EASA
European Union Aviation Safety Agency





ANNUAL SAFETY REVIEW

2026

Safety Management, Sustainability &
Global Outreach Directorate

Safety Intelligence & Performance Department

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Introduction

Introduction

EASA would like to welcome you to the 2026 edition of the EASA Annual Safety Review (ASR)[1]. This review provides an analysis of the general safety situation in Europe. The review is based on data from 2025.

The ASR provides a statistical summary of aviation safety in the EASA Member States and an analysis of the main safety risks for each operational domain.

The analysis presented in the ASR provides one of the key data-driven inputs to the European Safety Risk Management (SRM) process. Emerging safety issues and changes in risk are further assessed by experts from EASA, the Member States and the aviation industry through the Network of Aviation Safety Analysts (NoA) and the Collaborative Analysis Groups (CAGs). Where appropriate, this process leads to the development of mitigation actions that are incorporated into the European Plan for Aviation Safety (EPAS).

How the safety review is produced

Information sources

The data presented and analysed in the ASR are based on the occurrences collected up to April 2026 by the Agency under Regulation (EU) 996/2010 on accident and serious incident investigation, and under Regulation (EU) 376/2014 on occurrence reporting, analysis, and follow-up, and complemented through the active search of those events from other official sources. This data collection 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 and other safety-related information reported to the Agency in its role as the competent authority, and accidents and serious incidents notified to the Agency by Safety Investigation Authorities worldwide. 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 and other safety-related information reported to the competent authorities in accordance with Regulation (EU) 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation. For the purposes of this ASR, data from the so-called 'enhanced' ECR were used. This enhanced dataset is derived from ECR records which have been refined to improve data completeness. Whenever attributes were left empty, they were completed using defined rules based on the values of other related attributes. The attributes subject to enhancement are currently limited to temporal related attributes (e.g., UTC date), injury related attributes (e.g., total fatalities, injury level), geographical related attributes (e.g., state/ area of occurrence), and aircraft related attributes (e.g., aircraft category).

The figures and analyses presented in the ASR may differ from safety reports prepared by other organisations and regulators, which is due to differences in collection methods, the definitions of the data collected and the subsequent analyses. 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.

Unless otherwise specified, the data presented in the domain-specific chapters are based on the accidents and serious incidents collected in the EASA's occurrence database. In contrast, the data presented in the 'safety risks' sections are based on all classes of occurrences collected in the 'enhanced' ECR, and use scoring from the European Risk Classification Scheme (ERCS).

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.

European Risk Classification Scheme

The ASR takes into account the safety risks for such occurrences, as determined by the ERCS. This provides additional insight because the use of the term "Occurrence Category" - accident, serious incident, or incident does not provide an accurate picture of the level of risk of those occurrences. For example, a very close near mid- air collision would be classified as a serious incident, while a collision between a ground handling vehicle and an aircraft leading to substantial aircraft damage would be classified as an accident. In terms of risk, the serious incident in this example would be of a higher risk category than that of the accident. For each domain, an analysis using ERCS-applied occurrence data provides an overview of the risks that were present during the analysed period. However, the ERCS does not predict the future risks, which will change due to changing circumstances and the remedial effects of mitigating safety actions.

The ERCS is a common risk classification scheme for occurrences at national and EASA level, established by Regulation (EU) 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation and a dedicated Commission Delegated Regulation[2] issued in 2020 and a Commission Implementing Regulation[3] issued in 2021. The application of the ERCS has been mandatory since January 1, 2023.

The ERCS measures the risk of an individual occurrence using a two-dimensional matrix, The first axis is that of severity, which is assessed by identifying the worst likely accident outcome that would have occurred if the occurrence being scored had escalated into an accident. This measure considers both the size of the aircraft involved and the most likely type of accident. The second axis of probability is measured by looking at how close the occurrence was to that worst likely accident outcome, based on a weighted barrier model.

For the 2026 edition of the ASR, where the presented data makes use of the ERCS, the ASR solely relies on the risk classification performed by the competent authorities between 2023 and 2025, and includes all classes of occurrences (i.e., accidents, serious incidents, and incidents).

Chapter overview

This document is split into nine chapters. Chapters 2 to 8 each cover a different operational domain of the European aviation system. Unless otherwise specified, the scope of each domain in Chapters 2 to 6 is the EASA Member State, either as the state of operator or the state of registry. For the Aerodromes and Ground Handling and Air Traffic Management and Air Navigation Services (ATM/ANS) chapters, the scope is the EASA Member State as the state of occurrence. Chapter 9 provides an overview of EASA's monitoring of the Member State's oversight capabilities.

The chapters of this ASR cover the following areas:

Chapter 1 – EASA Member States cross domain safety overview

- This chapter provides an overview of the key metrics across the different operational domains, along with an executive summary of each domain. It helps to identify which domains are likely to need the greatest focus in the EPAS.

Chapter 2 – Aeroplanes

- Commercial air transport complex aeroplanes: This covers all commercial air transport operations (passenger and cargo) involving aeroplanes with a maximum certificated take-off mass exceeding 5

2 COMMISSION DELEGATED REGULATION (EU) 2020/2034 of 6 October 2020 supplementing Regulation (EU) No 376/2014 of the European Parliament and of the Council as regards the common European risk classification scheme.

3 COMMISSION IMPLEMENTING REGULATION (EU) 2021/2082 of 26 November 2021 laying down the arrangements for the implementation of Regulation (EU) No 376/2014 of the European Parliament and of the Council as regards the common European risk classification scheme.

700 kg, or aeroplanes equipped with turbofan engine(s) or more than one turboprop engine (e.g., airline, air taxi, air ambulance).
- Commercial air transport other than complex aeroplanes: This covers all commercial air transport operations (passenger and cargo) involving aeroplanes other than complex aeroplanes (e.g., airline, air taxi, air ambulance, sightseeing).
- Non-commercial operations complex aeroplanes: This covers non-commercial operations involving aeroplanes with a maximum certificated take-off mass exceeding 5 700 kg, or aeroplanes equipped with turbofan engine(s) or more than one turboprop engine (e.g., business, demonstration, flight training/instructional, relocation).
- Specialised operations: This covers all aerial work/Part SPO operations involving aeroplanes and includes a wide range of different operational activities (e.g., agriculture, aerial advertisement, or photography operations) conducted by EASA Member State registered aeroplanes or EASA Member State Air Operator Certificate (AOC) Aeroplanes holders.
- Non-commercial operations other than complex aeroplanes: This covers all non-commercial operations involving other than complex aeroplanes and includes analysis of leisure flights as well as flight training and other general aviation activities. Additional information regarding microlights and aircraft registered in third countries has also been included.

Chapter 3 – Helicopters
- All helicopter operations: This covers an analysis of all EASA-certified or validated helicopter operations, except for Nationally Regulated Operations (NRO).
- Commercial air transport: This covers all commercial air transport operations involving EASA-certified or validated helicopters such as Helicopter Emergency Medical Service (HEMS), air taxi or sightseeing, as well as flights to offshore oil, gas and renewable energy installations.
- Specialised operations: This covers all aerial work/Part SPO operations involving EASA-certified or validated helicopters such as sling load, advertisement, or photography with an EASA Member State as the state of operator or state of registry.
- Non-commercial operations: This covers all non-commercial operations involving EASA-certified or validated helicopters with an EASA MS as state of operator or state of registry. Training flights are included within the non-commercial operations definition.

Chapter 4 – Balloons
- This chapter covers all operations involving hot air balloons.

Chapter 5 – Sailplanes
- This chapter covers all operations involving sailplanes.

Chapter 6 – Unmanned Aircraft Systems (UAS)
- This chapter covers operations involving UAS within the EASA Member States; therefore, the scope for this chapter is EASA Member State as the state of occurrence.

Chapter 7 – Aerodromes and ground handling
- This chapter covers aerodrome and ground handling operations that occur in the EASA Member States; therefore, the scope for this chapter is EASA Member State as the state of occurrence. Notably, the ASR covers also occurrences at aerodromes outside of the scope of Regulation (EU) 2018/1139 (the EASA Basic Regulation) and includes also accidents and serious incidents at locations to which Regulation (EC) No 1008/2008 of the European Parliament and of the Council apply[4].

4 See Art. 4.6(e) and (g) of Regulation (EU) 376/2014 on occurrence reporting, follow-up, and analysis, regarding the persons who perform a function connected with the safety management of an airport or a person who performs a function connected with the ground handling of aircraft, including fuelling, load-sheet preparation, loading, de-icing and towing at an airport covered by Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008 on common rules for the operation of air services in the Community.

Chapter 8 – Air Traffic Management/Air Navigation Services (ATM/ANS)

- This chapter covers ATM/ANS occurrences within the airspace under the responsibility of an EASA Member States.

Chapter 9 – Standardisation

- This chapter provides an overview of EASA's standardisation activities which entail assessing the National Competent Authorities' (NCAs) ability to discharge their safety oversight responsibilities on a continuous basis, as well as verifying the implementation of the rules. It provides a summary of information about the application by each Member State of the EASA Basic Regulation and of the delegated and implementing acts adopted on the basis thereof[5].

Typical structure for each domain-specific chapter

Each chapter in the ASR provides information to support the analysis of the aviation domain it covers. As far as possible, the chapters follow a common structure, as described below, to facilitate comparison across domains.

- **Key statistics:** Every chapter begins with a set of key statistics that provide 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 2025 figures are compared with the annual averages from the previous 10 years to provide context against historical trends. This comparison is also presented in graphical form.
- **Occurrence categories:** The key statistics are complemented by a figure presenting the occurrence categories assigned to the accidents and serious incidents for 2025, followed by a comparison with aggregated data over the preceding five years.
- **Safety risks:** Each domain-specific chapter concludes with an overview of the safety risks identified from the risk classification of occurrences collected in the enhanced ECR. For each type of operation, it presents the relative safety risk level and frequency of the key risk areas (KRAs). A KRA represents the most likely accident category that an occurrence could have resulted in had it escalated into an accident. KRAs form part of the European Risk Classification Scheme (ERCS) and serve as the Tier 2 safety performance indicators for each domain.
- **KRA prioritisation:** The KRAs are prioritised according to their aggregated risk contribution, based on the ERCS methodology applied by competent authorities from 2023 onwards in accordance with Commission Implementing Regulation (EU) 2021/2082. As a result, the 2026 edition covers a three-year period (2023–2025), which will be extended annually until a five-year dataset is available. The frequency of occurrences and the corresponding aggregated ERCS numerical equivalent scores are calculated for each KRA using accidents, serious incidents and incidents for which both the KRA and the ERCS safety risk score have been completed by the competent authority. To support the interpretation of the results, the analysis also includes the ERCS completion rate for each domain and, where appropriate, for each type of operation.

The link with the European Plan for Aviation Safety (EPAS)

The EPAS sets out the safety goals and targets for the European aviation system and identifies the main risks affecting it, together with the actions required to mitigate them. These are developed through EASA's collaborative safety risk management process, involving the Agency, the Member States and relevant stakeholders.

5 Article 85, paragraph 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.

The primary mechanism for identifying and mitigating safety risks is the **European Safety Risk Management (SRM) process**, through which safety deficiencies (referred to as *safety issues*) are identified using occurrence data and other safety-related information. The most significant risks identified through this analysis are presented in the **European Safety Risk Portfolio**, which forms an integral part of the EPAS.

Safety issues that present the highest level of risk are subject to a more detailed assessment to identify potential mitigation measures. The impact of these measures is then evaluated to determine the most appropriate intervention strategy. These assessments are documented in a **Best Intervention Strategy (BIS)**, which is developed in consultation with the Member States and relevant stakeholders.

The agreed actions may be incorporated into the EPAS through activities such as rulemaking, safety promotion, research, implementation support, evaluation or Member State actions. Where a more immediate response is required, measures may be implemented outside the normal EPAS programming cycle, for example through the publication of a Safety Information Bulletin.

Once the actions have been implemented, their effectiveness is monitored to determine whether the identified safety deficiencies have been adequately mitigated. The Agency also monitors the overall safety performance of the European aviation system using domain-specific indicators presented in the ASR, together with the safety indicators included in the EPAS. This continuous monitoring contributes to the identification of new safety issues, thereby restarting the SRM cycle.

The other process supporting the EPAS is the **Management of Change (MoC) process**, which anticipates safety risks resulting from expected changes, e.g., from innovation preparing European aviation for future risks. Similar to the above European SRM process, the MoC process allows for the identification, assessment and prioritisation of EU-wide topics and the definition of recommended safety actions, which are considered by the Agency when drafting the updating EPAS actions programme.

More information on the EPAS can be found on the EPAS webpage: www.easa.europa.eu/easa-and-you/safety-management/european-plan-aviation-safety. A description of the SRM process can be found in the European aviation safety programme[6].

6 This link leads to the third edition of the European aviation safety programme, but at the time this ASR edition was finalised, a fourth edition of the European aviation safety programme was planned to be issued by December 2026.



Chapter 1

EASA Member States cross domain safety overview

1. EASA Member States cross domain safety overview

1.1 Cross domain safety overview

The numbers of fatal accidents and fatalities for 2025, and the preceding ten years (2015–2024), are collected from the different chapters and summarised in Table 1.1 and Table 1.2, in order to provide a cross-domain safety overview.

In almost all domains, the number of fatal accidents and fatalities remained at or below the average for the previous 10 years. This suggests that, in most areas, the safety performance related to loss of life remained broadly stable or improved compared with historical trends. However, commercial and non-commercial operations with complex aeroplanes, together with specialised and non-commercial operations with helicopters, did not follow this overall trend.

Table 1.1: Cross-domain comparison of EASA Member States fatal accidents and fatalities per aircraft domain

Aircraft domain	Number of fatal accidents in 2025	Fatal accidents middle value for 2015–2024	Number of fatalities in 2025	Fatalities middle value for 2015–2024
Aeroplanes				
CAT operations with complex aeroplanes	1	0.5	8	1
CAT operations with aeroplanes other than complex	0	1	0	4
Non-commercial operations with complex aeroplanes	1	0	4	0
Specialised operations	2	4.5	3	7.5
Non-commercial operations with aeroplanes other than complex	21	26	40	50
Helicopters				
Overall	9	7.5	18	14.5
CAT operations	1	2	3	6
Specialised operations	2	1	2	1
Non-commercial operations	6	4	14	6
Balloons	1	1	1	1
Sailplanes	15	17	16	19.5
Unmanned Aircraft Systems (UAS) *(Middle values computed using 2023–2024 data)*	0	0.5	0	0.5

Table 1.2: Cross domain comparison of EASA Member States fatal accidents and fatalities per infrastructure domain

Infrastructure domain *(as contributing factor for the accident or serious incident)*	Number of fatal accidents in 2025	Fatal accidents middle value for 2015–2024	Number of fatalities in 2025	Fatalities middle value for 2015–2024
Aerodrome and Ground Handling	0	0	0	0
Air Traffic Management and Air Navigation Services	0	0	0	0

The graphs that follow, Figure 1.1 to Figure 1.5, present the number of fatal accidents, non-fatal accidents and serious incidents in the different aircraft domains and infrastructures. Within each figure, multiple graphs are arranged side by side to facilitate direct visual comparison. It should be noted that the Y-axis scale is not consistent across all graphs, although, in some cases, it has been adjusted to enhance the clarity of comparisons.

There was one fatal accident in 2025 involving a complex aeroplane operating in commercial air transport (CAT), an air taxi flight accounting for eight fatalities.

Overall, the rates of accidents and serious incidents in 2025 reached their lowest values in reference period from 2019 to 2025. However, the number of serious injuries has continued to increase, particularly as a result of turbulence encounters and accidents during disembarkation via airstairs. Other contributing factors include wake vortex encounters, abrupt manoeuvres following TCAS resolution advisories, and emergency evacuations.

