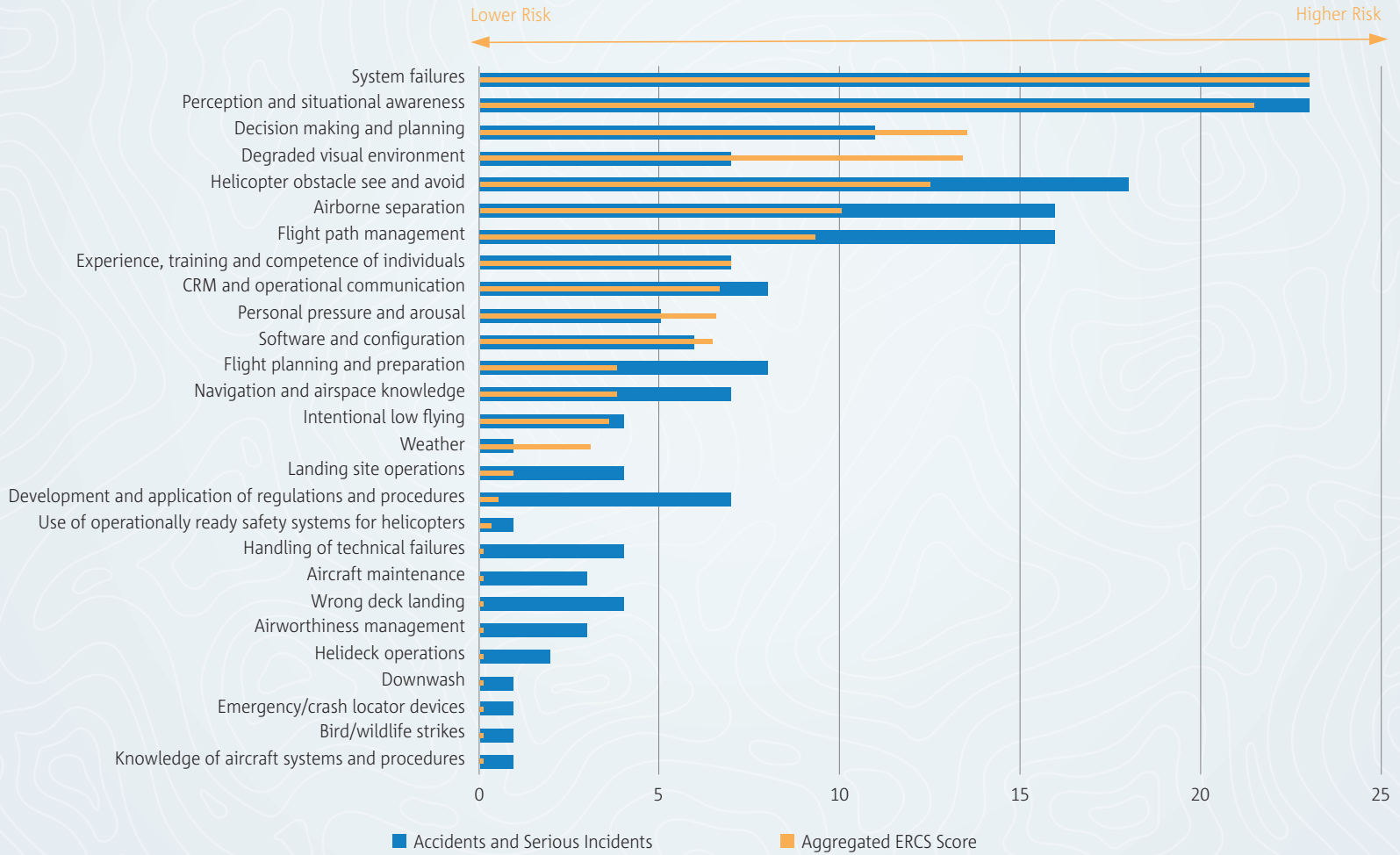


Table 16 Data portfolio for commercial air transport helicopters

SAFETY ISSUE	KEY RISK AREAS (ERCS)								
	AIRCRAFT UPSET	TERRAIN COLLISION	AIRBORNE COLLISION	OBSTACLE COLLISION IN FLIGHT	RUNWAY EXCURSION	INJURIES	AIRCRAFT ENVIRONMENT	TAXIWAY/ APRON EXCURSION	GROUND DAMAGE
System failures	X	O	O	O	O	X	O	O	O
Perception and situational awareness	X	X	O	X	O	O		O	O
Decision making and planning	X	X		X	O				
Degraded visual environment	X	X		O					
Helicopter obstacle see and avoid	X	X		X		O			
Airborne separation	O		X						
Flight path management	X	O		X	O	O	O		
Experience, training and competence of individuals	O	O	O	O	O	O	O		
CRM and operational communication	O	O	O	O	O				
Personal pressure and arousal	O	O		O	O				
Software and configuration	O	O		O	O				
Flight planning and preparation	O	O		X	O		O		
Navigation and airspace knowledge	O	O		X	O				

X = stronger contributor to the key risk area
O = weaker contributor to the key risk area.

Priority 1 Priority 2 Priority 3 Priority 4

SAFETY ISSUE	KEY RISK AREAS (ERCS)								
	AIRCRAFT UPSET	TERRAIN COLLISION	AIRBORNE COLLISION	OBSTACLE COLLISION IN FLIGHT	RUNWAY EXCURSION	INJURIES	AIRCRAFT ENVIRONMENT	TAXIWAY/ APRON EXCURSION	GROUND DAMAGE
Intentional low flying	o	o		o		o			o
Weather	o	o		o					
Landing site operations	o	o		o	o	o			
Development and application of regulations and procedures	o			o	o	o	o	o	o
Use of operationally ready safety systems for helicopters	o								
Handling of technical failures	o				o	o			
Aircraft maintenance	o			o	o				
Wrong deck landing				o	o				
Airworthiness management	o					o			
Helideck operations				o	o				
Knowledge of aircraft systems and procedures	o					o			
Bird/wildlife strikes	o					o			
Emergency/crash locator devices	o					o			
Downwash						o			

3.2 Specialised Operations Helicopters

This section covers the main safety statistics for certified helicopters performing specialised operations with an EASA MS as state of operator or state of registry.

Key Statistics

The key statistics for this domain are in Table 17 and Table 18. The numbers of fatal accidents and non-fatal accidents in 2019 were lower than the average of the previous decade, whereas the number of serious incidents was slightly higher.

Table 17 Key Statistics for specialised operations helicopters

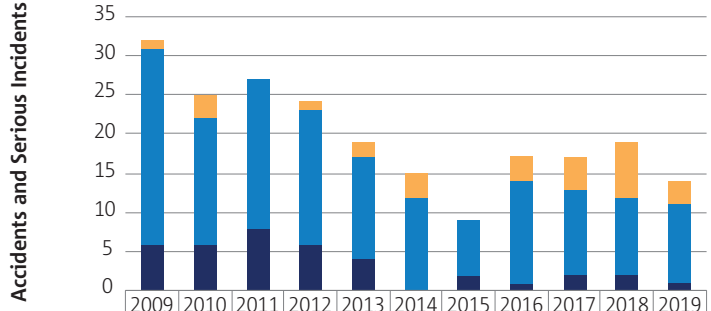
2009 - 2018 TOTAL	TIMESPAN	2019	2019 vs 2009-2018
37	Fatal Accidents	1	↓
143	Non-fatal Accidents	10	↓
24	Serious Incidents	3	↑

Table 18 Fatalities and serious injuries involving specialised operations helicopters

	FATALITIES	SERIOUS INJURIES
2009 - 2018 Total	69	57
2009 - 2018 Max	17	10
Min	0	1
2019	1	1

The numbers of accidents and serious incidents per year is shown in Figure 52. The total number of occurrences in 2019 is the second lowest since 2009, only 2015 presented a smaller number.

Figure 52 Fatal accidents, non-fatal accidents and serious incidents per year involving specialised operations helicopters



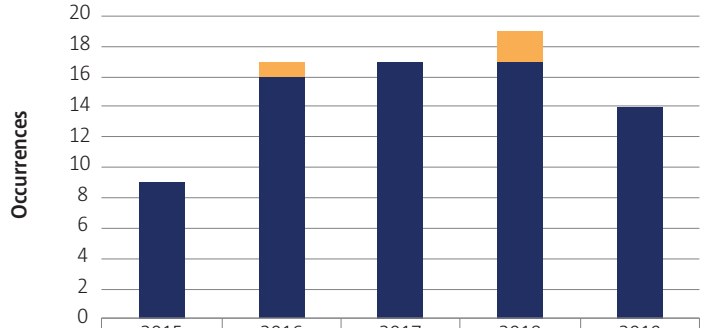
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	1	3	0	1	2	3	0	3	4	7	3
Non-Fatal Accidents	25	16	19	17	13	12	7	13	11	10	10
Fatal Accidents	6	6	8	6	4	0	2	1	2	2	1

The only fatal accident in 2019 was a loss of control during manoeuvre of a helicopter performing sling-load operations, causing 1 fatality. More information on this fatal accident is provided in the Annex to this document.

All accidents and serious incidents within the scope have been risk assessed using the European Risk Classification Scheme (ERCS) methodology and have been given an ERCS score. The number of ERCS scored occurrences per year is shown in Figure 53.

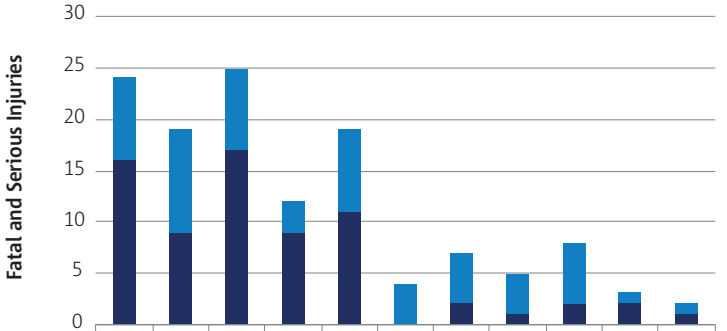
The numbers of fatalities and serious injuries per year are shown in Figure 54. The numbers of fatalities and serious injuries in 2019 were low, continuing the progressive decreasing trend observed from the preceding years.

Figure 53 ERCS higher and lower risk occurrences, per year involving specialised operations helicopters



	2015	2016	2017	2018	2019
Lower Risk (ERCS)	0	1	0	2	0
Higher Risk (ERCS)	9	16	17	17	14

Figure 54 Fatal and serious injuries per year involving specialised operations helicopters

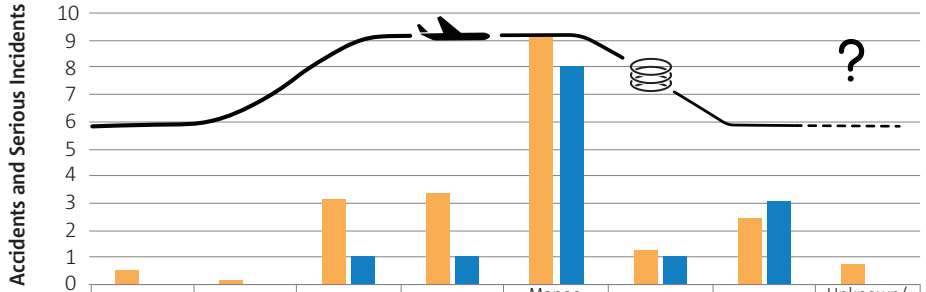


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries	8	10	8	3	8	4	5	4	6	1	1
Fatalities	16	9	17	9	11	0	2	1	2	2	1

Phase of Flight

Figure 55 shows the distribution of accidents and serious incidents by flight phase. As with the average of the preceding 10-year period, more than half of the accidents and serious incidents occurred during the manoeuvring phase.

Figure 55 Accidents and serious incidents by phase of flight involving specialised operations helicopters

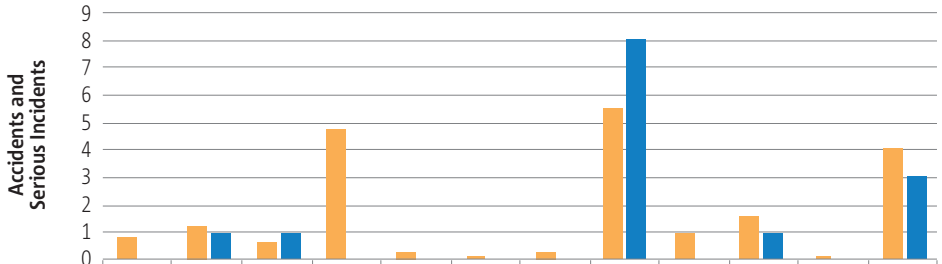


	Standing	Taxi	Take-off	En route	Manoe-vring	Approach	Landing	Unknown/ Blank
Average 2009-2018	0.5	0.1	3.1	3.3	9.1	1.2	2.4	0.7
2019	0	0	1	1	8	1	3	0

Operation Type

Figure 56 shows the numbers of accidents and serious incidents per type of operation. In 2019 construction and sling-load operations were by far the most impacted. The other identified operation types involved in an occurrence were photography, aerial patrol and aerial survey operations.

Figure 56 Accidents and serious incidents by operation type involving specialised operations helicopters

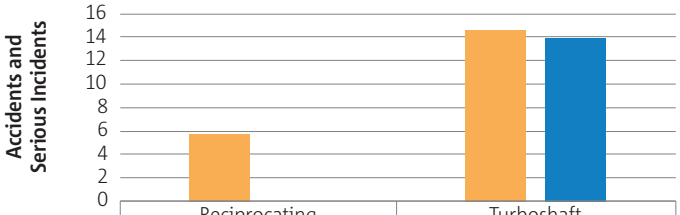


	Aerial Obser-vation	Aerial Patrol	Aerial Survey	Agricul-tural	Airshow/ Race	Animal Herding/ Mustering	Calibration	Construc-tion Sling/Load	Logging	Photo-graphy	Towing	Other/ Unknown
Average 2009-2018	0.8	1.2	0.6	4.8	0.3	0.1	0.3	5.5	1	1.6	0.1	4.1
2019	0	1	1	0	0	0	0	8	0	1	0	3

Propulsion Type

Figure 57 shows the number of accidents and serious incidents per propulsion type. The 2019 results reveal that the number of combined accidents and serious incidents involving turboshaft helicopters was close to the average of the preceding decade, whereas no reciprocating engines helicopters were involved for this year.

Figure 57 Accidents and serious incidents by propulsion type involving specialised operations helicopters



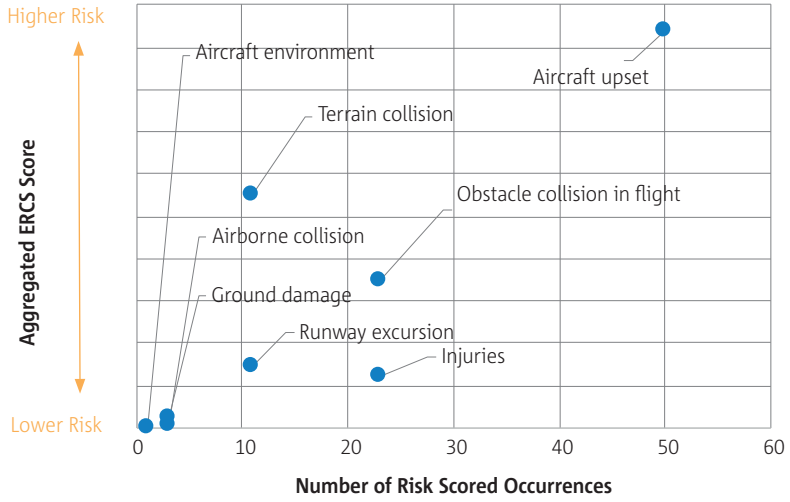
	Reciprocating	Turboshaft
Average 2009-2018	5.8	14.6
2019	0	14

Safety Risks for Specialised Operations Helicopters

The safety risks for specialised operations helicopters are derived from the data of accidents and serious incidents covering the 5-year period 2015-2019 (76 occurrences). They are derived from occurrence data from the EASA occurrence repository and the European Central Repository (ECR). ECCAIRS queries have been constructed for each safety issue in order to identify the occurrences associated with each safety issue, and these form the data portfolio as presented in this review.

The relative comparison between key risk areas for specialised operations helicopters are shown in Figure 58. One single occurrence can be associated to more than one key risk area.

Figure 58 Key Risk Areas by aggregated ERCS score and number of risk-scored occurrences, involving specialised operations helicopters



From the data, it can be observed that the aircraft upset accident scenario is the top key risk area, both in terms of the number of occurrences and the aggregated risk. Terrain collisions and obstacle collisions in flight are the other main key risk areas of the specialised operations helicopters domain.

Figure 59 lists the safety issues identified from the occurrence data, and shows a comparison between the number of occurrences per safety issue and the accompanying aggregated ERCS score. A yellow bar in the graph that is considerably longer when compared to the underlying blue bar indicates a low number of occurrences contributing to a high risk.

The data portfolio shown in Table 19 below links the safety issues with the key risk areas to which they contribute.

The key risk areas are listed at the top of the table and are prioritised from left to right based on the aggregated ERCS-risk score. The safety issues are listed on the left of the table and are also sorted from the top by decreasing aggregated ERCS risk score. The different colour bands denote high to low risk for the safety issues.

Figure 59 Safety Issues by aggregated ERCS score and numbers of accidents and serious incidents involving specialised operations helicopters

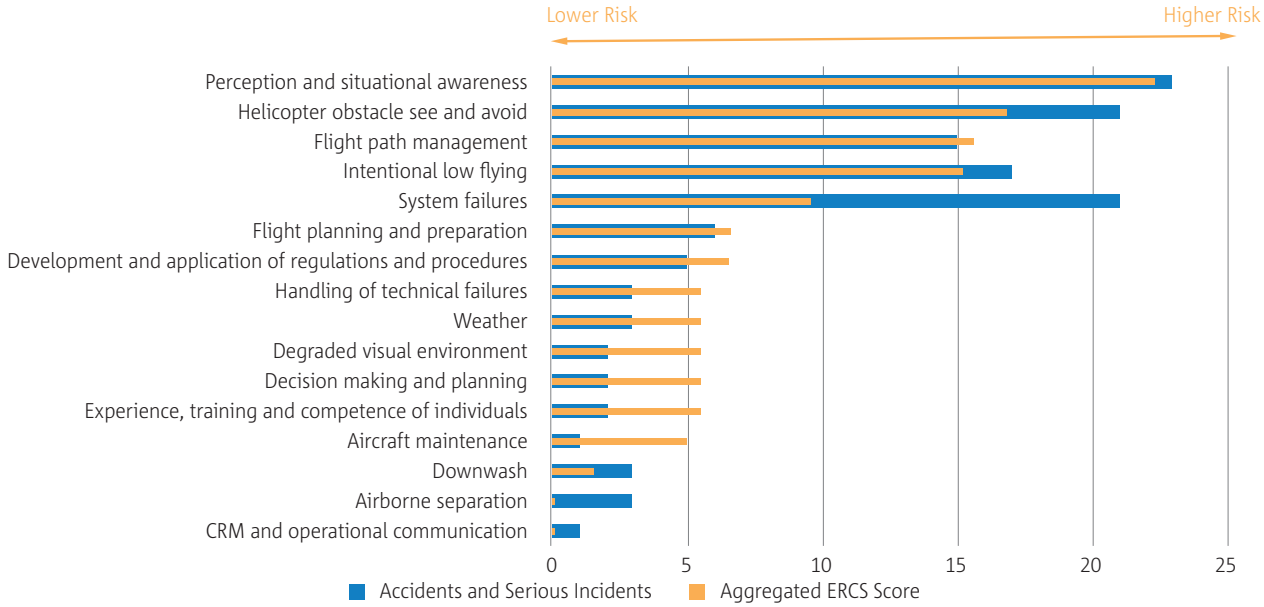


Table 19 Data portfolio for specialised operations helicopters

SAFETY ISSUE	KEY RISK AREAS (ERCS)							
	AIRCRAFT UPSET	TERRAIN COLLISION	OBSTACLE COLLISION IN FLIGHT	RUNWAY EXCURSION	INJURIES	GROUND DAMAGE	AIRBORNE COLLISION	AIRCRAFT ENVIRONMENT
Perception and situational awareness	X	X	X	O	X		O	
Helicopter obstacle see and avoid	X	O	X	O	O			
Flight path management	X	O	X	O	O			
Intentional low flying	X	O	X	O	O			
System failures	X	O	O	O	O			O
Flight planning and preparation	O	O	O	O	O	O		
Development and application of regulations and procedures	O	O	O		O	O		
Handling of technical failures	O			O	O			
Weather	O	O			O			
Experience, training and competence of individuals	O				O			
Decision making and planning	O	O			O			
Degraded visual environment	O	O			O			
Aircraft maintenance	O							
Downwash					O			
Airborne separation					O		O	
CRM and operational communication	O		O	O				

X = stronger contributor to the key risk area
O = weaker contributor to the key risk area.

Priority 1 Priority 2 Priority 3 Priority 4

3.3 Non-commercial Operations Helicopters

This section covers the main safety statistics for certified helicopters performing non-commercial operations with an EASA MS as state of operator or state of registry.

Key Statistics

The key statistics for this domain are in Table 20 and Table 21. When compared to the average figures of the preceding decade, the 2019 data shows that the number of fatal accidents was slightly lower, the number of non-fatal accidents similar, and the number of serious incidents higher.

Table 20 Key Statistics for non-commercial operations helicopters

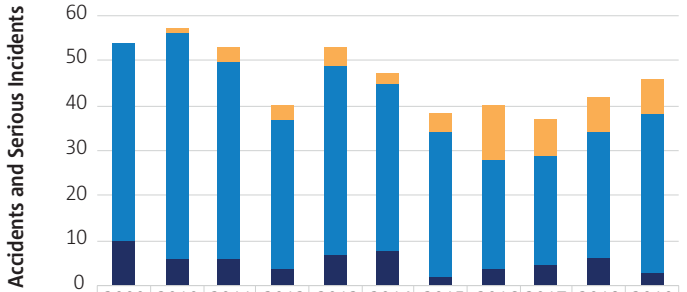
2009 - 2018 TOTAL	TIMESPAN	2019	2019 vs 2009-2018
58	Fatal Accidents	3	↓
358	Non-fatal Accidents	35	=
45	Serious Incidents	8	↑

Table 21 Fatalities and serious injuries involving non-commercial operations helicopters

	FATALITIES	SERIOUS INJURIES
2009 - 2018 Total	125	54
2009 - 2018 Max	22	14
Min	2	0
2019	5	2

The numbers of accidents and serious incidents per year are shown in Figure 60. Whereas the total numbers of accidents and serious incidents have increased slightly since 2017, the number of fatal accidents in 2019 is the second lowest since 2009.

Figure 60 Fatal accidents, non-fatal accidents and serious incidents per year involving non-commercial operations helicopters

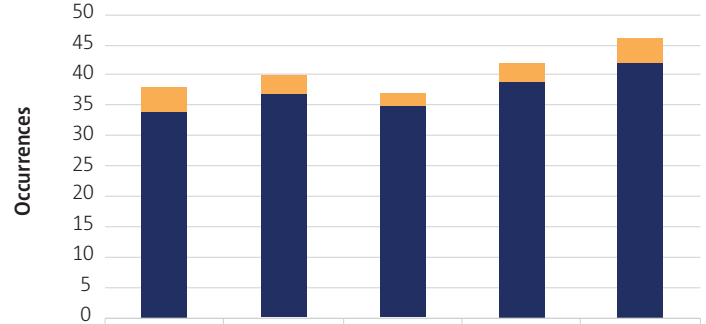


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	0	1	3	3	4	2	4	12	8	8	8
Non-Fatal Accidents	44	50	44	33	42	37	32	24	24	28	35
Fatal Accidents	10	6	6	4	7	8	2	4	5	6	3

The 3 fatal accidents of 2019 all involved loss of control in flight followed by a crash with one occurring during a training flight. More information on these fatal accidents is provided in the Annex to this document.

All accidents and serious incidents within the scope have been risk assessed using the European Risk Classification Scheme (ERCS) methodology and have been given an ERCS score. The number of ERCS-scored occurrences per year is shown in Figure 61.

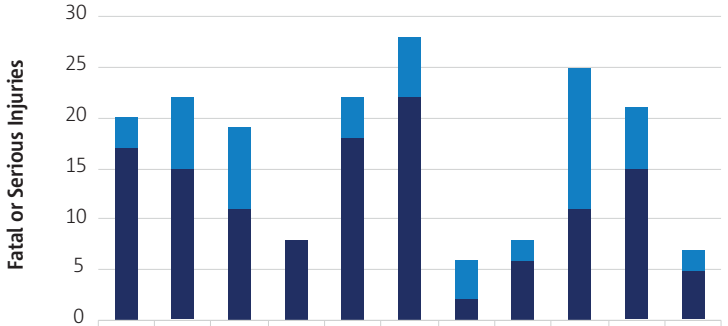
Figure 61 ERCS higher and lower risk occurrences per year involving non-commercial operations helicopters



	2015	2016	2017	2018	2019
Lower Risk (ERCS)	4	3	2	3	4
Higher Risk (ERCS)	34	37	35	39	42

The numbers of fatalities and serious injuries per year are shown in Figure 62. The number of fatalities in 2019 was only one third of the number in 2018, and is the second lowest since 2009. The number of serious injuries in 2019 is also below the average of the last 10 years.

Figure 62 Fatal and serious injuries per year involving non-commercial operations helicopters

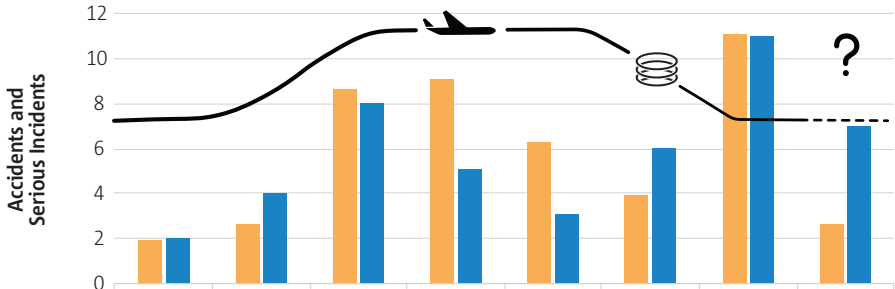


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries	3	7	8	0	4	6	4	2	14	6	2
Fatalities	17	15	11	8	18	22	2	6	11	15	5

Phase of Flight

Figure 63 shows the distribution of accidents and serious incidents by flight phase. The take-off and landing phases were the most frequent phases during which accidents or serious incidents occurred in 2019, with numbers similar to the average of preceding decade.

Figure 63 Accidents and serious incidents by phase of flight involving non-commercial operations helicopters

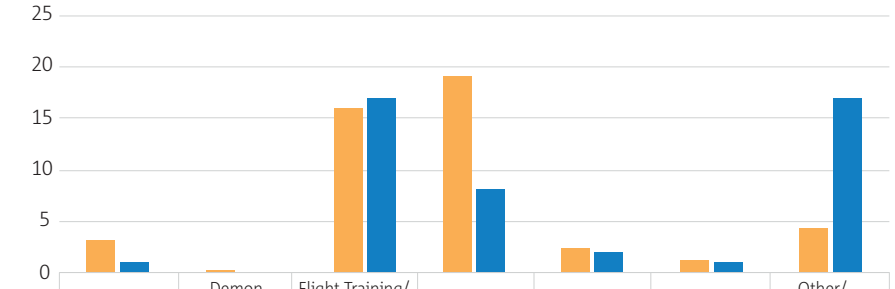


	Standing	Taxi	Take-off	En route	Manoe-vring	Approach	Landing	Unknown
Average 2009-2018	1.9	2.6	8.6	9.1	6.3	3.9	11.1	2.6
2019	2	4	8	5	3	6	11	7

Operation Type

Figure 64 shows the number of accidents and serious incidents per type of operation. In 2019, the highest number of occurrences for which the type of operation was identified were in flight training/instructional operations, followed by pleasure flights. Nevertheless, it should be highlighted that for a high number of occurrences, the exact nature of the operation is unknown at this stage.

Figure 64 Accidents and serious incidents by operation type involving non-commercial operations helicopters

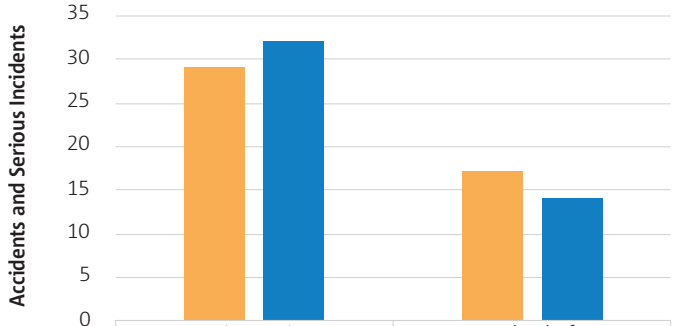


	Business	Demon-stration	Flight Training/ Instructional	Pleasure	Relocation	Test Flight	Other/ Unknown
Average 2009-2018	3.2	0.1	15.9	19.2	2.3	1.2	4.2
2019	1	0	17	8	2	1	17

Propulsion Type

Figure 65 shows the number of accidents and serious incidents per propulsion type. In 2019 the relative distribution evolved towards a slightly higher percentage of reciprocating engine helicopters involved in the occurrences.

Figure 65 Accidents and serious incidents by propulsion type involving non-commercial operations helicopters



	Reciprocating	Turboshaft
Average 2009-2018	29.1	17
2019	32	14

Safety Risks for Non-Commercial Operations Helicopters

The safety risks for non-commercial operations helicopters are derived from the data of accidents and serious incidents from the 5-year period 2015-2019 (203 occurrences). They are derived from occurrence data from the EASA occurrence repository and the European Central Repository (ECR). ECCAIRS queries have been constructed for each safety issue in order to identify the occurrences associated with each safety issue, and these form the data portfolio as presented in this review.

The relative comparison between key risk areas for non-commercial operations helicopters is shown in Figure 66. One single occurrence can be associated to more than one key risk area.

From the data, it can be observed that the aircraft upset accident scenario is by far the top key risk area, both in terms of the number of occurrences, and the aggregated risk. Terrain collisions and obstacle collisions in flight are also forming the other main key risk areas of the non-commercial operations helicopters domain.

Figure 66 Key Risk Areas by aggregated ERCS score and number of risk-scored occurrences involving non-commercial operations helicopters

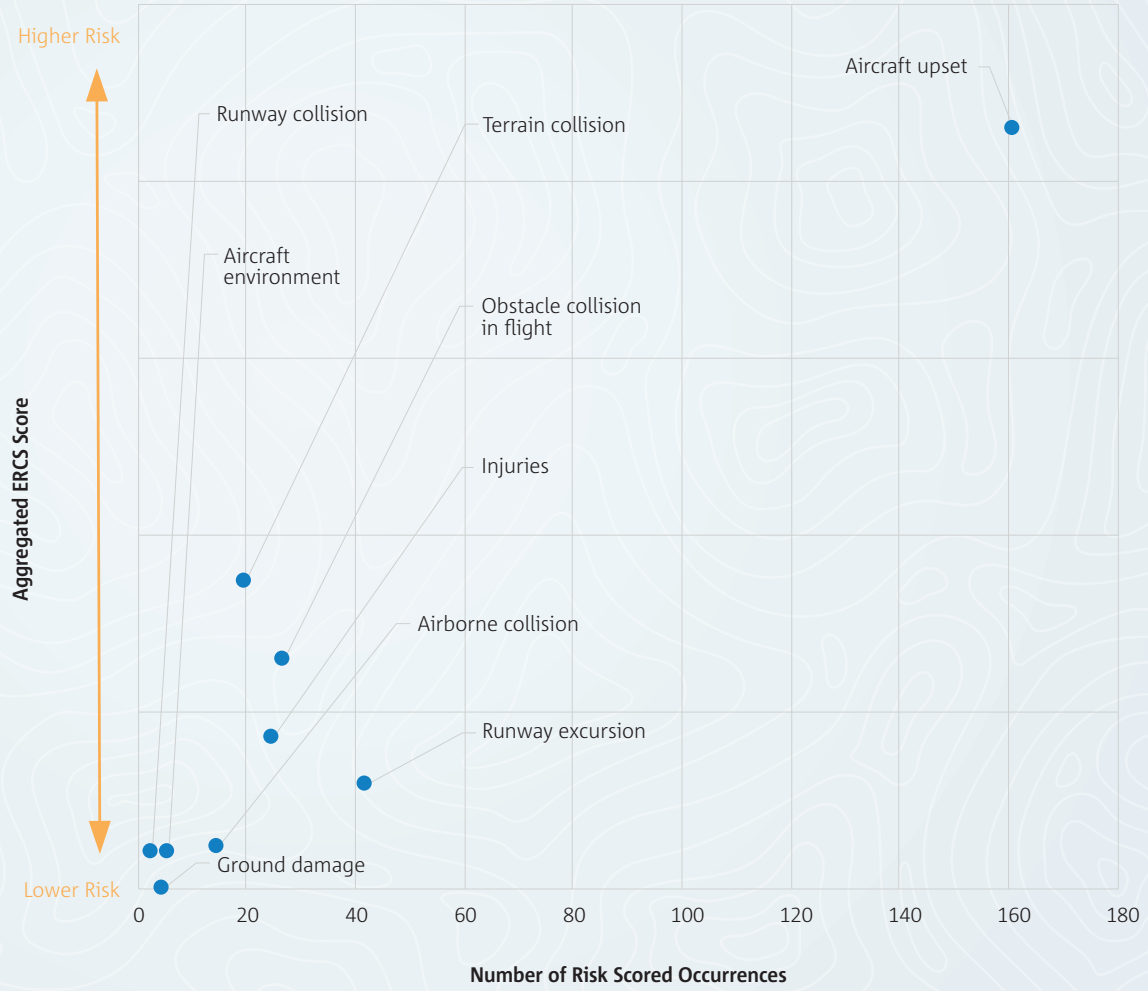


Figure 67 lists the safety issues identified from the occurrence data, and shows a comparison between the number of occurrences per safety issue and their aggregated ERCS score. A yellow bar in the graph that is considerably longer when compared with the underlying blue bar indicates a low number of occurrences contributing to a high risk.