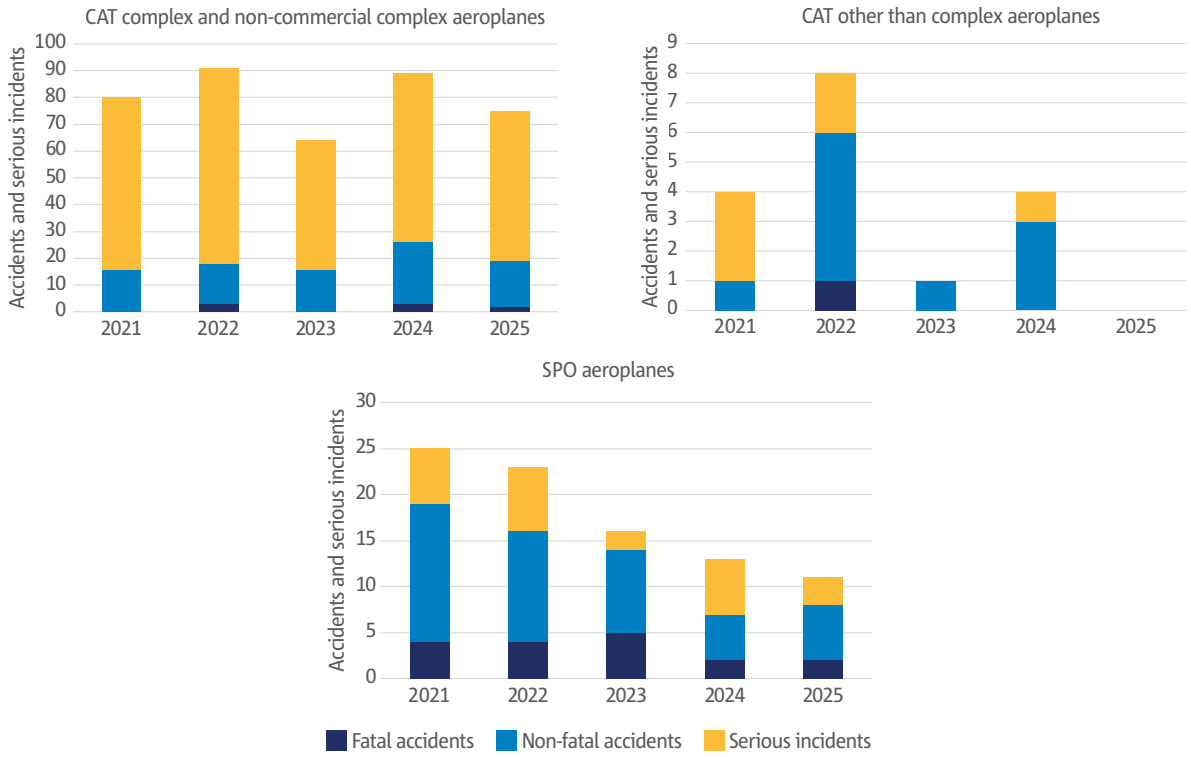
In terms of occurrence categories, 'system component failures' non-powerplant and powerplant taken together contributed to accidents and serious incidents almost twice as much than 'airprox or near midair collision', the second highest ranked category. Interestingly the most critical key risk area in 2025 was 'fire, smoke and pressurisation', surpassing 'aircraft upset', 'airborne collision', and 'collision on runway'. The most frequent key risk areas remained 'aircraft upset', 'other injuries' and 'airborne collision'.

There was also one fatal accident in 2025 involving a complex aeroplane in non-commercial operations, a relocation flight that crashed immediately after take-off, accounting for four fatalities.

There was no accident or serious incident in 2025 involving commercial air transport other than complex aeroplanes. The most critical key risk areas were aircraft upset, airborne collision and collision with terrain.

In 2025, specialised operations involving aeroplanes showed a strong safety performance, with fatal accidents (2), non-fatal accidents (6), and serious incidents (3) all falling below the yearly average of the previous decade and reaching the lowest levels of the past ten years. The numbers of fatalities (3) and serious injuries (2) were also at or near their lowest recorded values. One fatal accident involved an aeroplane colliding with the ground while returning from a towing flight, the other an aeroplane crashing while landing after an aerial observation flight. The non-fatal accidents mainly occurred during agricultural work (including a wire strike and a fence collision) and parachute-drop landings. Notably, all operation types improved except agricultural work, whereas parachute-drop operations - historically the dominant category - dropped significantly. The most common occurrence categories were system/component failure (non-powerplant), abnormal runway contact, and low-altitude operations, and the most critical key risk areas identified were aircraft upset, airborne collision, and collision with terrain.

Figure 1.1: EASA Member States accidents and serious incidents per year for CAT complex and non-commercial complex aeroplanes, CAT other than complex aeroplanes, and SPO aeroplanes



For Helicopters, in absolute numbers, the total number of fatal and non-fatal accidents in 2025 showed only a slight change compared with the previous five years. However, the number of reported serious incidents remained significantly higher than the average recorded over the previous decade. This upward trend was associated with the inherently operational risks, where serious incidents frequently result in aircraft damage.

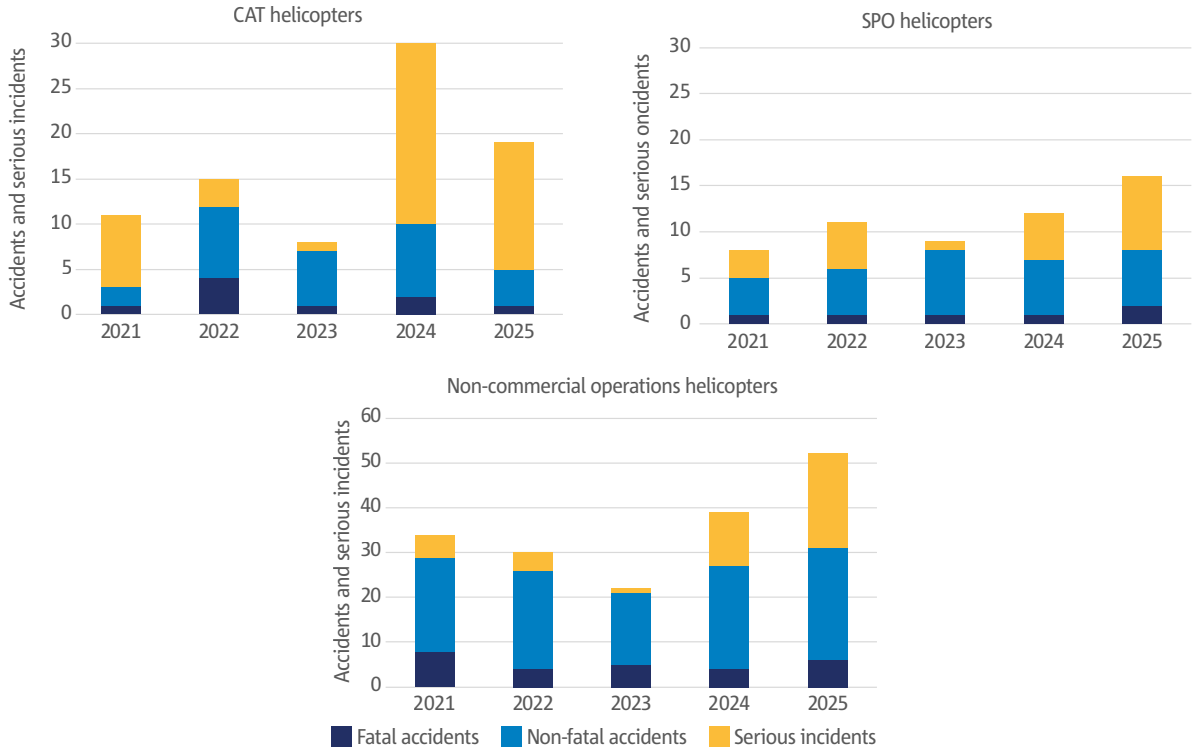
In 2025, Mid-Air Collisions (MAC) - Airprox was the predominant occurrence category for serious incidents, accounting for 22 reported serious incidents. One fatal mid-air collision accident was also recorded.

In contrast, Loss of Control in Flight (LOC-I) remained the leading occurrence category for accidents. LOC-I refers to the loss of aircraft control while airborne and has accounted for more than 42% of fatal helicopter accidents over the past decade, as a persistent safety challenge. Communication related issues continued to be an important contributing factor in helicopter occurrences. These included miscommunication or loss of communication between the flight crew and air traffic control (ATC), as well as Visual Flight Rules into Instrument Meteorological Conditions (VFR into IMC) events, where a flight operating under VFR inadvertently or intentionally entered IMC. Such events can lead to spatial disorientation and, ultimately, loss of control in flight.

The analysis of injuries and fatalities in SPO helicopters indicated that 2025 recorded one of the highest total numbers of casualties, and with six reported serious injuries, the highest number of serious injuries over the ten-year analysis period. The HESLO (Helicopter External Sling Load Operations) accidents and serious incidents highlighted the specific operational risks associated with external load activities, particularly when conducted in complex environments such as mountainous terrain, confined areas, and worksites with limited margins for error.

Serious incidents in NCO helicopters showed the most significant increase over the last five-year period, reaching the highest level recorded during this timeframe. This upward trend indicated a growing number of high-risk occurrences that, while not resulting in accidents, frequently involve aircraft damage. In 2025, Abnormal Runway Contact (ARC) was one of the most frequently reported outcomes among serious incidents, particularly within training operations, highlighting the exposure to runway contact risk during instructional flights.

Figure 1.2: EASA Member States accidents and serious incidents per year for CAT helicopters, SPO helicopters, and non-commercial operations helicopters



In 2025, **the non-commercial other than complex aeroplanes domain** recorded 21 fatal accidents, 135 non-fatal accidents and 31 serious incidents, together with 40 fatalities and 16 serious injuries, all below the 2015–2024 yearly averages. Fatal accidents decreased by 18% and non-fatal accidents by 19%, while serious incidents fell to less than half the 10-year average of 67.2. Serious injuries reached 16, the lowest number over the 2015–2025 period.

The occurrence category analysis showed a stable and consistent safety picture. The categories generating the highest numbers of occurrences in 2025, Abnormal Runway Contact (ARC, 51), System or Component Failure Non-Powerplant (SCF-NP, 28), Runway Excursion (RE, 27) and System or Component Failure Powerplant (SCF-PP, 26), were predominantly associated with non-fatal accidents, principally hard and bounced landings, nose-gear collapses and runway excursions in crosswind. The same categories dominated the 2020–2024 profile, with airprox and near mid-air collision events again concentrated among serious incidents. The fatal accidents followed a different distribution: over 2020–2024, loss of control in-flight was the predominant category, associated with 58 of the 129 fatal accidents, followed by Controlled Flight into Terrain (CFIT) and Low-Altitude Operations (LALT).

In terms of operation type, accidents remained concentrated in pleasure flights (87 in 2025, compared to a yearly average of 119.5), followed by flight training/instructional flights (70, compared to a yearly average of 89.1).

The seasonal distribution showed higher numbers in June and remained higher throughout spring and summer, consistent with periods of increased flying activity.

In Balloons, one fatal accident, 13 non-fatal accidents and four serious incidents were recorded in 2025. Serious injuries reduced to nine, representing the joint (2016) lowest annual value during the 2015–2025 reporting period. Abnormal Runway Contact remained the most frequently reported occurrence category, while Obstacle Collision in Flight represented the highest overall safety risk despite occurring less frequently than Mid Air Collision.

In 2025, **sailplane operations** recorded 15 fatal accidents, 60 non-fatal accidents and 7 serious incidents, together with 16 fatalities and 10 serious injuries, all below the 2015–2024 yearly average. Non-fatal accidents decreased by 50% and serious incidents by 59%, while fatal accidents decreased by only 11%.

The occurrence category analysis and safety risks picture converged on the same conclusion. The categories with the highest number of occurrences, abnormal runway contact and loss of lifting conditions enroute, rarely resulted in a fatal outcome, while airborne collision, although the most frequently recorded key risk area, ranked only fourth by aggregated risk score. The loss of control in-flight category was associated with nine of the 15 fatal accidents in 2025 and contributed to over 60% of fatal accidents in 2020–2024.

This finding is reflected in the ERCS analysis, where the aircraft upset (loss of control) key risk area recorded the highest aggregated score, more than three times higher than the next-ranked key risk area. Fatal accidents continued to be concentrated in stalls and spins during the launch phase, loss of control while manoeuvring at low altitude, and flight in mountainous terrain, where recovery altitude was insufficient. Most fatal accidents (11 of 15) occurred during pleasure flights.

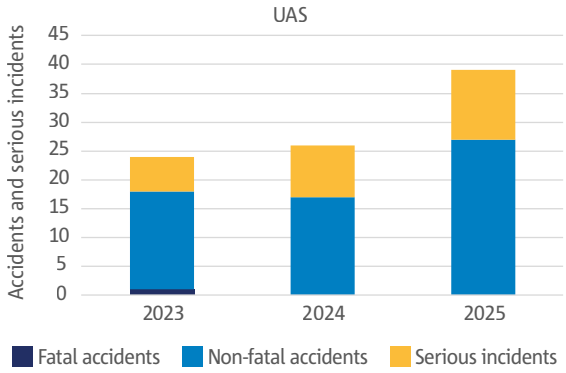
Figure 1.3: EASA Member States accidents and serious incidents per year for non-commercial other than complex aeroplanes, and all sailplane and balloon operations



For the Unmanned Aircraft Systems (UAS) domain more non-fatal accidents and serious incidents were reported in 2025 (39) compared to the average for the two previous years of 25. This year saw no fatal accident and no fatality in this domain. There were two accidents with one person each sustaining serious injury. The percentage of occurrences where manned aviation was involved dropped from 38% to 15%.

'LOC-I: Loss of control - inflight' and 'OTHR: other' were the most frequent occurrence categories observed in accidents and serious incidents, followed by 'MAC: Airprox/ACAS alert/loss of separation/(near) mid-air collision'. However, when all classes of occurrences were considered, including accidents, serious incidents and incidents, the safety risk picture was dominated by the key risk area 'airborne collision'. While occurrence categories describe actual factors and outcomes of an occurrence, key risk areas describe the potential outcome of an occurrence. A large share of occurrences in the three-year period of 2023–2025 actually related to UAS sightings, which only rarely resulted in near collisions between manned aircraft and UAS, but nevertheless underlined the safety relevance of UAS interferences at aerodromes.

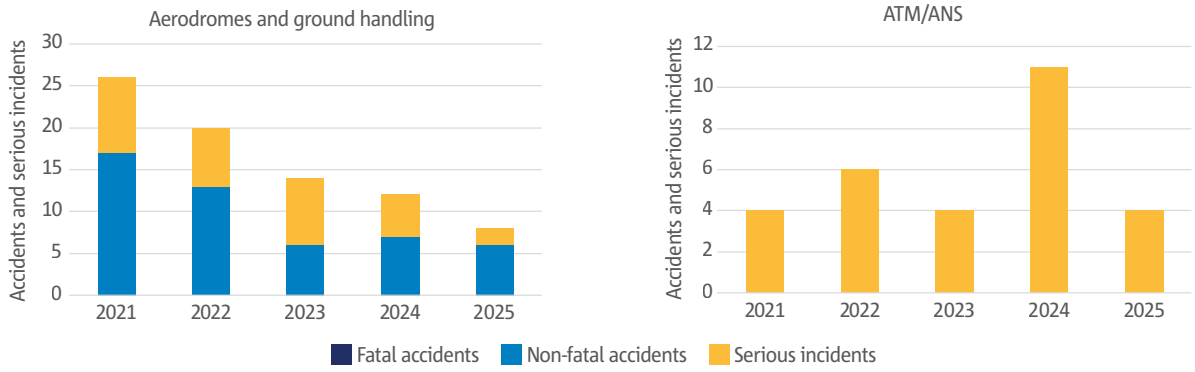
Figure 1.4: EASA Member States accidents and serious incidents per year for UAS



The safety performance of the aerodrome and ground handling domain has continued to improve. The number of non-fatal accidents and serious incidents continued to drop and was well below previous years. There have been no fatal accidents and no fatalities at aerodromes for the past decade. Also, there were no serious injuries in the six non-fatal accidents in 2025. Both the accident and the serious incident rate per one million aerodrome movements have further decreased and were at their lowest since 2015. In terms of occurrence categories, the few occurrences that did happen at aerodromes were most likely Ground Collisions (GCOL) or Occurrences during Ground Handling Operations (RAMP).

There were also no accidents and four serious incidents with any **ATM/ANS contribution** in 2025, or for the past 10 years. No fatalities or serious injuries occurred, while the serious incident rate decreased to 0.40 per million flights. Mid-Air Collision (MAC) remained the leading occurrence category and airborne collision continued to represent the highest overall safety risk, followed by collision on the runway.

Figure 1.5: EASA Member States infrastructure related accidents and serious incidents per year



1.2 Safety performance (EPAS safety indicators)

The overall level of safety performance of the European aviation safety system (EASS)[7] is measured using safety indicators that are defined in the EPAS[8] 2027 edition[9]. The initial set of EPAS indicators only covers complex CAT aeroplanes; however, this may be expanded in the future.

Since for the time being only complex CAT aeroplanes are affected, the results of these safety indicators for the period 2021–2025 are provided in section "EPAS safety indicators" on page 27 in this ASR edition.

7 Refer to refer to Article 62(1) of the Basic Regulation: '1.The Commission, the Agency and the Member States shall cooperate within a single European aviation safety system to ensure compliance with this Regulation and with the delegated and implementing acts adopted on the basis thereof.'

8 Refer to European Plan for Aviation Safety | EASA

9 EPAS 2027 edition is planned to be published in December 2026.



Chapter 2
Aeroplanes

2. Aeroplanes

This chapter covers aeroplane operations. The chapter is divided into five main sections:

- **Commercial Air Transport (CAT[10]) passenger and cargo operations conducted by EASA Air Operators Certificate (AOC) holders with complex aeroplanes** with a maximum certificated take-off mass exceeding 5 700 kg or equipped with (a) turbofan engine(s) or more than one turboprop engine. Examples include airline, air taxi, air ambulance, etc.
- **CAT passenger and cargo operations conducted by EASA AOC holders with non-complex aeroplanes**, having a maximum take-off mass below 5 700 kg or not equipped with (a) turbofan engine(s) or more than one turboprop engine. Examples include airline, air taxi, air ambulance, sightseeing, etc.
- **EASA Member State registered or operated complex aeroplanes carrying out non-commercial (NCC) operations** with a maximum certificated take-off mass exceeding 5 700 kg or equipped with (a) turbofan engine(s) or more than one turboprop engine. Examples include business, demonstration, flight training/instructional, relocation, etc.
- **Specialised Operations (SPO)** conducted by EASA Member State registered aeroplanes or EASA Member State AOC holders. Examples include agriculture, aerial advertisement, photography, etc.
- **Non-Commercial Operations (NCO) conducted by EASA Member State registered non-complex aeroplanes**, having a maximum take-off mass below 5 700 kg or not equipped with (a) turbofan engine(s) or more than one turboprop engine, 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, occurrence categories and safety risks are presented in the core document. The overview of the safety risks is solely derived from occurrence data from the ECR.

The list of fatal accidents associated with the scope of this chapter is provided in Appendix 1, as is a list of fatal accidents involving non-certified aeroplanes (Annex I lists aircraft, the operation of which involves low risk for aviation safety).

2.1 Commercial Air Transport (CAT) - complex aeroplanes

This section covers the safety performance of CAT passenger and cargo operations conducted by EASA AOC holders with complex aeroplanes with a maximum certificated take-off mass exceeding 5 700 kg or equipped with (a) turbofan engine(s) or more than one turboprop engine. Examples include airline, air taxi, air ambulance, etc.

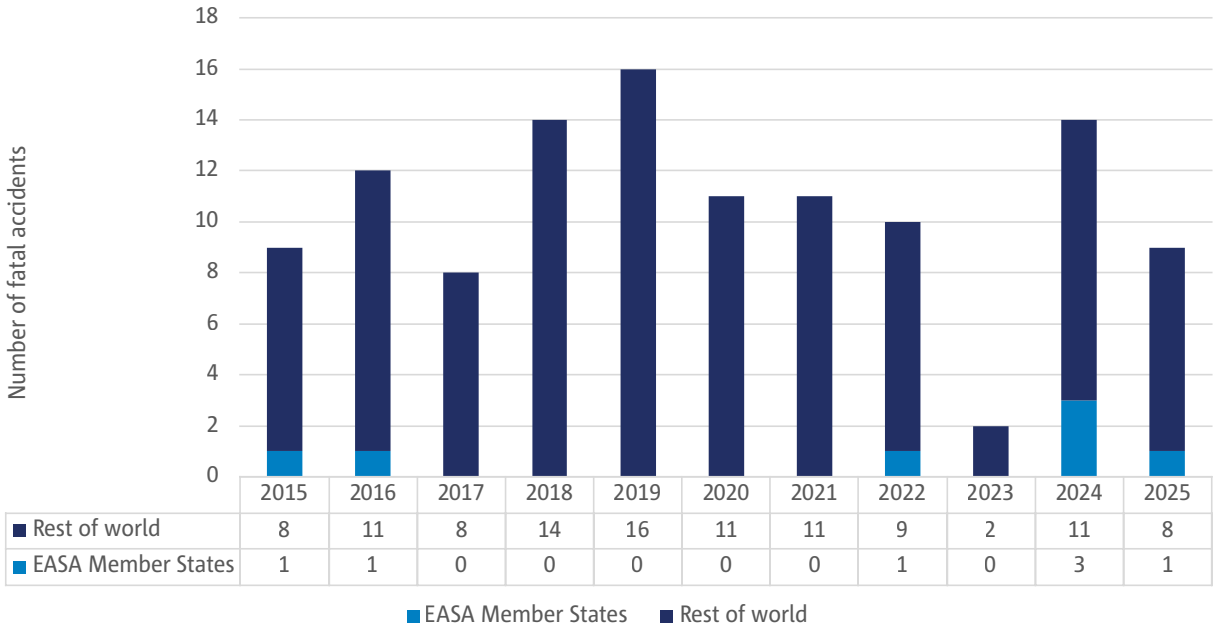
Global airline fatal accidents

This section covers large aeroplane passenger and cargo operations worldwide. Large aeroplane commercial air transport is defined as aircraft with a Maximum Take-off Mass (MTOM) above 5 700 kg, carrying passengers or cargo. Under EASA regulations, commercial air transport includes all flights carrying passengers or cargo for remuneration or hire.

10 As per REGULATION (EU) 2018/1139 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, 'commercial air transport' means an aircraft operation to transport passengers, cargo or mail for remuneration or other valuable consideration.

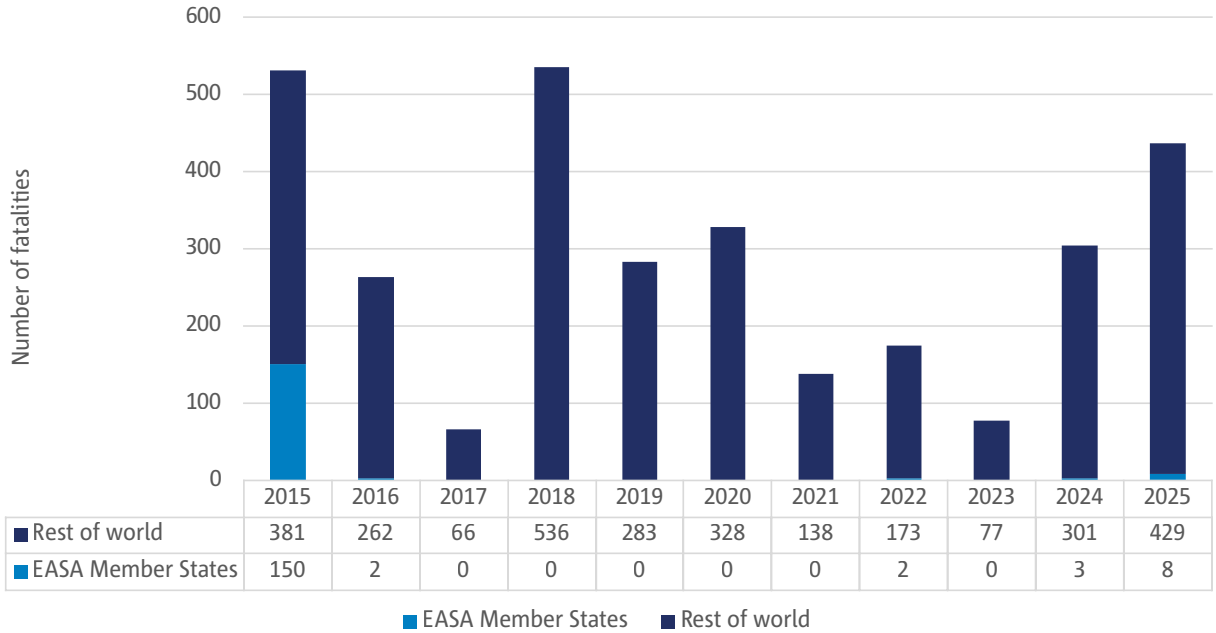
Figure 2.1 and Figure 2.2 illustrate the number of global fatal accidents and fatalities and identify how many of those involved EASA Member State operators. The 2025 data used for the worldwide comparison were obtained from the IATA Annual Safety Report 2025.

Figure 2.1: Fatal accidents involving large aeroplane passenger and cargo operations, EASA Member States and the rest of the world



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Rest of world	8	11	8	14	16	11	11	9	2	11	8
EASA Member States	1	1	0	0	0	0	0	1	0	3	1

Figure 2.2: Fatalities involving large aeroplane passenger and cargo operations, EASA Member States and the rest of the world



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Rest of world	381	262	66	536	283	328	138	173	77	301	429
EASA Member States	150	2	0	0	0	0	0	2	0	3	8

The number of fatal accidents worldwide remained relatively stable between 2020 and 2022, at around 10 accidents per year. This trend was interrupted in 2023, when only two fatal accidents involving commercial large aeroplanes were recorded worldwide, the lowest annual total of the past decade. The number then increased to 14 in 2024, returning to pre-pandemic levels; three of these accidents involved operators from EASA Member

States. In 2025, the number fell again to below the average observed over the previous 10 years, with only one fatal accident involving an operator from an EASA Member State.

Although 2025 recorded the third-lowest number of fatal accidents in the past decade, the number of fatalities rose to one of the highest levels observed over the same period, reaching a total of 437. This increase was largely driven by three accidents, none involving an operator from an EASA Member State, which together accounted for 375 of those fatalities.

These accidents were:

- A midair collision over the Potomac River in southwest Washington, DC involving a Sikorsky UH-60L helicopter, operated by the US Army, and a Mitsubishi Heavy Industries RJ Aviation (formerly Bombardier) CL-600-2C10 (CRJ700) airplane, on January 29, commercial air transport of passengers, 64 fatalities, plus all three crewmembers on board the military helicopter.
- A Boeing 787-8 that crashed following loss of thrust in both engines, when fuel starvation occurred immediately after the aircraft became airborne from Ahmedabad International Airport, India, on June 12, commercial air transport of passengers, 241 fatalities, plus 19 fatalities on ground.
- An Antonov An-24RV, controlled flight into terrain in a forest near Tynda Airport, Russia, resulting from incorrect altimeter setting, on July 24, commercial air transport of passengers, 48 fatalities.

In 2025, there were eight fatalities involving an EASA Member State (refer to section "Global airline fatal accidents" on page 20). Over the previous years, this number has fluctuated between none and three per year since one major fatal accident that occurred in 2015.

For the context of these figures, it is to be noted that after two years of severe traffic reductions in 2020 and 2021, the aviation industry in Europe experienced a strong recovery in terms of traffic since summer 2022 and returned to its pre-COVID-19 pandemic level of traffic in 2025. Indeed, the overall passenger traffic for the full year of 2025 was 0.2% above the 2019 level for the European region.

Key statistics

This sub-chapter presents key safety statistics for Commercial Air Transport (CAT) operations with complex aeroplanes. The safety indicators identified in the EPAS (refer to chapter 1.2 above) mostly draw upon the key safety statistics. For their specific monitoring (for complex CAT aeroplanes) see sub-chapter "EPAS safety indicators" on page 27.

In 2025 the size of domain comprised 627 Air Operator Certificate holders (airlines) and nearly 7000 aeroplanes in EASA Member States. The key statistics for this domain include a comparison of the number of accidents (fatal and non-fatal) and serious incidents for the last year and the previous 10-year period[11]. They also include a comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe. In 2025 there was one fatal accident involving an EASA CAT AOC holder during an air taxi flight. The aircraft crashed after having declared an emergency. In 2025, the number of fatal and non-fatal accidents is higher than the yearly average in the previous 10-year period, while the number of serious incidents is lower.

Four out of 16 non-fatal accidents in 2025 resulted in substantial damage to an aircraft. These cases included damage resulting from a hailstorm encounter, a tyre burst, a collision with a movable set of stairs, and an uncommanded aircraft movement on the apron.

11 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.

Table 2.1: Key statistics for CAT complex aeroplanes

	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	7	1	▲
Non-fatal accidents	146	16	▲
Serious incidents	665	51	▼

Table 2.2: Fatalities and serious injuries involving CAT complex aeroplanes

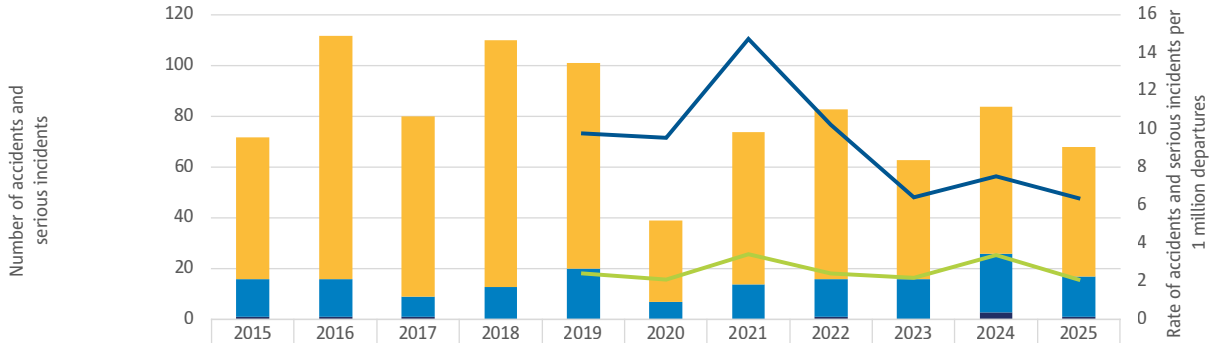
	Number of fatalities	Number of serious injuries
Total number for 2015–2024	160	90
Yearly max number for 2015–2024	150	15
Yearly min number for 2015–2024	0	3
Total number in 2025	8	17

Figure 2.3 shows that the number of fatal accidents in 2025 has decreased in comparison to the previous year. The number of non-fatal accidents had reduced when compared to 2024 and returned to the 2023 level. The number of serious incidents has also slightly decreased in comparison with the previous year and was the third lowest of the period. The air traffic in 2025 had further recovered and reached approximately 97% of the 2019 traffic level[12]. These figures should be considered in the context of the impact of the Russian Federation's invasion of Ukraine, conflicts in the Middle East and other conflict zones leading to the rerouting of the affected traffic.

Figure 2.3 also shows that the rate of accidents has increased by 1.3 and serious incidents have decreased by 1.1 occurrences per 1 million flights in 2025 compared to the previous year. The rates are displayed for years 2019 onwards due to a change in exposure data (number of flights) structure by the data provider. The rate of accidents in 2025 reached the lowest value in the period and the same as in 2020. The rate of serious incidents, which at times bear a higher risk than accidents, was also the lowest one in the reference period and the same as in 2023.