The data portfolio shown in Table 22 below links the safety issues with the key risk areas to which they contribute. The key risk areas are listed at the top of the table and are prioritised from left to right based on the aggregated ERCS risk score. The safety issues are listed on the left of the table and are also sorted from the top by decreasing aggregated ERCS risk score. The different colour bands denote high to low risk for the safety issues.

Figure 67 Safety Issues by aggregated ERCS score and numbers of accidents and serious incidents involving non-commercial operations helicopters

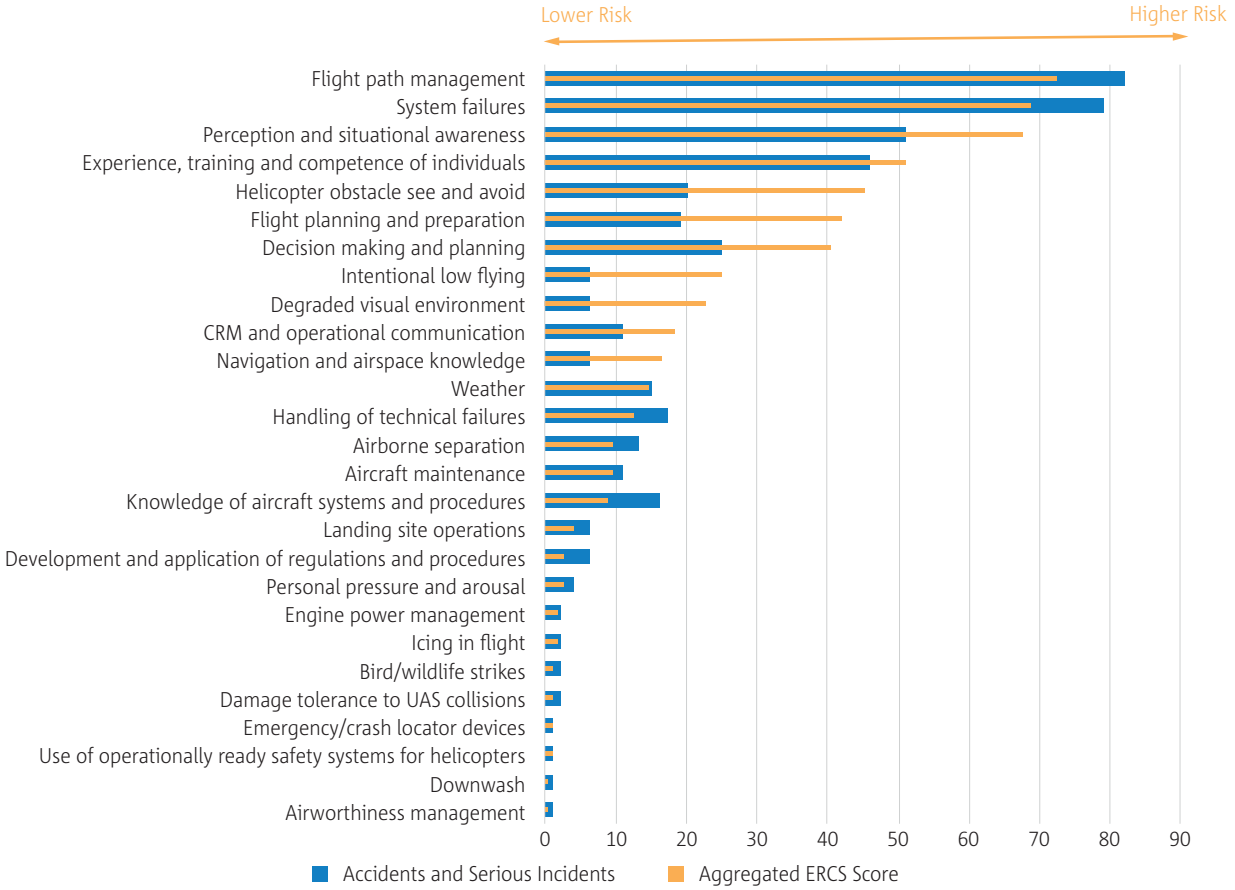


Table 22 Data portfolio for non-commercial operations helicopters

SAFETY ISSUE	KEY RISK AREAS (ERCS)								
	AIRCRAFT UPSET	TERRAIN COLLISION	OBSTACLE COLLISION IN FLIGHT	INJURIES	RUNWAY EXCURSION	AIRBORNE COLLISION	AIRCRAFT ENVIRONMENT	RUNWAY COLLISION	GROUND DAMAGE
Flight path management	x	o	x	x	x	o			
System failures	x	o	o	x	x		x		o
Perception and situational awareness	x	x	x	x	x	o	o	o	o
Experience, training and competence of individuals	x	o	o	x	x				
Helicopter obstacle see and avoid	o	x	x			o			o
Flight planning and preparation	x	o		o					
Decision making and planning	x	o	x	x	o				o
Intentional low flying	o	o	o	o					
Degraded visual environment	x	o	o	o	o				
CRM and operational communication	x	o	o	o	o	o		o	
Navigation and airspace knowledge	o	o		o	o	o		o	
Weather	x	o		x	o	o	o		
Handling of technical failures	x	o	o	o	o		o		
Airborne separation	o		o			x			

X = stronger contributor to the key risk area
O = weaker contributor to the key risk area.

Priority 1 Priority 2 Priority 3 Priority 4

SAFETY ISSUE	KEY RISK AREAS (ERCS)								
	AIRCRAFT UPSET	TERRAIN COLLISION	OBSTACLE COLLISION IN FLIGHT	INJURIES	RUNWAY EXCURSION	AIRBORNE COLLISION	AIRCRAFT ENVIRONMENT	RUNWAY COLLISION	GROUND DAMAGE
Aircraft maintenance	x		o	o	o		o		o
Knowledge of aircraft systems and procedures	x	o		o	o				
Landing site operations	o	o	o		o				
Development and application of regulations and procedures	x	o		o	o				
Personal pressure and arousal	o			o	o		o		o
Icing in flight	o								
Engine power management	o				o				
Bird/wildlife strikes	o								
Damage tolerance to UAS collisions	o					o			
Use of operationally ready safety systems for helicopters	o			o					
Emergency/crash locator devices	o			o					
Airworthiness management	o								
Downwash									o

CHAPTER 4
BALLOONS

The scope of this chapter covers hot air balloon operations where the state of registry is an EASA Member State. The data presented is based on the accidents and serious incidents collected by the Agency under Regulation (EU) 996/2010 on accident and serious incident investigation and Regulation (EU) 376/2014 on occurrence reporting, and through actively searching for those events from other official sources.

The chapter provides the key statistics for balloon operations and a data portfolio, which provides an overview of the main safety risks for these types of operations at the European level, based on occurrence data.

Key Statistics

The key statistics for this domain are shown in Table 23 and Table 24. In 2019 there was 1 fatal accident, 19 non-fatal accidents and 3 serious incidents. These figures are similar to those for the preceding decade.

The numbers of fatalities and serious injuries in 2019 are also similar to the figures for 2009-2018.

Table 23 Key Statistics for balloons

2009 - 2018 TOTAL	TIMESPAN	2019	2019 vs 2009-2018
12	Fatal Accidents	1	↓
187	Non-fatal Accidents	19	↑
22	Serious Incidents	3	↑

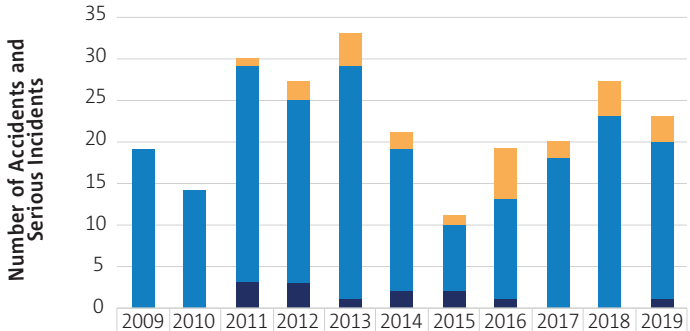
Table 24 Fatalities and serious injuries involving balloons

	FATALITIES	SERIOUS INJURIES
2009-2018 total	21	199
2009-2018 max	10	34
2009-2018 min	0	10
2019	1	16

Figure 68 shows the numbers of accidents and serious incidents from 2009 to 2019. The number of fatal accidents has remained between 0 and 3 per year during that time. There was a marked improvement in the number of non-fatal accidents in 2015 (8) as compared to 2013 (28) and 2011 (26). There was one fatal accident in 2019 causing 1 fatality. This fatal accident was the first since 2016.

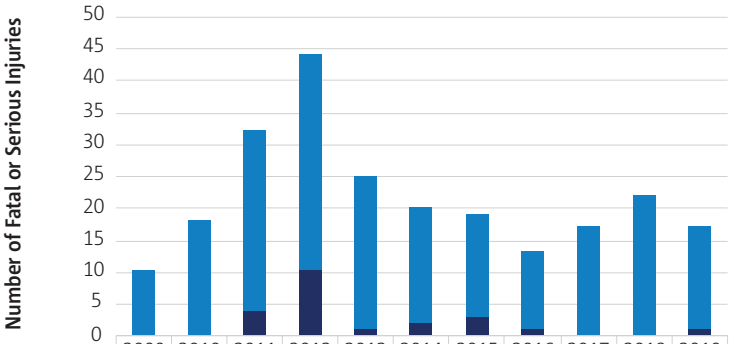
The number of fatalities has remained between 0 and 3 in the past 5 years, as illustrated in Figure 69. However, this is the first time since 2016 where a fatality has been recorded in the Balloon domain. The number of serious injuries in 2019 was lower than the preceding 2 years and lower than the average of the preceding decade.

Figure 68 Fatal accidents, non-fatal accidents and serious incidents per year involving balloons



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	0	0	1	2	4	2	1	6	2	4	3
Non-Fatal Accidents	19	14	26	22	28	17	8	12	18	23	19
Fatal Accidents	0	0	3	3	1	2	2	1	0	0	1

Figure 69 Fatalities and serious injuries involving balloons

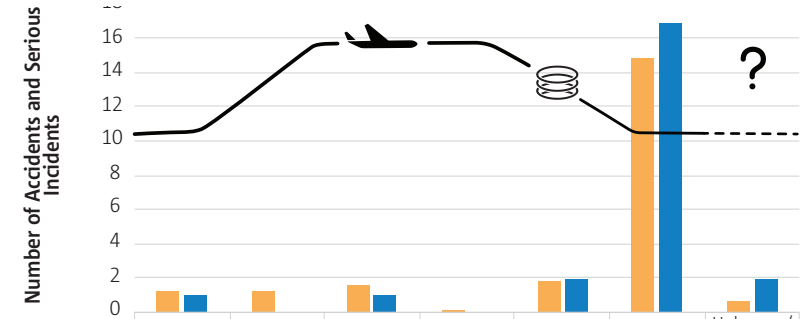


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries	10	18	28	34	24	18	16	12	17	22	16
Fatalities	0	0	4	10	1	2	3	1	0	0	1

Phase of Flight

Most balloon accidents and serious incidents occur during the landing phase of the flight, as shown in Figure 70. This holds true for both 2019 and the average of the preceding decade. There were no accidents or serious incidents in the take-off and manoeuvring phases in 2019.

Figure 70 Accidents and serious incidents involving balloons, by phase of flight

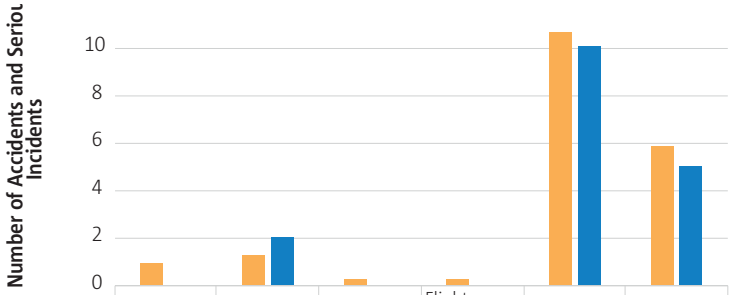


	Standing	Take-off	En route	Manoevring	Approach	Landing	Unknown/ Blank
Average 2009-2018	1.3	1.3	1.6	0.2	1.9	14.9	0.7
2019	1	0	1	0	2	17	2

Operation Type

Most balloon accidents and serious incidents are related to passenger and pleasure flights, as shown in Figure 71. There have been several accidents and serious incidents in relation to flights conducted for the purposes of airshow/race, demonstration and training/ instructional flights. However, such instances are few and there were no accidents and serious incidents relating to these type of flights in 2019.

Figure 71 Accidents and serious incidents involving balloons, by operation type



	Airshow/ Race	Business	Demon-stration	Flight Training/ Instructional	Passenger	Pleasure
Average 2009-2018	0.9	1.2	0.2	0.2	10.6	5.8
2019	0	2	0	0	10	5

Safety Risks for Balloons

The safety risks for balloons have been identified by EASA. They are derived from occurrence data from the EASA occurrence repository. ECCAIRS queries have been constructed for each safety issue in order to identify the occurrences associated with each safety issue, and these form the data portfolio as presented in this review.

Figure 72 shows that the key risk areas bearing the highest risk are obstacle collision in flight and aircraft upset. While aircraft upset applies differently to balloons than it does to other domains, it remains applicable and has been contextually included. The analysis of data from accidents and serious incidents confirms that collisions with power lines and hard landings are events with a higher likelihood to cause injuries, and potentially fatalities, in ballooning operations. Obstacle collisions in flight includes both powerline collisions as well as collisions with buildings, trees or other objects. Many of these collisions occur during landing or while flying very low. The causes of power line collisions are mainly lack of information, the position of the sun making it difficult to see the lines, fog, and wind gusts. Many of these accidents would not have occurred if the pilots had respected the minimum safety altitude.

The main causes of aircraft upset or loss of control, which leads to hard balloon landings and results in injuries are unexpected wind gusts or downdrafts, and the pilot´s control of the balloon inertia during the landing phase. A side-effect of such landings is that passengers may not be prepared for the second impact, which is often harder than the first, and often results in excessive loads on joints and feet. After the first impact, passengers tend to go out of their safety position and release their grip of the handles, as they are not expecting another impact. This significantly increases the risk of injuries.

Figure 73 shows a comparison between the number of occurrences per safety issue and the aggregated ERCS score. A yellow bar in the graph that is longer in comparison with the blue bar indicates a low number of occurrences contributing to a high risk.

It is worth noting that 'powerline collisions' are both highest with respect to the number of occurrences but also in terms of aggregated risk. 'Collisions with buildings and trees' are, however, much lower in risk as the danger of electric shock and fire is non-existent. The safety issue 'presence and use of pilot restraints' indicates clearly that if the pilot would have used the available restraint or if it was installed, the severity of injuries would have been minimised. If, however, the pilot is not using the restraint, the risk of the pilot being ejected from the basket during the landing is significant and hence increases the risk of injuries for the remaining persons on board as the balloon has lost control and its landing is left to chance. 'Perception and situational awareness' shows the risk of flying in marginal weather or not being able to see the course ahead due to such issues as sun glare, for example. 'High wind encounter' also addresses 'decision making and planning' as well as 'flight planning and preparation' and encourages both better flight planning and awareness of the pressure to fly in marginal weather.

Figure 72 Key Risk Areas by aggregated ERCS score and number of risk-scored occurrences involving balloons

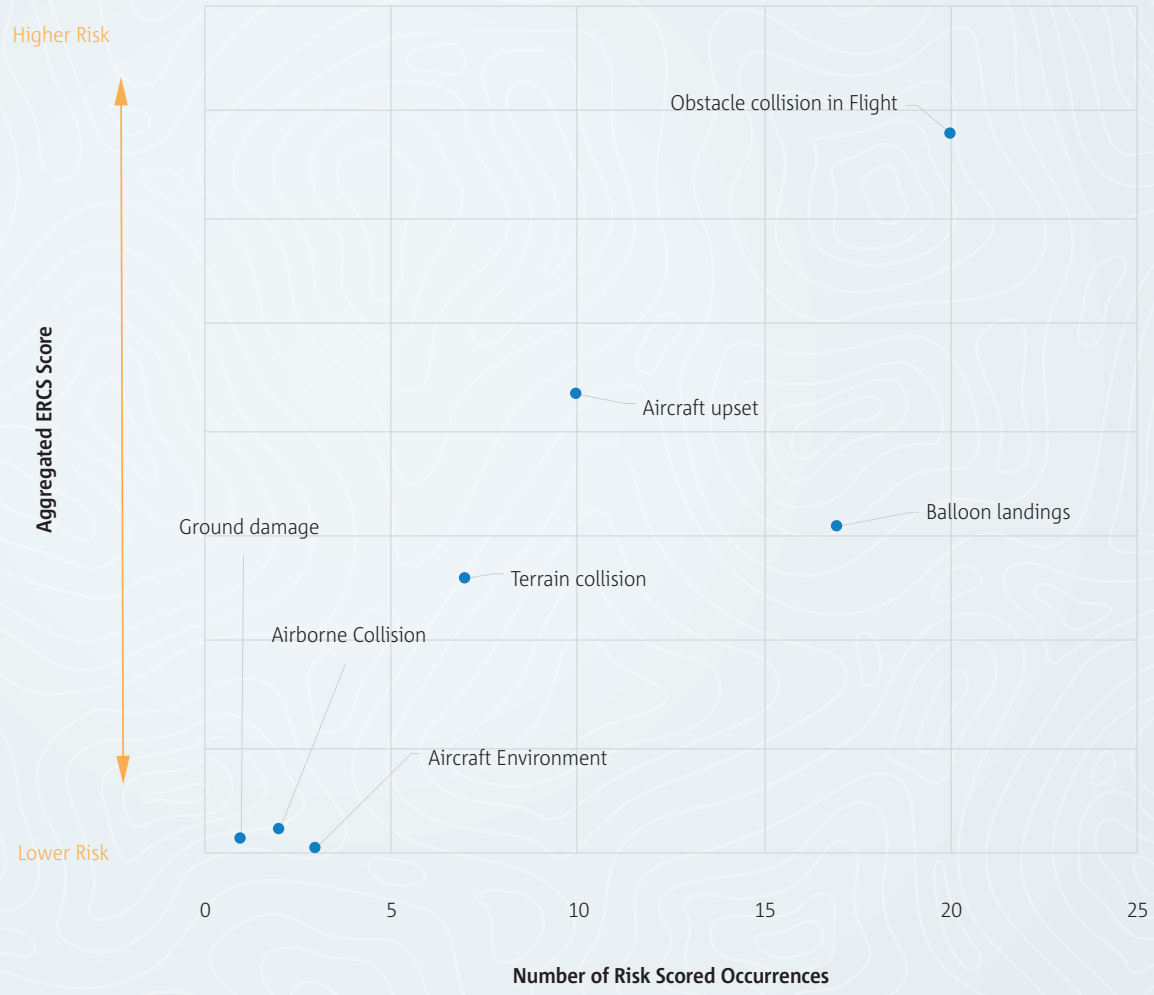


Figure 73 Safety Issues by aggregated ERCS score and numbers of accidents and serious incidents involving balloons

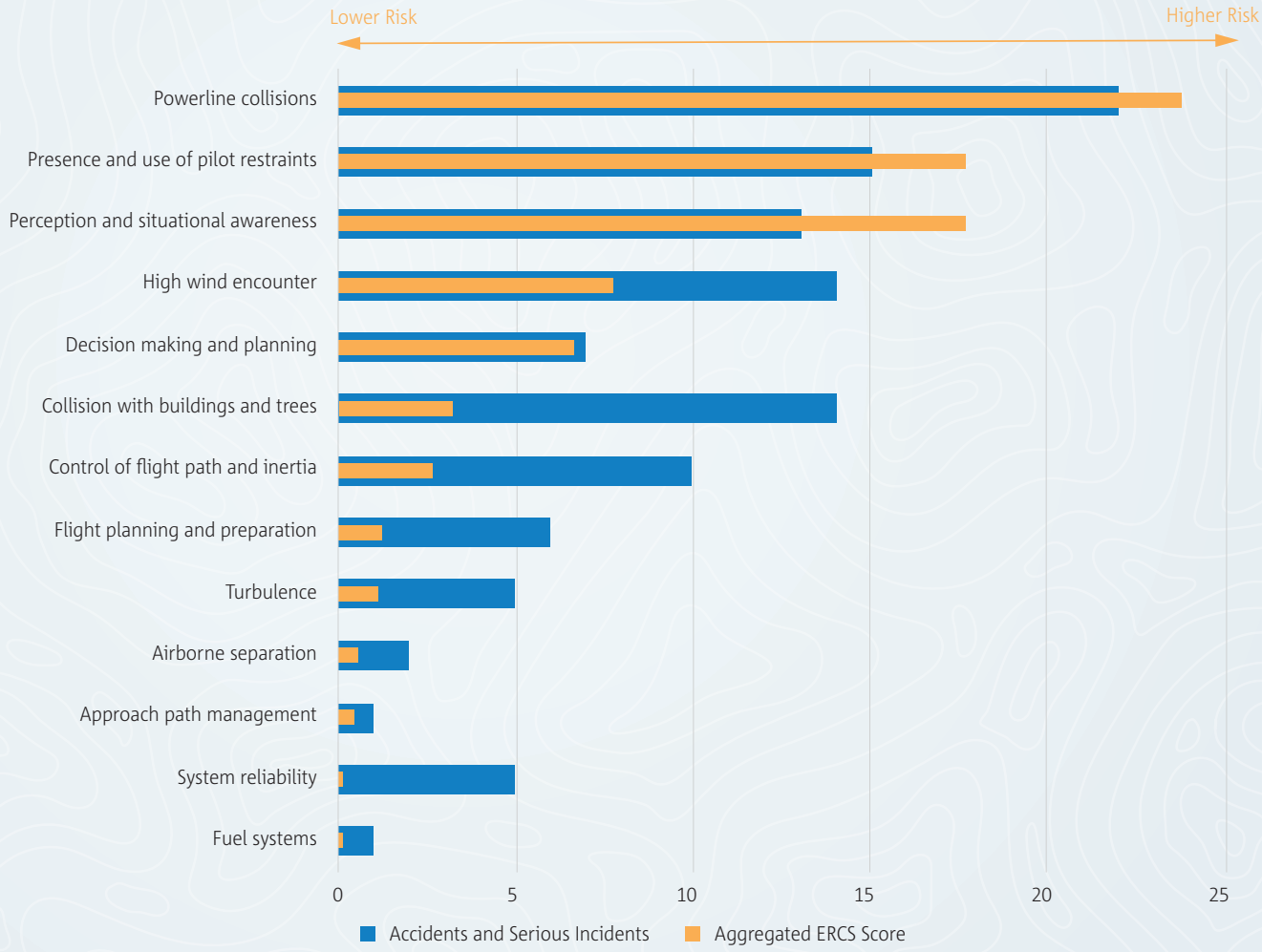


Table 25 provides the data portfolio for balloon operations, which has been developed through a data-driven approach. It presents the main key risk areas and their connections to the identified safety issues. All occurrences in the data are risk scored using the European Risk Classification Scheme (ERCS). The key risk areas are sorted by the aggregated ERCS score from left to right and the safety issues are sorted by the aggregated ERCS score from top to bottom. The different colour bands denote high to low risk of the safety issues.

The highest risk safety issues under the obstacle collision in flight key risk area, based on the coding of the occurrences, are:

- Power line collisions;
- Perception and situational awareness;
- High wind encounter and;
- Collision with buildings and trees.

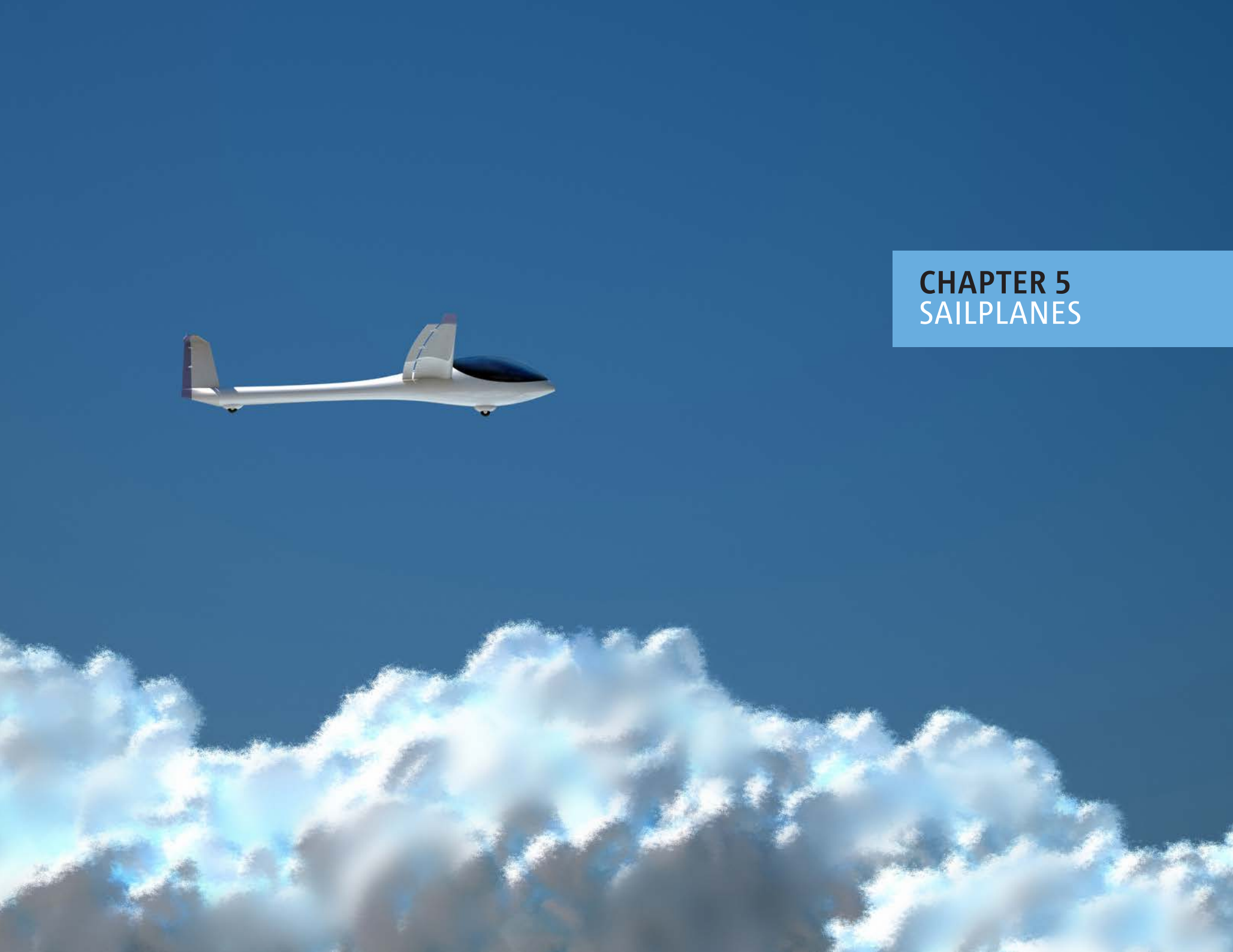
It should also be mentioned that power line collision events often overlap with the balloon landings as these collisions tend to occur in the final stages of the balloon flight. In some cases the balloon collides with the power line after the landing has taken place.

Table 25 Data portfolio for balloons

SAFETY ISSUE	KEY RISK AREAS (ERCS)						
	OBSTACLE COLLISION IN FLIGHT	AIRCRAFT UPSET	BALLOON LANDINGS	TERRAIN COLLISION	AIRBORNE COLLISION	GROUND DAMAGE	AIRCRAFT ENVIRONMENT
Power line collisions	X	O	O	O	O		O
Presence and use of pilot restraints	O	O	X	O		O	
Perception and situational awareness	X	O	O	O	O		
High wind encounter	X	O	X	O			
Decision making and planning	O	O	O	O			
Collision with buildings and trees	X	O	O	X		O	
Control of flight path and inertia	O	O	O	O			O
Flight planning and preparation	O	O	O	O			
Turbulence	O	O	O		O		
Airborne separation					O		
Approach path management	O	O	O	O			
System reliability						O	
Fuel systems							O

X = stronger contributor to the key risk area
O = weaker contributor to the key risk area.

Priority 1 Priority 2 Priority 3 Priority 4



CHAPTER 5
SAILPLANES

The scope of this chapter covers sailplanes where the state of registry of the aircraft is an EASA Member State. The data presented are based on the accidents and serious incidents collected by the Agency under Regulation (EU) 996/2010 on accident and serious incident investigation and Regulation (EU) 376/2014 on occurrence reporting, and through actively searching for those events from other official sources. The chapter provides the key statistics for sailplanes and a data portfolio, which provides an overview of the main safety risk for these types of operations at the European level based on occurrence data.

Sailplanes is a unique domain within aviation, largely due to how gliding is performed. Unlike other domains where aircraft are powered by engines, sailplane operations depend on teamwork and safe towing into the air for the flight to commence. This added operational complexity has fostered a collaborative team spirit and cohesive atmosphere for safety within the gliding community. The gliding community, with the leadership of the European Gliding Union (EGU), has been actively involved in EASA's work on the newly implemented Sailplane Air Operations (OPS) and Flight Crew Licensing (FCL) rules, and in providing EASA with valuable input and insight into sailplane operations. The Agency's analysis in this chapter is supported by the EGU and the British Gliding Association (BGA), and aims to provide an in-depth analysis that gives an insight on the pertinent safety risks how they should be labelled so as to maximise their applicability and use in the gliding community.

Key Statistics

The key statistics for this domain are shown in Table 26 and Table 27 and include a comparison of the numbers of fatal accidents, non-fatal accidents and serious incidents in 2019 with the corresponding numbers of the previous 10-year period (2009-2018). The tables also include the comparison of fatalities and serious injuries sustained in those accidents during the same time frame. There was an increase in the number of fatal accidents in 2019, with 28 fatal accidents. The number of non-fatal accidents in 2019 was lower than the average of the previous 10 years.

There were 31 fatalities in sailplane operations in 2019. The number of fatalities increased when compared with the 10-year average. The number of serious injuries have also increased in 2019 resulting in 47 serious injuries in 2019, which is the highest figure since 2009.