12 Source for the exposure data: EUROCONTROL

Figure 2.3: Numbers and rates of fatal accidents, non-fatal accidents, and serious incidents per million departures involving CAT complex aeroplanes

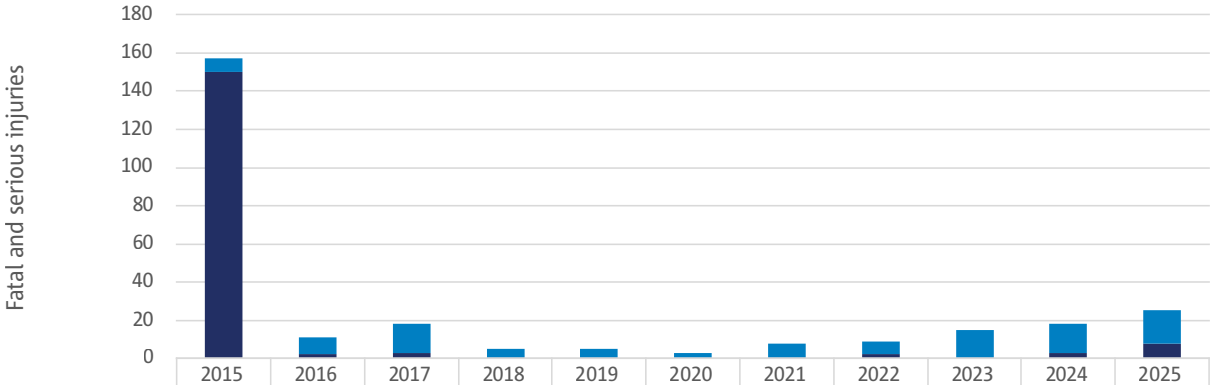


	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	56	96	71	97	81	32	60	67	47	58	51
Non-fatal accidents	15	15	8	13	20	7	14	15	16	23	16
Fatal accidents	1	1	1	0	0	0	0	1	0	3	1
Serious incident rate	-	-	-	-	9.8	9.6	14.8	10.2	6.4	7.5	6.4
Accident rate	-	-	-	-	2.4	2.1	3.4	2.4	2.2	3.4	2.1

Figure 2.4 shows that there were 8 fatalities and 17 serious injuries sustained in 2025. In 2025, the number of serious injuries continued the upward trend observed since 2020, reaching the highest level recorded in the past decade.

Of the 16 non-fatal accidents, 11 resulted in severe injuries. These accidents included four cases of injuries from turbulence encounters, and one from wake vortex. In another case one cabin crew member was seriously injured during approach while the flight crew were reacting to a TCAS Resolution Advisory (RA). In three cases passengers sustained serious injuries while disembarking the aircraft via airstairs. One case resulted in serious injuries during evacuation due to a galley fire. Finally, one ground handling member was seriously injured during pushback.

Figure 2.4: Fatal and serious injuries per year involving CAT complex aeroplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	7	9	15	5	5	3	8	7	15	15	17
Fatalities	150	2	3	0	0	0	0	2	0	3	8

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

Categories are of different natures, for example:

- Operational such as loss of control inflight (LOC-I);

- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

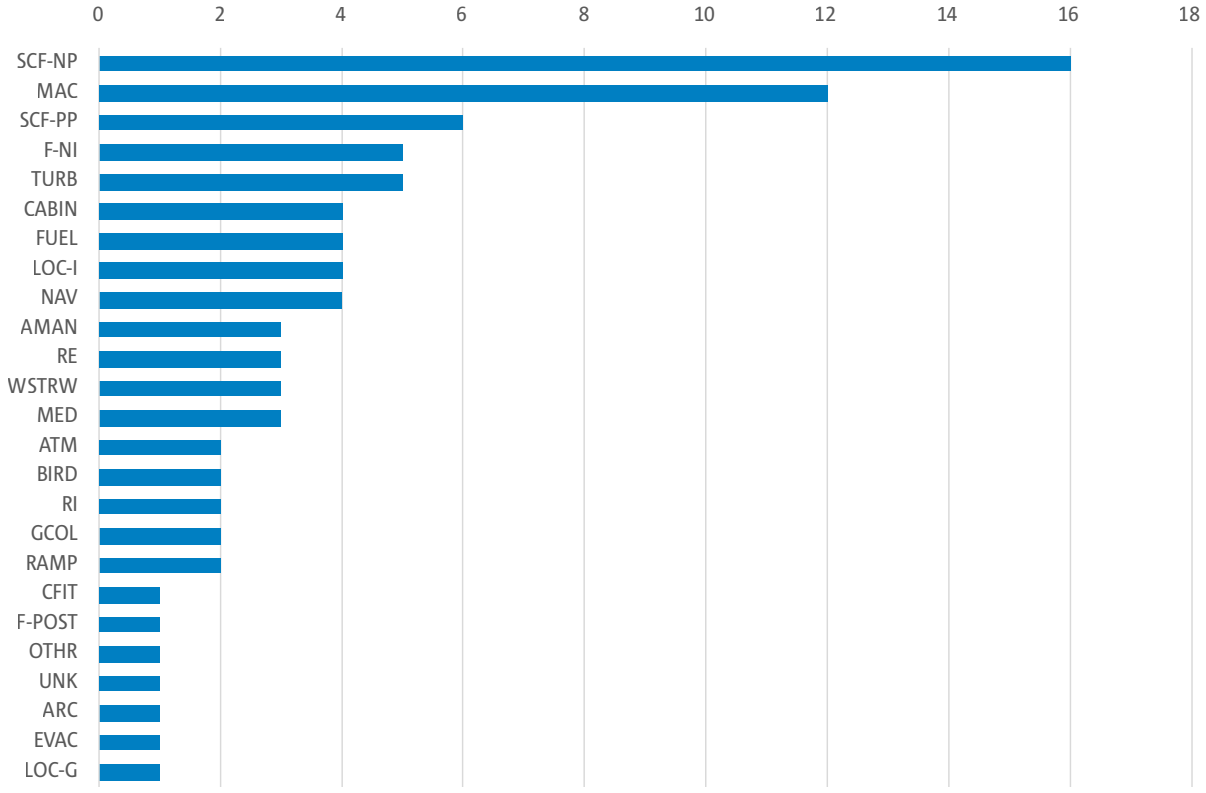
Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred and a loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. This means that the sum of the numbers of occurrences across the different categories will be greater than the total number of occurrences in the period.

Figure 2.5 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025, while Figure 2.6 illustrates the distribution over the period 2020–2024.

In the period of 2020–2024, the highest number of accidents and serious incidents were non-powerplant system/component failure related, followed by near mid-air collision, and powerplant failure or malfunction categories. The most accidents and serious incidents in 2025 were related the same occurrence categories as for the previous 5 years period. In 2025 fire/smoke (non-impact) and turbulence encounter are in top five occurrence categories. Their associated safety issues are being addressed through dedicated Top Safety Topics identified in the EASA Safety Risk Management process, namely 'On-board fires, including lithium battery fires' and 'Adverse weather encounters (CAT)'. Refer to the EPAS – European Plan for Aviation Safety 2027 edition and the EU Safety risk portfolio for more information.

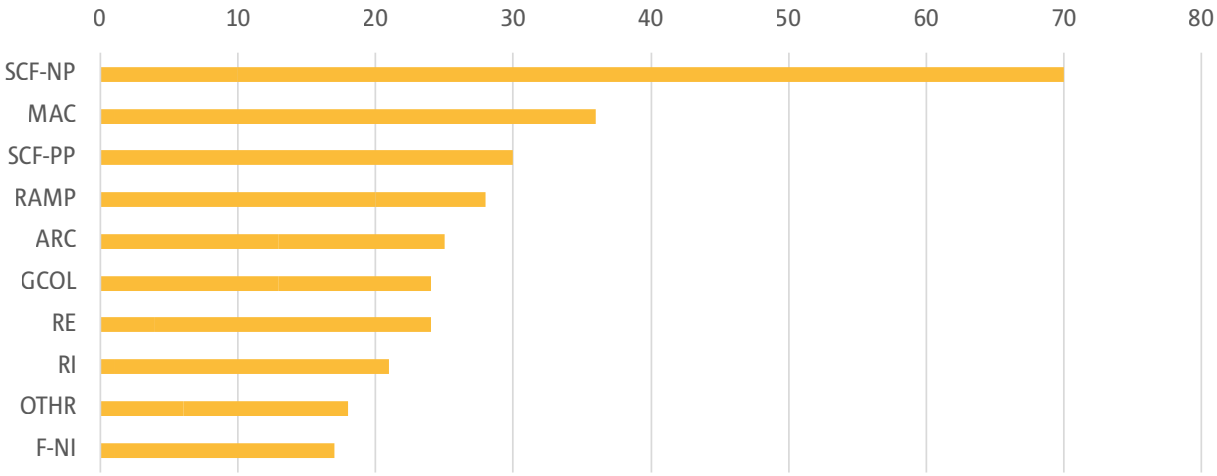
The only fatal accident in 2025 was associated with an occurrence classified as System/Component Failure or Malfunction (Non-Powerplant).

Figure 2.5: Numbers of accidents and serious incidents by occurrence category involving commercial air transport large aeroplanes (2025)



SCF-NP: System/component failure or malfunction [non-powerplant]; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; SCF-PP: powerplant failure or malfunction; RAMP: Ground Handling; ARC: Abnormal runway contact; RE: Runway excursion; GCOL: Ground Collision; OTHR: Other; RI: Runway incursion - vehicle, aircraft or person; F-NI: Fire/smoke (non-impact); TURB: Turbulence encounter; ATM: ATM/CNS; NAV: Navigation error; MED: Medical

Figure 2.6: Numbers of accidents and serious incidents by top 10 most frequent occurrence category involving commercial air transport large aeroplanes (2020–2024)



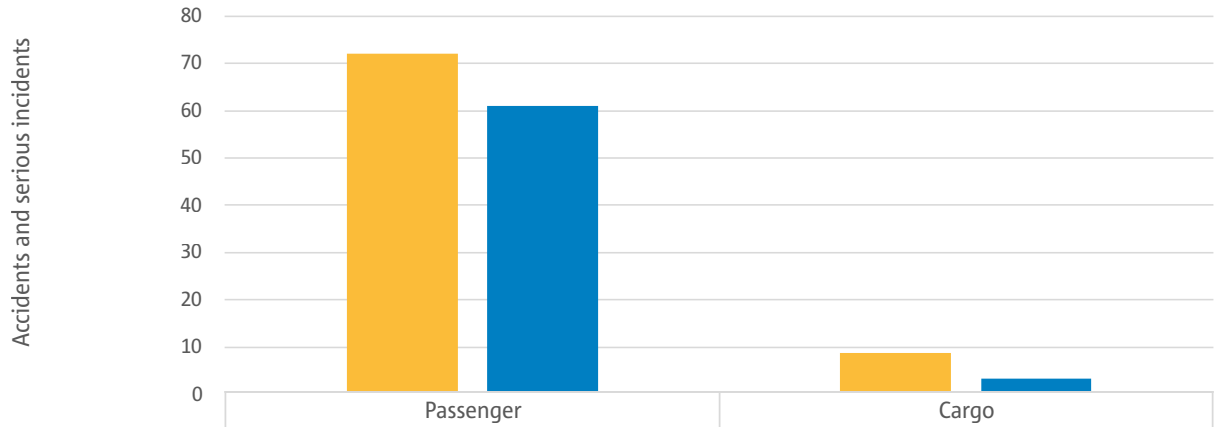
SCF-NP: System/component failure or malfunction [non-powerplant]; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; SCF-PP: powerplant failure or malfunction; RAMP: Ground Handling; ARC: Abnormal runway contact; RE: Runway excursion; GCOL: Ground Collision; OTHR: Other; RI: Runway incursion - vehicle, aircraft or person; F-NI: Fire/smoke (non-impact)

Operation type

Figure 2.7 compares the number of accidents and serious incidents in passenger and cargo operations, presenting the 2025 figures alongside the average for the previous 10 years. However, cargo operations account for only around 3% of all commercial air transport flights, meaning that their exposure is substantially lower than that of passenger operations. This should be considered when interpreting the differences in the number of accidents and serious incidents between the two operation types.

In 2025, like in last five years the number of occurrences for passenger flight operations remained below the 10-year average. The number of accidents and serious incidents for cargo flights was also lower than the previous 10-year average.

Figure 2.7: Accidents and serious incidents by operation type involving CAT complex aeroplanes



	Passenger	Cargo
Average 2015-2024	72.1	8.4
2025	61	3

EPAS safety indicators

The overall level of safety performance of the European aviation safety system (EASS)[13] is measured using safety indicators that are defined in the EPAS[14] 2027 edition[15]. These definitions are repeated here for ease of reference. The EPAS 2027 edition also defines several targets aimed to improve the overall level of safety performance for CAT operations with complex aeroplanes.

Analysis of the EPAS safety indicators year after year will enable progress towards EPAS safety targets to be monitored.

The table below provides results for the period (2021–2025). It is provided this first time to serve as a record of the benchmark that will be used in future editions of the ASR by showing results for the previous 5 years (5-year rolling average), with the baseline period (2021–2025).

Table 2.3: EPAS safety indicators

Number	EPAS safety indicator	2021–2025	
SPI.CAT-A.1	Accident rate for Commercial Air Transport (CAT) operations conducted with complex aeroplanes *Description: Number of accidents per million departures, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	2.72	
SPI.CAT-A.2	Fatal accident rate for CAT operations conducted with complex aeroplanes *Description: Number of fatal accidents per million departures, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	0.13	
SPI-CAT-A.3	Fatality rate for CAT operations conducted with complex aeroplanes *Description: Number of fatalities per billion passengers carried[16], using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	2.46	
SPI-CAT-A.4	Serious injury rate for CAT operations conducted with complex aeroplanes *Description: Number of serious injuries per billion passengers[17] carried, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes.*	14.28	
SPI.CFIT-CAT-A.1	CFIT accident (AR) and serious incident (SIR) rates for CAT operations conducted with complex aeroplanes *Description: Number of Controlled Flight Into Terrain (CFIT) accidents and serious incidents per million departures, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	AR	0
		SIR	0.06

13 Refer to refer to Article 62(1) of the Basic Regulation: '1. The Commission, the Agency and the Member States shall cooperate within a single European aviation safety system to ensure compliance with this Regulation and with the delegated and implementing acts adopted on the basis thereof.'

14 Refer to European Plan for Aviation Safety | EASA

15 EPAS 2027 edition is planned to be published in December 2026.

16 Because there is no official EU-wide statistic for "passengers carried by EU airlines", the figure is calculated by using an estimated aggregate based on the annual reports of the largest EU airline groups, with smaller EU carriers added from industry data. It should be treated as an industry estimate rather than an official figure.

17 Refer to the footnote 20 above.

Number	EPAS safety indicator	2021–2025	
SPI.LOCI-CAT-A.1	LOC-I accident (AR) and serious incident (SIR) rates for CAT operations conducted with complex aeroplanes *Description: Number of Loss Of Control In Flight (LOC-I) accidents and serious incidents per million departures, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	AR	0
		SIR	0.21
SPI.MAC-CAT-A.1	MAC accident (AR) and serious incident (SIR) rates for CAT operations conducted with complex aeroplanes *Description: Number of Mid-Air Collision (MAC) accidents and serious incidents per million departures, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	AR	0.03
		SIR	1.23
SPI.RE-CAT-A.1	RE accident (AR) and serious incident (SIR) rates for CAT operations conducted with complex aeroplanes *Description: Number of Runway Excursion (RE) accidents and serious incidents per million departures, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	AR	0.13
		SIR	0.59
SPI.RI-CAT-A.1	RI accident (AR) and serious incident (SIR) rates for CAT operations conducted with complex aeroplanes *Description: Number of Runway Incursion (RI) accidents and serious incidents per million departures, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	AR	0.06
		SIR	0.60
SPI.ARC-CAT-A.1	ARC accident (AR) and serious incident (SIR) rates for CAT operations conducted with complex aeroplanes *Description: Number of Abnormal Runway Contact (ARC) accidents and serious incidents per million departures, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	AR	0.40
		SIR	0.30
SPI.SCF-NP-CAT-A.1	SCF-NP accident (AR) and serious incident (SIR) rates for CAT operations conducted with complex aeroplanes *Description: Number of System/ Component Failure or malfunction (Non-Powerplant) (SCF-NP) accidents and serious incidents per million departures, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	AR	0.33
		SIR	2.11
SPI.TURB-CAT-A.1	TURB accident (AR) and serious incident (SIR) rates for CAT operations conducted with complex aeroplanes *Description: Number of Turbulence Encounter (TURB) accidents and serious incidents per million departures, using a five-year rolling average and the year 2025 as a baseline, for CAT operations conducted by EASA AOC holders with complex aeroplanes*	AR	0.38
		SIR	0.20

Note: A five-year rolling average is the average calculated every year based on the data of the previous five years. It gives a more realistic picture by reducing the impact of outliers in the data, smoothing the trend curve. It helps to identify trends otherwise hard to detect.