Table 26 Key statistics for sailplanes

2009 - 2018 TOTAL	TIMESPAN	2019	2019 vs 2009-2018
242	Fatal Accidents	28	↑
1901	Non-fatal Accidents	168	↓
94	Serious Incidents	23	↑

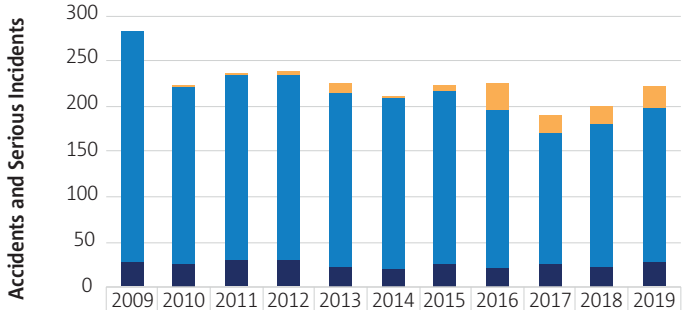
Table 27 Fatalities and serious injuries involving sailplanes

TIMESPAN	FATALITIES	SERIOUS INJURIES
2009-2018 total	279	318
2009-2018 max	40	44
2009-2018 min	21	21
2019	31	47

Figure 74 provides an overview of both fatal and non-fatal accidents and serious incidents from 2009 to 2019. The figure shows a slight decrease in the number of accidents, but the number of fatal accidents is stable over the time period.

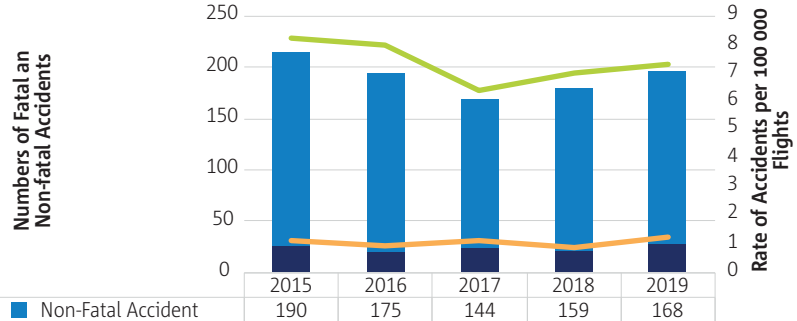
Figure 75 provides an overview of both fatal and non-fatal accidents and estimated rates during the period 2015-2019. As the availability of exposure data is sparse, an estimation was made using the available data from 2015-2018 and calculating the 2019 exposure using the EU GDP increase from 2018 to 2019 which was 2.3%.

Figure 74 Fatal and non-fatal accidents and serious incidents per year involving sailplanes



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	0	2	1	5	11	2	6	28	19	20	23
Non-Fatal Accidents	253	194	202	202	193	189	190	175	144	159	168
Fatal Accidents	28	25	30	30	20	18	26	20	25	20	28

Figure 75 Numbers and rates of fatal and non-fatal accidents per year involving sailplanes



	2015	2016	2017	2018	2019
Non-Fatal Accident	190	175	144	159	168
Fatal Accident	26	20	25	20	28
Fatal Accident Rate	1.13	0.91	1.11	0.88	1.22
Non-Fatal Accident Rate	8.26	7.97	6.38	7.02	7.32

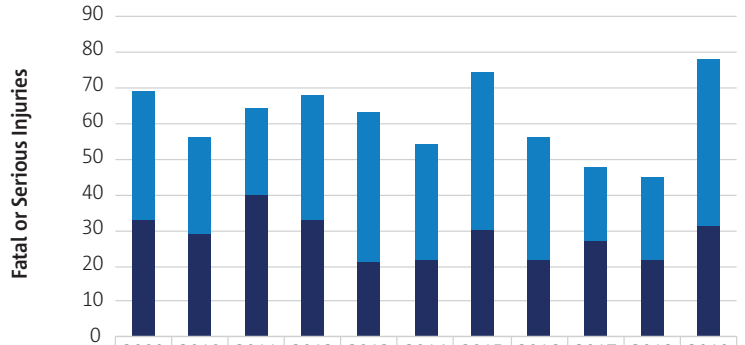
Figure 76 shows that 47 persons were seriously injured in 2019, compared to 23 in 2018. The number of fatalities also increased, from 22 in 2018 to 31 in 2019.

Phase of Flight

The nature of gliding creates a different set of challenges for sailplane pilots compared to flights using motorised aircraft. This includes both a different means of take-off and the need for the sailplane pilot to frequently plan for possible landing areas during the flight. Figure 77 provides an overview of the accidents and serious incidents per phase of flight.

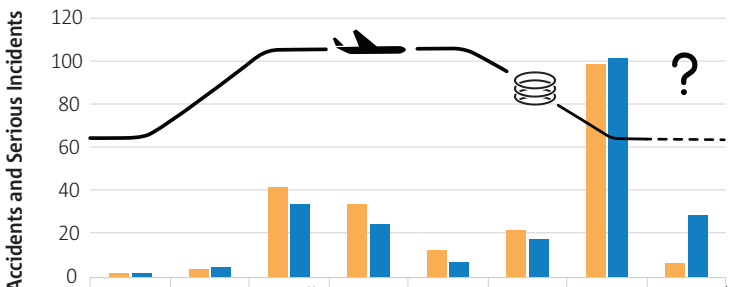
Occurrences during take-off include both winch launches and the towing of sailplanes with motorised aircraft. The en route and manoeuvring accidents include collisions with hills or other types of terrain and the approach and landing accidents largely reflect hard landings and obstacle collisions during the approach and landing, which mostly result in substantial damage.

Figure 76 Fatal and serious injuries per year involving sailplanes



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries	36	27	24	35	42	32	44	34	21	23	47
Fatalities	33	29	40	33	21	22	30	22	27	22	31

Figure 77 Accidents and serious incidents by phase of flight involving sailplanes

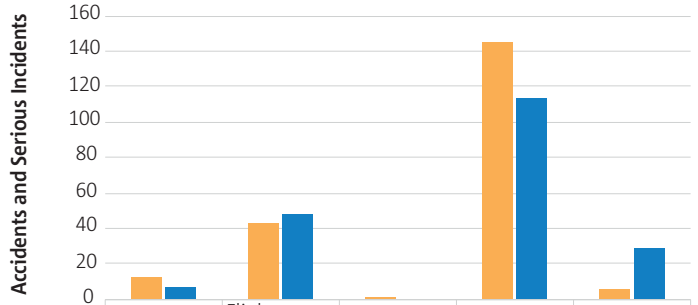


	Standing	Taxi	Take-off	En route	Manoe-vring	Approach	Landing	Unknown/ Blank
Average 2009-2018	2.1	3.2	41.9	33.9	12.2	21.7	98.8	5.7
2019	2	4	34	24	7	17	101	29

Operation Type

Most sailplane accidents and serious incidents occurred during pleasure flights. Instructional or training flight occurrences amount to 30% of the total occurrences recorded during the 10-year period. It should be noted that many of the unknown/blank phases of flight have not been categorised due to a lack of information as these accidents are still being investigated by the national Safety Investigation Authorities.

Figure 78 Accidents and serious incidents by operation type involving sailplanes



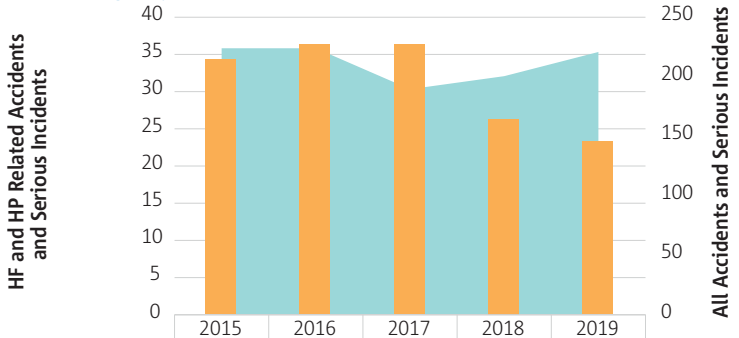
	Airshow/ Race	Flight Training/ Instructional	Towing	Pleasure	Unknown/ Blank
Average 2009-2018	11.8	42.8	0.6	144.7	6
2019	7	48	0	113	29

Human Factors and Human Performance

Approximately 15% of sailplane accident and serious incident reports identify human factors (HF) or human performance (HP) issues. The proportion of accidents and serious incidents identifying HF or HP issues was stable between 2015 and 2017, whereas the figures for 2018 and 2019 should be viewed as preliminary and likely to increase as HF or HP issues are often not recorded within accident and serious incident reports until the final report has been published.

The application of HF or HP codes at a high level can be seen in Figure 80. As with many of the domains in this review, personnel task performance, and situational awareness and sensory events are the most commonly coded high level HF and HP event types.

Figure 79 Human factors and human performance accidents and serious incidents involving sailplanes



	2015	2016	2017	2018	2019
Accidents and Serious Incidents	222	223	188	199	219
HF/ HP Accidents and Serious Incidents	34	36	36	26	23

Figure 80 High level human factors and human performance event codes applied to accidents and serious incidents involving sailplanes

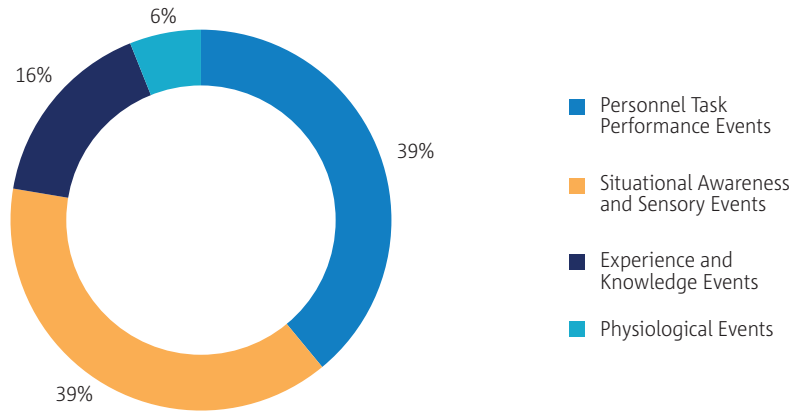
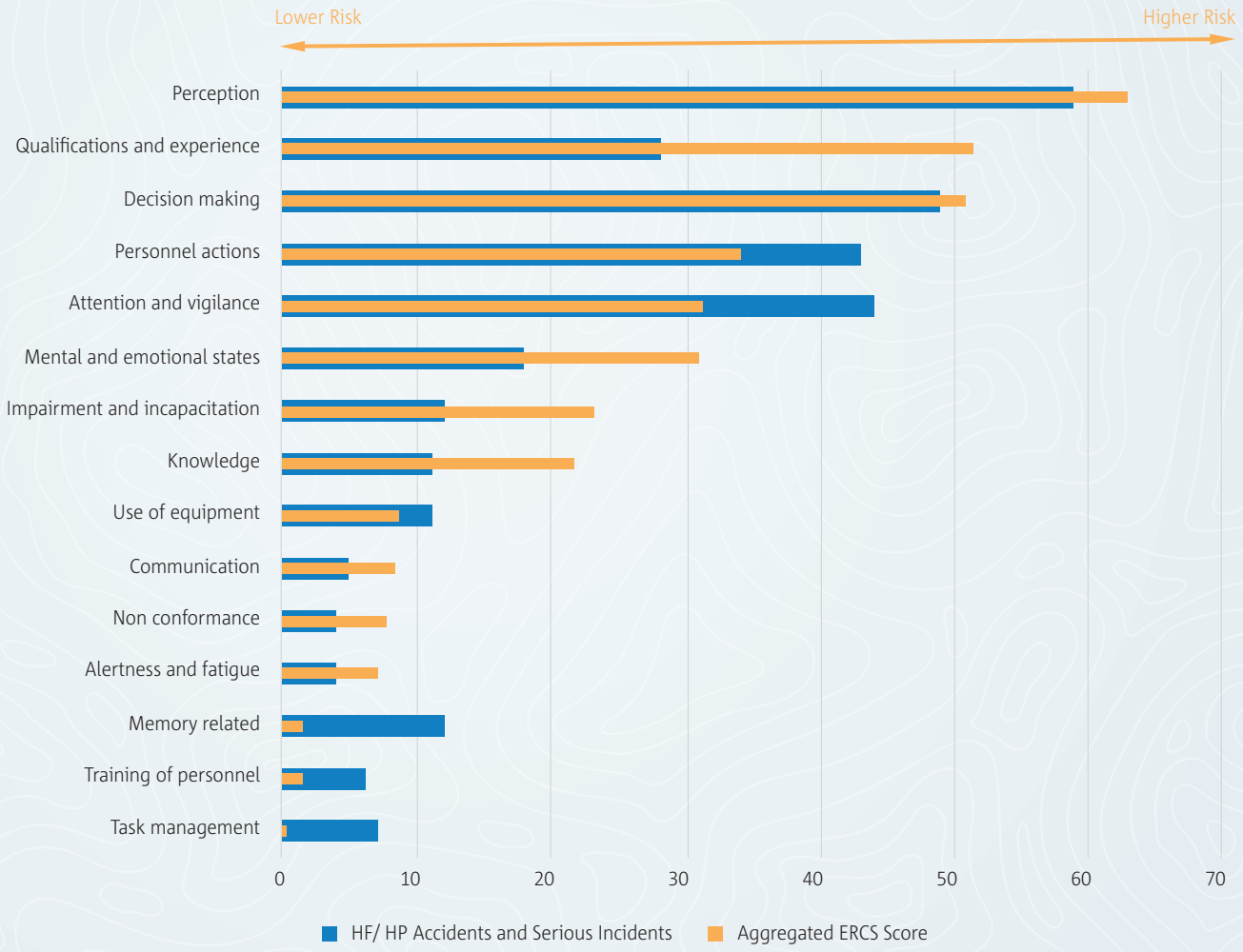


Figure 81 compares the numbers of accidents and serious incidents with the aggregated ERCS risk score of those incidents, using detailed HF and HP event codes. It can be seen that some events have a greater risk than others, as indicated where the aggregated risk score is far higher than the number of accidents and serious incidents. In particular, qualifications and experience stands out as the HF event type with the highest aggregated risk score, despite it being fifth in the number of accidents and serious incidents.

Figure 81 Detailed human factors and human performance event codes by aggregated ERCS score and numbers of accidents and serious incidents involving sailplanes



Safety Risks for Sailplanes

The safety risks for sailplanes have been identified by EASA in collaboration with the European Gliding Union (EGU). They are derived from occurrence data from the EASA occurrence repository. ECCAIRS queries have been constructed for each safety issue in order to identify the occurrences associated with each safety issue, and these form the data portfolio as presented in this review.

Figure 82 provides an overview of the key risk areas in sailplane operations. The figure shows that the area showing the highest risk is aircraft upset involving stalls, spins and other type of loss of control. Other areas of concern are terrain collisions where the aircraft is colliding with hills, mountains or other terrain and obstacle collision in flight where the aircraft is hitting obstacles during take-off, approach and landing. The excursion risk area does not provide a high risk score, even though it is high in numbers and results in substantial costs due to damage both during landings on the airfield and off-field landings. The airborne collision risk predominantly exists around airfields and when several sailplanes are searching for lift in the same area.

Figure 82 Key Risk Areas by aggregated ERCS score and number of risk-scored occurrences involving sailplanes

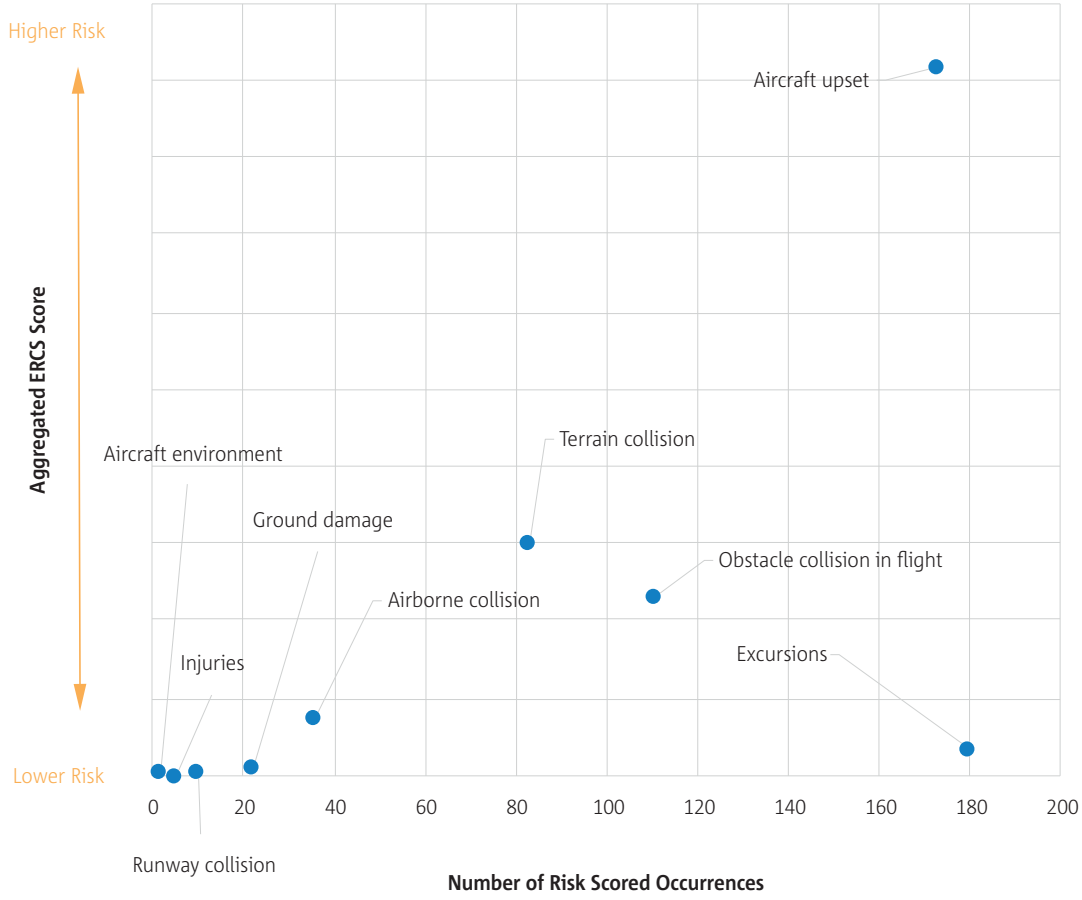


Figure 83 is similar to Figure 82 but it shows us the risks from the perspective of the sailplane pilot. It provides the key risk areas that are highly relevant for sailplane operations. Again it can be seen that loss of control is showing the highest risk with 173 accidents and serious incidents behind that number. Many of these accidents occur during approach and landing where the pilot's workload is the highest. Accidents involving terrain collisions cause many fatalities for sailplanes compared with other aviation domains, this is because it is common for sailplanes to seek lifting conditions in mountainous areas. The winch launch method also shows significant risk. The main causes are the wing tip hitting ground during take-off run, climbs that are too steep and incomplete winch launches, which forces the sailplane to land outside the airfield or leads to the pilot attempting to return to the airfield after a failed launch, using too steep turns while flying too slow.

Other risk areas worth noting are the off-field landings and landings on the airfield. The landings on the airfield are either hard landings or runway excursions. The damage during off-field landings is mostly caused by hitting objects like trees, bushes or high vegetation during touch down and the landing roll. Motor gliders and tugs are separated into one area as they are aircraft with engines and frame the technical aspects related to motorised aircraft. Glider integrity, however, covers shortcomings in preparing the glider for flight, typically rigging errors, unlocked canopies or airbrakes not locked. Other aspects such as maintenance, design, assembly and equipment failures are not included, however, a deficiency within the database taxonomy has been identified that makes it difficult to fully exclude such event types. An effort will be made to better capture glider integrity occurrences with necessary change within the taxonomy and update the historic data as necessary.

Figure 83 Sailplane risk groups by aggregated ERCS score and number of risk-scored occurrences involving sailplanes

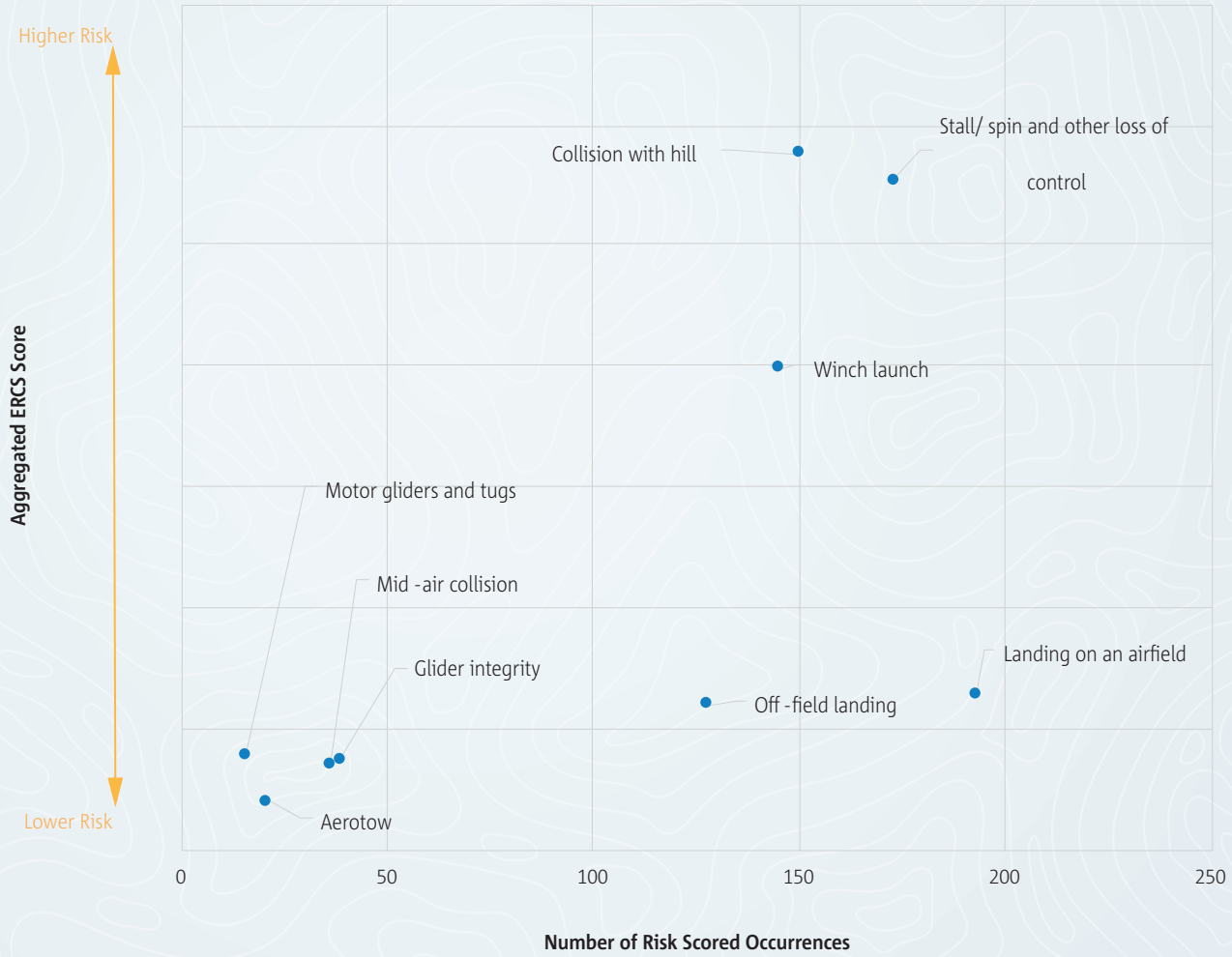
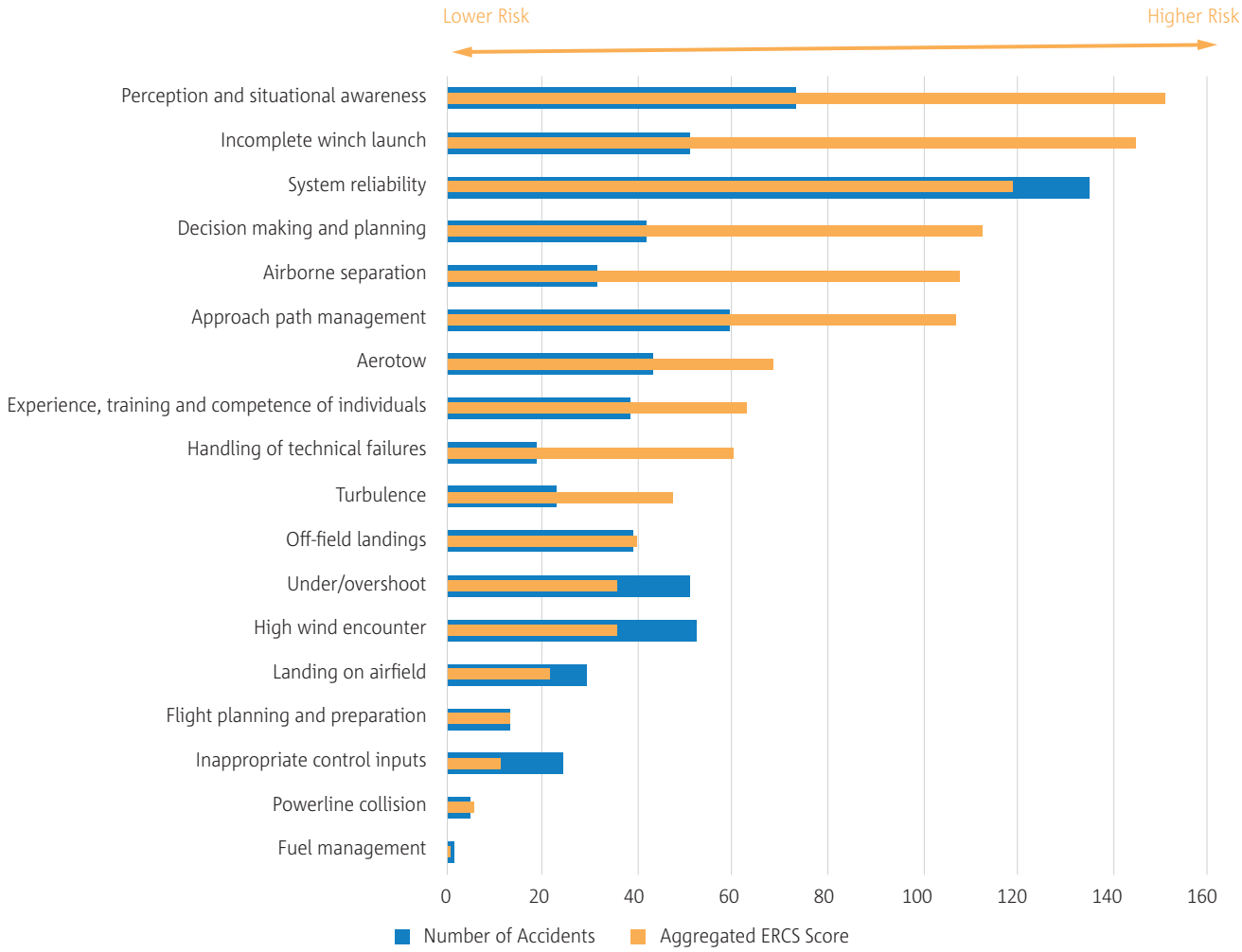


Figure 84 provides information on each identified safety issue. It shows the number of occurrences behind each safety issue in a blue bar superimposed by the aggregated ERCS score displayed in yellow. A yellow bar in the graph that is considerably long in comparison with the underlying blue bar indicates a low number of occurrences contributing to a high risk.

Figure 84 Safety Issues by aggregated ERCS score and number of accidents involving sailplanes



The data portfolio presents the main key risk areas and their connections to the identified safety issues. All occurrences in the data are risk scored using the European Risk Classification Scheme (ERCS). The key risk areas are sorted by the aggregated ERCS score from left to right and the safety issues are sorted by the aggregated ERCS score from top to bottom. The different colour bands denote high to low risk for the safety issues.

It is worth noting the human factors safety issues among the other ones. Issues like perception and situational awareness, decision making and planning have the highest risks, approach path management links strongly to those two human factor issues. Another issue that needs to be mentioned is the experience, training and competence of individuals. This issue addresses not only low experience but also training flights and overall competence of the pilots. It raises questions such as: “How long is it since your last flight?” and; “How many hours have you flown in the last 12 months?” It is clear that less flying causes proportionally more accidents. It is of vital importance that the sailplane community address among their pilots the need for exposure data, not only for better monitoring of sailplane operations at EU level but also at a national level and within each flight club. Such information will enable better understanding of where the problems are, and enable better focused safety promotion where there is a need for improvement.

Table 28 Data portfolio for sailplanes

	KEY RISK AREAS (ERCS)					
SAFETY ISSUE	**AIRCRAFT UPSET**	**TERRAIN COLLISION**	**OBSTACLE COLLISION IN FLIGHT**	**AIRBORNE COLLISION**	**LANDINGS**	**INJURIES**
Perception and situational awareness	x	x	x	x	x	
Incomplete winch launch	x	x	x	o	o	
System reliability	x	o			x	o
Decision making and planning	x	x	x	o	x	o
Airborne separation	o			x		
Approach path management	x	x	x		x	o
Aerotow	x	x	x		o	
Experience, training and competence of individuals	x	x	x		x	
Handling of technical failures	x	o			o	o
Turbulence	x	o	o		x	

X = stronger contributor to the key risk area
O = weaker contributor to the key risk area.

Priority 1 Priority 2 Priority 3 Priority 4

	KEY RISK AREAS (ERCS)					
SAFETY ISSUE	AIRCRAFT UPSET	TERRAIN COLLISION	OBSTACLE COLLISION IN FLIGHT	AIRBORNE COLLISION	LANDINGS	INJURIES
Off-field landings	o	x	x		x	
Under/overshoot	x	x	x		x	
High wind encounter	x	x	x		x	
Landing on airfield	o	x	x		x	
Flight planning and preparation	x	o	o	o	o	
Inappropriate control inputs	x	x	o	o	x	
Powerline collision	x	x	x	o	x	o
Fuel management	o		o			

Legend text: X = stronger contributor to the key risk area, o = weaker contributor to the key risk area.

CHAPTER 6
AERODROMES AND GROUND HANDLING

The scope of this chapter covers aerodrome and ground handling operations in EASA Member States. The data presented is based on the accidents and serious incidents collected by the Agency under Regulation (EU) 996/2010 on accident and serious incident investigation and Regulation (EU) 376/2014 on occurrence reporting, and through the active search of those events from other official sources.

It is worth noting that the accidents and serious incidents in this chapter are those related to aerodrome and ground handling operations in a general context. This means that the aerodrome infrastructure, aerodrome operations or ground handling operation itself may or may not have contributed to a given occurrence, but could have a role in preventing similar occurrences in the future.

In addition to key statistics for the domain, a data portfolio for aerodrome and ground handling operations is also provided. The portfolio has been developed with the support of the aerodrome and ground handling Collaborative Analysis Group (CAG). The CAG is led by EASA and comprises members from aerodrome operators, ground handling providers, airlines, national aviation authorities, international organisations and unions.

Key Statistics

The key statistics for this domain are shown in Table 29 and Table 30. This includes accidents and serious incidents related to aerodrome infrastructure, aerodrome procedures and ground handling operations at aerodromes located in the EASA Member States. There were no fatal accidents related to aerodromes and ground handling in 2019, and the number of non-fatal accidents was in line with the average of the preceding decade. However, the number of serious incidents was more than double the average of the previous 10 years. The number of serious injuries in 2019 was higher than the average of the preceding decade and close to the highest number in a single year in the same period

Table 29 Key statistics for aerodromes and ground handling

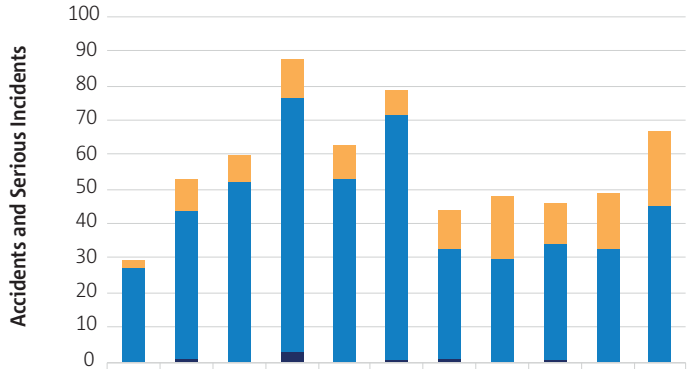
2009 - 2018 TOTAL	TIMESPAN	2019	UP/DOWN
7	Fatal Accidents	0	↓
448	Non-fatal Accidents	45	=
104	Serious Incidents	22	↑

Table 30 Fatalities and serious injuries for aerodromes and ground handling operations

	FATALITIES	SERIOUS INJURIES
2009-2018 total	17	39
2009-2018 max	8	6
2009-2018 min	0	1
2019	0	5

The numbers of accidents and serious incidents per year are shown in Figure 85. There have been no fatal accidents since 2017. There were more non-fatal accidents in 2019 than in each of the previous 4 years. The number of serious incidents in 2019 was higher than any year in the preceding decade. It should be noted though that the traffic at EASA MS aerodromes have increased significantly over the past decade.

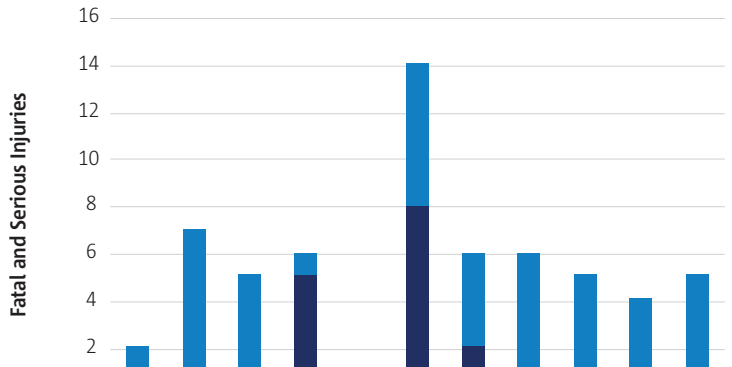
Figure 85 Fatal accidents, non-fatal accidents and serious incidents per year involving aerodromes and ground handling



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	2	9	8	11	10	7	11	18	12	16	22
Non-Fatal Accidents	27	43	52	74	53	71	32	30	33	33	45
Fatal Accidents	0	1	0	3	0	1	1	0	1	0	0

The numbers of fatalities and serious injuries per year is shown in Figure 86. The number of serious injuries has remained between 4 and 6 per year since 2014.

Figure 86 Fatal and serious injuries per year involving aerodromes and ground handling

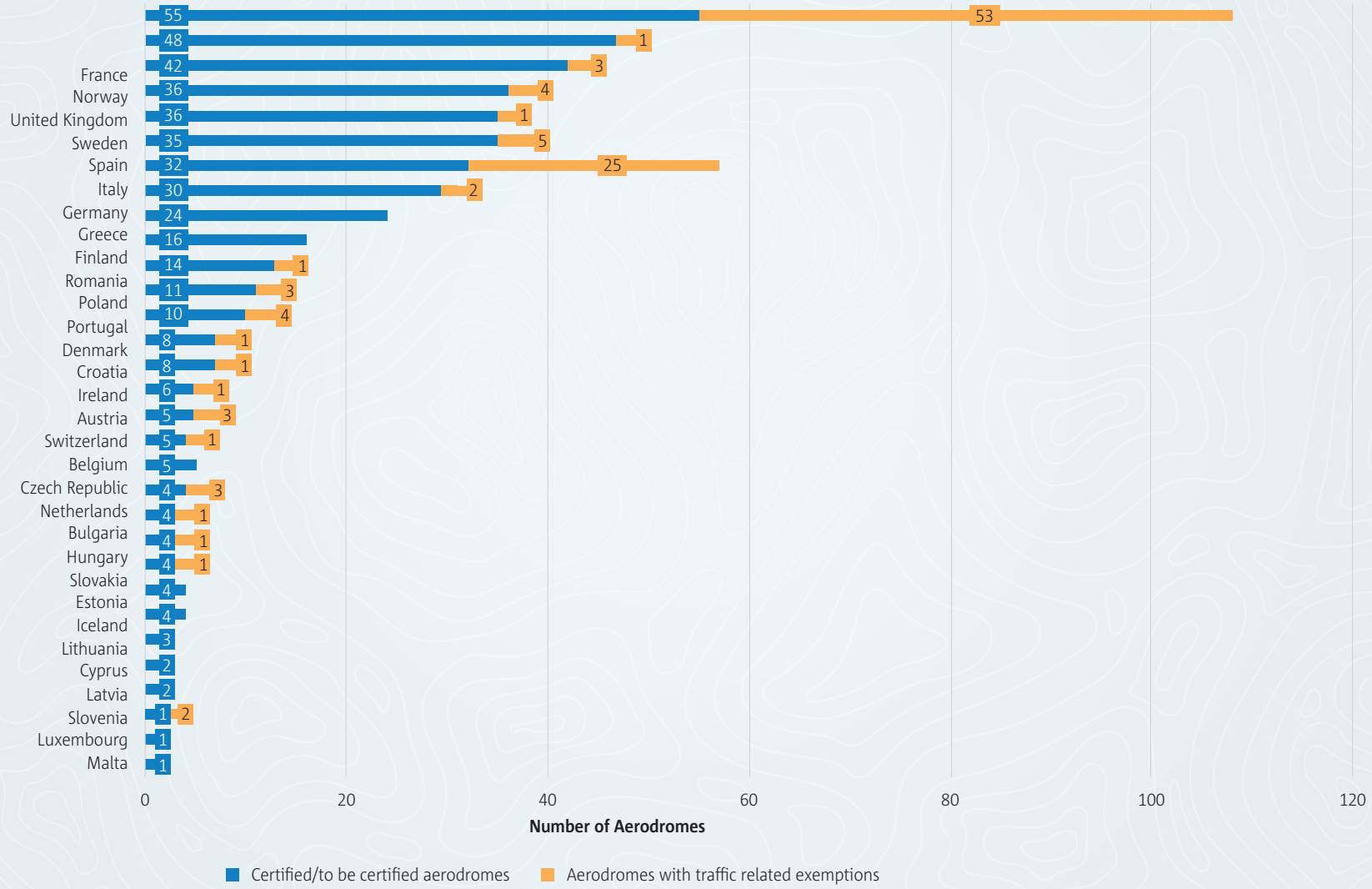


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries	2	6	5	1	1	6	4	6	4	4	5
Fatalities	0	1	0	5	0	8	2	0	1	0	0

Number of EASA MS Certified Aerodromes

Regulation (EU) 139/2014 lays down the requirements for the certification of aerodromes in the EASA Member States. At time of publication, there are 577 aerodromes within the scope of the regulation. 460 of these have been certified or are in the process of being certified, while 117 aerodromes have been granted an exemption in accordance with Article 2(1)(e) of Regulation (EU) 2018/1139 (the EASA Basic Regulation). Figure 87 shows the number of aerodromes per EASA Member State. It should be noted that although ground handling service provision is regulated through the EASA Basic Regulation, the delegated acts laying down the detailed rules are yet to be adopted.

Figure 87 Aerodromes within the scope of Regulation (EU) 139/2014 by EASA Member State

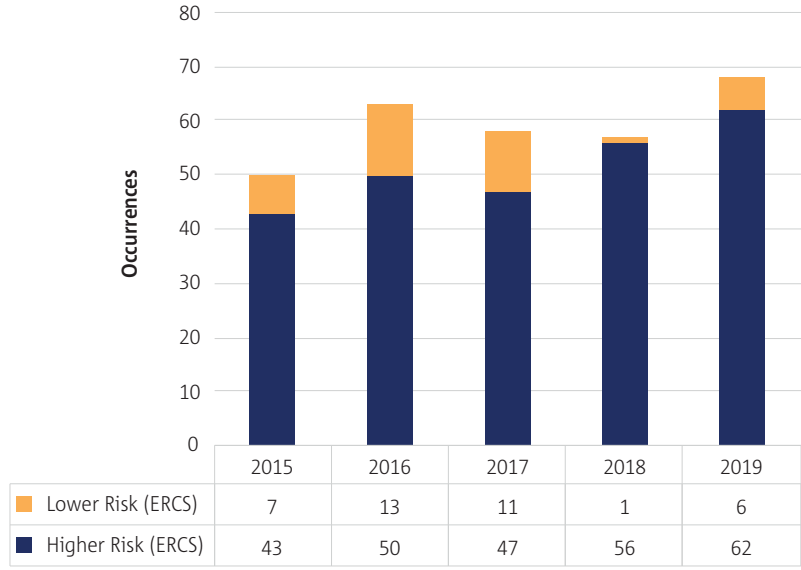


Safety Risks for Aerodromes and Ground Handling

The safety risks for aerodromes and ground handling operations have been identified by EASA and the Aerodromes and Ground Handling Collaborative Analysis Group (CAG). They are derived from occurrence data in the EASA occurrence repository and the European Central Repository (ECR), as well as the operational expertise provided by the members of the CAG. Where possible, ECCAIRS queries have been constructed for each safety issue in order to identify the occurrences associated with each safety issue. These form the data portfolio which is presented here in the Annual Safety Review. The safety issues where a data query was not possible to construct are still included in the safety risk portfolio which is a living document forming the domain's input to the European safety risk management process.

In the aerodromes and ground handling domain, EASA has reviewed the accidents and serious incidents for 2015-2019 with regard to risk. All accidents and serious incidents within the scope have been risk assessed using the European Risk Classification Scheme (ERCS) methodology and have been assigned an ERCS score. The number of accidents and serious incidents per year, with a higher or lower risk ERCS score is shown in Figure 88.

Figure 88 Numbers of ERCS higher risk and lower risk occurrences per year involving aerodromes and ground handling



	2015	2016	2017	2018	2019
Lower Risk (ERCS)	7	13	11	1	6
Higher Risk (ERCS)	43	50	47	56	62

The ERCS review of the key risk areas is presented in Figure 89. The most frequent key risk area for aerodrome and ground handling related accidents and serious incidents is ground damage, followed by aircraft upset and runway excursions. In terms of aggregated risk, ground damage and aircraft upset are on a similar high level of aggregated risk, followed by runway collision.

Figure 89 Key Risk Areas by aggregated ERCS score and number of risk-scored occurrences involving aerodromes and ground handling

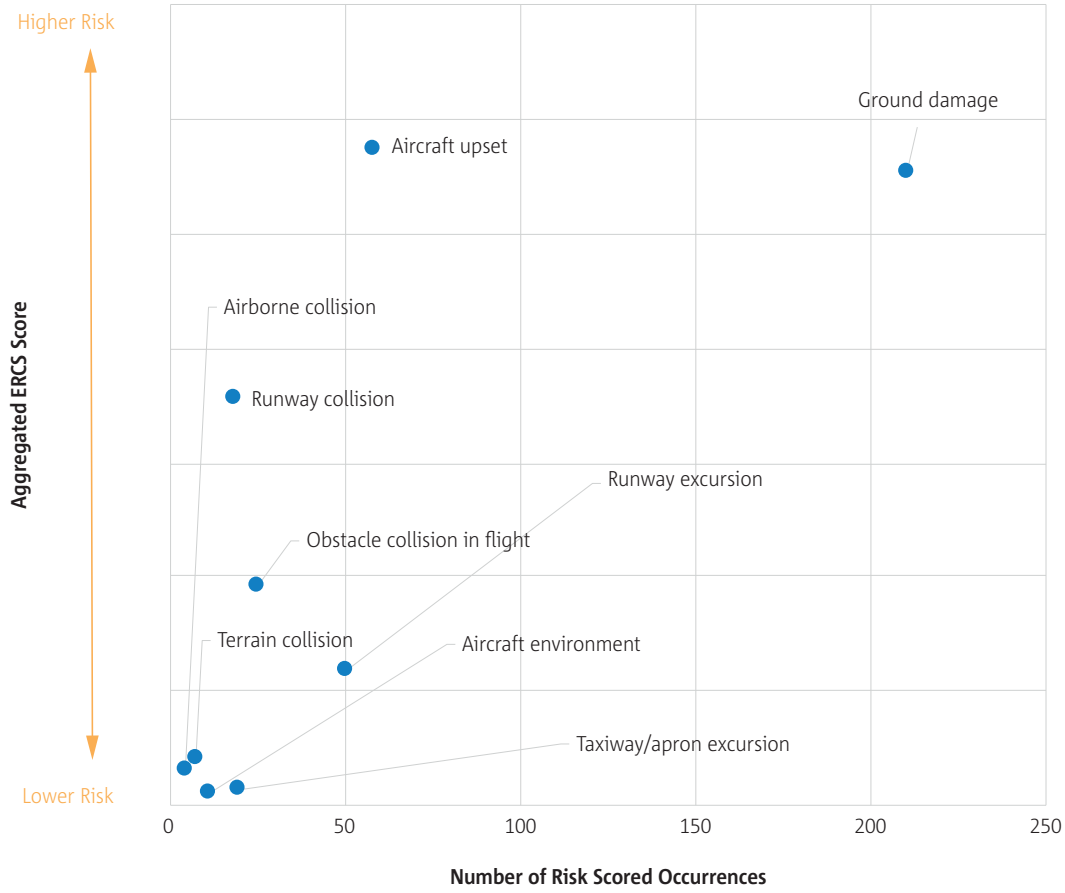


Figure 90 shows a comparison between the number of occurrences per safety issue and their aggregated ERCS score. A yellow bar in the graph that is considerably long in comparison with the underlying blue bar indicates a low number of occurrences contributing to a high risk.

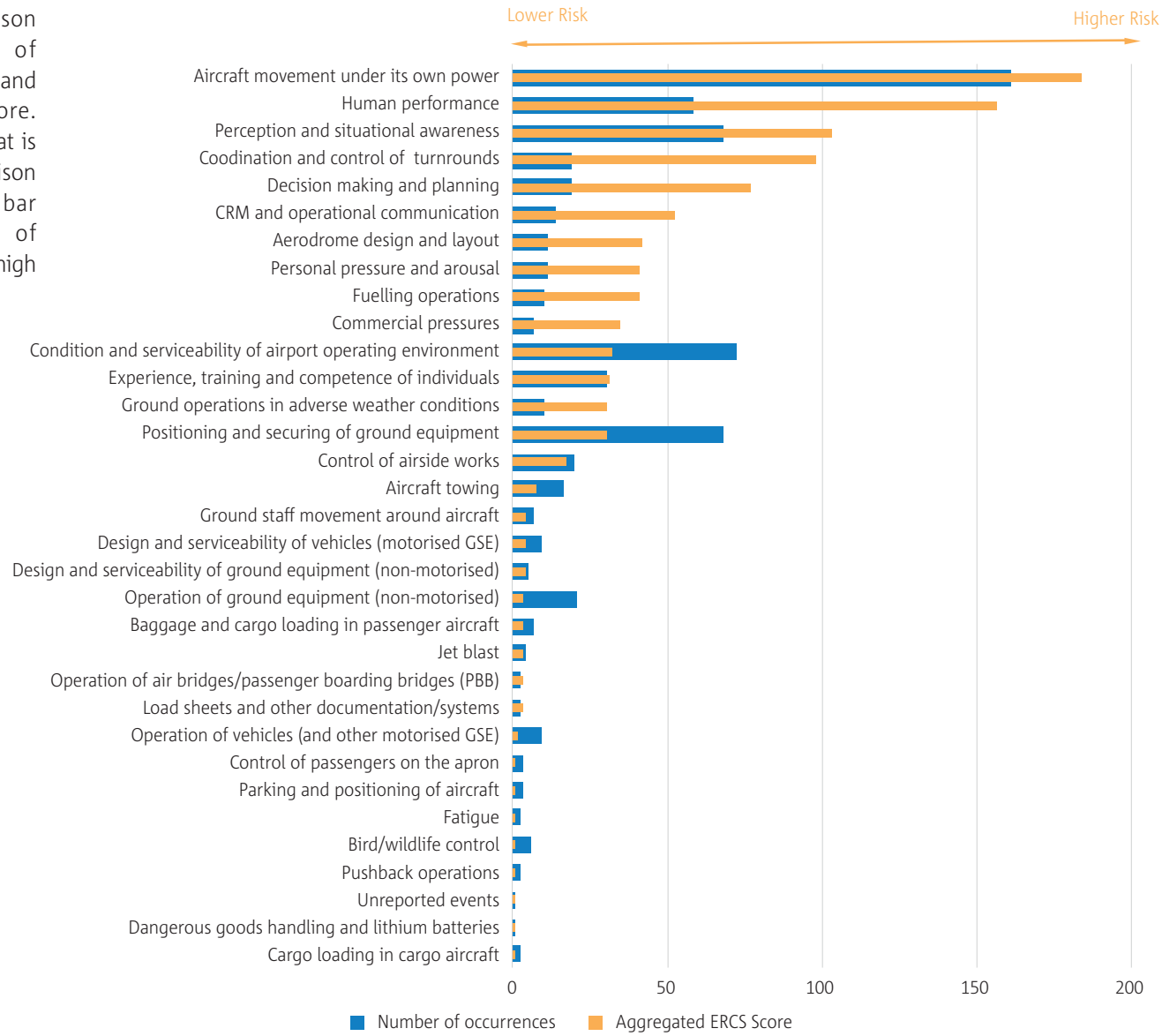


Figure 90 Safety Issues by aggregated ERCS score and numbers of occurrences involving aerodromes and ground handling

The data portfolio is shown in Table 31. The key risk areas are sorted by the aggregated ERCS score from left to right and the safety issues are sorted by the aggregated ERCS score from top to bottom. The different colour bands denote high to low risk for the safety issues.

From a purely data point of view, the safety issue with the highest aggregated risk contribution is aircraft movement under its own power. This safety issue has been identified in occurrences contributing to 6 different key risk areas. The safety issue contributing to the highest number of key risk areas is control of airside works, which is associated with all 9 key risk areas.

Table 31 Data portfolio for aerodromes and ground handling

SAFETY ISSUE	AIRCRAFT UPSET	GROUND DAMAGE	RUNWAY COLLISION	OBSTACLE COLLISION IN FLIGHT	RUNWAY EXCURSION	TERRAIN COLLISION	AIRBORNE COLLISION	TAXIWAY/APRON EXCURSION	AIRCRAFT ENVIRONMENT
Aircraft movement under its own power	O	X	X	O	X			X	
Human performance	O	O	O				O		
Perception and situational awareness	O	O	O				O		
Coordination and control of turnarounds	X	O		O	O				O
Decision making and planning	X	O	O	O	X	O			
CRM and operational communication	O	O	O		O	O	O		O
Aerodrome design and layout	O	O	O	O	O	O	O		

X = stronger contributor to the key risk area
O = weaker contributor to the key risk area.

Priority 1 Priority 2 Priority 3 Priority 4

SAFETY ISSUE	AIRCRAFT UPSET	GROUND DAMAGE	RUNWAY COLLISION	OBSTACLE COLLISION IN FLIGHT	RUNWAY EXCURSION	TERRAIN COLLISION	AIRBORNE COLLISION	TAXIWAY/APRON EXCURSION	AIRCRAFT ENVIRONMENT
Personal pressure and arousal	o	o	o				o		
Fuelling operations	x			o	o	o			o
Commercial pressures	o	o	o						
Condition and serviceability of airport operating environment	x	x	o	x	x	o		x	o
Experience, training and competence of individuals	x	x	o	x	x	o	o		
Ground operations in adverse weather conditions	o	x			o			o	o
Positioning and securing of ground equipment	o	o	o				o		
Control of airside works	o	o	o	o	x	o	o	o	o
Aircraft towing		x				o		o	
Ground staff movement around aircraft	o	o	o						
Design and serviceability of vehicles (motorised GSE)		x				o			
Design and serviceability of ground equipment (non-motorised)		o							
Operation of ground equipment (non-motorised)	o	o	o				o		

SAFETY ISSUE	AIRCRAFT UPSET	GROUND DAMAGE	RUNWAY COLLISION	OBSTACLE COLLISION IN FLIGHT	RUNWAY EXCURSION	TERRAIN COLLISION	AIRBORNE COLLISION	TAXIWAY/APRON EXCURSION	AIRCRAFT ENVIRONMENT
Baggage and cargo loading in passenger aircraft	o	o							o
Jet blast	o	o	o				o		
Operation of air bridges/passenger boarding bridges (PBB)	o	o	o				o		
Load sheets and other documentation/systems	o	o	o				o		
Operation of vehicles (and other motorised GSE)	o	o	o				o		
Control of passengers on the apron									
parking and positioning of aircraft	o	o	o				o		
Fatigue	o	o					o	o	
Bird/wildlife control	o			o	o				
Pushback operations	o	o	o				o		
Unreported events	o	o	o				o		
Dangerous goods handling and lithium batteries									
cargo loading in cargo aircraft	o								

CHAPTER 7
ATM/ANS

The scope of this chapter covers accidents and serious incidents related to the provision of Air Traffic Management/ Air Navigation Services (ATM/ANS) in EASA Member States (MS). The data are based on the accidents and serious incidents collected by EASA under ICAO Annex 13 and Regulation (EU) 996/2010 on accident and serious incident investigation and Regulation (EU) 376/2014 on occurrence reporting, analysis and follow-up. Accident and serious incidents in this chapter involve at least one Commercial Air Transport (CAT) aircraft, either fixed wing aeroplanes with a maximum take-off mass of at least 2250 kg, or small (CS-27) or large (CS-29) helicopters, which occurred in an EASA MS. Statistics relating to CAT helicopter operations were first included in this chapter in 2018.

Accidents and serious incidents reviewed in this chapter are related to the provision of ATM/ANS services, also known as ATM/ANS Related considering the occurrences in which the ATM system may or may not have contributed to the given occurrence, but may have played a role in preventing or mitigating similar occurrences in the future.

Within ATM/ANS related occurrences lies a subset known as ATM/ANS Contribution. ATM/ANS contribution comprises occurrences where the provision of services by the ATM/ANS was a contributing factor in the occurrence, or played a role in aggravating the occurrence encountered by the aircraft.

The chapter introduces the key statistics on ATM/ANS occurrences and concludes with the data portfolio, providing an overview of the main safety risk in the ATM/ANS domain from a data perspective.

Key Statistics

The key statistics for this domain are set out in the tables below and include a comparison of the numbers of fatal and non-fatal accidents and serious incidents for the 10-year period 2009-2018 and the year 2019.

In 2019, 1 ATM/ANS related fatal accident and 4 ATM/ANS related non-fatal accidents occurred in EASA MS as shown in Table 32. This is a slight improvement compared to 2018 where 2 ATM/ANS related fatal accidents and 4 ATM/ANS related non-fatal accidents occurred. In the last 10 years, there have been no fatal accidents with ATM/ANS contribution. The number of non-fatal accidents (0) and serious incidents (5) in 2019 were lower than that of the previous years.

Table 32 Key statistics for ATM/ANS

2009 - 2018 TOTAL	TIMESPAN	2019	2019 vs 2009-2018
8	ATM/ANS Related	1	↑
	Fatal Accidents		
0	ATM/ANS Contribution	0	=
54	ATM/ANS Related	4	↓
	Non-fatal Accidents		
12	ATM/ANS Contribution	0	↓
344	ATM/ANS Related	39	↑
	Serious Incidents		
131	ATM/ANS Contribution	5	↓

With regard to fatalities and injuries, there were 7 ATM/ANS related fatalities and 6 ATM/ANS related serious injuries in 2019. There were no fatalities nor serious injuries related to occurrences with ATM/ANS contribution, as shown in Table 33.

Table 33 Fatalities and serious injuries involving ATM/ANS

	FATALITIES		SERIOUS INJURIES	
	ATM RELATED	ATM CONTRIBUTION	ATM RELATED	ATM CONTRIBUTION
2009-2018 Total	31	0	49	3
2009-2018 Max	8	0	13	2
2009-2018 Min	0	0	1	0
2019	7	0	6	0

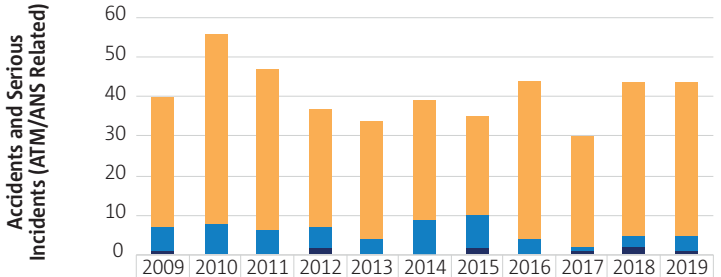
Figure 91 shows the numbers of accidents and serious incidents for the period 2009-2019. In the last 5 years, 6 ATM/ANS related fatal accidents have occurred. These accidents mainly involved helicopters and none related to an occurrence where ATM/ANS was a contributing or aggravating factor with no ATM/ANS contribution. The last ATM/ANS related accident that involved a CAT aeroplane occurred in 2012.

Figure 92 shows that the rate of ATM/ANS related fatal accidents in EASA MS[7] has remained between 0 and 0.2 accidents per million IFR flights over the past 5 years. While the rate of ATM/ANS related non-fatal accidents decreased from 2015 to 2016, the rate has been on an upward trend since 2017. The rate of serious incidents has plateaued in 2019, after a slight increase from 2017 to 2018.

Figure 93 shows that there were no fatal accidents in 2019 and the preceding period 2009-2018, where ATM/ANS was a contributing or aggravating factor. The number of serious incidents with ATM/ANS contribution has decreased to a minimum of 5 in 2019, when compared to the previous 10 years. There were no non-fatal accidents in 2019 and this is a positive improvement as the number of non-fatal accidents fluctuated between 0 and 2 from 2009 to 2018. The decreasing trend in the last 5 years is also observed in the rate of serious incidents with ATM/ANS contribution, as seen in Figure 94.

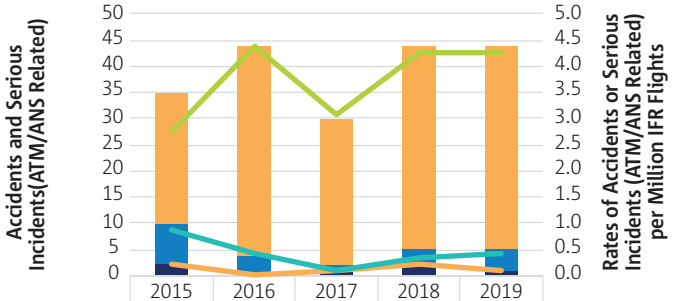
7 Source: EUROCONTROL Performance Review Unit.

Figure 91 Accidents and serious incidents per year (ATM/ANS related)



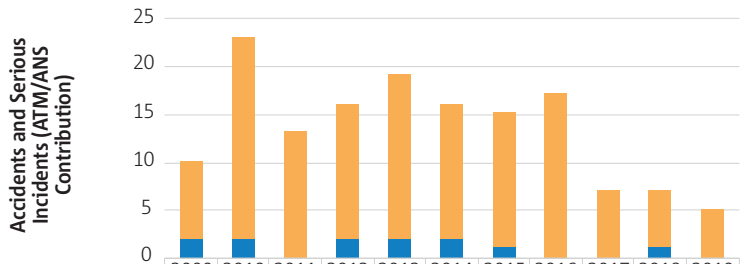
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	33	48	41	30	30	30	25	40	28	39	39
Non-Fatal Accidents	6	8	6	5	4	9	8	4	1	3	4
Fatal Accidents	1	0	0	2	0	0	2	0	1	2	1

Figure 92 Numbers and rates of accidents and serious incidents per year (ATM/ANS related)



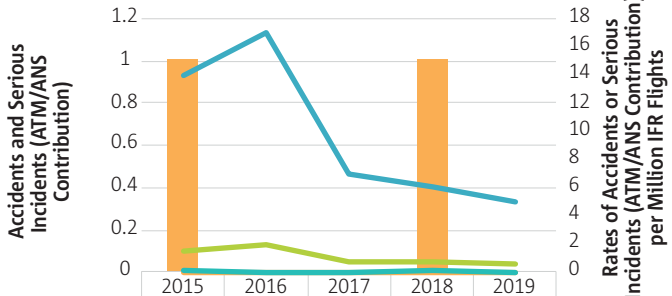
	2015	2016	2017	2018	2019
Serious Incidents	25	40	28	39	39
Non-Fatal Accidents	8	4	1	3	4
Fatal Accidents	2	0	1	2	1
Fatal Accident Rates	0.2	0	0.1	0.2	0.1
Non-Fatal Accident Rate	0.9	0.4	0.1	0.3	0.4
Serious Incident Rate	2.7	4.4	3.1	4.3	4.3

Figure 93 Accidents and serious incidents per year (ATM/ANS contribution)



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Incidents	8	21	13	14	17	14	14	17	7	6	5
Non-Fatal Accidents	2	2	0	2	2	2	1	0	0	1	0
Fatal Accidents	0	0	0	0	0	0	0	0	0	0	0

Figure 94 Numbers and rates of accidents and serious incidents per year (ATM/ANS contribution)

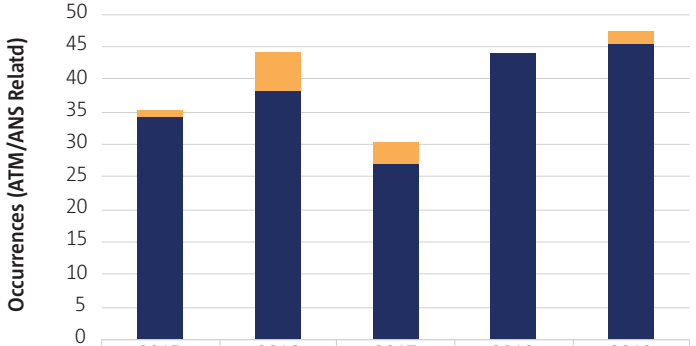


	2015	2016	2017	2018	2019
Non-Fatal Accidents	1	0	0	1	0
Fatal Accidents	0	0	0	0	0
Serious Incidents	14	17	7	6	5
Fatal Accident Rate	0	0	0	0	0
Non-Fatal Accident Rate	0.1	0	0	0.1	0
Serious Incident Rate	1.5	1.9	0.8	0.7	0.5

While accidents and serious incidents may provide an overview of safety performance in the aviation system, they do not necessarily present an accurate risk picture of past events, as each occurrence of the same kind may have a different level of risk, with some accidents having a lower risk than other more serious incidents. For example, a near-miss involving an aircraft with an unserviceable Airborne Collision Avoidance System (ACAS) may be classified as a serious incident, while a collision between a ground handling vehicle and an aircraft would be classified as an accident. However, based on the potential accident outcome of both events, the serious incident would notionally have a higher risk than the accident. The need to assess the risk associated with each occurrence led to the development of the European Risk Classification Scheme (ERCS) to risk classify all occurrences reported to the EASA MS.

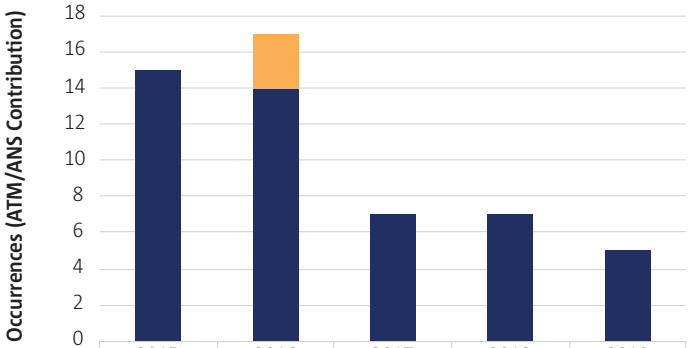
The main purpose of ERCS is to associate a risk score to all occurrences reported to the European Central Repository (ECR). Figure 95 and Figure 96 show the distribution of aggregated higher and lower risk of ATM/ANS related events and occurrences with ATM/ANS contribution respectively in the last 5 years. While there has been an overall decrease in risk levels for occurrences with ATM/ANS contribution in recent years, risk levels for ATM/ANS related occurrences have increased, suggesting that the safety performance of the ATM/ANS domain can be further improved through a concerted effort on the part of the different aviation stakeholders, including airlines and airspace users.

Figure 95 ERCS higher and lower risk occurrences per year (ATM/ANS related)



	2015	2016	2017	2018	2019
Lower Risk (ERCS)	1	6	3	0	2
Higher Risk (ERCS)	34	38	27	44	45

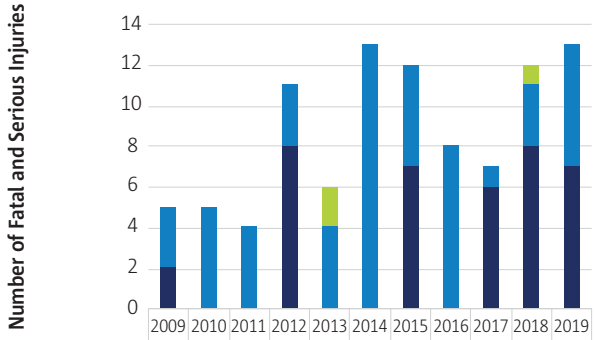
Figure 96 ERCS higher and lower risk occurrences per year (ATM/ANS contribution)



	2015	2016	2017	2018	2019
Lower Risk (ERCS)	0	3	0	0	0
Higher Risk (ERCS)	15	14	7	7	5

The number of fatalities per year in ATM/ANS related accidents does not follow a clear pattern as shown in Figure 97, as it is highly dependent on the size of aircraft involved in the accidents that occurred. In 2019, there was 1 fatal mid-air collision which resulted in 7 fatalities.