For example, in ASR 2026 edition, the 2025 baseline five-year rolling average is calculated with data from 2021 to 2025. The following year, the 2027 rolling average will use the data from 2022 to 2026.

Safety risks

CAT operations with complex aeroplanes, and NCC aeroplanes operations, are combined into one single risk analysis because of the similarities in the safety risks for these two operation types and the limited amount of data available for the NCC segment.

The safety risks presented in this section are derived from all classes of occurrences recorded in the ECR between 2023–2025. Of the 685 111 occurrences recorded, 330 824 occurrences were completed with both a KRA and ERCS safety risk score, resulting in an ERCS completion rate of 48.3% for the domain. This represents an improvement compared with 2025, when the completion rate was 45.9%. The following analysis is based on this subset of occurrences for which both the KRA and ERCS safety risk score were available.

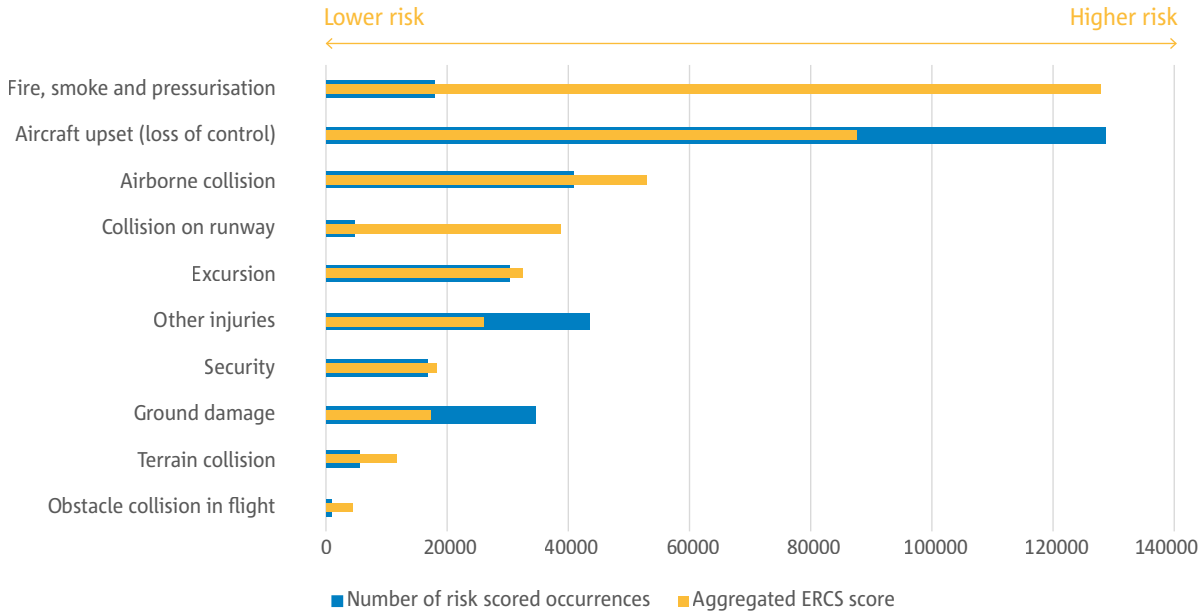
The relative comparison between KRAs for this domain is highlighted in Figure 2.8. KRAs and occurrence categories (refer to Figure 2.5 and Figure 2.6) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the introduction of the ASR document.

As illustrated in Figure 2.8, the higher-risk KRAs are:

- **Fire, smoke and pressurisation** includes fire, smoke, fumes or pressurisation situations that may become incompatible with human life. This includes occurrences involving fire, smoke or fumes affecting any part of an aircraft, in flight or on the ground, which is not the result of impact or malicious acts.
- **Aircraft upset** includes an undesired aircraft state characterised by unintentional divergences from parameters normally experienced during operations, which might ultimately lead to an uncontrolled impact with terrain.
- **Airborne collision** includes actual or potential airborne collisions between aircraft, while both aircraft are airborne, and between aircraft and other airborne objects (excluding birds and wildlife). This KRA is mainly managed through safety issues identified in the ATM/ANS safety risk portfolio.
- **Collision on runway** includes collisions or near-collisions between an aircraft and another object (other aircraft, vehicles, etc.) or person that occurs on a runway of an aerodrome or other predesignated landing area. It does not include collisions with birds or wildlife. This KRA is mainly managed through safety issues identified in the ATM/ANS and the Aerodromes and Ground handling safety risk portfolios.
- **Excursion** includes occurrences, when an aircraft leaves the runway or movement area of an aerodrome or landing surface of any other predesignated landing area, without getting airborne. It includes high-impact vertical landings for rotorcraft or vertical take-off and landing aircraft and balloons or airships.

Compared with the previous ASR, ‘Fire, smoke and pressurisation’ has become the highest-ranked KRA. ‘Aircraft upset’ has moved to second place, followed by ‘Airborne collision’, ‘Collision on runway’, and ‘Excursion’. In terms of number of occurrences, the most frequent KRA for the period are ‘Aircraft upset’, ‘Other injuries’ and ‘Airborne collision’. This highlights the fact that there are KRAs such as ‘Fire, smoke and pressurisation’ that occur relatively infrequently but are associated with a higher level of risk when they do occur. By contrast, KRAs such as ‘Other injuries’ and ‘Ground damage’ occur relatively frequently, but each occurrence is associated with a comparably lower risk.

Figure 2.8: KRAs by aggregated ERCS score and number of risk-scored occurrences involving CAT complex aeroplanes and NCC aeroplanes (2023–2025)



Overall, the highest-risk KRAs identified in the ASR are further assessed through the European Safety Risk Management (SRM) process and are reflected in the Top Safety Topics for the European aviation system. Further information is available in the European Plan for Aviation Safety (EPAS) 2027 and the Safety Risk Portfolio.

2.2 Commercial Air Transport (CAT) - other than complex aeroplanes

This section deals with CAT passenger operations (including air taxi and sightseeing among others) and cargo operations conducted by EASA AOC holders with non-complex, small aeroplanes, with a maximum take-off mass below 5700 kg or equipped with (i) turboprop engines or (ii) only one engine. No aircraft with turbofan engines are included, as they are automatically classified as complex aircraft and analysed in section 2.1.

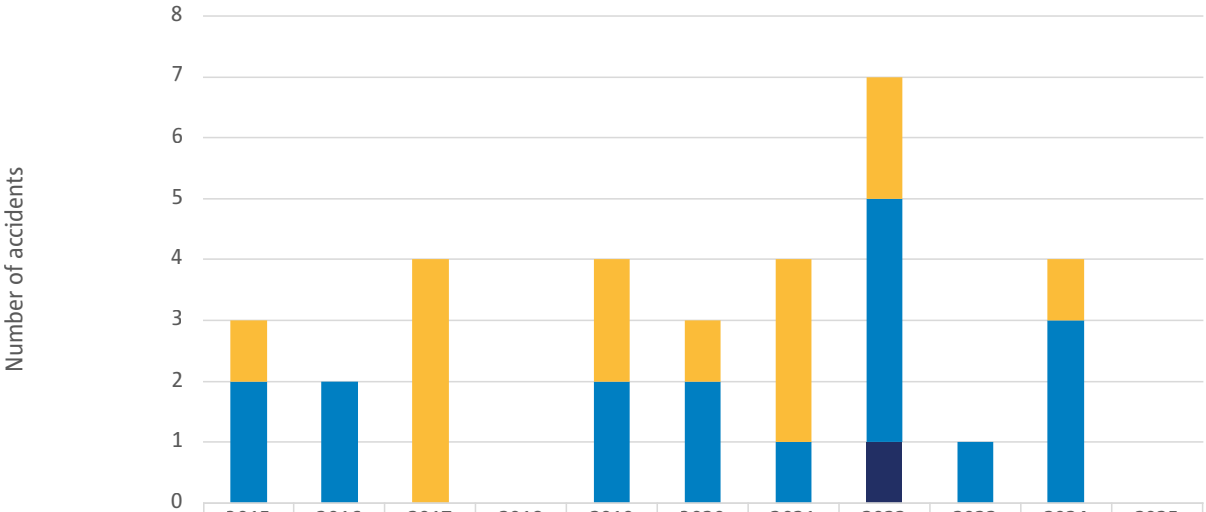
Key statistics

There were no accidents or serious incidents in 2025, based on the notifications received from accident investigation authorities and as illustrated in Table 2.4. Figure 2.9 shows that 2018 was the only other year in which no accidents and serious incidents were recorded while the highest number of occurrences was observed in 2022.

Table 2.4: Key statistics for CAT other than complex aeroplanes

	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	1	0	▼
Non-fatal accidents	17	0	▼
Serious incidents	14	0	▼

Figure 2.9: Numbers of fatal accidents, non-fatal accidents, and serious incidents per year involving CAT other than complex aeroplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	1	0	4	0	2	1	3	2	0	1	0
Non-fatal accidents	2	2	0	0	2	2	1	4	1	3	0
Fatal accidents	0	0	0	0	0	0	0	1	0	0	0

This section will therefore focus on analysing the trends over the last ten years (2015–2024). For the four occurrences that resulted in either fatalities or serious injuries and for which the final investigation report has been published, a brief description of events and their contributing factors is provided.

The distribution of fatalities and serious injuries is depicted in Figure 2.10. There was only one fatal accident during the last ten years, which took place in 2022 in Iceland. A Cessna 172N landed on an ice-covered lake, the surface of which collapsed shortly afterwards, causing the aircraft to sink and resulting in the four fatalities reported in Table 2.5.

Table 2.5: Fatalities and serious injuries involving CAT other than complex aeroplanes

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	4	6
Yearly max number for 2015–2024	4	5
Yearly min number for 2015–2024	0	0
Total number in 2025	0	0

There were three cases, all serious incidents, where people suffered serious injuries (but not fatalities):

- On 23 March 2022, in Germany, a Cessna F172 failed to gain altitude during take-off, skimmed trees and touched down in a field, before colliding with a garden shed and rolling over.
- On 28 June 2022, in Croatia, a Cessna 172 stalled and crashed in the island of Brač during a sightseeing flight inside a canyon.
- On 9 April 2024, in Switzerland, a person was injured after falling from the cargo door of a Pilatus PC12.

Figure 2.10: Fatal and serious injuries per year involving CAT other than complex aeroplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	0	0	0	0	0	0	0	5	0	1	0
Fatalities	0	0	0	0	0	0	0	4	0	0	0

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

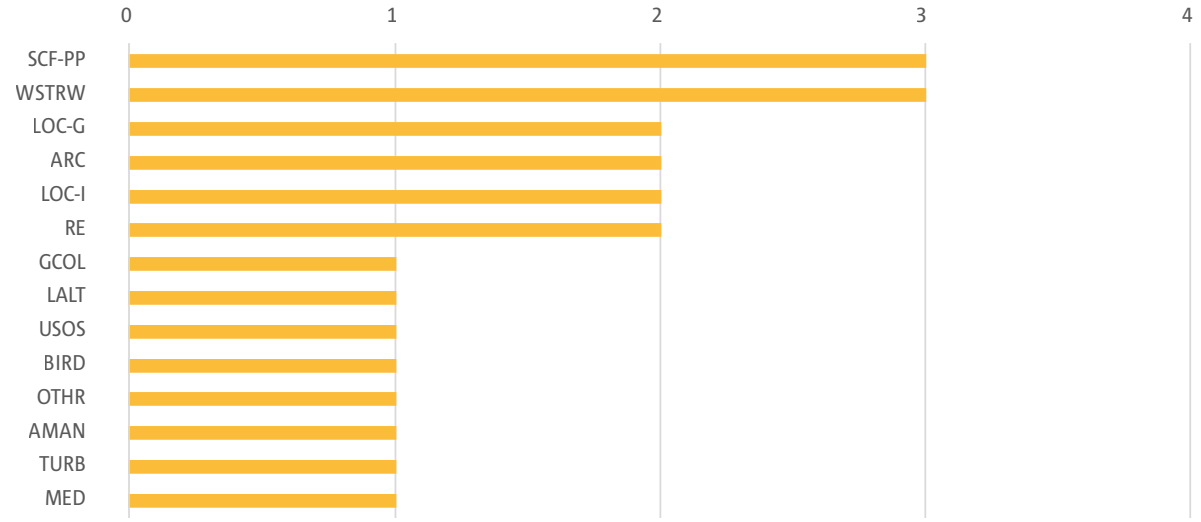
Categories are of different natures, for example:

- Operational such as loss of control inflight (LOC-I);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred and a loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. This means that the sum of the numbers of occurrences across the different categories will be greater than the total number of occurrences in the period.

Figure 2.11 outlines the leading occurrence categories associated with the accidents and serious incidents over the period 2020–2024. The most common occurrence categories were SCF-PP and WSTRW. The fatal accident in section represented an Abnormal Runway Contact (ARC). The three instances where people were seriously injured represented LOC-I, LALT, MED and OTHR categories (in no particular order).

Figure 2.11: Numbers of accidents and serious incidents by occurrence category involving CAT other than complex aeroplanes (2020–2024).



SCF-PP: System/component failure or malfunction [powerplant]; WSTRW: Windshear or thunderstorm; LOC-G: Loss of control - ground; ARC: Abnormal runway contact; LOC-I: Loss of control - inflight; RE: Runway excursion; GCOL: Ground Collision; LALT: Low altitude operations; USOS: Undershoot/ overshoot; BIRD: Bird strike; OTHR: Other; AMAN: Abrupt manoeuvre; TURB: Turbulence encounter; MED: Medical; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions.

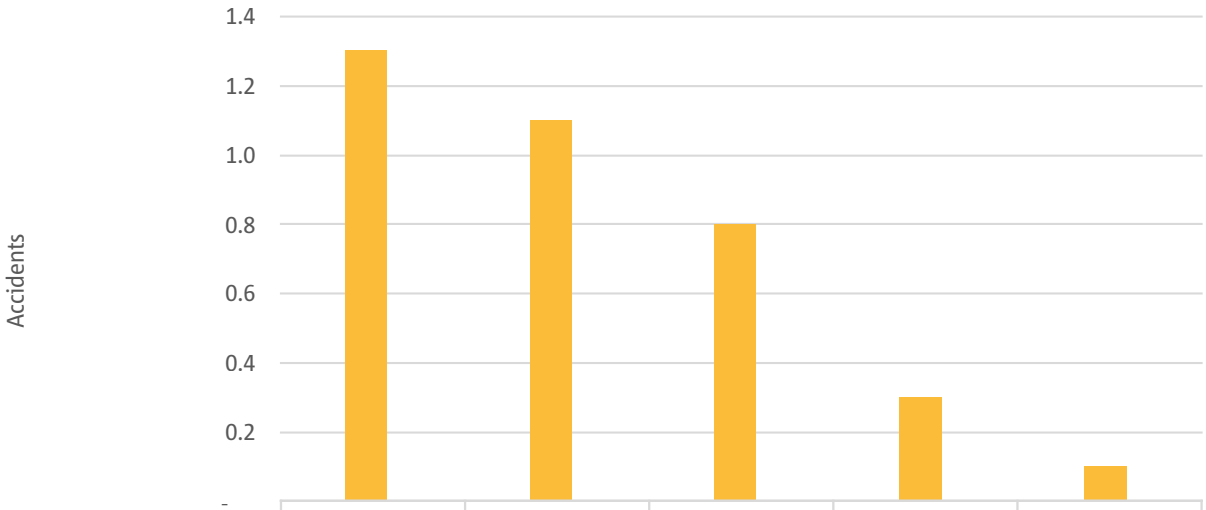
Operation type

This section presents the most detailed information on the operation type reported to EASA. Figure 2.12 shows the average for 2015 to 2024 per operation type. For example, in this ten-year period there were eight air taxi accidents, bringing the average to 0.8. Note that there can be multiple operation types per occurrence if more than one aircraft is involved.