Figure 97 Fatalities and serious injuries (ATM/ANS Related and ATM/ANS contribution)



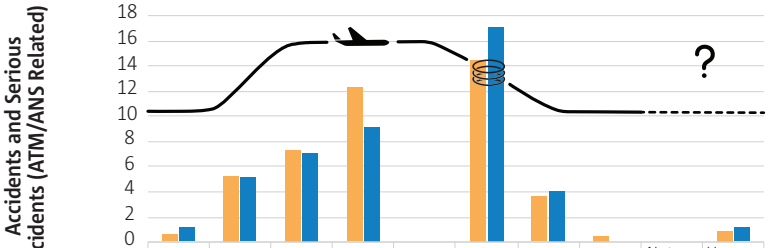
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Serious Injuries (ATM Contribution)	0	0	0	0	2	0	0	0	0	1	0
Serious Injuries (ATM Related)	3	5	4	3	4	13	5	8	1	3	6
Fatalities (ATM Contribution)	0	0	0	0	0	0	0	0	0	0	0
Fatalities (ATM Related)	2	0	0	8	0	0	7	0	6	8	7

Phase of Flight

Regarding the flight phase, the majority of the ATM/ANS related accidents and serious incidents took place during the approach phases, followed by en route, take-off, taxi and landing phases, as shown in Figure 98.

Comparing the numbers in 2019 with the average of the preceding 10-year period, 2009-2018, the differences are small and follow the same distribution, with a small increase in the proportions of events in the approach phase. Unknown/blank corresponds to occurrences where no data is available for the aircraft involved in the event. The increase in the percentage of occurrences categorised under unknown/blank indicates that there is room for improvement in the coding of ATM/ANS related occurrences in the ECR.

Figure 98 ATM/ANS related accidents and serious incidents, by phase of flight

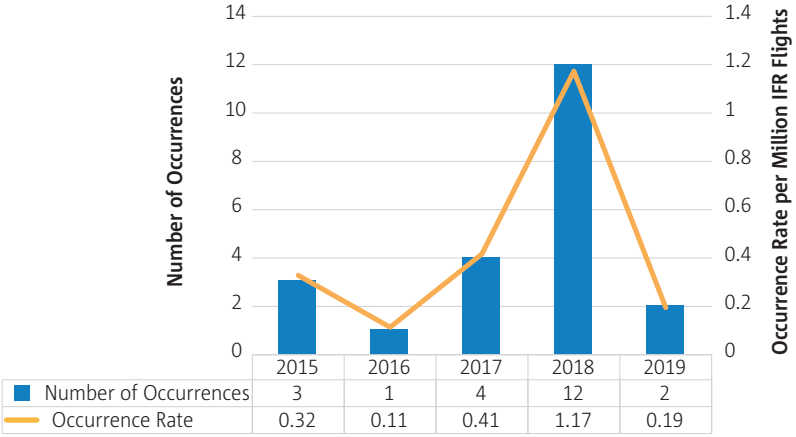


	Stan-ding	Taxi	Take-off	En route	Manoe-vring	Ap-proach	Landing	Tow	Not Applic-able	Un-known/ Blank
Average 2009-2018	0.5	5.2	7.2	12.2	0	14.4	3.5	0.4	0	0.8
2019	1	5	7	9	0	17	4	0	0	1

Airborne Collisions and Near Collisions Involving Drones

The potential for an airborne collision between drones and other aircraft is an area of growing safety concern, due to the increasing accessibility of drones. Figure 99 shows a significant increase in the number of drone-related airborne collision and near collision occurrences between 2015 and 2018. The reduction in 2019 requires investigation.

Figure 99 Number and rate of drone collisions and near collisions

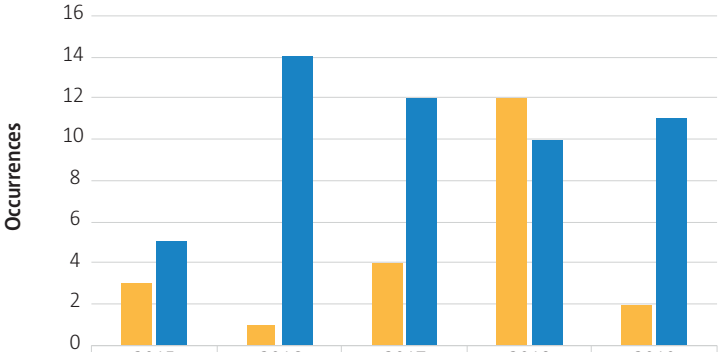


	2015	2016	2017	2018	2019
Number of Occurrences	3	1	4	12	2
Occurrence Rate	0.32	0.11	0.41	1.17	0.19

Figure 100 compares drones and other aircraft involved in airborne collisions and near collisions. It can be seen that between 2015 and 2018, an increasing proportion of these collision and near collision occurrences involved drones. In 2019 there was a sharp decrease.

It is important to note that most drone-related reports are provided by other aviation domains for example, CAT aeroplanes and ATM/ANS. As reports from drone operators become more common, the issues relating to this type of aircraft will become clearer.

Figure 100 Airborne collisions and near collisions, involving drones and other aircraft



	2015	2016	2017	2018	2019
Drones	3	1	4	12	2
Other Aircraft	5	14	12	10	11

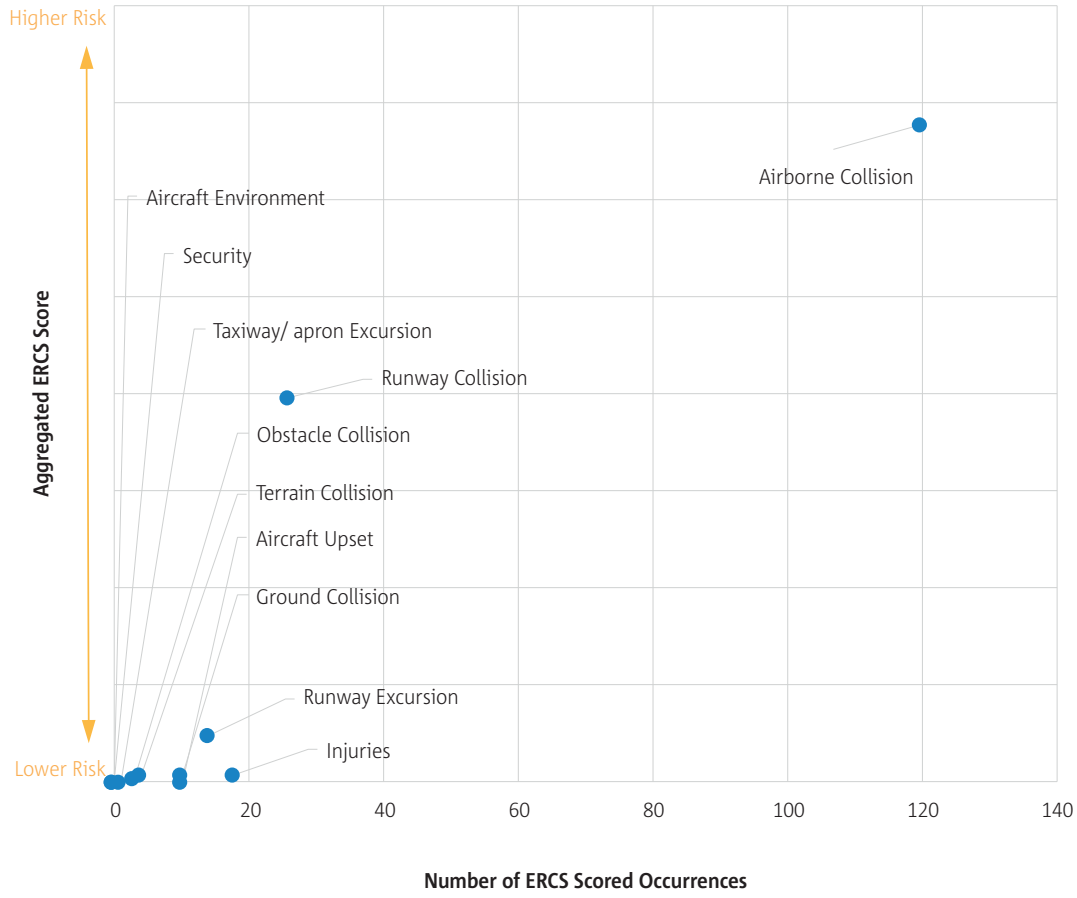
Safety Risks for ATM/ANS

The safety risks for ATM/ANS have been identified by EASA. They are derived from occurrence data from the EASA occurrence repository. ECCAIRS queries have been constructed for each safety issue in order to identify the occurrences associated with each safety issue, and these form the data portfolio as presented in this review.

The relative comparison between key risk areas for ATM/ANS is shown in Figure 99. Note that one single occurrence can be associated with more than one key risk area.

To identify the top key risk areas in the ATM/ANS domain, the ERCS risk scores of ATM/ANS related accidents and serious incidents in the past 5 years were assessed and aggregated. ERCS risk scores are used as a proxy of the risk associated with the safety issue, based exclusively on the occurrences reported and linked to these safety issues. The result of this review is illustrated in Figure 101. The X-axis represents the aggregation of the number of high risk accidents and serious incidents per key risk area, while the Y-axis represents the aggregation of the ERCS risk scores for the aforementioned events per key risk area.

Figure 101 Key Risk Areas by aggregated ERCS score and number of risk-scored ATM/ANS occurrences



The top key risk areas in the ATM/ANS domain are airborne collision and runway collision, followed by runway excursion, terrain collision and injuries in the second order of priority. The third order of priority comprises the remaining key risk areas of aircraft upset, ground damage, obstacle collisions, security and taxiway and apron excursion.

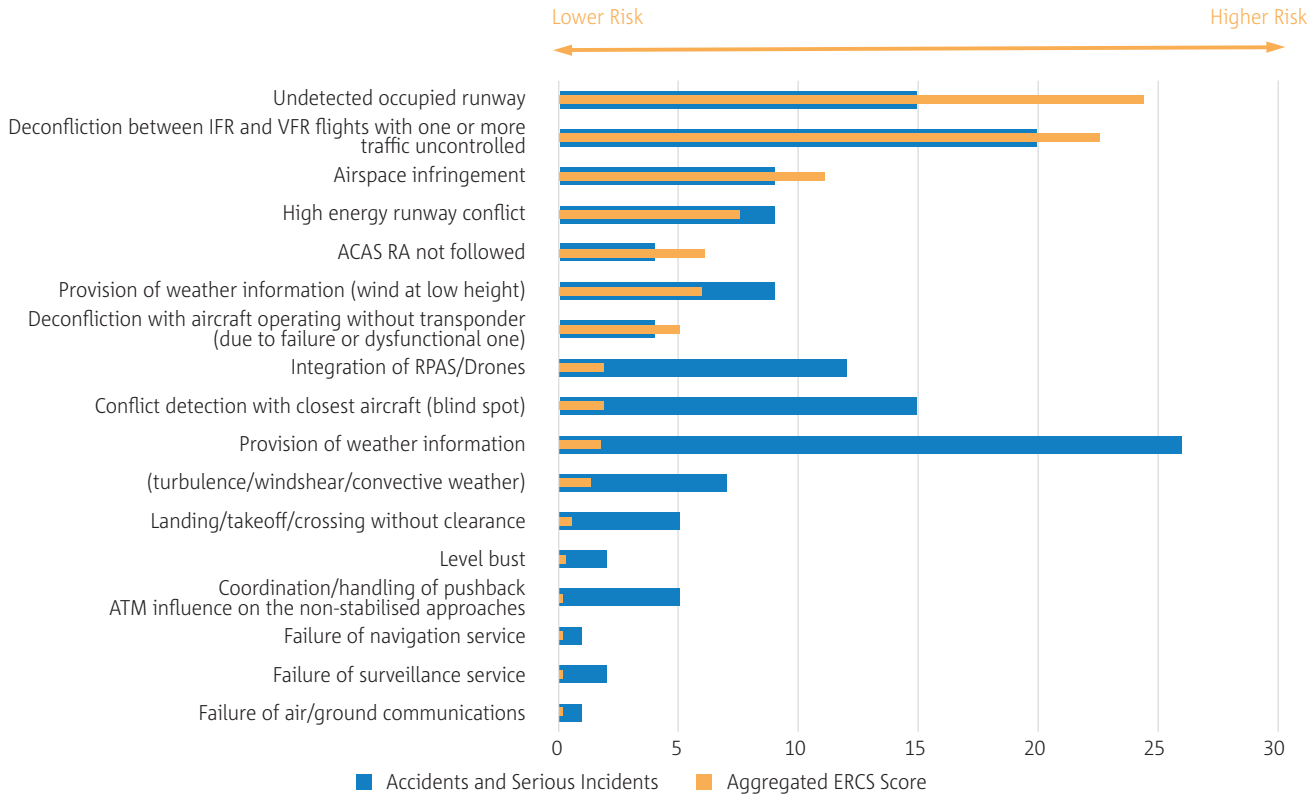
The top key risk areas the ATM/ANS domain are defined as follows:

Airborne collision includes occurrences involving actual or potential airborne collisions between aircraft, and occurrences involving an aircraft and other controllable airborne objects, such as drones, thereby excluding birds. Therefore, it includes all separation-related occurrences regardless of the cause. It does not include false TCAS/ACAS alerts caused by equipment malfunctions or loss of separation with at least one aircraft on the ground, which may be coded as runway or movement area collision, if the occurrence meets the criteria.

Runway collision includes all occurrences involving actual or potential runway collisions between an aircraft and another aircraft, vehicle or person that occur on the runway of an aerodrome or other designated landing area. This includes occurrences involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft. It does not include occurrences involving wildlife on the runway.

In addition to identifying the top key risk areas, key safety issues in the ATM/ANS domain were also identified from the data. The list of safety issues was proposed by the ATM/ANS CAG and verified by the EASA operational departments. To generate the data portfolio, the accidents and serious incidents in the data set were mapped to the list of safety issues, along with their associated ERCS score. The results of this mapping exercise can be found in Figure 102.

Figure 102 Safety Issues by aggregated ERCS score and numbers of accidents and serious incidents for ATM/ANS safety issues



The safety issues with higher risk scores identified in Figure 102, based on the data, are:

Undetected occupied runway involves runway incursions by an aircraft landing or taking-off on an already occupied runway. This could be due to ATCO oversight, aerodrome design or other organisational factors;

Deconfliction of IFR and VFR flights with one or more traffic uncontrolled: Involves ineffective deconfliction of IFR and VFR flights in airspace classes where one or more traffic could be uncontrolled (i.e., class D, E, and G), potentially resulting in AIRPROX events and airborne collisions;

Airspace infringement involves both unauthorised entry into notified airspace by aircraft which did not request nor obtain clearance from the controlling authority of that airspace, and entry under conditions that were not contained in the clearance;

High energy runway conflict covers runway incursions where the aircraft has already reached a high level of kinetic energy when ATC becomes aware of the runway conflict, and the time available to the ATCO to prevent the collision is very short. This includes instances where the landing aircraft is close to the runway threshold or is already lined-up, in case of taking-off;

Provision of weather information (wind at low height) takes in inaccurate or missing wind-related information, such as tail wind on ground and gusts, that were provided to the flight crew by ATCO during the approach phase, which may contribute to non-stabilised approaches and thus increasing the risk of runway excursions;

ACAS RA not followed refers to encounters where one or both of the aircraft's flight crew did not follow the instruction given by the ACAS RA to resolve the conflict and avoid a potential mid-air collision.

The top row of Table 34 consists of the key risk areas ranked by their respective aggregated ERCS score. Along the left-hand side are the safety issues, ranked by their respective aggregated ERCS score. The different colour bands denote high to low risk for the safety issues.

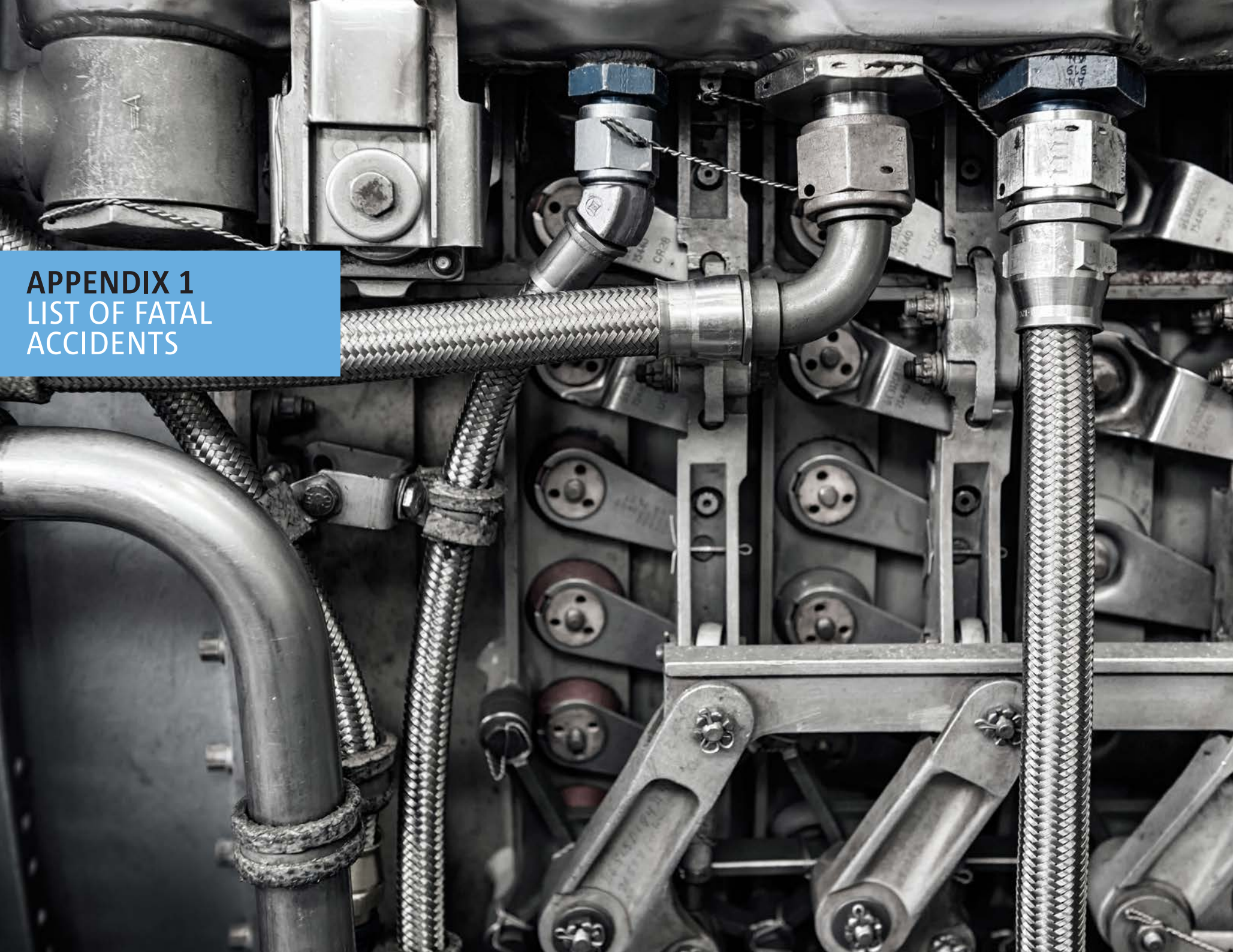
Table 34 Data portfolio for ATM/ANS

	KEY RISK AREAS (ERCS)									
SAFETY ISSUE	**RUNWAY COLLISION**	**AIRBORNE COLLISION**	**RUNWAY EXCURSION**	**TERRAIN COLLISION**	**INJURIES**	**OBSTACLE COLLISION**	**GROUND DAMAGE**	**AIRCRAFT UPSET**	**TAXIWAY / APRON EXCURSION**	**SECURITY**
Undetected occupied runway	x	o								
Deconfliction between IFR and VFR flights with one or more traffic uncontrolled		x								
Airspace infringement		x								
High energy runway conflict	x	o	o	o						
Provision of weather information (wind at low height)		o		x						
ACAS RA not followed		x								
Deconfliction with aircraft operating without transponder (due to failure or dysfunctional one)		x								
Provision of weather information (turbulence/windshear/convective weather)		o	o		x			o		

X = stronger contributor to the key risk area
O = weaker contributor to the key risk area.

Priority 1 Priority 2 Priority 3 Priority 4

SAFETY ISSUE	KEY RISK AREAS (ERCS)									
	RUNWAY COLLISION	AIRBORNE COLLISION	RUNWAY EXCURSION	TERRAIN COLLISION	INJURIES	OBSTACLE COLLISION	GROUND DAMAGE	AIRCRAFT UPSET	TAXIWAY / APRON EXCURSION	SECURITY
Landing/takeoff/crossing without clearance		o								
Integration of RPAS/Drones		x								
Conflict detection with closest aircraft (blind spot)		x								
Level bust		x		o		o				
ATM influence on the non-stabilised approaches			x	o						
Failure of navigation service				o						
Failure of surveillance service		o								
Coordination/handling of pushback			o				o			
Failure of air/ground communications		o								



APPENDIX 1
LIST OF FATAL ACCIDENTS

1.1 Aeroplanes

1.1.1 Commercial Air Transport Airline and Air Taxi

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
01/06/2009	South Atlantic Ocean	Near point TASIL	AIRBUS - A330 - 200	Stall and loss of control during cruise. Aircraft crashed into the sea. 228 POB fatal.
10/02/2011	Ireland	Cork Apt EICK	SWEARINGEN - SA227 - BC	Impacted runway inverted
11/11/2012	Italy	Roma Fiumicino Airport	AIRBUS - A320	Loading crew caught between loader and baggage door
24/07/2014	Mali	80 km south-east of Gossi	DOUGLAS - DC9 - 80 - 83	Anti-icing system not activate by flight crew - Pressure sensor obstructed by ice crystals. Aircraft stalled and crashed.
20/10/2014	Russian Federation	UUWW (VKO): Moskva/ Vnukovo	DASSAULT - FALCON 50 - EX	Aircraft collided with a snowplough vehicle during take-off run. Aircraft was destroyed by fire.
24/03/2015	France	Prads-Haute-Bléone	AIRBUS - A320 - 200 - 211	First officer alone in the cockpit, initiated a rapid descent - Aircraft impacted mountainous terrain
08/01/2016	Sweden	Oajevágge	BOMBARDIER - CL600 2B19	IRU malfunction - Crew spatial disorientation - Loss of control - Aircraft crashed on a mountainous terrain

1.1.2 Non-commercial Complex Business

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
10/12/2012	Cyprus	Larnaca	CESSNA - 750 - NO SERIES EXISTS	A service vehicle struck the right wingtip, vehicle driver trapped
29/04/2013	Congo, Democratic Republic of the	FZAA (FIH): Kinshasa/N'djili	DASSAULT - FALCON 900EX	Collision with an individual on ground
12/01/2014	Germany	Near Trier-Föhren Airport	CESSNA - 501	Aircraft collision against power pole
03/10/2015	United Kingdom	Near Chigwell	BEECH - 200 - B200	Aircraft crashed shortly after take-off
04/01/2018	Finland	Kittilä airport, EFKT	GULFSTREAM - GULFSTREAM 150	Fatal injuries to captain due to door opening violently

1.1.3 Specialised Operations

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
20/06/2009	Czech Republic	200 m left RWY 24, LKCR	LET	Loss of control during parachute operations
08/07/2009	United Kingdom	Bishop Norton (Lincolnshire)	PERCIVAL	Mechanical engine failure and in-flight fire
18/07/2009	Hungary	LHDK	ZLIN - Z42	Crash when performing low-level aerobatics
14/08/2009	Portugal	Evora - Bairro de Almeirim	BEECH - 99	Loss of control during single-engine go-around
23/08/2009	Germany	Erpfental near Ellwangen	ROBINSON - R44, CESSNA - F182	Mid-air collision between aeroplane and helicopter near air show
06/09/2009	Italy	LIPO Airport	MUDRY - CAP10	Aircraft impacted on ground during aerobatic manoeuvre.
09/10/2009	Italy	Canevare (Modena)	PARTENAVIA - P68	Loss of control inflight
28/05/2010	Czech Republic	LKTO	ZLIN - Z142	Aircraft crashed shortly after take-off
29/05/2010	Spain	Aldeanueva de Barbarroya (To)	PIPER - PA25	Stall during flight
19/06/2010	United Kingdom	Methley Bridge (West Yorkshire	EXTRA - EA300	Aircraft crashed while performing an aerobatic display
17/08/2010	Spain	Aerodr. Casarrubios del Monte	ZIVKO - EDGE 540	COLLISION WITH TERRAIN DURING ACROBATIC MANOEUVRE
04/09/2010	United Kingdom	Near Ryde, Isle of Wight	MOONEY - M20, VANS - RV4	Mid air collision during Merlin Trophy Air Race
05/09/2010	Germany	Lauf-Lillinghof	DE HAVILLAND - DH82 - A	Collision with airshow spectators during take-off roll

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
19/09/2010	Germany	Warngau (Miesbach)	EXTRA - EA300, XTREMEAIR	Mid-air collision during airshow
02/10/2010	France	Les Moëres	CESSNA - F172 - M, Aveko VL3B	Cessna F172 & Aveko VL3B - Midair Collision - 4POB - 2OB Fatalities - 2OB Minor - F172 Substantial damage - Aveko Destroyed
12/10/2010	Spain	Navarra	ROBIN - DR400	COLLISION WITH TERRAIN DURING CRUISE
11/01/2011	Italy	Airport LIRG	ROBIN - DR400 - 180R	Robin 400 180R while towing a glider in the take-off phase crashed. The pilot of the airplane is killed.
02/06/2011	Netherlands	EHTE	CESSNA - F172	The aircraft crashed after pick up of a banner
18/06/2011	Poland	Plock - Wisla River	CHRISTEN - EAGLE II	Crash during aerobatics over river
04/07/2011	France	AD Dijon-Darois (21)	SOCATA	Stalling of towing aircraft after glider release
30/08/2011	Poland	Nowy Targ	PZL OKECIE	Loss of control during approach and subsequent crash with post-impact fire
28/04/2012	Germany	Alkersleben	ZLIN - Z226	A/C touched the ground after a formation flight
05/05/2012	France	AD Buno Bonnevaux (91)	PIPER - PA25 - 235, SLINGSBY - T31	Mid-air collision between a glider and an aeroplane above runway
17/06/2012	Romania	Banesti, Prahova	AEROSTAR	Collision with power cables on approach and subsequent crash and post-impact fire
22/07/2012	France	AD Couhé Vérac (86)	OTHER	Loss of control and subsequent crash during air show

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
07/09/2012	Italy	Di Fioranello street 163, Rome	CESSNA - 402	Aircraft impacted terrain during aerial work operations - aerial photography
09/09/2012	Germany	Backnang-Heiningen	ROBIN - DR400 - 180R	Avions Robin DR400 - Loss of control during take-off as A/C fell into the vortex generated by the preceding a/c flying - 4POB - 3OB Fatalities - 1OB Serious
22/10/2012	Netherlands	EHAA	DIAMOND - DA40, GENERAL AVIA - F22	Mid-air collision during photo flight - POB 2 on each aircraft - 2 fatalities - 2 serious injuries - both aircraft destroyed
09/03/2013	Czech Republic	600m N Srbce (Chrudim)	ZLIN - Z37 - A	Aircraft collided with trees in IMC
05/05/2013	Spain	Madrid-Cuatro Vientos Airport (LECU)	HISPANO AVIACION - HA200 - D	Aircraft crashed during air show
08/05/2013	Netherlands	Egmond aan Zee, Noord-Holland	CESSNA - 172 - P	Ditched in north sea near Egmond
01/06/2013	Sweden	Söderhamn Airport	SAAB - 91	Engine failure during air show due to loose spark plugs
29/06/2013	Germany	Eberswalde-Finow	ZLIN - Z526 - AFS	Aircraft crashed during aerobatics
30/06/2013	Sweden	Near Veberöd, Sweden	GRUMMAN - GA7	Crash in a field after reported engine problems
19/10/2013	Belgium	Gelbressee	PILATUS - PC6	Abrupt manoeuvre - left wing structural failure due to a significant overload - A/C out of control crashed into a ploughed field
20/04/2014	Finland	2 km from Jämijärvi airfield EFJM, Satakunta	OTHER	During climb, right wing broke due to a fatigue failure - aircraft entered a spin, crashed and caught fire - 11POB - 8OB Fatalities

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
08/05/2014	Latvia	EVLA - Liepaja	PITTS - S2 - B	Pitts S-2B Special - Aircraft crashed during aerobatic routine - 1POB - 1OB Fatal - A/C Destroyed
06/06/2014	Czech Republic	near Krizanov airfield, LKKA	TECNAM - P92	Crashed shortly after take-off whilst glider towing. Glider disconnected and landed safely - 1POB - 1OB Fatal - A/C Destroyed
23/06/2014	Germany	Near Olsberg-Elpe	LEARJET - 35 - A, OTHER - Military	Collision of two A/C in flight, one military - 3POB - 2OB Fatally Injured
05/07/2014	Poland	Topolów district Mykanów, Czestochowskastreet No 36; near Czestochowa	PIPER - PA31P	Piper PA-31 Navajo - Engine problems during climb-out, loss of height and collision with ground. A/C Destroyed by post-impact fire - 12POB - 11OB Fatal -1OB Serious - A/C Destroyed
19/07/2014	Czech Republic	1 NM S LKKM	ZLIN - Z526 - F	The aircraft entered an inverted spin and impacted the ground
13/09/2014	France	At FL110 AD Tarbes Laloubère	CESSNA - U206 - F	Parachute opened upon parachutist leaving the aircraft, parachute struck the tail of the aircraft and damaged part of the stabilizer, loss of control of aircraft and subsequent crash
21/09/2014	Italy	near Venezia Lido Airport	XTREMEAIR	XtremeAir Xtreme 3000 - Aircraft crashed during aerobatics performance - 1POB - 1OB Fatal - A/C Destroyed
28/09/2014	Italy	Colle di Val d'Elsa, Siena	PITTS	Pitts 12 - Aircraft fell during aerobatic manoeuvres - 2POB - 2OB Fatalities - A/C Destroyed
30/05/2015	France	Blois	STAMPE - SV4 - C	During aerobatics session the aircraft entered into spin after a half loop manoeuvre - Aircraft crashed

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
31/05/2015	Adriatic Sea	Tortoreto, Alba Adriatica (TE)	VANS - RV8 - A, VANS - RV7	Collision of two aircraft in flight during an air show
01/08/2015	United Kingdom	near Oulton Park	OTHER - Military	Flight into terrain during air show
01/08/2015	Romania	Stancuta, Braila county	PZL MIELEC - AN2 - R	Aircraft crashed shortly after take-off.
20/08/2015	Slovakia	Cervený Kamen	LET - L410 - UVP, LET - L410	Mid-air collision during en route. Both aircraft were performing parachute dropping operations.
22/08/2015	United Kingdom	near EGKA - Shoreham Airport	HAWKER - HUNTER - T7 - T7	Aircraft crashed on a road during an air show.
23/08/2015	Switzerland	Dittingen LSPD	COMCO IKARUS - IKARUS C42 - B, COMCO IKARUS - IKARUS C42 - B	Mid-air collision during air show
30/08/2015	Austria	Airfield Friesach Hirt, Carinthia	PITTS - S2 - B	Loss of control during Aerobatic show with A/C crashed
20/05/2016	Germany	Rodigast	PZL OKECIE - PZL101	Loss of control and subsequent crash into forest
11/06/2016	Italy	Cecina	PILATUS - PC6	Parachutists reserve parachute opened prematurely. Parachutist hit the RH stabilizer - structural damage in flight and crash.
19/06/2016	Portugal	after take-off from LPFC:Figueira dos Cavaleiros	PILATUS - PC6 - B2H4	In-flight fuselage breakup due to material fatigue.