The operation type is not known for approximately 33 % of occurrences, so caution is advised when interpreting the results. For the remaining ones, the majority involved sightseeing, with air ambulance operations coming last. Note that the only fatal accident involved sightseeing, with two out of the three serious incidents that led to serious injuries also involving that type of operation (the operation type of the third one is not known).

There was only one occurrence involving a cargo flight, classified under the 'Airline' category in Figure 2.12. It was a non-fatal accident in 2016 in Finland where the right-hand landing gear of a Reims F406 Caravan II collapsed during landing. It was caused by an error when installing the landing gear in question during maintenance, with the contributing factor being "that the maintenance instructions did not adequately support the correct performance and quality assurance of the work".

Figure 2.12: Accidents and serious incidents by operation type involving CAT other than complex aeroplanes



	Blank / unknown	Sightseeing	Air Taxi	Airline	Air Ambulance
Average 2015-2024	1.3	1.1	0.8	0.3	0.1
2025	0	0	0	0	0

Safety risks

The data in this section is derived from the ECR and includes all occurrence classes between 2023 and up to and including 2025.

Out of 10 953 occurrences in the ECR 7 508 were ERCS-scored, representing a completion rate of approximately 69 % and an increase of the completion rate of approximately 50 % compared to last year. Readers should remember that results can change with a higher completion rate.

Based on Figure 2.13 we can observe that:

- The most common KRA with the highest ERCS score was aircraft upset (loss of control). This represents an undesired aircraft state characterised by unconventional divergences from parameters normally experienced during operations, which might ultimately lead to an uncontrolled impact with terrain.
- Airborne collision comes next, both in terms of occurrences with this as the KRA and in terms of aggregated ERCS score. This represents a collision between two airborne aircraft or between aircraft and other airborne objects but excluding birds and wildlife. Note that although this KRA ranks second, none of the occurrences in Figure 2.11 categorised as MAC involved an actual mid-air collision; the MAC category also covers airprox, Airborne Collision Avoidance System (ACAS) alerts and loss of separation. This reflects the difference between what could have happened (KRA) and what actually happened (occurrence category).
- Terrain collision comes third and represents occurrences where an airborne aircraft collides with terrain, without an indication that the flight crew was unable to control the aircraft.

Figure 2.13: KRAs by aggregated ERCS score and number of risk-scored occurrences involving CAT other than complex aeroplanes (2023–2025)



2.3 Non-Commercial Complex (NCC) aeroplanes

This section covers the safety performance of non-commercial operations with complex (NCC) aeroplanes.

For the purposes of this review, the dataset is limited to aeroplanes:

- with a maximum certificated take-off mass exceeding 5 700 kg, or equipped with (a) turbofan engine(s) or more than one turboprop engine, and
- with an EASA Member State as state of operator or state of registry, as applicable.

The operations covered primarily include corporate or business aviation and may also include non-commercial training, demonstration, positioning, or ferry flights.

Key statistics

The key statistics for this domain are in Table 2.6 and Table 2.7 below and include a comparison of the number of accidents (fatal and non-fatal) and serious incidents for the last year and the previous 10-year period. Also included is a comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe.

Table 2.6: Key statistics for NCC aeroplanes

	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	4	1	▲
Non-fatal accidents	24	1	▼
Serious incidents	75	5	▼

Table 2.7: Fatalities and serious injuries involving NCC aeroplanes

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	15	3
Yearly max number for 2015–2024	10	2
Yearly min number for 2015–2024	0	1
Total number in 2025	4	0

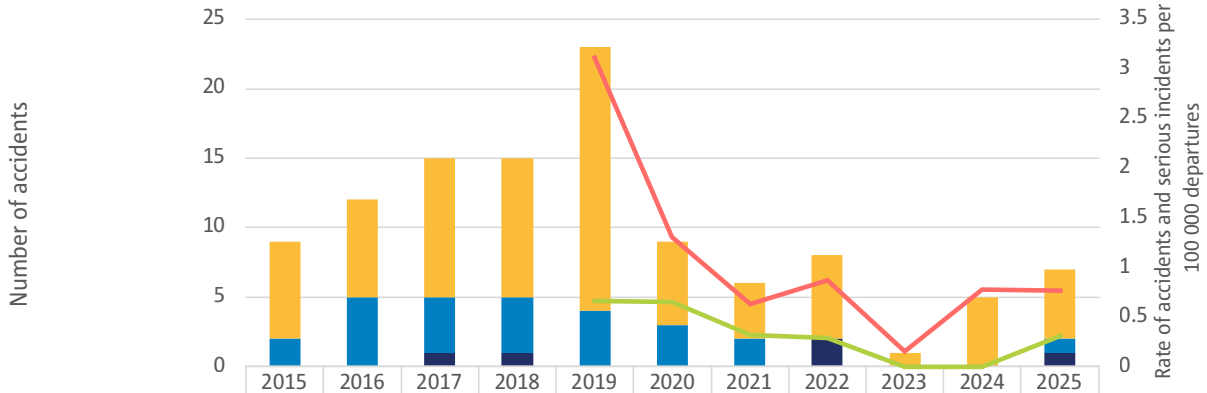
Figure 2.14 shows that in 2025, there was one fatal accident involving an EASA Member State registered or operated NCC aeroplane. It was a relocation flight that crashed immediately after take-off. All four people onboard were fatally injured during this accident.

In 2025, one non-fatal accident occurred during a training flight when a hard landing involving a vertical acceleration of 3.2G, which resulted in a substantial structural damage to the aircraft. The aircraft was grounded.

The serious incidents in 2025 were related to a partial loss of control in flight due to a stuck pitch trim, a loss of directional control during the landing roll, an engine flameout during a touch-and-go training flight, and the smell of burning electronics shortly after take-off.

Figure 2.14 also shows the accident rate and serious incident rates, which are displayed from the year 2019 due to a change in exposure data (number of flights) structure by the data provider. In 2025, the accident rate was 0.3 accidents per 100 000 flights, comparable to the levels observed in 2021 and 2022. However, it represented a slight increase when compared with the previous year. The serious incident rate remained unchanged from the previous year at 0.8 serious incidents per 100 000 flights. The lowest accident and serious incident rates were recorded in 2023.

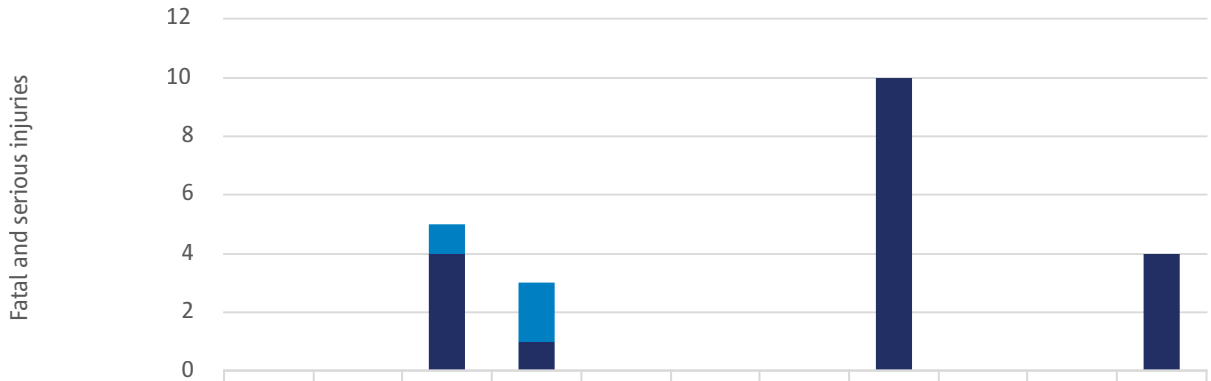
Figure 2.14: Numbers and rates of fatal accidents, non-fatal accidents, and serious incidents per year involving NCC aeroplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	7	7	10	10	19	6	4	6	1	5	5
Non-fatal accidents	2	5	4	4	4	3	2	0	0	0	1
Fatal accidents	0	0	1	1	0	0	0	2	0	0	1
Serious incident rate	-	-	-	-	3.1	1.3	0.6	0.9	0.2	0.8	0.8
Accident rate	-	-	-	-	0.7	0.7	0.3	0.3	0	0	0.3

The number of fatalities and serious injuries per year is shown in Figure 2.15. In 2025 there were four fatalities sustained in one fatal accident. There were no serious injuries in 2025.

Figure 2.15: Fatal and serious injuries per year involving NCC aeroplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	0	0	1	2	0	0	0	0	0	0	0
Fatalities	0	0	4	1	0	0	0	10	0	0	4

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

Categories are of different natures, for example:

- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

Figure 2.16 outlines the occurrence categories associated with the accidents and serious incidents in 2025, while Figure 2.17 illustrates the distribution of top nine most frequent occurrence categories over the period 2020–2024.

As shown in Figure 2.16, in 2025, there was no trend for encountered occurrence categories from the accidents and serious incidents. Each of the listed occurrence categories were experienced once.

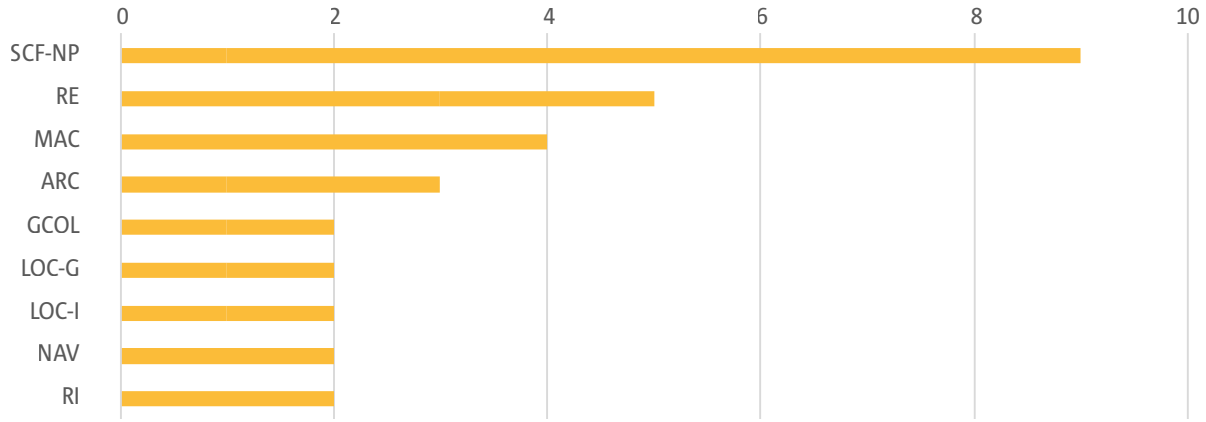
Figure 2.17 depicts that in the period of 2020–2024 the highest number of accidents were system component failure, non-powerplant and near midair collision related. The remaining accidents were distributed across a range of different occurrence categories.

Figure 2.16: Numbers of accidents by occurrence category involving NCC aeroplanes (2025)



ARC: Abnormal runway contact; F-NI: Fire/smoke (non-impact); F-POST: Fire/smoke (post-impact); LOC-G: Loss of control – ground; LOC-I: Loss of control – inflight; RE: Runway excursion; SCF-PP: powerplant failure or malfunction; UNK: Unknown or undetermined; USOS: Undershoot/overshoot

Figure 2.17: Numbers of accidents by most frequent top 9 occurrence categories involving NCC aeroplanes (2020–2024)

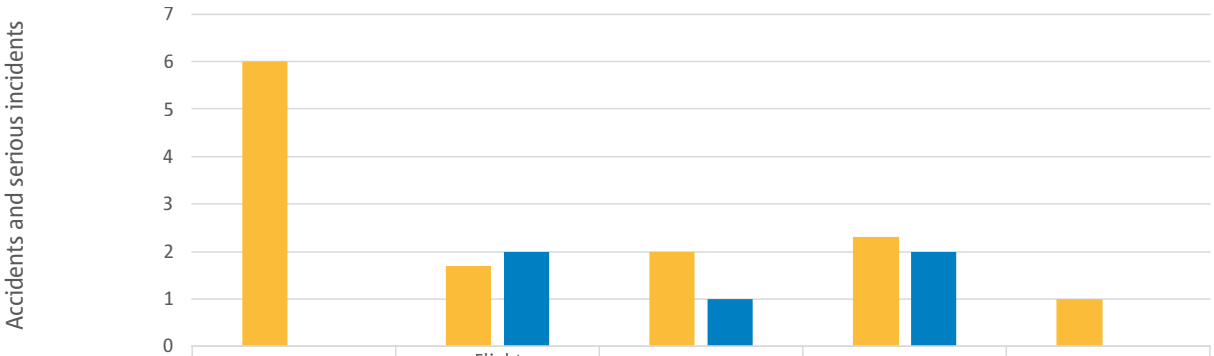


SCF-NP: System/component failure or malfunction [non-powerplant]; RE: Runway excursion; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; ARC: Abnormal runway contact; GCOL: Ground Collision; LOC-G: Loss of control – ground; LOC-I: Loss of control – inflight; NAV: Navigation error; RI: Runway incursion - vehicle, aircraft or person

Operation type

Figure 2.18 compares the number of accidents and serious incidents by operation type, showing the figures for the last year compared with the previous 10-year average. The low numbers in this domain does not allow for meaningful comparison across operation types; however, the data are still presented for information.

Figure 2.18: Accidents and serious incidents by operation type involving NCC aeroplanes



	Business	Flight Training/Instructional	Pleasure	Relocation	Test Flight
Average 2015-2024	6	1.7	2	2.3	1
2025	0	2	1	2	0

Safety risks

CAT operations with complex aeroplanes, and NCC aeroplanes operations, are combined into one risk picture due to the similarity of the safety risks for these operation types and operated aircraft, as well as the small amount of available data for the NCC segment. Refer to section "Safety risks" on page 29.

2.4 Specialised Operations (SPO) aeroplanes

The scope of this section covers the safety performance of 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 2.8 and Table 2.9 and include a comparison of the number of accidents (fatal and non-fatal) and serious incidents for the past year and the previous 10-year period. It also includes a comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe.

The cumulated number of fatal accidents and non-fatal accidents in 2025 remained below the average of the preceding decade. Of the two fatal accidents in 2025, one occurred when an aircraft collided with the ground in a field on its return from a towing flight. The second fatal accident involved an aeroplane returning for landing after an aerial observation flight exercise (volunteer corps). In 2025, the six non-fatal accidents included four that occurred during agricultural aerial work, mainly rice seeding or fertilisation, and involved a wire strike, collision with a runway perimeter fence. The remaining two non-fatal accidents involved parachute-drop operations, both occurred during landing. The numbers of fatalities and serious injuries in 2025 were at or close to the minimum values of the preceding 10-year period.