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
18/09/2016	Hungary	Gödöllo Arboretum	PIPER - PA28 - 140, CESSNA - 182 - D	Two aircraft collided with each other in the vicinity of LHGD. 4 POB, 4 fatalities
15/08/2017	Spain	Near the 55 kilometer point of N-340 road (Vejer de la Frontera)	PIPER - PA36 - 375	Bird strike followed by crash during fumigation work in a rice field (low altitude operation)
03/09/2017	Italy	Pontinia	CESSNA - 182 - P	Loss of control inflight - crash and fire.
16/09/2017	Slovakia	LZPE	ZLIN - Z37 - C	Loss of control and crash
13/05/2018	Ireland	near EICL:Clonbullogue	CESSNA - 208 - B	Aircraft crash on base leg.
31/05/2018	Netherlands	Just outside EHSE: Hoeven/ Seppe	PIPER - PA25 - 235	Aircraft crashed in attempt to pick up commercial text banner
12/06/2018	Spain	LESB:Son bonet	AIR TRACTOR - AT802	Aircraft ditched
27/07/2018	France	Bouloc-en-Quercy	PILATUS - PC6 - B2H4	PC-6 - Wing strike with a skydiver - ARF 2018-676
29/07/2018	Slovenia	AD Bovec	ROBIN - DR400 - 180R	Collision with the ground after towing, fire
08/08/2018	Mauritania	Diatar	AYRES - S2R - T - T34	Aircraft collision with the ground, fire.
11/08/2018	Czech Republic	LKSR	OTHER	Loss of Control - Spiral Dive

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
16/05/2019	United Arab Emirates	about 3 miles south of OMDB (DXB):Dubai	DIAMOND - DA62	Aircraft crashed on a second approach - possible wake turbulence from landing heavy aircraft on parallel runway
15/06/2019	Poland	Wisla river, Plock	YAKOVLEV - YAK52	Not recovered spin and crash to the river.
14/07/2019	Sweden	ESNU (UME):Umeå	GIPPSLAND - GA8 - TC320	The aircraft impacted terrain in a steep nose down after take-off
27/08/2019	Belgium	Kortrijk airport (EBKT)	MORANE SAULNIER - MS893	Crash during banner pick up
11/09/2019	Germany	Gransee	CESSNA - 208	Crash into terrain

1.1.4 Non-Commercial Operations with Small Aeroplanes

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
03/01/2015	United Kingdom	Blackwood Forest, near the EGHP	ALPI AVIATION - PIONEER400	Engine failure at approach, aircraft crashed in woodland.
18/01/2015	Germany	Rechberghausen	PIPER - PA24	Aircraft crashed into a garage
26/01/2015	Germany	Dannenfels	PIPER - PA30	Aircraft crashed killing the pilot
18/02/2015	France	Colombier	ROBIN - DR400	Aircraft impacted the top of a tree and crashed in adverse weather conditions
23/02/2015	Switzerland	Proche AD Yverdon	ROBIN - DR400	Aircraft crashed near the airfield shortly after the take-off
11/03/2015	France	Vrigny	ROBIN - DR400	Loss of Control on Approach - Aircraft crashed to the ground
03/04/2015	Germany	Witzenhausen	PIPER - PA28	Aircraft crashed into a Forrest
04/04/2015	United Kingdom	Near Loch Etive, Oban, Argyll and Bute	PIPER - PA28	Aircraft crashed into mountainous terrain
12/04/2015	Germany	Oldenburg - Hatten	CESSNA - F172	A/C hit trees and crashed into the ground
15/04/2015	Germany	Moosburg	BOLKOW - BO207	Controlled flight into terrain
22/04/2015	United Kingdom	EGSV:OLD BUCKENHAM		Aircraft crashed while practising aerobatics. One POB, fatally injured.
03/05/2015	United Kingdom	West of Abernyte, near Dundee	BEECH - 55	Flew into terrain on approach
21/05/2015	France	Saint-Laurent-Blangy	ROBIN - DR400	Engine power loss and loss of control during initial climb, Aircraft crashed and caught fire

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
21/05/2015	Bulgaria	LBLS		Accident with airplane RALLY 105, while taking-off from Lesnovo airfield.
26/05/2015	Sweden	Skå-Edeby		Destroyed aircraft, Steen Skybolt - one fatality
26/05/2015	Portugal	Next to the football field of Água Longa, SANTO TIRSO.	DYN AERO - MCR04S	Loss of control during base approach due to flap control system failure followed by spiral dive and crash
26/05/2015	France	Remoray-Boujeons	CEA - DR380	Collision with high terrain in adverse weather conditions with fog
06/06/2015	Italy	AVIOSUPERFICIE "ALVARO LEONARDI" - TERNI		The engine failed and the aircraft hit the ground about 270 meters from the runway threshold
07/06/2015	Croatia	Zvekovac	VANS - RV7	Aircraft failed to recover at low altitude and crashed into the ground - 2 POB - 2 fatalities
23/06/2015	Germany	Holzminden	JABIRU - J430	Aircraft hit tree tops and then impacted the ground
25/06/2015	Croatia	sea near Resnik	LAKE - LA4	ENG failure on circuit pattern and crash to the sea.
26/06/2015	Lithuania	Alytus	YAKOVLEV - YAK55	The plane crashed during the acrobatic flight
28/06/2015		Aviosuperficie "Alvaro Leonardi" - Terni	Rutan Varieze	Aircraft crashed shortly after take-off after an engine failure
30/06/2015	Germany	Egelsbach	DIAMOND - DA20	Take-off collision with power lines
01/07/2015	France	Treilles	PIPER - PA28	Collision with high terrain during cruise affected by adverse weather conditions. Post-crash fire
18/07/2015	Sweden	ESGF	VANS - RV6	Loss of control in flight

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
30/07/2015	Germany	Villingen-Schwenningen		Loss of control in climb phase
02/08/2015	France	AD Marennes	BRANDLI - BX2	Aborted landing, aircraft collided first with the vegetation then struck the ground.
05/08/2015	Switzerland	Hundwil/AR	SKYSTAR - KITFOX	Aircraft crashed into a forest
09/08/2015	Iceland	The valley of Barkárdalur, Iceland	DE HAVILLAND - DHC2	Aircraft crashed in a narrow valley with a low cloud base, while attempting to turn around
12/08/2015	Spain	Robledillo de Mohernando Airfield (Término municipal de Malaguilla)	ZENAIR - CH640	Aircraft fell to the ground during the base leg.
17/08/2015	United Kingdom	Newquay Airport	PIPER - PA34	Aircraft crashed during go-around.
04/09/2015	United Kingdom	Hinton in the Hedges Airfield	CESSNA - 150	Loss of control during go-around after bounced landing
05/09/2015	France	AD Haguenau	BRUGGER - MB2	Aircraft crashed shortly after take-off
05/09/2015	Sweden	Brattsforsheden	YAKOVLEV - YAK42	Accident YAK52, two fatally injured
08/09/2015	Belgium	2,6 km NE of the village of Velaines (Celles) Celles		Loss of control during an intentional manoeuvre, ending in a spin
08/09/2015	Spain	Toses	PIPER - PA28	Aircraft crashed into a mountain
10/09/2015	Germany	Können	BEECH - 24	Aircraft crashed into a field due to unknown circumstances. 1 POB, 1 fatality
16/09/2015	Germany	Mechernich-Bergheim	PIPER - PA28	Crew abandoned the aircraft during en route. Aircraft crashed and caught fire.

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
20/09/2015	Switzerland	Muhen/AG	NEW GLASAIR - GLASAIR SUPER II	Collision with a car during emergency landing in Muhen/AG
26/09/2015	Germany	Sandstedt	CESSNA - F172	Mid-air collision in flight causing one aircraft to lose control and crash. 4 POB, 3 fatalities.
26/09/2015	Germany	Sandstedt	PIPER - PA28	Mid-air collision in Flight causing one aircraft to lose control and crash. 4 POB, 3 fatalities.
03/10/2015	United Kingdom	Near Chigwell	BEECH - 200	Aircraft crashed shortly after take-off
08/11/2015	Austria	Ma. Rojach		Aircraft crashed during low flying. 2 POB, 2 fatalities
08/11/2015	Slovenia	near Slovenske Konjice Airport	TL ULTRALIGHT - TL2000 STING	Ultralight aircraft crashed shortly after take-off. Ballistic recovery system activated but parachute didn't fully open.
12/11/2015	Iceland	Hafnarfjarðarhraun	TECNAM - P2002	Airplane crashed during familiarisation training flight.
03/12/2015	United Kingdom	EGNH (BLK): Blackpool	ROCKWELL - 112	Aircraft reported missing over sea. One POB, missing.
03/12/2015	Austria	Mengeš	PIPER - PA28R	Aircraft crashed. Pilot reported having problem during the approach.
04/12/2015	France	La Bresse	ROBIN - DR400	Aircraft collided with mountainous terrain in adverse conditions not favourable to VFR flight
06/12/2015	France	Peypin d'Aigues	PIPER - PA28	Loss of visual references - aircraft crash on a mountainous terrain
24/12/2015	Spain	Ronda	SOCATA - TB9	Aircraft crashed and consumed by post-crash fire, incorrect fuel used

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
04/01/2016	Netherlands	North See, 4.5 NM west from Schoorl	CIRRUS - SR20	Unintended flight in IMC, loss of control and crash to the sea. 1 POB, 1 fatality
16/01/2016	Spain	Serranía de Cuenca Natural Park	SOCATA - TB20	Bird strike - left wing partial detachment - aircraft crashed and caught fire. 4 POB, 4 fatalities
09/02/2016	Spain	near Beas de Segura	CESSNA - 172	Aircraft asked a flight path deviation due to bad weather before crash
21/02/2016	France	near AD Vinon		Loss of control during initial climb, aircraft crashed. 1 POB, 1 fatality
25/02/2016	France	Saint-Héand	EXTRA - EA300	Collision with high level terrain in adverse weather conditions.
28/02/2016	Hungary	5km SW from Agostyán, Tata	CESSNA - FA152	Aircraft crashed in bad weather conditions. 1 POB, 1 fatal, 1 serious injury
20/03/2016	Ireland	EIAB - Abbeyshrule		Aircraft crashed while executing rolls. 1 POB, 1 fatality
25/03/2016	Hungary	Dány térsége	TECNAM - P2002	Aircraft crashed due to unknown reasons. 2 POB, 2 fatalities
30/03/2016	Spain	Perales de Tajuña	CESSNA - 172	A bird strike, wing separation in flight and a crash. 3 POB, 3 fatalities
01/04/2016	France	Sondernach	ROBIN - HR100	Aircraft crashed and caught fire. The aircraft impacted the ground with a significant pitch down attitude. 1 POB, 1 fatality
01/04/2016	Poland	Chmielewo	TECNAM - P2002	Aircraft lost control and collided with terrain on a steep angle. 2 POB, 2 fatalities

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
20/04/2016	Czech Republic	near LKST - Strakonice	CESSNA - 150	Aircraft lost control and crashed into a meadow. 1 POB, 1 fatality
30/04/2016	United Kingdom	Whitwell-on-the-Hill	SLINGSBY - T67	Loss of control in flight - Aircraft crashed into a field. 2 POB, 2 fatalities
05/05/2016	Germany	Grafenau-Lichteneck	MORANE SAULNIER - MS893	Aircraft collision with the ground due to unknown reasons. 1 POB, 1 fatality
06/05/2016	Austria	near LOAN - Wr.Neustadt / Ost	RANS - S12	Aircraft spin and crash during flight around the aerodrome. 2 POB, 2 fatalities
19/05/2016	Spain	Arbizu	ROBIN - DR400	Aircraft crashed due to bird strike. 3 POB, 3 fatalities
01/06/2016	France	Coëx	VANS - RV4	Engine shut-down in flight and crash. 2 POB, 1 fatal, 1 serious injury
09/06/2016	United Kingdom	Near Cushendun,	COMCO IKARUS - IKARUS C42	Aircraft crashed into the sea for unknown reasons. 2 POB, 2 fatalities
03/07/2016	Germany	Mosbach		Loss of Control during take-off. 1 POB, 1 fatality
05/07/2016	Spain	LECU - Madrid / Cuatro Vientos	CIRRUS - SR22	Aircraft crash at the aerodrome during touch and go landing. 2 POB, 2 fatalities
08/07/2016	United Kingdom	1 nm north of Dinton, Wiltshire	YAKOVLEV - YAK52	After loss of engine power and unsuccessful forced landing due to late decision A/C crashed in field. 2 POB, 1 fatal, 1 serious injury

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10/07/2016	Austria	LOWZ:Zell am see	PIPER - PA28	Aircraft not able to maintain climb due to low speed during take-off and stalls followed by crash. 4 POB, 1 fatal, 3 serious injuries
03/08/2016	France	LFCV - Villefranche de Rouergue		Crash after unsuccessful landing. 1 POB, 1 fatality
06/08/2016	United Kingdom	English Channel, 1 mile from Winchelsea	PIPER - PA28	Engine problem reported - most likely carburettor icing, aircraft ditched and sank. 1 POB, 1 fatality
15/08/2016	France	LFNE - Salon / Eyguieres	EXTRA - EA300	Unconsciousness during a training flight in aerobatics and crash. 1 POB, 1 fatality
25/08/2016	France	Saint-Rémy de Maurienne	JODEL - D11	Loss of control during the initial climb - Aircraft crashed and caught fire. 2 POB, 2 fatalities
01/09/2016	Slovenia	near Cezsoca	PIPER - PA28	Aircraft crashed due to unknown circumstances. 3 POB, 3 fatalities
01/09/2016	Germany	Herlazhofen	ROBIN - DR400	Aircraft crashed after engine failure. 3 POB, 3 fatalities
03/09/2016	Germany	Dierdorf		Aircraft crashed due to unknown circumstances. 1 POB, 1 fatality
04/09/2016	Germany	Stettiner Haff	SOCATA - TB20	Aircraft crashed into the ocean. 3 POB, 3 fatalities
04/09/2016	Poland	Wrocanka	VANS - RV6	Loss of control shortly after take-off. 2 POB, 2 fatalities
05/09/2016	Bulgaria	LBDB:DOLNA BANYA (AIRFIELD)	TECNAM - P92	Aircraft collided with high voltage wires and crashed. 2 POB, 2 fatalities

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
06/09/2016	Spain	Close to Villanueva del Condado village (León - Spain)	ROBIN - DR400	On a long visual flight the AC came down at a meadow close to the village buildings. 2 POB, 2 fatalities
14/09/2016	Austria	near Sankt Anton, Steißbachtal (Vallugabahn)	AQUILA - AT01	Collision with cableway. 1 POB, 1 fatality
18/09/2016	Hungary	Gödöllo Arboretum	PIPER - PA28 and CESSNA - 182	Two aircraft collided with each other in the vicinity of LHGD. 4 POB, 4 fatalities
27/09/2016	France	Saint Ambroix	VANS - RV8	Loss of control at low altitude. A/C crashed and caught fire. 2 POB, 2 fatalities
02/10/2016	United Kingdom	near Topcroft Farm Airstrip	NORTH AMERICAN - P51	Aircraft crashed into a tree during aborted landing. 2 POB, 1 fatal, 1 seriously injured
04/10/2016	Slovakia	near Jakubovany	LANCAIR - 360	Probable hypoxia of the pilot and icing of the airframe. 1 POB, 1 fatality
15/10/2016	Romania	Luncani, Cluj County	CESSNA - 182	Skydiver's parachute was deployed while he was inside the aircraft and fell to the ground unconscious. 1 fatality
16/10/2016	Greece	east of Kalabryta	CESSNA - 172	Aircraft crashed into mountain. 2 POB, 2 fatalities
17/10/2016	United Kingdom	near EGSN - Bourn	CESSNA - F150	Aircraft crashed after take-off. 2 POB, 1 fatal, 1 seriously injured
24/11/2016	Poland	EPZP - Zielona Góra	PIPER - PA31	Premature LG retraction and crash during take-off. 1 POB, 1 fatality
25/11/2016	France	Jarsy	SOCATA - TB20	Aircraft collision with mountain due to unintended flight into IMC. 2 POB, 2 fatalities

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
04/12/2016	United Kingdom	over Lubenham	CESSNA – 150 and PZL BIELSKO - SZD51	Mid-air collision powered ACFT and glider; Glider crashed killing the pilot.
07/12/2016	France	AD Bale-Mulhouse	PIPER - PA34	Collision with the ground during landing - fire. 1 POB, 1 fatality
07/12/2016	France	in approach to LFSB (MLH):Bâle Mulhouse	PIPER - PA34	Crash on a highway when trying to land - fire post impact
19/12/2016	Germany	Garz	TECNAM - P2006T	Aircraft crashed into the forest for unknown reasons. 1 POB, 1 fatality
15/01/2017	United Kingdom	Near Aston Rowant Nature Reserve	PIPER - PA30	Aircraft flying at low altitude in IMC condition, crashed into woodland. 1 POB, 1 fatality
15/01/2017	Spain	near LEMT - Casarrubios Del Monte	TECNAM - P2002	Aircraft crashed into a field in a high nose down attitude. 2 POB 2 fatalities.
02/02/2017	Germany	Melle	DIAMOND - DA20	Aircraft collided with a wind turbine. 1 POB, 1 fatality.
20/02/2017	Guadeloupe	Petit Bourg	PIPER - PA28	Airplane crashed into a building. 1 POB, 1 fatality
27/03/2017	Ireland	Cloncoskoran, near Dungarvan Co. Waterford	RUTAN - LONGEZ	Aircraft crashed in a field due to engine failure. 1 POB, 1 fatality
09/04/2017	France	AD Chelles Le Pin	EVEKTOR AEROTECHNIK - SPORTSTAR RTC	Bounced landing, the student pilot lost the aircraft's control after initiating a go/around. The aircraft crashed in a field. 1 POB, 1 fatality
14/04/2017	Italy	Dovera (CR)	TECNAM - P92	A/C crashed on the ground during VFR flight. 2 POB, 2 fatalities
17/04/2017	Portugal	Cascais	PIPER - PA31T	Loss of control after failure of critical engine during take-off

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
29/04/2017	Spain	Canillas de Aceituno	SOCATA - TB20	Collision with the mountain.
25/05/2017	United Kingdom	2 miles north of Skipness, Kintyre	PIPER - PA28R	Aircraft in low stratus clouds, mist and fog, lost from radar, wreckage found in water
28/05/2017	United Kingdom	Apperknowle		A/C partial loss of power as a result of fuel vapour disrupting fuel supply to engine during take-off followed by crash in adjacent field. 1 POB, 1 fatality
18/06/2017	United Kingdom	Spanhoe Airfield, Northamptonshire		Aircraft stall and crash shortly after take-off.
26/06/2017	Czech Republic	LKHD:Hodkovice	PIPER - L4	Aircraft crashed shortly after take-off. 2 POB, 1 fatality, 1 serious injury.
05/07/2017	Switzerland	near LSGN - Neuchatel	CZECH SPORT - PS28	Pilot lost control after take-off during initial climb. 2 POB, 2 fatalities
19/07/2017	Finland	Lievestuore (municipality of Laukaa)	PIPER - J3C	Aircraft crashed into a forest during final approach in bad weather condition.
21/07/2017	Poland	EPML		Loss of control shortly after take-off - 2 POB - 2 fatal injuries
28/07/2017	Poland	EPLL	CESSNA - 152	Aircraft collided with trees during approach. 1 POB, 1 fatality
01/08/2017	Norway	Oppland county	AQUILA - AT01	Aircraft crashed into mountain. 1 POB, 1 fatality
02/08/2017	Portugal	Praia de São João da Caparica	CESSNA - 152	Forced landing on the beach due to engine failure. Aircraft collided with pedestrians. 2 POB 2 fatal injuries on ground
04/08/2017	Switzerland	Diavolezza/GR	PIPER - PA28	Collision with high terrain. 3 POB, 3 fatally injured

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08/08/2017	Germany	Bodensee / Mainau	PIPER - PA46	The aircraft crashed into the Lake Bodensee north of Konstanz. 2 POB 2 fatalities
19/08/2017	Romania	Valcica village, Iasi county		Aircraft crashed due to unknown reasons. 2 POB, 1 fatally injured, 1 seriously injured
20/08/2017	Switzerland	Alp Tsanfleuron, Savièse VS	PIPER - PA28	Aircraft collided with terrain. 3 POB and 3 fatalities
22/08/2017	Norway	near Holmestrand	PITTS - S2	Pilot lost the aircraft control while performing aerobatics manoeuver and crashed. 2 POB, 2 fatalities
26/08/2017	United Kingdom	near EGHA:Compton Abbas	DE HAVILLAND - DH82	Engine problems after take-off - crash on return to airfield.
27/08/2017	Germany	Moormeerland	MORANE SAULNIER - MS883	Collision with the ground due to unknown circumstances. 1 POB 1 fatality
09/09/2017	Italy	Salussola (BI)	PIPER - PA34	Aircraft crashed on the ground during VFR approach in poor weather conditions. 1 POB 1 fatality
11/09/2017	United Kingdom	Wolferton, Norfolk	PIPER - PA28RT	Rough running engine followed by Mayday call
12/09/2017	France	Ghisonaccia	DIAMOND - DA42	Aircraft crashed due to unknown reasons. 4 POB 4 fatalities.
12/09/2017	Switzerland	Braunwald/GL	MOONEY - M20K	Aircraft crashes in high terrain - 2 POB - 2 fatally injured - Aircraft destroyed.
19/09/2017	Norway	near ENHA - Hamar / Stafsberg	VANS - RV4	Loss of control on approach, spin and crash. 2 POB, 2 fatalities
26/09/2017	Czech Republic	near Noviny pod Ralskem	CESSNA - 421	ENG1 failure en route, spin, ENG2 shut-down; Crash and fire.
28/09/2017	United Kingdom	Grove Farm, Wolvey	EUROPA - EUROPA	On landing, runway excursion through hedge.

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17/11/2017	United Kingdom	near Waddesdon	CESSNA - 152	Aircraft Mid-air collision between a Cessna and a Guimbal helicopter fatal injuries. 2 POB, 2 fatalities
04/01/2018	Finland	Kittilä airport, EFKT	GULFSTREAM - GULFSTREAM 150	Fatal injuries to captain due to door opening violently
08/01/2018	United Kingdom	Near Bredon Hill, Overbury, Worcestershire	PIPER - PA28	Aircraft struck trees in poor weather
23/01/2018	Germany	Philippsburg	PIPER - PA28RT	Mid air collision
29/01/2018	Spain	Villamartín aerodrome, Cadiz		Loss of control followed by crash - during training flight in approach
31/01/2018	Italy	Boscomantico (VR) - LIPN	CESSNA - F150	Aircraft crashed in mountainous area during proficiency check - during circuit pattern downwind in approach
11/02/2018	Norway	Near Svolvær airport Helle	PIPER - PA28	Crash into the sea shortly after take-off during night conditions whilst returning to departure airport for unknown reason
12/02/2018	Belgium	9,8 NM from EBZW outside the residential area of Bolderberg Heusden Zolder	BEECH - 33	Aircraft collided with trees before coming to rest
10/03/2018	Germany	Bensheim	ZENAIR - CH601	Airplane crash
31/03/2018	France	Proche AD Saint Chamond	ROBIN - DR400	Runway overrun on take-off, collision with an obstacle
08/04/2018	France	LFQL:Lens / Bénifontaine	YAKOVLEV - YAK18	Aircraft crashed after a half roll followed by a half loop-down at low height.

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15/04/2018	Germany	Schwäbisch Hall	CIRRUS - SR20	Collision of two powered A/C
19/04/2018	United Kingdom	Crumlin	CESSNA - 152	Aircraft crashed by unknown reasons
21/04/2018	Greece	13.26 km East of City of Nafpaktos	PIPER - PA28	Collision with cable during emergency landing
29/04/2018	Austria	next to LOWI - Innsbruck	RUTAN - VARIEZE	ACFT crash after take-off.
08/05/2018	France	Marnaves	AQUILA - AT01	A/C hit tree tops at the top of a ridge, collision with the ground, post-impact fire
11/05/2018	France	AD Nancy-Essey	RUTAN - VARIEZE	Contamination of extruded polystyrene foam with fuel - wing fracture due to seepage / fuel leak followed by material separating from A/C followed by spin, crash, and post impact fire - during initial climb
22/05/2018	Netherlands	Low flying area Gouda, near Stolwijk	CESSNA - F172	Collision with trees followed by crash.
31/05/2018	Hungary	Pécs-Pogány Airport, SW 1.8 km	OTHER - Generic	Aircraft crashed after take-off and caught fire after the impact
01/06/2018	Sweden	Opand airport	RIHN - DR107	Accident - Small aeroplane - fatal
02/06/2018	Italy	Malga Casarine - Trento	CESSNA - 152	After a manoeuver to over fly over a mountain the A/C lost altitude and crashed
20/06/2018	Germany	Mosbach	JODEL - D9	Aircraft crashed shortly after take-off
04/07/2018	Austria	LOAV - Bad Vöslau	CESSNA - 172	Aircraft stall on take-off and crash.

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08/07/2018	Latvia	Parish Davini	BUCKER - BU133	Aircraft terrain collision during emergency landing due to low engine oil pressure.
10/07/2018	Portugal	Farm field to 1.2NM West of runway 03 threshold	CESSNA - 152	Aircraft crash for unknown reasons during the RH downwind to runway 21
16/07/2018	France	after take-off from Les Mureaux	TECNAM - P2002	Loss of engine power in initial climb, collision with the ground, in instruction flight.
17/07/2018	France	Mediterranean Sea, near San Giuliano	SOCATA - TB20	Low pass over the see and crash.
23/07/2018	France	Saint-Pardoux-et-Vielvic	CESSNA - F172	Trajectory deviation. Aircraft crashed
27/07/2018	Switzerland	near Col Durand	ROBIN - DR400	Collision with elevated terrain in mountainous area
28/07/2018	France	AD Charleville Mézières	ROBIN - DR400	Engine power loss during initial climb, aircraft turned left and stalled.
29/07/2018	Slovenia	Near Airport Bovec	ROBIN - DR400	The towing aircraft crashed after finishing towing a glider. 1 POB 1 fatality, aircraft destroyed.
04/08/2018	Romania	near Fratau?ii Vechi airfield, LRSV	STEEN - SUPER SKYBOLT	Collision of two A/C during training for air show
04/08/2018	Switzerland	Rengg Pass (LU)	SOCATA - TB10	Crash during cruise phase
06/08/2018	France	Mazoires	CESSNA - 172	Loss of radio and radar contact, collision with the ground.
09/08/2018	Germany	Münster	BEECH - 58	Crash in training flight - during approach
15/08/2018	Italy	Cimadolmo	PIPER - PA18	Aircraft crashed after a power line collision

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16/08/2018	Poland	Smerek	TECNAM - P2002	Low flying; wheel hit a man.
21/08/2018	France	LFJD:Corlier	ROBIN - DR400	A/C landing before the runway threshold, then tilting on the back.
24/08/2018	Bulgaria	LBWB	CIRRUS - SR22	Bounced landing with increased angle of attack and bank angle to the left
29/08/2018	France	Bourg-Saint-Maurice	VANS - RV7	ACFT crash into mountain in unfavourable weather conditions
16/09/2018	France	Saint-Secondin	ROBIN - DR400	Loss of radar contact and collision with the ground
26/09/2018	Germany	Alkersleben	TECNAM - P92	Aircraft crash after engine problems
10/10/2018	United Kingdom	Approx. 1.5 miles NW of Beverley Airfield, East Yorkshire.	CESSNA - 172	The aircraft was manoeuvring in the final approach area when it was seen to descend rapidly to the ground. 2 POB, both with fatal injuries. AAIB Field investigation.
14/10/2018	Germany	EDER - Wasserkuppe	CESSNA - F172	RWY overrun - ACFT collided with bystanders.
16/10/2018	Germany	near EDKB - Bonn / Hangelar	TECNAM - P2008	ENG failure - airplane crash.
03/11/2018	Italy	Airfield “Caorle”	SIAI MARCHETTI - SF260	Aircraft crashed after a VFR approach.
07/11/2018	Norway	Near Meraaker Airfield	VANS - RV6	Aircraft crashed due to unknown reasons
13/11/2018	Spain	coordinates below	CESSNA - 150	Lost control in flight. Aircraft destroyed
17/11/2018	France	Pleslin-Trigavou	SOCATA - TB20	Aircraft collided trees on final and crashed against the water
30/11/2018	Hungary	Rábasömjén	SCOTTISH AVIATION - BULLDOG	Aircraft crashed due to reasons unknown. 1 POB, 1 fatality

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
07/12/2018	Spain	Near LELL: Sabadell Airport	CESSNA - F177RG	Aircraft collided with a building and crashed during approach
10/12/2018	France	Beaubery	CIRRUS - SR22	Communication lost during en route, collision with elevated terrain
15/12/2018	Netherlands	EHHV		Shortly after lift-off (approx. 100ft) AC fell and rolled; AC impacted with inverted attitude and was fully destroyed.
30/12/2018	Thailand	approach to VTBT:Chon Buri / Bang Phra	FLIGHT DESIGN - CTLS	Aircraft crash on final approach.
09/01/2019	Spain	Mount Ernio	PIPER - PA28R	Aircraft crash in mountains.
12/01/2019	Germany	Prädikow	PARTENAVIA - P68	Crash into terrain
16/01/2019	Greece	Approx. 1.650 m along from Kavourotrypes Kryoneri beach of Mesolongi sea area	MONNETT - SONERAI	Aircraft uncontrollable ditched and sank on the beach
25/01/2019	Italy	Rutor Glacier	JODEL - D140	Mid-air collision and crash.
06/02/2019	Spain	1 NM south-east of Quijorna (Madrid)	TECNAM - P2002	Air collision -fatal injuries
21/02/2019	Romania	after take-off from LRTZ:Tuzla	DIAMOND - DA42	Loss of control during take-off followed by crash.
30/03/2019	Italy	Aviosuperficie Alfina (Castel Viscardo – Terni)	ZLIN - Z50	Aircraft collided with the ground while performing aerobatics manoeuvres
20/04/2019	Bulgaria	Orizari	ZENAIR - CH601	LH wing separation in flight - ACFT crash.

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
14/05/2019	Switzerland	near LSZF:Birrfeld		Aircraft crash and fire shortly after take-off.
15/05/2019	Romania	Nehoiasu, Buzau county	TECNAM - P2008	Aircraft crashed under unknown circumstances.
19/05/2019	Germany	Wilhelmshaven, near	CIRRUS - SR20	A/C is missing, last seen over the North-Sea on radar
30/05/2019	Switzerland	near LSGP:La Côte	JODEL - D140	Aircraft crash shortly after take-off.
13/06/2019	France	Saillagouse (66)	CESSNA - 172RG	Loss of turn control during initial climb, collision with ground, fire
13/06/2019	Ireland	Belan, nr Moone Co. Kildare	BRM AERO - BRISTELL NG5	Vertical impact with terrain
14/06/2019	Ireland	Belan, near Moone, Co. Kildare	BRM AERO - BRISTELL NG5	Crashed in field
21/06/2019	Netherlands	Oudemolen	PIPER - PA18	Mid-air collision whilst a formation fight
22/06/2019	North Sea	11NM S of Mandal	PIPER - PA28	ENG temporary failure - crash in sea.
18/07/2019	Austria	Wetterstein, 2.5 NM N of 6105 Leutasch	CIRRUS - SR22	Aircraft crashed into a mountain
20/07/2019	Germany	Bruchsal	JODEL - DR1050	During approach phase, the A/C turned to the left and has a collision with a building
31/07/2019	Finland	EFTP (TMP):Tampere-Pirkkala	EVEKTOR AEROTECHNIK - EV97	The aircraft made a steep left turn during an initial climb and probably entered into a spin - A/C crashed
01/08/2019	Germany	Jesenwang	EVEKTOR AEROTECHNIK - EV97	Crash into field

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
06/08/2019	Italy	Monte Carmo (Savona)	DIAMOND - DA20	COLLISION WITH TERRAIN.
15/08/2019	France	after take-off from LFDJ:Pamiers Les Pujols		Loss of control after take-off.
22/08/2019	Germany	Steinfeld	CESSNA - 150	Crash into field.
22/08/2019	Germany	Schneizelreuth	CESSNA - FR172	Collision with mountain
24/08/2019	United Kingdom	Stonor (near Henley-on-Thames)	PITTS - S2	Aircraft crashed into field
25/08/2019	Switzerland	Simplon Pass, 6600 ft	PIPER - PA28RT	A/C crashed at the Simplon pass east of the hospice. Aircraft destroyed by post impact fire.
15/09/2019	Spain	Pedreguer	CIRRUS - SR22	Airplane collision with mountain in IMC.
21/09/2019	Italy	near LIME (BGY):Bergamo / Orio Al Serio	MOONEY - M20K	Undefined problems - ACFT return; Loss of control after aborted landing/go-around and crash
26/09/2019	Czech Republic	near Petrovice	PIPER - PA22	Airplane crash
28/09/2019	France	Longuesse	DYN AERO - MCR04S	Crash for yet unknown reason
06/10/2019	Ireland	Duncormick, Co. Wexford	ROLLASON - D62	Possible inflight breakup.
10/10/2019	Spain	Bonastre	DIAMOND - DA40	Crash for yet unknown reason - during en route in night dual instruction flight
16/10/2019	Réunion	Plaine des Sables	CESSNA - 172	Collision with terrain.