Table 2.8: Key statistics for SPO aeroplanes

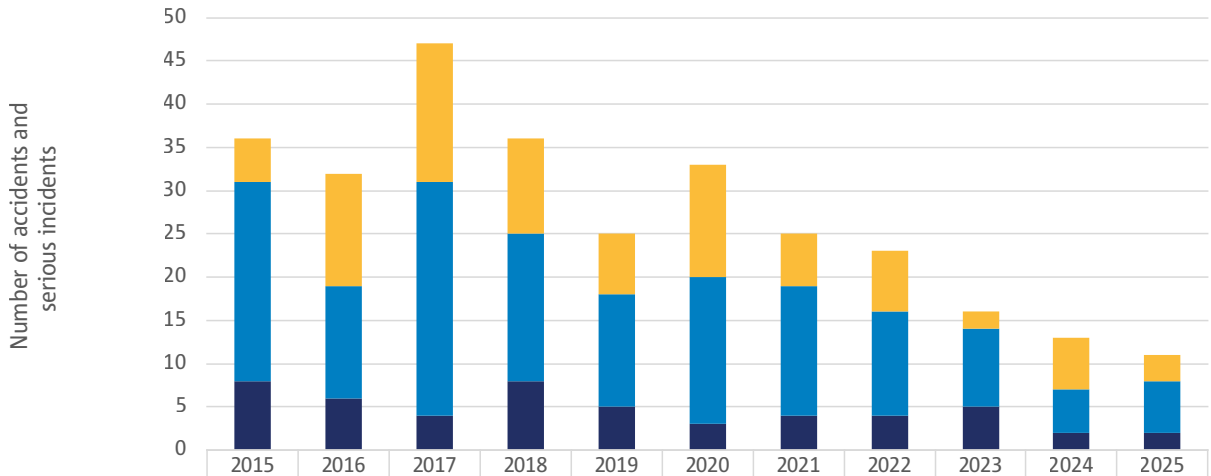
	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	49	2	▼
Non-fatal accidents	151	6	▼
Serious incidents	86	3	▼

Table 2.9: Fatalities and serious injuries involving SPO aeroplanes

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	89	57
Yearly max number for 2015–2024	17	16
Yearly min number for 2015–2024	3	1
Total number in 2025	3	2

The number of accidents and serious incidents per year is shown in Figure 2.19. The total numbers of accidents (fatal and non-fatal) and serious incidents in 2025 were the lowest compared to the preceding decade averages.

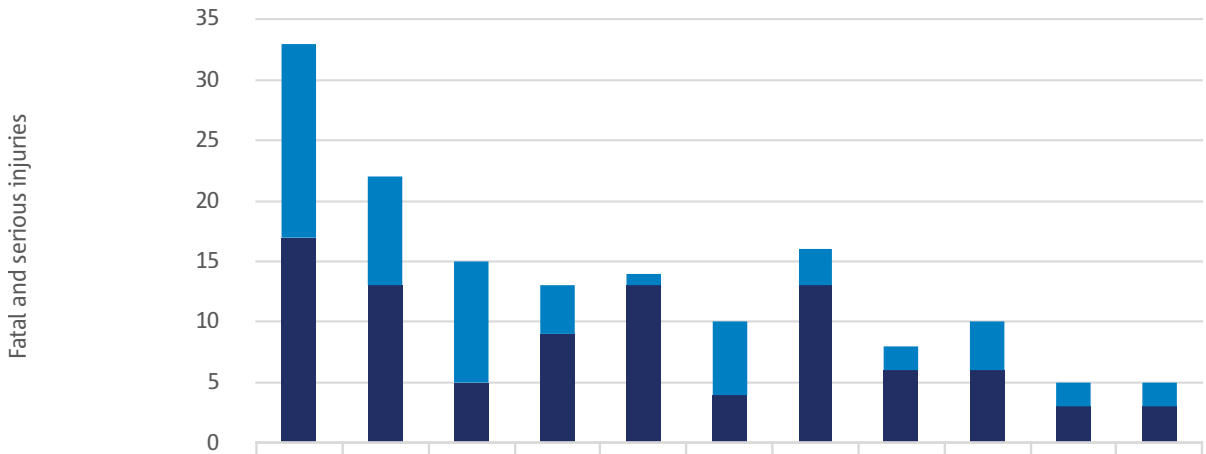
Figure 2.19: Fatal accidents, non-fatal accidents and serious incidents per year involving SPO aeroplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	5	13	16	11	7	13	6	7	2	6	3
Non-fatal accidents	23	13	27	17	13	17	15	12	9	5	6
Fatal accidents	8	6	4	8	5	3	4	4	5	2	2

The number of fatalities and serious injuries per year is shown in Figure 2.20. In 2025 the number of fatalities, like in 2024, was the lowest, when compared to the preceding decade. The number of serious injuries equalled the previous year and was lower than the average (5.7) of the preceding decade.

Figure 2.20: Fatal and serious injuries per year involving SPO aeroplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	16	9	10	4	1	6	3	2	4	2	2
Fatalities	17	13	5	9	13	4	13	6	6	3	3

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy, which supports the consistent coding, recording, investigation, and analysis of the key elements of an occurrence.

Categories are of different nature, for example:

- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

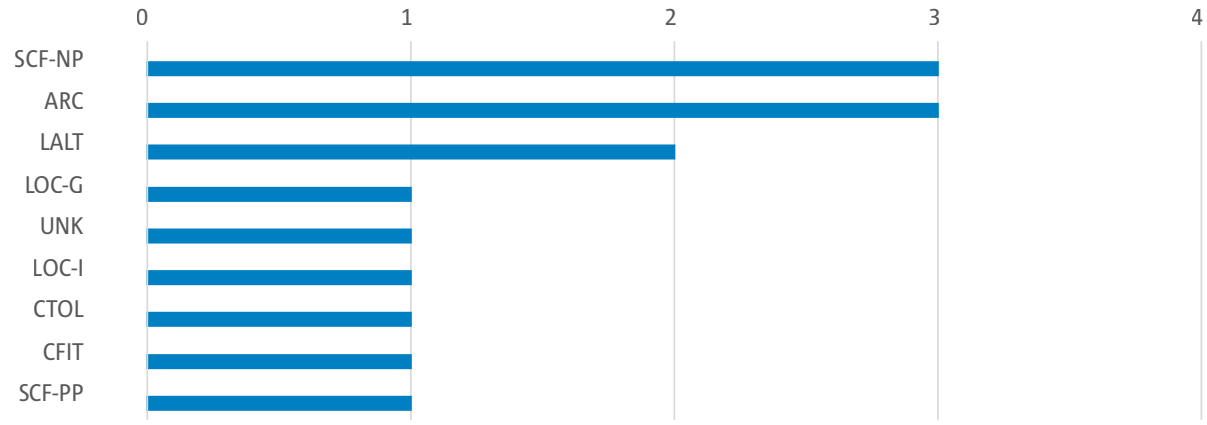
Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

Figure 2.21 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025, while Figure 2.22 illustrates the distribution over the period 2020–2024.

In the period of 2020–2024, the highest number of accidents and serious incidents were in the occurrence categories SCF-NP: System/component failure or malfunction [non-powerplant] and LOC-I: Loss of control – inflight; followed by GTOW: Glider towing related events; SCF-PP: powerplant failure or malfunction; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions.

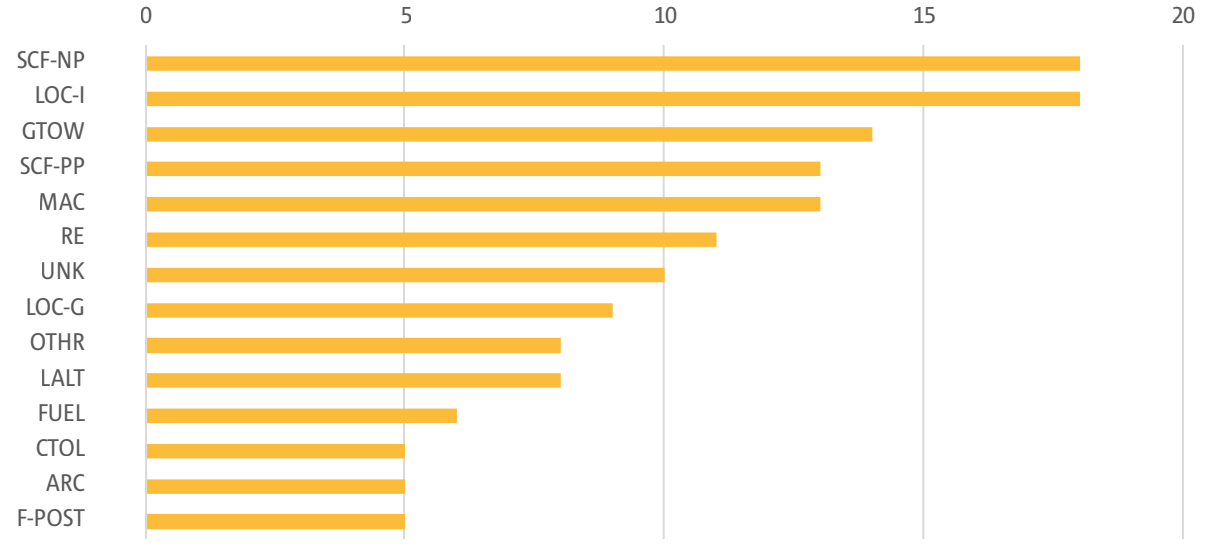
In 2025 the most frequent/common occurrence categories were SCF-NP, ARC and LALT, which ranked first, nineth, seventh in the previous 5-year statistics by frequency.

Figure 2.21: Numbers of accidents and serious incidents by occurrence category involving SPO aeroplanes (2025)



SCF-NP: System/component failure or malfunction [non-powerplant]; ARC: Abnormal runway contact; LALT: Low altitude operations; LOC-G: Loss of control – ground; UNK: Unknown or undetermined; LOC-I: Loss of control – inflight; CTOL: Collision with obstacle(s) during take-off and landing; CFIT: Controlled flight into or toward terrain; SCF-PP: powerplant failure or malfunction.

Figure 2.22: Numbers of accidents and serious incidents by occurrence category SPO aeroplanes (2020–2024)

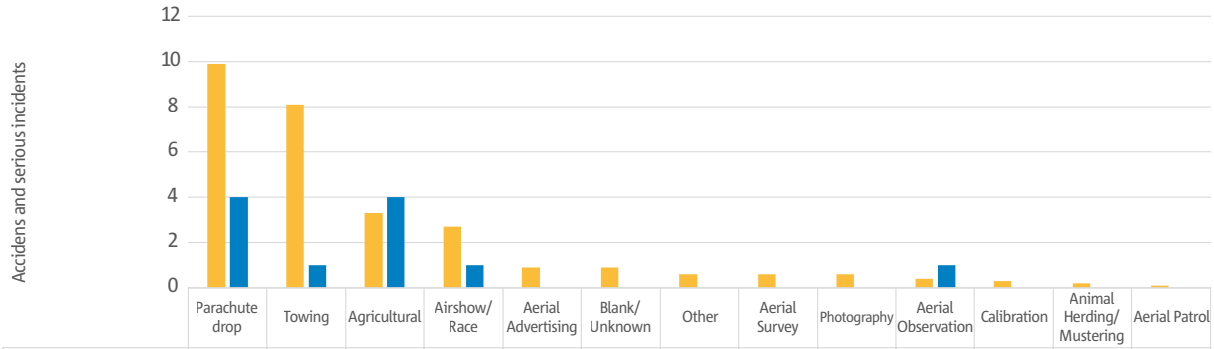


SCF-NP: System/component failure or malfunction [non-powerplant]; LOC-I: Loss of control – inflight; GTOW: Glider towing related events; SCF-PP: powerplant failure or malfunction; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; RE: Runway excursion; UNK: Unknown or undetermined; LOC-G: Loss of control – ground; OTHR: Other; LALT: Low altitude operations; FUEL: Fuel-related management, exhaustion or contamination; CTOL: Collision with obstacle(s) during take-off and landing; ARC: Abnormal runway contact; F-POST: Fire/smoke (post-impact).

Operation type

Figure 2.23 shows the number of accidents and serious incidents by type of SPO. In 2025 the number of accidents and serious incidents were lower than the average of the preceding decade for all operation types except for agricultural work, where all four occurrences were classified as accidents and two people were seriously injured. In 2025, there was a decrease in parachute drop accidents and serious incidents which averaged around 10 accidents/serious incidents per year over the previous decade. Of the three fatalities reported in this domain, two people died in connection with an aerial observation flight, and one during glider towing while returning to the aerodrome.

Figure 2.23: Accidents and serious incidents by SPO type involving aeroplanes



	Parachute drop	Towing	Agricultural	Airshow/ Race	Aerial Advertising	Blank/ Unknown	Other	Aerial Survey	Photography	Aerial Observation	Calibration	Animal Herding/ Mustering	Aerial Patrol
Average 2015-2024	9.9	8.1	3.3	2.7	0.9	0.9	0.6	0.6	0.6	0.4	0.3	0.2	0.1
2025	4	1	4	1	0	0	0	0	0	1	0	0	0

Safety risks

The safety risks for SPO aeroplanes are derived from all classes of occurrences recorded in the ECR, covering the three-year period 2023–2025. From the 1 809 occurrences, 1 170 occurrences were completed with the KRA and ERCS safety risk score, representing an ERCS completion rate of 64,7% for the domain. The analysis presented below is based solely on this subset of the data.

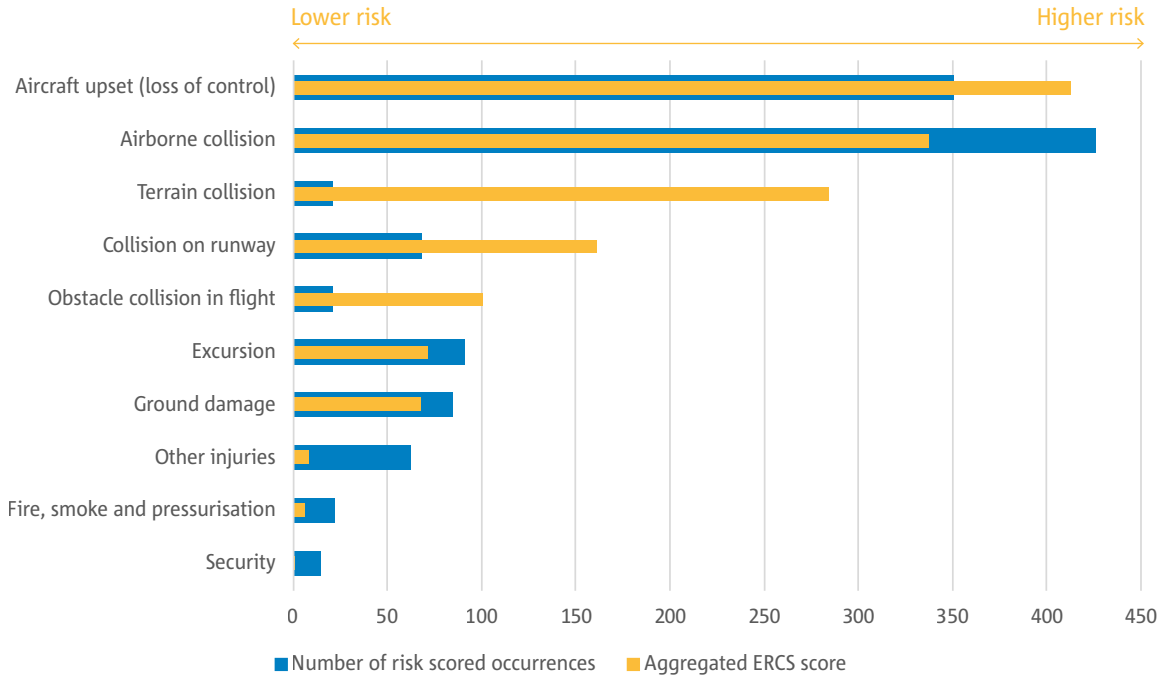
The relative comparison between the KRAs for this domain is highlighted in Figure 2.24. KRAs and occurrence categories (refer to Figure 2.21 and Figure 2.22) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the ASR introduction.

As illustrated in Figure 2.24, the higher-risk KRAs are:

- **Aircraft upset** includes an undesired aircraft state characterised by unintentional divergences from parameters normally experienced during operations, which might ultimately lead to an uncontrolled impact with terrain.
- **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 KRA is mainly managed through safety issues identified in the ATM/ANS safety risk portfolio.
- **Terrain collision** represents occurrences where an airborne aircraft collides with terrain, without indication that the flight crew was unable to control the aircraft. It includes instances when the flight crew is affected by visual illusions or degraded visual environment;

Aircraft upset (loss of control) is the KRA with the highest aggregated ERCS risk score. The KRA Airborne collision remains second, as in the last year's Annual Safety Review edition. The KRA terrain collision has replaced the collision on runway in the third position. This can be explained by both, data completion for the ERCS scores and key risk area, as well as by types of occurrences that were reported in the ECR.