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
01/11/2019	Italy	near Monti della Tolfa airfield	CESSNA - FA150	Airplane collision with powerline on final approach - crash and fire.
08/12/2019	Lithuania	Noreikiškes	PIPER - PA30	Airplane crash after touch-and-go.
15/12/2019	United Kingdom	Northfield Farm, Spilsby		Bystander reported engine problem before aircraft crashed
21/12/2019	Austria	near LOWZ:Zell am See	CIRRUS - SR22	ACFT crash during missed approach in IFR.

1.2 Helicopters

1.2.1 Commercial Air Transport

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
04/02/2009	Norway	Rostadalen	AEROSPATIALE AS350	Helicopter accident during low flying in degraded visibility
17/02/2009	Poland	Jerostow	PZL SWIDNIK MI2	Helicopter crashed during HEMS flight
01/04/2009	United Kingdom	11 nm NE of Peterhead, Scotland	AEROSPATIALE AS332	Main rotor head separated in flight due to a fatigue fracture. Aircraft crashed into the sea
14/08/2009	France	Dangé Saint Romain (86)	ROBINSON R44	Collision with terrain
27/01/2010	Norway	Horten	ROBINSON R44	Helicopter crashed into water
28/10/2010	Antarctica	A 53 NM de Dumont d'Urville	AEROSPATIALE AS350	Helicopter crashed whilst conducting aerial work
04/07/2011	Norway	Dalamot	AEROSPATIALE AS350	Helicopter crashed in turn
11/07/2011	Myanmar	Yetagon oil rig, Andaman Sea	SIKORSKY S76	Pilot performed a ditching due to engine power loss during take-off
09/11/2011	Italy	Italy	AEROSPATIALE AS365	Helicopter collided with wind turbine
11/11/2011	Italy	Macerata - Italy	AGUSTA A109	Helicopter crashed
08/04/2012	Niger	Niger	AEROSPATIALE AS350	Helicopter crashed in the desert
23/08/2013	United Kingdom	near Sumburgh Airport	AEROSPATIALE AS332	Helicopter crashed in the sea during approach to land
14/01/2014	Norway	Near Solihogda, Norway	EUROCOPTER EC135	Medical helicopter struck power lines and crashed
17/07/2015	Slovakia	Under Kláštorná roklina gorge - Hornád canyon	AGUSTA A109	Helicopter crashed on a river bank after strike with power cables during en route HEMS mission

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
31/07/2015	Italy	Pizzo Zocca di val Masino (Sondrio)	AEROSPATIALE AS350	Controlled flight into a mountain peak obscured by clouds
29/04/2016	Norway	near Turøy	EUROCOPTER EC225	Helicopter crashed during an offshore mission
02/06/2016	Moldova	Haragis	EUROCOPTER EC135	Helicopter crashed in a wood for as yet unknown reason
07/09/2016	Slovakia	Strelníky	BELL 429	Controlled flight into terrain during a HEMS flight in mountainous area
08/09/2016	Austria	Carinthia, ca. 2346 m	ROBINSON R66	Helicopter crashed in a mountainous area
24/01/2017	Italy	Monte Cefalone, Lucoli (AQ)	AGUSTA AW139	Helicopter crashed into a mountain slope during HEMS flight
23/01/2018	Germany	Philippsburg	EUROCOPTER EC135	Mid-air collision
15/12/2018	Portugal	1NM South of Valongo	AGUSTA A109	Collision with radio tower in bad weather conditions
25/01/2019	Italy	Rutor Glacier	AEROSPATIALE AS350	Mid-air collision between helicopter and small aeroplane
11/05/2019	France	Le Conquet	EUROCOPTER EC135	HEMS helicopter near miss with a paraglider, loss of control and crash of paraglider
25/08/2019	Spain	Carretera vieja de Costix, 400m away from Inca hospital	BELL 206	Mid-air collision between helicopter and ultralight aeroplane
31/08/2019	Norway	near Alta	AEROSPATIALE AS350	Helicopter crashed in mountainous area

1.2.2 Specialised Operations Helicopters

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
10/02/2009	Hungary	Csepeli szennyvíz tisztító	ROBINSON R44	Helicopter ditched in river
20/06/2009	France	Bregnier-cordon (01)	AEROSPATIALE AS350	Helicopter loss of control and subsequent crash
23/08/2009	Germany	Erpfental near Ellwangen	ROBINSON R44	Mid-air collision between aeroplane and helicopter near air show
02/09/2009	Switzerland	Fully/VS	AEROSPATIALE AS350	Flight assistant on ground killed by falling wall during hovering of the helicopter
07/09/2009	Italy	Val d'Aosta	AEROSPATIALE SA315	Rotor strikes rocks on ground
09/10/2009	France	Domjulien (88)	AEROSPATIALE AS350	Collision with trees and ground due to adverse weather conditions
27/06/2010	Netherlands	Maasvlakte, Rotterdam	EUROCOPTER EC130	Loss of control during hover
23/07/2010	Austria	Gahbuhel	BELL 204	Tail rotor collision with tree during sling load operation
31/07/2010	France	Bormes-les-Mimosas (83)	AEROSPATIALE AS350	Vibrations during landing, hard landing
04/08/2010	French Guyana	2 Nm S-E Croisée d'Apatou	AEROSPATIALE AS350	Collision with vegetation during sling load operation
08/08/2010	Belarus	Minsk-Barawaja	HUGHES 369	Helicopter crashed during low level aerobatic flight manoeuvres

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
17/08/2010	Algeria	Benbakhta, wilaya de Boumerdes	AEROSPATIALE AS350	Helicopter loss of control and subsequent crash
08/03/2011	United Kingdom	Honister Slate Mine, Seatoller	AEROSPATIALE SA341	Aircraft missing later found crashed in valley
26/04/2011	Italy	1.3 NM S-SE of Sulmona (AQ)	ROBINSON R22	Controlled flight into terrain during aerial work
07/06/2011	Spain	Quincoces de Yuso	BELL 407	Helicopter crashed in mountainous area and post-impact fire
15/06/2011	Andorra	Pleta de Juclar (Canillo)	AEROSPATIALE AS350	Helicopter crashed during sling load operation
25/06/2011	Italy	Cison di Valmarino (TV)	SCHWEIZER 269C	Helicopter impacted cables during aerial work
05/08/2011	Italy	Cogolo di Pejo (Trento)	AEROSPATIALE AS350	Collision with obstacles during aerial work
14/09/2011	France	Vallorcine (74)	AEROSPATIALE AS350	Collision with cable car cable and post-impact fire
18/10/2011	Belgium	10km from Liege	EUROCOPTER EC120	Helicopter crashed during aerial work
11/01/2012	Norway	Mosjøen SE of	ROBINSON R44	Helicopter crashed into ground during reindeer herding
12/03/2012	Martinique	Le Lorrain	BELL 47	Collision with power lines and subsequent post-impact fire
14/03/2012	Gabon	near Iguela	BELL 212	Collision with obstacles during sling load operation
06/04/2012	Belgium	Huy	ROBINSON R22	Collision with cable in hover

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
29/06/2012	Germany	Lieser, nahe	HUGHES 369	Collision with powerline
09/09/2012	Germany	Roßfelder Glider Airfield	EUROCOPTER EC120	Loss of control during an air show
29/06/2013	Switzerland	Switzerland	AEROSPATIALE AS350	Helicopter crashed due to loss of control caused by a previous rotor strike
01/07/2013	Switzerland	Switzerland	AEROSPATIALE AS350	Helicopter crashed in a mountainous area and caught fire in unknown circumstances
12/11/2013	France	Saint-Chaffrey	AEROSPATIALE AS350	Helicopter crashed after hitting a cable of a chairlift
18/12/2013	Portugal	near Monchique	EUROCOPTER EC120	Helicopter collision with power lines and crash.
14/07/2015	Switzerland	Guggigletscher, Lauterbrunnen	AEROSPATIALE AS350	Helicopter crashed in a mountainous snow-covered area during aerial work mission
31/12/2015	Réunion	Rempart du Maïdo	AEROSPATIALE AS350	Helicopter turned back due to bad weather conditions and crashed shortly afterwards
19/05/2016	Bulgaria	Gylovtsa village, Nesebar	KAMOV KA26	Collision with power lines
13/05/2017	Switzerland	Petersgrat	AEROSPATIALE AS350	helicopter overturned onto its side and rolled over during landing in a mountainous area
26/09/2017	Sweden	Högheden	HUGHES 369	Helicopter accident during power line inspection flight

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
11/06/2018	Switzerland	near Attinghausen	AEROSPATIALE AS350	Helicopter crashed
13/06/2018	United Kingdom	Loch Scadavay, North Uist	AEROSPATIALE AS350	Helicopter crashed in a lake sling load operation
07/01/2019	France	near Castres	AEROSPATIALE AS350	Helicopter crashed during sling load operation

1.2.3 Non-commercial Operations Helicopters

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
02/01/2009	France	Molesmes (89)	EUROCOPTER EC135	Loss of control and collision with terrain in bad weather conditions
26/01/2009	Austria	St. Veit an der Glan	ROBINSON R44	Helicopter crashed
31/01/2009	Turkey	MUDURNU area	EUROCOPTER EC135	Collision with terrain in bad weather conditions
14/02/2009	United Kingdom	Sandtoft (Lincolnshire)	ROBINSON R22	Helicopter crashed
01/04/2009	Ireland	Kilshanchoe, Co. Kildare	SCHWEIZER 269C	Helicopter crashed following wire strike
05/04/2009	France	AD Amboise Dierre (37)	ROBINSON R44	Loss of control during hoovering
22/09/2009	United Kingdom	Barnaby Sands (Lancashire)	SCHWEIZER 269D	Helicopter sustained power failure and crashed shortly afterwards
26/10/2009	Italy	Garda Lake - Torri del Benaco	ROBINSON R22	Loss of control during flight and crash
14/11/2009	Italy	Varese lake	AEROSPATIALE AS350	Water impact on Varese lake
15/11/2009	United Kingdom	Pinfold Farm, Whiteley Green	ROBINSON R22	Helicopter crashed in a field
21/02/2010	France	Le Tampon (974)	AEROSPATIALE SA318	Loss of control during landing and collision with terrain
23/05/2010	Germany	Mönchgrün - Saale	HILLER FH1100	Engine failure and loss of control during flight
31/05/2010	France	Col des Boeufs (974)	ROBINSON R22	Collision with terrain after take-off
25/07/2010	France	Coullons (45)	SCHWEIZER 269C	Collision with trees
12/08/2010	Italy	Milazzo (ME)	ROBINSON R44	Helicopter crashed just after take off

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
09/12/2010	France	Tourrettes-sur-Loup (06)	ROBINSON R22	Collision with terrain in mountainous area
18/02/2011	Italy	Canne della Battaglia	ROBINSON R44	helicopter crashed during en-route
29/04/2011	France	Saint-Gervasy (30)	H-2 (DYNALI)	Helicopter loss of power followed by loss of control and crash
09/07/2011	France	Luzoir (02)	ROBINSON R44	Loss of control at low altitude in bad weather conditions
24/07/2011	United Kingdom	Furze Farm, Marhamchurch, Bude	ROBINSON R44	Helicopter crashed
19/09/2011	Spain	Municipality of La Peza (Granada)	BELL AB412	Helicopter crashed on a wooded area and caught fire
12/11/2011	Spain	Prox Andratx (Palma Mallorca)	HUGHES 369	Helicopter loss of control and collision with terrain
06/01/2012	United Kingdom	Ely	ROBINSON R22	Helicopter nose-dived and crashed into a field
18/02/2012	Germany	Lahr	August Schrempp Safari	Tail rotor blade separation during take off
09/06/2012	Germany	Teisendorf	ROBINSON R44	Collision with trees during low level flight in instrumental flight conditions
03/09/2012	France	Valouse	ROBINSON R44	Rotor mast tailgating during cruise and rupture in-flight followed by a crash
10/01/2013	Germany	Wolpertshausen	ROBINSON R44	Collision with power line in bad weather conditions
01/03/2013	France	France	AEROSPATIALE SA316	Helicopter crashed into a frozen lake

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
29/07/2013	Romania	lake near Taureni	EUROCOPTER EC130	Controlled flight into a lake
13/09/2013	Poland	Wygonin	ROBINSON R44	Collision with Terrain
12/10/2013	Poland	Wolica Kozia	ENSTROM 280	Helicopter crashed following engine failure
19/11/2013	Germany	Neuhausen ob Eck	ROBINSON R44	Helicopter crashed into a forest in foggy weather conditions
20/12/2013	France	Lugon and Ile du Carney (33)	ROBINSON R44	collision with water during flight at a low height
28/02/2014	Germany	Baltic Sea, about 3 NM north of Prerow	MBB BK117	Helicopter fell in the water during training exercise in the see
13/03/2014	United Kingdom	Near Gillingham Hall	AGUSTA BELL AB139	Aircraft crashed shortly after take-off in degraded visual references
05/04/2014	Austria	Am Kogl, Kirchham	ENSTROM 280	Helicopter crashed in a wooded area whilst en-route to airfield
13/06/2014	Belgium	On EBCF airfield 10m off Runway 30 (RH)	SCHWEIZER 269C	Engine power incorrect management during final leg followed by loss of control and crash
08/08/2014	Italy	Chanton Desout	SUD AVIATION SA318	Helicopter crashed on a mountainous terrain due to an unexpected weather deterioration
05/09/2014	Denmark	In Samsoe Belt between Røsnæs and Samso	ROBINSON R44	Helicopter crashed under unknown circumstances into the sea
02/10/2014	France	France	EUROCOPTER EC130	Controlled flight into terrain in IMC conditions
04/12/2014	Portugal	near LPSO - Ponte de Sor	SCHWEIZER 269C	Helicopter crashed on a training flight

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
29/03/2015	Czech Republic	Filipova Hut	ROBINSON R44	Helicopter crashed
06/06/2015	Isle of Man	Near Creg-ny-Baa	BELL 206	Helicopter crashed on mountain side
16/07/2016	Spain	Valmayor Reservoir (Valdemorillo)	ROBINSON R22	Helicopter hooked with a high voltage wire and crash into a reservoir
16/08/2016	Czech Republic	near LKPS - Plasy	ROBINSON R44	The helicopter crashed during autorotation training
05/09/2016	France	Origny le Sec	ROBINSON R22	Helicopter crashed
19/11/2016	Italy	Monte RhoArcisate/ Bisuschio (Varese)	AGUSTA A109	Helicopter crashed
15/03/2017	France	Figeac	BELL 206	Helicopter crashed whilst flying at low altitude during a night flight
29/03/2017	United Kingdom	Rhinog Fawr Mountain	AEROSPATIALE AS355	Helicopter struck a mountain
23/06/2017	Greece	Scinias of Marathonas area wetland	MD HELICOPTER 369	Helicopter crashed during low flying due to collision with electrical power lines
08/10/2017	Latvia	Near Gramzda	ROBINSON R44	Helicopter impacted a powerline and crashed
17/11/2017	United Kingdom	near Waddesdon	GUIMBAL CABRI	Mid-air collision between helicopter and small aeroplane
05/04/2018	France	AD Libourne	BELL 47G	Ground collision with fire during instruction flight
30/05/2018	United Kingdom	Nr Aldborough	BELL 206	Helicopter impacted terrain
07/07/2018	Slovakia	Boundary of Village Kanaš	ROBINSON R44	Helicopter hit a power line during take-off and crashed
11/07/2018	Poland	Domecko near Opole	ROBINSON R44	Helicopter crashed for unknown reasons

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
05/09/2018	Czech Republic	Domažlická 1059, Plzen - Skvrnany	ROBINSON R44	Loss of control during manoeuvring at low altitude
27/10/2018	United Kingdom	Leicester	AGUSTA AW169	Helicopter tail rotor control loss and crash
17/02/2019	Norway	North of Roeldal alpine center	ROBINSON R44	Helicopter crashed in mountainous terrain
22/03/2019	Czech Republic	Near Blažkov village	ENSTROM 480	Helicopter loss of control in flight
03/05/2019	Italy	Pegognaga (Mantova)	ROBINSON R22	Loss of control in flight and impact with the ground

1.3 Balloons

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
01/01/2011	United Kingdom	Midsomer Norton	CAMERON - O120	Balloon deflated during flight and fell to the ground
22/04/2011	Belgium	Oudenburg	KUBICEK - BB37 - N	Flight initiated in spite of poor weather forecast. High speed landing caused the basket to flip 180 degrees
25/06/2011	Switzerland	Fisibach/AG	WORNER	Loss of control of a balloon and hard landing
13/05/2012	France	Charly-sur-Marne (02)	SCHROEDER	Collision with a power line during a first flight
19/08/2012	France	Feings(41)	CAMERON Z-750	Hard landing, One passenger was ejected and hit by the basket
23/08/2012	Slovenia	Ljubljana marshes	LINDSTRAND - LBL600C	Hot air balloon crash in storm, 32 people on board and 6 fatalities.
06/08/2013	Switzerland	Haut-Intyamon/FR	CAMERON - Z105	Collision of balloon with powerline
05/10/2014	France	Cazes Mondenard (82)	SCHROEDER - FIRE BALLOONS G - NO SERIES EXISTS	Fire broke out during precautionary landing in bad weather.
12/07/2015	Spain	Vilanova del Cami	ULTRAMAGIC - S160	Balloon basket impacted against the top of a metal fence on final approach, basket overturned, and expulsion of some occupants including the pilot.
08/10/2015	Italy	Montescaglioso (MT)	SCHROEDER - FIRE BALLOONS G - NO SERIES EXISTS	Balloon forced landing after hitting power line
05/01/2016	France	Aurel	ULTRAMAGIC - M120	Fall of a person holding onto the outside of the basket during take-off
02/06/2019	France	Pons	SCHROEDER - FIRE BALLOONS G	Balloon bounced landing - pilot ejected and hit by basket.

1.4 Sailplanes

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
27/03/2009	Finland	EFJM	PIK	Glider hit power lines during approach. 1 POB, aircraft destroyed, 1 fatal injury.
03/05/2009	Germany	Kronach	GLASER DIRKS - DG300	After failed winch launch the glider returned. During a steep turn the aircraft stalled and crashed. 1 POB 1 fatality aircraft destroyed.
09/05/2009	Belgium	E42 near SPY	SPORTINE AVIACIJA - LAK17 - AT	Glider entered spin during approach. 1 POB 1 fatality. Aircraft destroyed.
21/05/2009	Germany	Arnbruck	GLASER DIRKS - DG400	Glider stalled during final turn and crashed. 1 POB 1 fatality, aircraft destroyed.
22/05/2009	France	Thionville (57)	SCHLEICHER - KA6	Loss of control during a winch take-off, collision with the ground.
25/05/2009	Netherlands	Midden Zeeland (EHMZ)	SCHLEICHER - ASK13	During the turn to final the glider crashed.
31/05/2009	United Kingdom	Long Mynd (Shropshire)	SCHEMPP HIRTH	Aircraft stalled and spun on take-off. Aircraft destroyed. One POB fatal.
31/05/2009	Switzerland	Gryon/VD	SCHEMPP HIRTH	Loss of control during cruise.
13/06/2009	United Kingdom	Ratley (Warwickshire)	GROB - G102 - ASTIR CS	Glider believed to have stalled then crashed. One POB fatal.
14/06/2009	United Kingdom	Sutton Courtenay (Oxfordshire)	SCHEMPP HIRTH - STANDARD CIRRUS	Mid-air collision between Grob 115 and Cirrus glider. Two POB Grob fatal, one POB glider.
17/06/2009	France	Vélisurface La Motte du Ca(04)	GLASFLUGEL - STANDARD LIBELLE	Erroneous assessment of the trajectory and precipitation on landing, collision with vegetation.

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
04/07/2009	France	Saint Pons (04)	SCHEMPP HIRTH - DUO DISCUS	Loss of control causing collision with the ground in slope flight.
09/07/2009	United Kingdom	Gransden (Cambridgeshire)	SCHEMPP HIRTH	Glider crashed in field. A/c destroyed. One POB fatal.
17/07/2009	Sweden	ESKT, Tierp	OTHER	Accident - Eichelsdorfer Flugzeugbau Mistral C - Fatal Injuries.
25/07/2009	France	Hures-la-Parade (48)	CENTRAIR - ASW20 - F	Loss of control in slope flight. The aircraft entered spin and collided with the ground.
31/07/2009	Italy	Passo del Rombo (BZ)	FOURNIER - RF4	Glider found crashed in a mountainous area. 1 POB, 1 fatality, aircraft destroyed.
01/08/2009	Germany	Mellrichstadt	SCHEMPP HIRTH - CIRRUS	Glider lost control and crashed during winch launch. 1 POB, 1 fatality, aircraft destroyed.
02/08/2009	Austria	Großarl, S	SCHEIBE - SF25 - B	The Glider crashed during an emergency landing. Circumstances unknown. 2 POB 1 fatality and 1 serious injury. Aircraft destroyed.
09/08/2009	Italy	Fiamignano (RI)	SCHLEICHER - ASW27	Glider lost control during a competition. 1 POB 1 fatality, aircraft destroyed.
13/08/2009	Italy	Close to Sestola (Mo)	ROLLADEN SCHNEIDER - LS8	Glider lost control and crashed during a field landing due to worsening weather. 1 POB, 1 fatality, aircraft destroyed.
18/08/2009	Italy	Corno del Renon	GROB - G103 - TWIN ASTIR	Glider lost control and crashed on a mountain ridge. 2 POB, 2 fatalities, aircraft destroyed.
24/08/2009	France	St-Christophe-en-Oisans (38)	GLASER DIRKS - DG400	Aircraft found next day crashed. 1 POB, 1 fatality, aircraft destroyed.

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
27/08/2009	France	Châtillon-en-Diois (26)	SCHEMPP HIRTH - VENTUS CT - NO SERIES EXISTS	Aircraft found crashed in a mountainous area. 1 POB, 1 fatality, aircraft destroyed.
28/08/2009	Poland	Warszawa - Bemowo	PZL BIELSKO - SZD50 - 3	During a spin practice the glider lost control and a crashed. 2 POB, 2 fatal injuries, aircraft destroyed.
31/08/2009	France	La Seyne les Alpes (04)	SCHEMPP HIRTH	Loss of control in flight causing collision with high terrain. 1 POB, 1 fatality, aircraft destroyed.
01/09/2009	France	Enchastrayes (05)	MCDONNELL DOUGLAS - MD10	Loss of control in flight, spin, collision with terrain, 1 POB, 1 fatality, aircraft destroyed.
22/09/2009	France	Seyne (04)	SCHLEICHER - ASK13	Collision with vegetation in slope flight, 2 POB, 2 fatalities, aircraft destroyed.
10/10/2009	France	Pujaut (30)	CENTRAIR - 101	Collision of two gliders, collision with the ground, 2 POB, 1 fatally injured, 1 No injuries, Substantial damage.
06/04/2010	France	Aspres-sur-Buech (05)	SCHEMPP HIRTH - VENTUS 2CM	Loss of control in flight. Aircraft crashed on a mountainous area.
19/04/2010	France	Pont-sur-Yonne (89)	CENTRAIR - 101	Glider collided with ground, possible incapacitation of the pilot. 1 POB, 1 fatality, aircraft destroyed.
18/05/2010	France	AD La Motte du Caire (83)	SPORTINE AVIACIJA - LAK17 - AT	Loss of control during winch take-off, 1 POB, 1 fatality, aircraft destroyed.
22/05/2010	France	Les Ressuintes (28)	SCHLEICHER - ASW28	Collision with the ground when landing in the field during a competition. 1 POB, 1 fatality, aircraft destroyed.

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
24/05/2010	Germany	Flugplatz Elz	SCHEIBE - SF34	Loss of control on return after winch cable disconnect.
29/05/2010	Germany	Villingendorf	SCHEMPP HIRTH - DISCUS BT	Collision with ground wave during off-field-landing.
09/06/2010	Austria	Kalwang, ST	PZL BIELSKO - SZD59 - NO SERIES EXISTS	Glider crashed into a field during a cross country flight. Circumstances unknown. 1 POB, 1 fatality, aircraft destroyed.
12/06/2010	Austria	Near LOKG	LET - L13	Glider crashed due to RH wing spar collapse.
12/06/2010	Belgium	EBWE Weelde	PIK - PIK20D	Glider crashed during winch launch. Elevator controls were disconnected. 1 POB, 1 fatality, aircraft destroyed.
13/06/2010	Germany	Neidlingen	DIAMOND - HK36	Controlled flight into terrain, 2 POB, 2 fatalities, aircraft destroyed.
23/06/2010	Switzerland	Provence/VD	GLASER DIRKS - DG300	Glider collides with trees
26/06/2010	Germany	Pfronstetten-Tigerfeld	OTHER	Loss of control during off-field-landing
04/07/2010	Austria	Steyrling, Kremsmauer, Oberösterreich	SCHLEICHER - K8 - B	Glider collision with obstacle and rock wall during search of lift - glider destroyed
07/07/2010	Spain	Castejón de Sos	SCHLEICHER - ASW27 - 18E	Pilot Lost the control during slope soaring flight.
08/07/2010	Slovakia	Near Turcianske Teplice	SPORTINE AVIACIJA - LAK19 - T	Glider entered spin and crashed on approach. 1 POB, 1 fatality, aircraft destroyed.
11/07/2010	Austria	Stanzach, T	GLASER DIRKS - DG300	Glider crashed into an evlevated terrain. 1 POB, 1 fatality, aircraft destroyed.

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
15/07/2010	Germany	Pillig	GLASFLUGEL - 304	Airframe failure during thermal lift, Glider
01/08/2010	France	Monistrol d'Allier (43)	CENTRAIR - 201	Structural failure during flight causing the glider to crash. 2 POB, 2 fatalities, aircraft destroyed.
07/08/2010	Switzerland	Münster/VS	SCHEMPP HIRTH - DISCUS CS	Midair collision between a glider and a paraglider
08/08/2010	United Kingdom	Bicester Airfield, Oxfordshire	PZL BIELSKO - SZD24 - C	Wings separated during whinch launch
13/08/2010	Belgium	Saint Hubert Airfield	OTHER	Glider accident during solo student flight. One POB fatal.
04/09/2010	Czech Republic	LKSN	LET - L23	Glider entered spin when turning on final. 2 POB, 1 fatality, 1 serious injury, aircraft destroyed.
27/09/2010	France	Sommet du Ruth (04)	ROLLADEN SCHNEIDER - LS8	Loss of control in flight due to strong down wash from a mountain ridge, collision with the ground. 1 POB, 1 fatality, aircraft destroyed.
09/10/2010	Poland	Bezmiechowa	PZL BIELSKO - SZD9 - 1E	Glider crashed to the hangar while landing.
24/12/2010	Australia	Corowa, near	SCHLEICHER - ASW22	Glider impacted a powerline and crashed. 1 POB, 1 fatality, aircraft destroyed.
13/04/2011	France	Clamensane (04)	ROLLADEN SCHNEIDER - LS8 - B	Loss of control in flight due to rough wind conditions, collision with terrain. 1 POB, 1 fatality, aircraft destroyed.
22/04/2011	Switzerland	Mollis LSMF	GLASER DIRKS - DG800	Loss of control during winch launching

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18/05/2011	France	Le Sappey (38)	SCHLEICHER - ASH25	Loss of control while turning, collision with terrain, instructional flight. 2 POB, 2 fatalities, aircraft destroyed.
21/05/2011	Germany	Saarmund	GROB - G102 - ASTIR CS	Mid-air collision between a glider and LSA aircraft. 3 POB, 3 fatalities, both aircraft destroyed.
02/06/2011	Germany	Hornberg	OTHER	Glider loss of control in flight
11/06/2011	Germany	Mönchsheide	SCHLEICHER - ASH26 - E	Collision with trees
12/06/2011	Finland	Hattula	SCHLEICHER - ASW27 - 18E	Gliders midair collision
15/06/2011	Slovenia	Ptuj	SCHEIBE - BERGFALKE IV	Glider stalled and crashed while performing a winch launch. 2 POB, 1 fatality, 1 seriously injured, aircraft destroyed.
17/06/2011	Germany	Laucha	SCHLEICHER - KA6	Loss of control during approach. 1 POB, 1 fatality, aircraft substantially damaged.
26/06/2011	Germany	Hütten-Hotzenwald	SCHEMPP HIRTH - VENTUS 2C	Loss of control during winch launch take-off. 1 POB, 1 fatality, aircraft destroyed.
28/06/2011	Austria	Scharnstein, nahe	GLASER DIRKS - DG100 - G	Collision with trees
30/06/2011	France	Savournon (05), col de Faye	SCHLEICHER - ASH25E	Collision with a tree at the bottom of a valley in bad weather. 2 POB, 2 fatalities, aircraft substantially damaged.
07/07/2011	Austria	next to LOKF - Feldkirchen / Ossiachersee	PZL BIELSKO - MDM1	Glider crash after low pass.

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
10/07/2011	Germany	Near Jena-Schöngleina	PZL BIELSKO - SZD30	Inflight breakup (Luftzerleger)
10/07/2011	Germany	Scheuen	SCHEMPP HIRTH - DUO DISCUS	Aircraft lost control and crashed into a field during low flying. 1 POB, 1 fatality, aircraft destroyed.
11/07/2011	Poland	Nowy Targ	PZL BIELSKO - SZD50 - 3	Glider spin and crash.
31/07/2011	Germany	Haigerloch	SCHEMPP HIRTH - VENTUS CM	Loss of control in low altitude
01/08/2011	Switzerland	Gsteig/BE	GLASFLUGEL - KESTREL	Glider crashed at 1600m in the alps
03/08/2011	Germany	Wasserkuppe	SCHLEICHER - ASK23	Runway excursion during take off
13/08/2011	France	Saint-Firmin (05)	OTHER	Loss of control while turning during a mountain flight, collision with terrain. 1 POB, 1 fatality, aircraft destroyed.
16/08/2011	Poland	Laka Wielka	PZL BIELSKO - SZD36	Gliders midair collision and crash.
21/08/2011	Italy	Ortona dei Marsi	OTHER	Glider crash.
26/08/2011	Italy	Anterselva Valley (BZ)	GROB - G103 - TWIN ASTIR	Glider crashed near the top of the mountain
28/08/2011	Austria	Zell am See	DIAMOND - HK36 - R	Collision between two aircraft
02/10/2011	Spain	Sayerri Peak, in Borau	SCHEMPP HIRTH - DUO DISCUS	The glider has a bird-strike, elevator failed

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05/10/2011	France	Saint-Geniez (04)	ROLLADEN SCHNEIDER - LS8	Stall during a spiral near a ridge, collision with the terrain. 1 POB, 1 fatality, aircraft destroyed.
15/10/2011	Germany	Blocksdorf	SCHEMPP HIRTH - MINI NIMBUS	Glider loss of control during final approach
25/10/2011	Austria	Uttendorf, Zell/See, Salzburg	SCHLEICHER - ASH26 - E	Turbulence encounter at low height, pilot loss the control, the aircraft struck tree and crashed.
28/10/2011	United Kingdom	Darley Moor (Derbyshire)	OTHER	At approximately 100ft during aerotow take-off, hang glider lost control & impacted the ground. One POB, fatal injuries. Extensive damage.
31/10/2011	Spain	Pla de Beret (Lleida)	OTHER	Glider entered spin and crashed. 1 POB, 1 fatality, aircraft destroyed.
25/03/2012	Portugal	Águeda, Portugal	GLASER DIRKS - DG800	Motorglider entered spin and crashed. 1 POB, 1 fatality, aircraft substantially damaged.
10/04/2012	Switzerland	Innerthal	GLASER DIRKS - DG800	Glider crashed into a mountain. Cause unknown. 1 POB, 1 fatailty, aircraft destroyed.
15/04/2012	Germany	Laufenselden	GLASER DIRKS - DG500 - TRAINER	Glider collision with trees after failed rope connection
17/04/2012	Poland	Olsztyn-Dajtki	SPORTINE AVIACIJA - LAK17 - A	Glider stalled during turn to final approach after a failed winch launch. 1 POB, 1 fatality, aircraft destroyed.
30/04/2012	United Kingdom	Dunstable	SCHLEICHER - ASW24	ASW 24 Glider - Crashed in Field

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30/04/2012	Germany	Unterwössen	ROLLADEN SCHNEIDER - LS6	Collision with trees during landing
03/05/2012	France	Claix, France	ROLLADEN SCHNEIDER - LS7	Sailplane crashed into a mountain side. 1 POB, 1 fatality, aircraft destroyed.
05/05/2012	France	AD Buno Bonnevaux (91)	PIPER - PA25 - 235	Mid-air collision between a glider and an aeroplane above runway
19/05/2012	Switzerland	unbekannt	ROLLADEN SCHNEIDER - LS1	Missing glider - found crashed 2 weeks later
19/05/2012	Switzerland	Maienfeld, Switzerland	SCHLEICHER - ASW28	Glider crashed in the mountains
26/05/2012	Switzerland	Hütten/ZH	OTHER	Motorglider stalled and crashed. 1 POB, 1 fatality, aircraft destroyed.
28/05/2012	Germany	Ludwigshafen-Dannstadt	SCHEMPP HIRTH - DISCUS BT	Loss of control in flight
14/06/2012	France	Curienne (73)	CENTRAIR - 101	In-flight collision between a glider and an ULM. 1 person on each aircraft. 1 fatality.
18/06/2012	France	La Piarre	GLASER DIRKS - DG400	Motorglider was found crashed. 1 POB, 1 fatality, aircraft destroyed.
18/06/2012	France	La Piarre, France	GLASER DIRKS - DG400	Glider loss of control in flight
30/06/2012	Italy	Cicogna	SPORTINE AVIACIJA - LAK19	Glider crashed in mountains

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22/07/2012	Poland	Krosno	PZL BIELSKO - SZD50 - 3	Glider entered spin while performing a steep turn ending by crashing to the ground. 2 POB, 1 fatality, 1 serious injury, aircraft destroyed.
23/07/2012	Germany	Pfronten, nahe	SCHLEICHER - ASH25	Glider crashed in the mountains
26/07/2012	Switzerland	Romont/FR	OTHER	Motorglider crashed on a field
27/07/2012	Switzerland	Glarus Nord/GL	OTHER	Glider collided with a mountain
30/07/2012	France	Barles (04), lieu dit le Forest, altitude 1 170 m	PZL BIELSKO - SZD48	Glider impacted the ground in mountainous area
04/08/2012	United Kingdom	Pluckerstorm Farm	GLASER DIRKS - DG100	Glider nose-dived into the ground
04/08/2012	Germany	Quakenbrück	SCHLEICHER - ASK13	Glider crashed into houses, first solo
04/08/2012	France	Mont-Dauphin, FRANCE	SCHEMPP HIRTH - CIRRUS	Glider crashes after tow rope was released.
05/08/2012	Germany	Adenau	GLASFLUGEL - H301	Loss of control in flight during off-field landing final
15/08/2012	Germany	Ottenberg bei Nürnberg	SCHEMPP HIRTH - CIRRUS	Glider spiral dive after interrupted winch launch
04/09/2012	United Kingdom	Scotlandwell, Kinross, UK	SCHEMPP HIRTH - NIMBUS 3	Wing caught on runway during winch launch
08/09/2012	France	Aussois, FRANCE	LANGE - E1	Crash in a mountainous area

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15/09/2012	Italy	Albavilla, ITALLY	SCHEMPP HIRTH - VENTUS2A	Glider crash near the top of the mountain
13/10/2012	France	Pierrevert (04)	SCHLEICHER - ASW19	Loss of control in flight, collision with trees
20/02/2013	France	AD Coulommiers (77)	SCHEIBE - SF25 - C	Scheibe SF25C - Loss of control during final approach, ground impact, fire. - 1 POB - 1 OB Fatal - A/C Destroyed
04/05/2013	Germany	Bohmte	SPORTINE AVIACIJA - LAK19	Glider crashed in initial climb phase winch launching
05/05/2013	France	Llupia (66)	OTHER	Motorglider - ground impact - 1 POB - 1 OB Fatal -
21/05/2013	Germany	Beilngries	GLASFLUGEL - MOSQUITO	Loss of control during winch launching
05/06/2013	Netherlands	Malden	GLASER DIRKS - DG808	Glider crashed during winch launch
07/06/2013	France	LFFC - Mantes-Chérence	SCHLEICHER - ASW20	Cartwheel - glider overturn while take off.
08/06/2013	Croatia	Aerodrom Buševec	SCHEMPP HIRTH - STANDARD CIRRUS - 75	Glider crashed while flying to close to the ground. 1 POB, 1 fatality, aircraft destroyed.
16/06/2013	France	Saint-Geniez (04)	SCHEMPP HIRTH - VENTUS 2C	Collision with terrain in a spiral descent, during competition
25/06/2013	France	Curbans (04), France	GLASER DIRKS - DG800	Collision with terrain during a flight in mountainous terrain

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01/07/2013	Germany	Klippeneck, GERMANY	GLASER DIRKS - DG600M	Glider crashed during winch launch
12/07/2013	Austria	Dobratsch sud Area “Roten Wand”	SCHLEICHER - ASW24 - E	Schleicher ASW24E - Loss of control on flight at low altitude. Aircraft crashed into a wooded area - 1POB - 1OB Serious - A/C Destroyed
24/07/2013	France	Montaigu (85)	CENTRAIR - 101	Collision with a power line during the approach
01/08/2013	France	Col de Vars (05), FRANCE	SCHLEICHER - ASK13	Collision with terrain during a mountain flight
01/08/2013	France	AD Angers Marcé (49), FRANCE	ROLLADEN SCHNEIDER - LS8	Collision with the ground during winching
15/08/2013	Poland	Bezmiechowa Gorna	PZL SWIDNIK - PW6 - U	Glider crash while take-off - horizontal stabilizer separation.
18/08/2013	France	Barcelonette, nahe	SCHEMPP HIRTH - ARCUS E	Glider crashed in Mountains
04/09/2013	Switzerland	Laax/GR	OTHER	Motorglider collides with high terrain
18/09/2013	France	Gréoux-les-Bains (04)	ROLLADEN SCHNEIDER - LS3	Rolladen Schneider LS3 collision with the ground
28/10/2013	Poland	Bezmiechowa Gorna	PZL BIELSKO - SZD30	Glider hit a tree and crashed while flying a circuit pattern after take-off. 1 POB, 1 fatality, aircraft destroyed.
17/11/2013	Poland	EPST	OTHER	Glider disintegration and crash while take-off.

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03/04/2014	Austria	Hohe Wand	SCHLEICHER - ASH26 - E	glider crashed into the terrain
30/04/2014	France	LFMF - Fayence	SCHLEICHER - ASW20	Cartwheel - glider overturn while take-off.
28/05/2014	Italy	Alzate Brianza Airfield - LILB	OTHER - Not mapped	Alisport Silent 2 Electro - A/C crashed into a wooded area at the end of the runway during the approach - 1POB - 1OB Fatal - A/C Destroyed
01/06/2014	Poland	Pila	PZL BIELSKO - SZD41	Gliders midair collision and crash.
06/06/2014	Czech Republic	LKKA 1km RAD 320 RWY 32	ROLLADEN SCHNEIDER - LS3	Fall of ULL during a Glider Towing
13/06/2014	Germany	Oppingen Airfield	GLASER DIRKS - DG1000	Glider crashed - 2POB - 2OB Fatal - A/C Destroyed
18/06/2014	United Kingdom	North Hill Airfield, Sheldon	SCHLEICHER - ASW20L	Airbrake and landing gear lever mis-selected - Aircraft stalled during the approach and crashed
10/07/2014	France	Eourres	SCHEMPP HIRTH - VENTUS 2CM	Loss of control during an altitude flight - right wing broke-off - Aircraft crashed.
11/07/2014	Finland	Piikajärvi airfield (EFPI), Finland	PZL BIELSKO - SZD51 - 1	Glider crashed on the runway during towing - 1POB - 1OB Fatal - A/C Destroyed
12/07/2014	Germany	Nieder-Werbe	ROLLADEN SCHNEIDER - LS4 - A	Glider crashed in mountainous area
26/07/2014	Germany	Glider airfield Sultmer Berg, Northeim	ROLLADEN SCHNEIDER - LS4 - A	Glider stalled during winch launch

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26/07/2014	France	AD Puimoisson (04)	GROB - G103C - TWIN III SL - TWIN III SL	Loss of control on approach, aircraft crashed
10/08/2014	Italy	localita Tassigano, Capannori, Lucca	GROB - G103C - TWIN ASTIR - TWIN III ACRO	Shortly after take-off, the left wing broke due to overload in the execution of an abrupt recovery from an aerobatic manoeuver. The A/C fell to the ground - 2POB - 2OB Fatalities - A/C Destroyed
12/08/2014	Italy	Acceglio (Cuneo)	GLASER DIRKS - DG200 - 17	Collision with terrain during a mountain flight - 1POB - 1OB Fatal - A/C Destroyed
27/08/2014	France	Saint-André-d'Embrun (05)	SCHLEICHER - ASK13	Collision with terrain during a competition
20/09/2014	Greece	LGMG	GLASFLUGEL - MOSQUITO	Perhaps while unconsious a Sailplane pilot approaching LGMG crashed inside the airport while other a/c take-off was in progress
30/11/2014	Namibia	Blumfelde	BINDER	The glider crashed after the left wing broke-up in flight - 2POB - 2OB Fatalities - A/C Destroyed
23/12/2014	Germany	Böslingen	OTHER	TMG crashed shortly after take-off
06/04/2015	Sweden	10 km SSE Nikkaluokta	GROB - G103C - TWIN III SL - TWIN III SL	Lost of control during wave flight (in cloud), glider destruction in flight. Pilot bailed out, the student was killed
12/04/2015	Germany	Oschatz	SCHEIBE - LSPATZ 55	Wing hit the Ground during Take Off - the glider swerved and overturned
29/04/2015	France	La Piarre	GLASER DIRKS - DG800	Breakage of airbrakes control during a mountain flight, autorotation, collision with terrain

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02/05/2015	Germany	Bad Münder, Bakede	SCHEMPP HIRTH - NIMBUS 3	Glider stalled and crashed into a forested area.
18/05/2015	Austria	Near Airfield Hohenems, Vorarlberg	GLASER DIRKS - DG300	Mid air collision. One of the two aircraft crashed into the mountain rocks and caught fire. The other aircraft returned to the airfield and landed safely.
28/05/2015	Germany	Bartholomä	SCHEMPP HIRTH - JANUS	Glider crashed into the Ground during a winch launch.
05/06/2015	Italy	East of Mount Paganella	SCHEMPP HIRTH - VENTUS 2CM	Glider crashed on a mountain slope.
07/06/2015	Hungary	LHEM	OTHER	Two Sailplanes collided during approach. One Sailplane broke and crashed. 2 POB - 2 fatalities. The other glider managed to land.
14/06/2015	United Kingdom	Aston Down Airfield	SCHLEICHER - K8 - B	A glider crashed into roof of building
01/07/2015	Switzerland	Klosters-Serneus/GR	ROLLADEN SCHNEIDER - LS8 - 18	Glider accident in Klosters-Serneus/GR
03/07/2015	Austria	Seitenstetten, NÖ	PILATUS - B4 - PC11	The sailplane hit the ground after an aerobatic manoeuvre (ARF 2015-008)
13/07/2015	France	Eygliers	PIPISTREL	Loss of control in flight, the Sailplane collided with the ground.
02/08/2015	France	Saint-André	SCHEMPP HIRTH - VENTUS C	Collision with the mountain side. The glider wreckage has been found at 2700m of altitude.
03/08/2015	Croatia	Donji Lapac., area Kruge		Glider found crashed - POB 1, 1 fatal injury

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06/08/2015	Germany	Füssen	ROLLADEN SCHNEIDER - LS8	The Glider lost control and crashed in a forested area
06/08/2015	Romania	MUCHIA CHEII, Masivul Postavarul	OTHER	Aircraft crashed in a mountain area. Wreckage found several months after the accident flight.
11/08/2015	Poland	ATZ EPPL	PZL BIELSKO - SZD50 - 2	Glider collided with a winch cable and crashed
11/08/2015	France	Embrun	ROLLADEN SCHNEIDER - LS1	Glider collided with trees and crashed to the mountain.
12/08/2015	Italy	Col FERRET	SCHEMPP HIRTH - ARCUS M	Motor glider crashed against a mountain slope.
20/08/2015	Germany	Purkshof	GLASER DIRKS - DG100	Glider disconnected the rope during towing and crashed on the runway.
23/08/2015	Spain	near LEZL (SVQ): Sevilla	PIPISTREL	Pilot incapacitation in flight - Passenger took the controls - Aircraft crashed and caught fire.
24/09/2015	Norway	Hatten mountain, Lesja municipality	SCHLEICHER - ASW24	Glider crash - pilot bailed-out due to unknown reasons.
26/09/2015	Denmark	5 km øst for EKRS:Ringsted	SCHLEICHER - ASW24	From level flight the aircraft suddenly pitched nose down and hit the ground in a steep nose down attitude. The pilot died and the glider was destroyed.
03/10/2015	Poland	Miedzybrodzie Zywieckie	PZL BIELSKO - SZD48 - 3	Glider entered spin after a long flight and crashed.

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13/12/2015	Germany	Koblenz-Winningen	OTHER	TMG collided with a communication tower during a flight in fog.
24/12/2015	Namibia	Stryfontein Farm	SCHEMPP HIRTH - VENTUS CM	Powered glider crashed, no details available
03/01/2016	Germany	Near Kamp Lintfort Airfield (EDLC)	DIAMOND - HK36 - R	Aircraft crashed during a go-around - 1 POB 1 fatality
26/03/2016	France	Seillans	OTHER - Generic	Pilot incapacitated due to a medical condition - Loss of Control, Collision with Trees and Terrain
03/04/2016	Austria	Kötschach Mauthen	GLASER DIRKS - DG400	Glider crashed into a mountain - 1 POB, 1 fatality
03/04/2016	Austria	3,3 kmNorth from LOGL - Lanzen-Turnau	SPORTINE AVIACIJA - LAK19	Glider entered spin and crashed into terrain. 1 POB - 1 fatality
16/04/2016	Poland	EPST	PZL BIELSKO - SZD9	Glider crashed into the ground after winch cable was released. 1 POB 1 fatality
20/04/2016	Slovakia	Lysá Polana	SCHLEICHER - ASW27 - 18E	Competition flight - loss of height below safe altitude - abrupt manoeuvre - The aircraft stalled and crashed with a nose down attitude. 1 POB 1 fatality
03/05/2016	Germany	Bautzen	PIK - PIK20E - NO SERIES EXISTS	Crash on Approach during glider competition
04/05/2016	Slovenia	Near Airport LJSG	GLASER DIRKS - DG800	Glider accident. Suspected pilot incapacitation. 1 POB 1 fatality

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21/05/2016	Switzerland	Montricher LSTR	GLASER DIRKS - DG400	Glider collides with trees and crashes. 1 POB 1 fatality.
29/05/2016	Germany	Rhede/Emsland	LET - L23	Glider crashed into a field under unknown circumstances. 2 POB 1 fatality.
19/06/2016	Germany	Bramsche	SCHEMPP HIRTH	Loss of control during approach causing the aircraft to enter spin. 1 POB 1 fatality
22/06/2016	France	Authon	SCHEMPP HIRTH	Loss of control followed by collision with terrain - during training flight en route
06/07/2016	Switzerland	Lenk/BE	GLASER DIRKS - DG800	Glider collides with elevated terrain. 1 POB 1 fatality.
21/07/2016	United Kingdom	Bradley	SCHLEICHER - ASW27	Loss of control in-flight, leading to ground impact. 1 POB 1 fatality.
09/08/2016	Germany	Lüsse	SCHLEICHER - ASW27	Glider fell to the ground during winch launch take-off. 1 POB 1 fatality.
27/08/2016	France	Sauto	SPORTINE AVIACIJA - LAK17 - A	Collision with a cable/wire followed by crash. 1 POB 1 fatality.
10/09/2016	Germany	Großrückerswalde	SCHLEICHER - ASK21	Two aircraft -glider and an ultralight collided close to the threshold. Pilot of the ultralight died.
14/09/2016	Switzerland	L'Isle	BINDER - EB29 - D	Glider lost control entered a vertical dive and crashed.
04/12/2016	United Kingdom	over Lubenham	PZL BIELSKO - SZD51 - 1	Mid-air collision powered ACFT and glider; Glider crashed killing the pilot.

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04/12/2016	United Kingdom	Brentor	SCHLEICHER - ASW24	Glider winch launch failed. Pilot was not able to land safely due to downdraft. 1 POB 1 fatality.
19/03/2017	France	Le Vernet	GLASER DIRKS - DG1000 - M	Collision with trees and ground. 2 POB 1 fatality 1 serious injury.
29/03/2017	France	LFLE - Chambéry / Challes-les-Eaux	SPORTINE AVIACIJA - LAK17 - A	Glider crash during winch launch take-off. 1 POB 1 fatality.
08/04/2017	United Kingdom	Currock Hill airfield	PZL BIELSKO - SZD55 - 1	Glider elevator not connected - glider crashed on aerotow. 1 POB 1 fatality.
08/04/2017	Germany	Eschbach	SCHLEICHER - ASW24 - E	Glider Crashed into Industrial Area. 1 POB 1 fatality.
12/04/2017	France	Valdeblore	SCHLEICHER - ASW22	Glider lost control - rolled onto its side and crashed into the ground. 1 POB 1fatality.
03/05/2017	Poland	EPJL	PZL BIELSKO - SZD30	Glider made a steep climb then rolled and crashed during a winch launch. 1 POB 1 fatality.
06/05/2017	Germany	Mannheim	SPORTINE AVIACIJA - LAK17	Glider spin shortly after release from winch-launch followed by crash
14/05/2017	France	near LFDH - Auch Gers	SCHEMPP HIRTH - CIRRUS	Loss of control at low height during a low turn speed and near the terrain
20/05/2017	Hungary	Nyíregyháza	PZL BIELSKO - SZD30	Glider crash for unknown reasons
10/06/2017	Italy	Riva Valdobbia (VC)	GLASFLUGEL - MOSQUITO	Glider collided the terrain below mountain tip

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
11/06/2017	Italy	Novi Ligure	OTHER	Glider lost wing during aerotow and crashed in city centre
15/06/2017	Austria	near Karlhöhe	GLASER DIRKS - DG600	Glider lost control and crashed in a mountainous area.
16/06/2017	Hungary	LHTL	SCHEIBE - SF25 - C	Motorized sailplane lost control and crashed during emergency training exercise.
18/06/2017	Germany	Purkshof	GROB - G102 - ASTIR CS	Wing tip of the Glider hit ground during winch launch causing it to overturn. 1 POB 1 fatality.
24/06/2017	Germany	Bartholomä-Amalienhof	GROB - G103 - TWIN ASTIR	Glider lost control while searching for lift and fell to the ground. 1 POB 1 fatality.
13/07/2017	Hungary	Pirtó	SCHLEICHER - ASW27 - 18E	Glider crashed due to loss of control. 1 POB. 1 fatal injury.
13/07/2017	United Kingdom	Near Brimslade Farm	DIAMOND - HK36 - TC	Aircraft crashed into a field due to unknown circumstances. 2 POB 2 fatalities.
14/07/2017	France	Val des Prés	SCHEMPP HIRTH - VENTUS 2C	Loss of control in flight followed by glider collision with elevated terrain
17/07/2017	France	LFOV (LVA): Laval Entrammes	CENTRAIR - 101 - A	Glider impacted the ground during winch launch take-off
04/08/2017	Germany	Rädicke	SCHLEICHER - ASW24 - E	Glider was found crashed on a field. Loss of control suspected. 1 POB 1 fatality.
13/08/2017	Switzerland	Villavolar	GLASER DIRKS - DG800B	The glider crashed onto a steep pasture and was destroyed upon impact.

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
27/08/2017	Croatia	Sinj - Kamešnica	GROB - G103 - TWIN ASTIR	Sailplane crashed below a mountain ridge. 2 POB. 1 Fatality and 1 Seriously injured
30/08/2017	Poland	EPBC Warszawa Babice / ATZ EPBC	PZL BIELSKO - SZD50 - 3	Glider accident (crash) – spin after the safety latch of the winch cable broke while winch launching.
10/09/2017	Germany	Hockenheim	ROLLADEN SCHNEIDER - LS8	Glider stalled during winch launching. 1 POB 1 fatality.
14/10/2017	Switzerland	Davos/GR	ROLLADEN SCHNEIDER - LS8 - 18	Glider crashed in ca 2500 meter altitude in mountainous area. Circumstances unknown. 1 POB 1 fatality.
02/04/2018	Germany	Metzingen	SCHLEICHER - ASK13	Glider lost control and crashed into a forest after a winch launch failure
17/04/2018	France	AD Florac-Sainte Enimie	CENTRAIR - SNC34C	Loss of control in flight followed by crash
27/05/2018	Germany	Reichenbuch	GLASER DIRKS - DG800	Motor glider crashed shortly after take-off, 1 POB, 1 fatality, aircraft destroyed.
10/06/2018	United Kingdom	Near Raglan, Monmouthshire	GROB - G109 - B	Collision with tree while a field landing exercise.
10/06/2018	Italy	Località le Piaie - Belluno	ISF - MISTRAL - C	Glider crashed in mountainous area for yet unknown reason
23/06/2018	Austria	LOSM:Mauterndorf	PILATUS - B4 - PC11AF	Glider crashed during winch launch take-off, 1 POB, 1 fatality, aircraft destroyed.
03/07/2018	Poland	Lupiny	PZL BIELSKO - SZD9	Glider crashed while turning on final, 2 POB, 1 fatality, 1 serious injury, aircraft destroyed.

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
08/07/2018	Switzerland	Mettligrat (VS)	SCHEMPP HIRTH - DISCUS 2C	Glider lost control and collided with terrain. 1 POB, 1 fatality, aircraft destroyed.
19/07/2018	Germany	Oberammergau	ROLLADEN SCHNEIDER - LS7	Glider crashed into mountain after flying close to it and entering turbulence. 1 POB, 1 fatality, aircraft destroyed.
02/08/2018	France	Thones	ROLLADEN SCHNEIDER - LS4	Collision with elevated terrain due to medical incapacitation. 1 POB, 1 fatality, aircraft destroyed.
08/08/2018	Poland	M. Klików	OTHER	Glider accident - missing thermal lift and colliding with trees. 1 POB, 1 fatality, aircraft destroyed.
11/08/2018	Germany	Braunschweig - Waggum	SCHLEICHER - KA6 - CR	Blocked aileron - glider spin and crash. 1 POB, 1 fatality, aircraft destroyed.
12/08/2018	France	Orcières	SCHLEICHER - ASH25M	Glider collided with the ground. Circumstances unknown. 1 POB, 1 fatality, aircraft destroyed.
19/08/2018	France	AD Colmar Houssen	AEROSPOOL - WT9	Loss of control of the tug ULM during take-off in glider tow, collision with runway, fire.
26/08/2018	France	Frontenas	SCHLEICHER - ASW17	Loss of control in flight, collision with the ground.
11/09/2018	Switzerland	Bedretto/TI	IAR BRASOV - IS28M2 - GR	Glider crashes in mountainous area
29/09/2018	Czech Republic	Lenešice near Louny	SCHEMPP HIRTH - STANDARD CIRRUS - NO SERIES EXISTS	Glider lost control and span to the ground. 1 POB, 1 fatality, aircraft destroyed.

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
30/09/2018	Germany	EDLE (ESS): Essen/Mulheim	SCHLEICHER - ASK18	Glider crashed on Approach due to unknown reasons. 1 POB, 1 fatality, aircraft destroyed.
05/10/2018	Germany	on approach to EDFK:BAD KISSINGEN	DIAMOND - HK36 - R	Glider crashed on approach due to unknown reasons. 1 POB, 1 fatality, aircraft destroyed.
08/12/2018	Spain	LEFM:Fuentemilanos (Segovia)	GROB - G103A - TWIN ASTIR - TWIN II ACRO	Aircraft on final approach collided with another aircraft standing on ground
17/03/2019	Italy	Montecchio-Podere S.Apollonia airfield	ROLLADEN SCHNEIDER - LS1 - D	Glider crashed during winch-launch.
24/03/2019	Germany	EDST:Hahnweide	SPORTINE AVIACIJA - LAK17 - B FES	Aircraft stalled and crashed during winch launch.
24/03/2019	Spain	LEIG:Igualada-Odena (Barcelona)	GLASER DIRKS - DG800 - B	Engine failure during the initial climb. Aircraft stalled and crashed.
13/04/2019	France	Avize	ROLLADEN SCHNEIDER - LS8 - 18	Glider seen flying low and then crash. 1 POB, 1 fatality, aircraft destroyed.
22/04/2019	Germany	Leck	ROLLADEN SCHNEIDER - LS7 - WL	Unexpected rope release during winch launch. Glider entered spin and crashed. 1 POB 1 Fatality. Aircraft destroyed.
03/05/2019	Norway	Grinder	SCHLEICHER - ASH31 - MI	Glider lost control during a soaring competition. 1 POB, 1 fatality, aircraft destroyed.

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
04/05/2019	United Kingdom	Near Blaenau Ffestiniog	ROLLADEN SCHNEIDER - LS7	Glider lost control due to a medical incapacitation of the pilot. 1 POB, 1 fatality, aircraft destroyed.
08/05/2019	Czech Republic	Roundabout near Hranice n. M.	SCHEMPP HIRTH - CIRRUS	Glider crashed due to loss of control. 1 POB, 1 fatality, aircraft destroyed.
02/06/2019	Germany	EDBY:Schmoldow	PZL BIELSKO - SZD36 - A	Glider lost control and crashed. 1 POB, 1 fatality, aircraft destroyed.
08/06/2019	Poland	EPNT	PZL BIELSKO - SZD50	Glider accident - collision with motorcycle. 1 POB, 1 fatality, substantial damage.
15/06/2019	Poland	Szczury	PZL BIELSKO - SZD48 - 1	Glider crash during attempted off-airfield landing.
16/06/2019	Germany	Hahnweide	SCHEMPP HIRTH	Glider crashed into terrain due to unknown reasons. 1 POB, 1 fatality, aircraft destroyed.
23/06/2019	Switzerland	Sex Noir mountain	SCHLEICHER - ASG32	Glider crashed into mountains. 1 POB, 1 fatality, aircraft destroyed.
02/07/2019	Germany	Lüsse	SCHLEICHER - ASW20L	Glider lost control crashed into a field. Possible medical incapacitation. 1 POB, 1 fatality, aircraft destroyed.
11/07/2019	Czech Republic	LKDK	GROB - SPEED ASTIR IIB - NO SERIES EXISTS	Loss of control during landing
16/07/2019	France	Valernes	GLASER DIRKS - DG1000 - T	Aircraft crashed in mountainous terrain
28/07/2019	Denmark	EKTO:Tølløse	SCHEMPP HIRTH - DISCUS B	Broken winch cable; Glider spin on final approach.

DATE	STATE/AREA OF OCCURRENCE	LOCATION NAME	MANUFACTURER/ MODEL	HEADLINE
30/07/2019	Germany	Baden-Württemberg	GLASFLUGEL - HORNET	A glider crashed for unknown reason onto a local road
11/08/2019	Czech Republic	LKHB:Havlíckuv Brod	SCHLEICHER - ASW19 - B	Loss of control – during Take Off – TOW of Glider
13/08/2019	Czech Republic	SW part of Trutnov	ORLICAN	Mid-air Collision of Gliders. 1 fatality and aircraft destroyed.
31/08/2019	Spain	LEMX:La Mancha	GROB - SPEED ASTIR II	Glider crash during take-off.
01/09/2019	Austria	Priel, Wolfsberg	PZL BIELSKO - MDM1	Elevator problems in aerobatic flight - PIC bailed-out but not passenger.
11/09/2019	France	take-off from LFIX:Itxassou	SCHLEICHER - ASK21	Tow airplane failure on take-off - glider forced landing; airplane crash.
13/09/2019	France	Saint Pons	SCHLEICHER - ASH26 - E	Glider lost control during soaring and crashed in mountainous area. 1 POB, 1 fatality, aircraft destroyed.
19/09/2019	Germany	near Boberg airfield	SCHEMPP HIRTH - DISCUS 2CT	Glider crashed due to unknown reasons. 1 POB, 1 fatality, aircraft destroyed.
12/10/2019	Czech Republic	Vrbno pod Pradedem	PZL BIELSKO - SZD42 - 2	Glider disintegration in flight and crash.
15/10/2019	France	Pic Saint Loup	ROLLADEN SCHNEIDER - LS7	Collision with terrain in flight on a slope.
26/10/2019	Spain	Meranges	SCHEMPP HIRTH - VENTUS C	Glider performing a thermal flight crashed into a mountainous area. 1 POB, 1 fatality, damage unknown.
03/11/2019	Czech Republic	Ludvikov	SCHLEICHER - ASW19 - B	Glider disintegration in flight and crash.

1.5 Aerodromes and Ground Handling

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
25/07/2010	Spain	Aeródromo Casarrubios del Mont	OTHER	Gyroplane collided with person during taxi
05/05/2012	France	AD Buno Bonnevaux (91)	PIPER - PA25 - 235, SLINGSBY - T31	Mid-air collision between a glider and an aeroplane above runway
11/11/2012	Italy	Roma Fiumicino Airport	AIRBUS - A320	Loading crew caught between loader and baggage door
10/12/2012	Cyprus	Larnaca	CESSNA - 750	A service vehicle struck the right wingtip, vehicle driver trapped
20/04/2014	Finland	2 km from Jämijärvi airfield EFJM, Satakunta	OTHER	During climb, right wing broke due to a fatigue failure - aircraft entered a spin, crashed and caught fire
24/12/2015	Spain	Ronda	SOCATA - TB9	Aircraft crashed and consumed by post-crash fire, incorrect fuel used
19/07/2017	Finland	Lievestuore (municipality of Laukaa)	PIPER - J3C - 65 - 65	Aircraft crashed into a forest during final approach in bad weather condition

1.6 ATM/ ANS

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
17/02/2009	Poland	Jerostow	PZL SWIDNIK - MI2	Rescue helicopter MI2 of the Polish Medical Air Rescue crashed in Jarostów en route to the road traffic accident, resulting in 2 fatalities and 1 passenger sustaining serious injuries.
02/08/2012	Spain	Approach to Santiago Airport (LEST)	CESSNA - 500	Aircraft experienced an unstabilised approach and crashed in heavy fog condition. Both crew were killed and the aircraft destroyed.
30/09/2012	Austria	Ellbögen, Innsbruck district, Tirol	CESSNA - 414	Aircraft crashed in wooded terrain in IMC weather conditions. Aircraft was not airworthy and was overloaded with 8 passengers on board. The accident resulted in 6 fatalities and 2 passengers sustaining serious injuries. Aircraft was destroyed.
17/07/2015	Slovakia	Under Kláštorná roklina gorge – Hornád canyon - Slovenský Raj	AGUSTA - A109 - K2	Rescue helicopter crashed into a river bank after colliding into power cables during an emergency medical services mission. All 4 crew members and passengers were killed in the crash.
31/07/2015	Italy	Pizzo Zocca di val Masino (Sondrio)	AEROSPATIALE - AS350 - B3	Helicopter crashed into mountain peak obscured by clouds during a VFR aerial working flight. All 3 crew members were killed in the crash.
24/01/2017	Italy	Monte Cefalone, Lucoli (AQ)	AGUSTA - AW139	Helicopter performing HEMS flight to Campo Felice ski area impacted the South-West side of the Cefalone Mountain. The 6 persons on board were fatally injured and the helicopter completely destroyed.
23/01/2018	Germany	Philippsburg	EUROCOPTER - EC135 - P2, PIPER - PA28RT - 201T	A helicopter and an airplane collided mid-air near Philipsburg. The 4 occupants on board the 2 aircraft were fatally injured.

LOCAL DATE	STATE OF OCCURRENCE	LOCATION	AEROPLANE	HEADLINE
15/12/2018	Portugal	1NM South of Valongo	AGUSTA - A109 - S	Helicopter conducting emergency medical service collided with radio tower in poor weather conditions. All 4 crew members and passengers on board were killed.
25/01/2019	Italy	Rutor Glacier	AEROSPATIALE - AS350 - B3, JODEL - D140 - E	A helicopter and an airplane collided near the Rutor glacier. The pilot and 4 out of the 5 passengers on board of the helicopter and 2 out of the 3 pilots on board of the airplane died.

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