Figure 2.24: KRAs by aggregated ERCS score and number of risk-scored occurrences involving SPO aeroplanes (2023–2025)



2.5 Non-Commercial Operations (NCO) other than complex aeroplanes

The scope of this section covers the safety performance of NCO conducted by EASA Member State registered non-complex aeroplanes, having a maximum take-off mass below 5 700 kg, or not equipped with (a) turbofan engine(s) or more than one turboprop engine, and not covered in the sections above. This dataset includes certified small aeroplanes as well as Light Sport Aeroplanes (LSA) and Very Light Aeroplanes (VLA). Ultralights, microlights, and other aircraft not certified are excluded from this dataset but are examined further in the microlights chapter.

This chapter uses a consolidated dataset from the ECR database and the EASA database as its main source for the key statistics. However, the safety risks use the ECR database only.

Key statistics

The key statistics for this domain are in the tables below and include a comparison of the number of accidents (fatal and non-fatal) and serious incidents for the last year and the previous 10-year period. It also includes comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe.

Table 2.10 shows that accidents (fatal and non-fatal) and serious incidents fell below their 2015–2024 yearly averages in 2025. Fatal accidents decreased to 21, 18% below the 10-year average, and non-fatal accidents to 135, 19% below the 10-year average. Serious incidents decreased to 31, representing a decrease of 54% below the 10-year average.

Table 2.10: Key statistics for non-commercial other than complex aeroplanes

	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	255	21	▼
Non-fatal accidents	1 664	135	▼
Serious incidents	672	31	▼

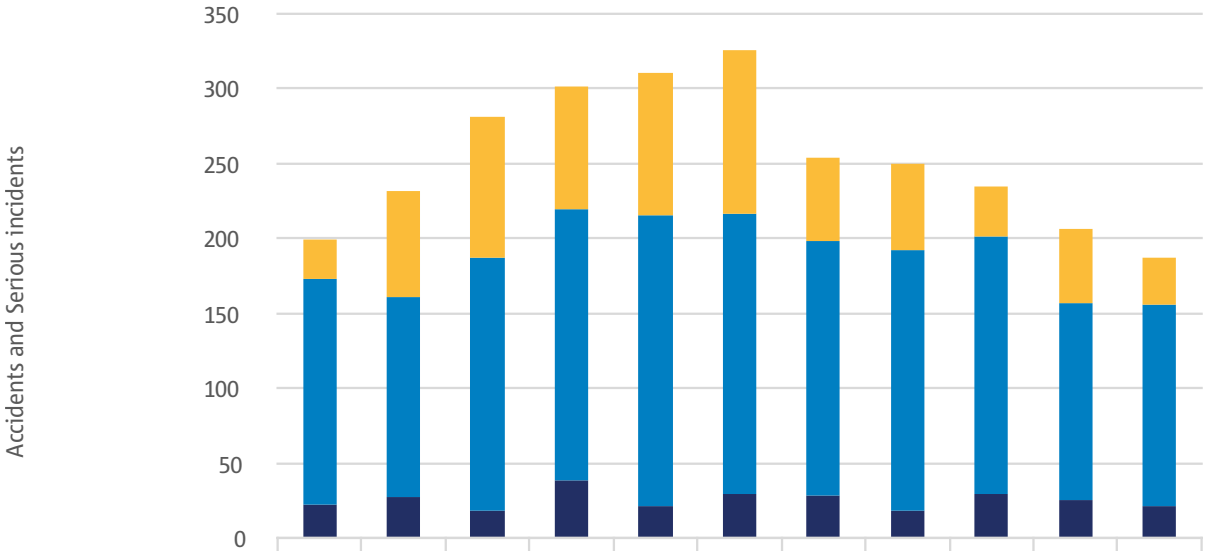
Table 2.11 shows the fatalities and serious injuries from these accidents. In 2025 there were 40 fatalities, 21% below the 10-year average and within the range seen over the previous decade (34 to 75). Serious injuries fell to 16, 37% below the 10-year average and the lowest annual total recorded across the 2015–2025 period.

Table 2.11: Numbers of fatalities and serious injuries involving non-commercial other than complex aeroplanes

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	507	252
Yearly max number for 2015–2024	75	32
Yearly min number for 2015–2024	34	18
Total number in 2025	40	16

Figure 2.25 shows the numbers of accidents (fatal and non-fatal) and serious incidents per year. The number of fatal accidents varies from year to year, with annual totals ranging from 18 to 38 over the period; the highest total was recorded in 2018 (38). In 2025 there were 21, compared with 25 in 2024, a decrease by 20%. Non-fatal accidents, which account for the majority of accidents in this domain, increased from 151 in 2015 to a record high of 194 in 2019, before decreasing to 135 in 2025. Serious incidents vary more widely, ranging from 26 in 2015 to a high of 109 in 2020, with such incidents being 31 in 2025, the second lowest over the past decade.

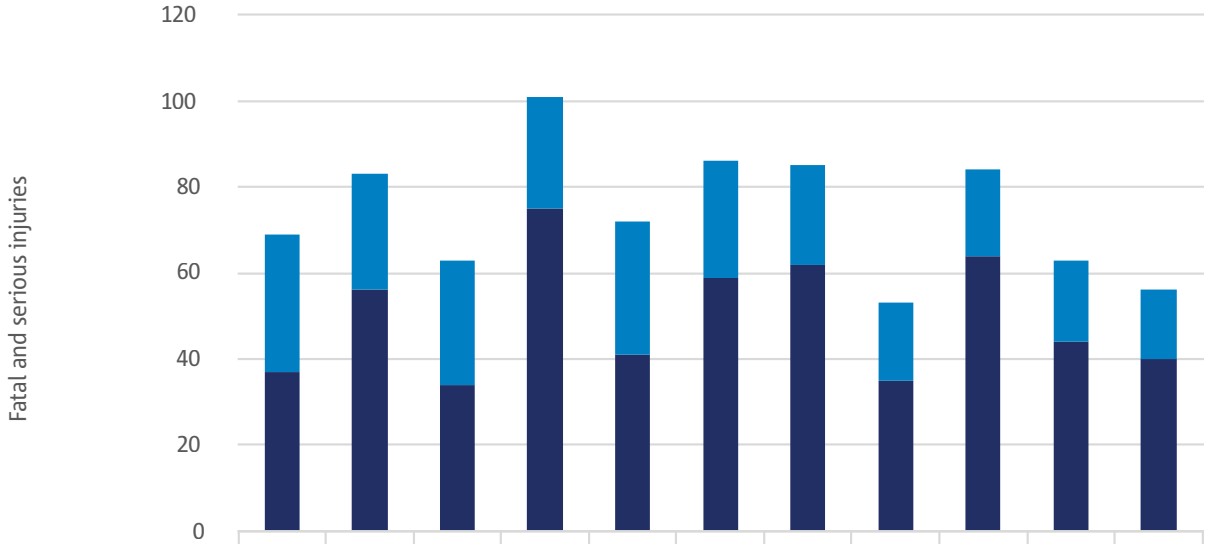
Figure 2.25: Fatal accidents, non-fatal accidents, and serious incidents per year involving non-commercial other than complex aeroplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	26	70	94	82	95	109	56	58	33	49	31
Non-fatal accidents	151	134	169	181	194	187	170	174	172	132	135
Fatal accidents	22	27	18	38	21	29	28	18	29	25	21

Figure 2.26 shows the total number of fatalities and serious injuries over time. In 2025 there were 40 fatalities, below both the 2024 figure (44) and the 10-year average of just under 51. A total of 16 serious injuries were reported in 2025, the lowest annual total in the years shown and well below the 10-year average.

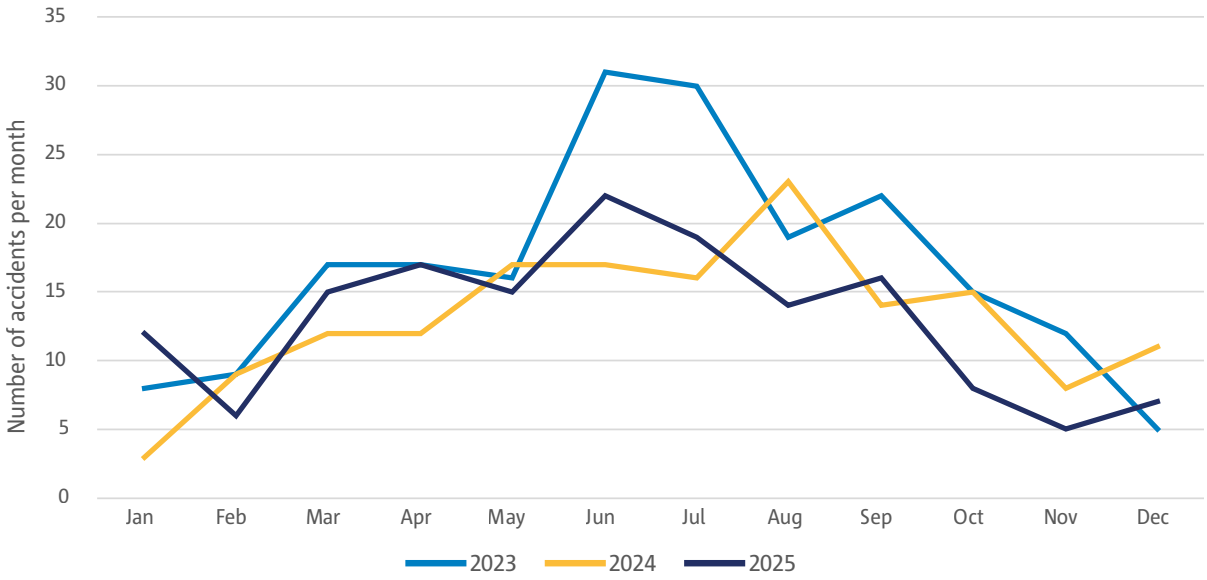
Figure 2.26: Fatal and serious injuries per year involving non-commercial other than complex aeroplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	32	27	29	26	31	27	23	18	20	19	16
Fatalities	37	56	34	75	41	59	62	35	64	44	40

Figure 2.27 compares the number of accidents per month for the past three years. The 2023 line shows the highest monthly totals overall, with the highest numbers in June (31) and July (30). The 2024 line reaches its highest point in August (23), while the 2025 line record the highest numbers of accidents in June (22). Across all three years, accident numbers are higher during the spring and summer months and lower over the winter, reflecting the periods of increased flying activity for small aeroplanes. For further details, refer to the safety risks section.

Figure 2.27: Comparison of number of accidents involving non-commercial other than complex aeroplanes per month



Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

Categories are of different natures, for example:

- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

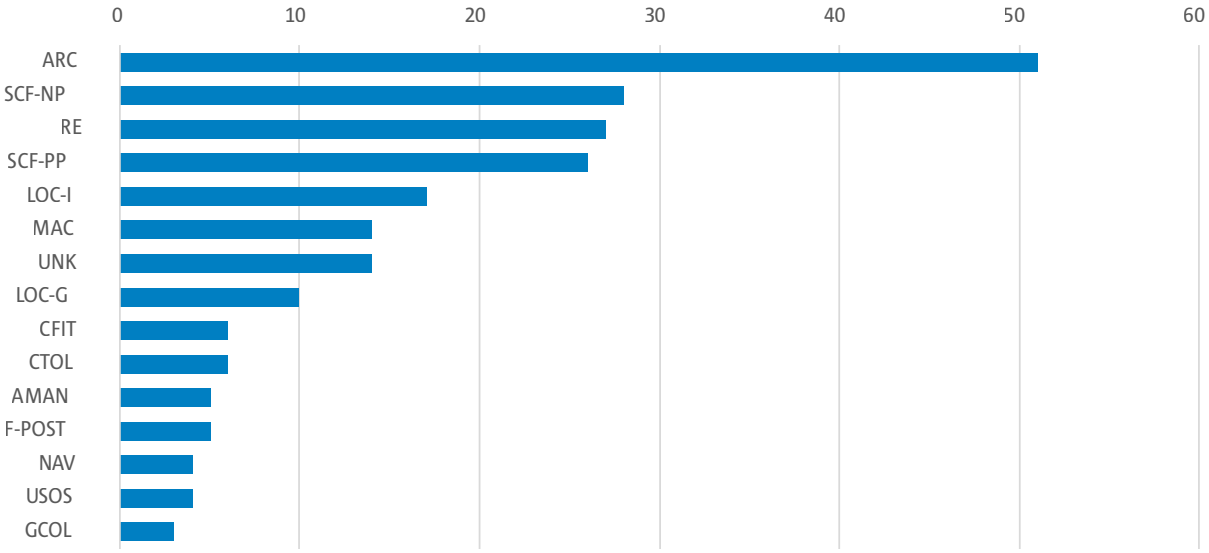
Figure 2.28 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025, while Figure 2.29 illustrates the distribution over the period 2020–2024.

In 2025, the leading four occurrence categories for non-commercial aeroplane accidents and serious incidents were abnormal runway contact (ARC, 51), followed by system or component failure non-powerplant (SCF-NP, 28), runway excursion (RE, 27), and powerplant failure or malfunction (SCF-PP, 26) with almost equal numbers each. These occurrence categories have been primarily associated with non-fatal accidents such as hard and bounced landings, nose-gear collapses, runway excursions in crosswind, and technical failures, all of which are survivable.

Near mid-air collision and airprox events (MAC, 13 non-fatal) again concentrated among serious incidents, during circuit approaches and at uncontrolled aerodromes.

When looking at the 21 fatal accidents in 2025 alone however, a different profile emerges. The leading category was unknown or undetermined (UNK, 10), reflecting that the investigations are still open, which is expected to fall as they conclude. LOC-I (5) and post-impact fire (F-POST, 3) followed as occurrence categories for accidents.

Figure 2.28: Numbers of accidents and serious incidents by occurrence category involving non-commercial other than complex aeroplanes (2025)

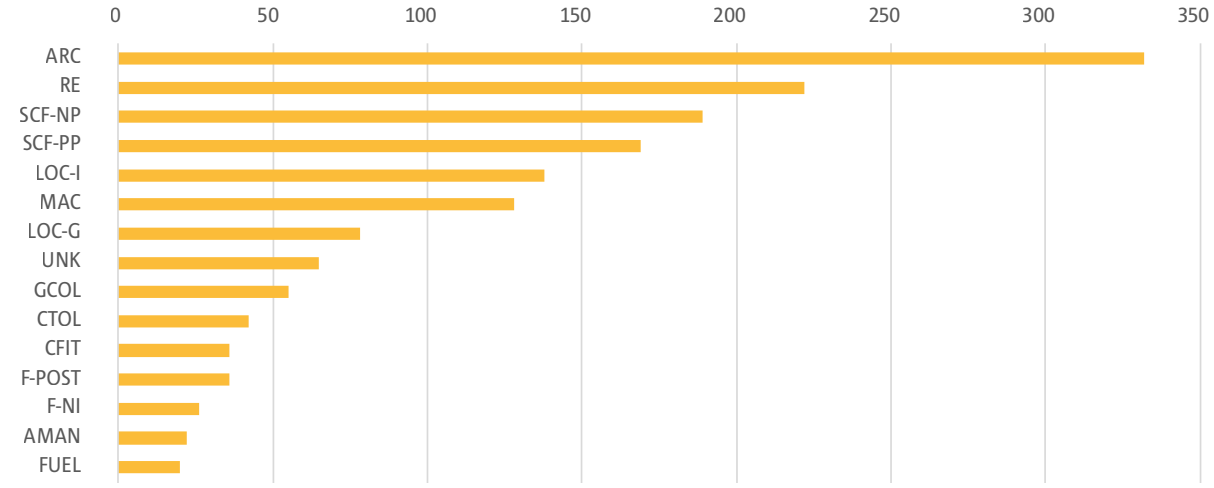


ARC: Abnormal runway contact; SCF-NP: System/component failure or malfunction [non-powerplant]; RE: Runway excursion; SCF-PP: powerplant failure or malfunction; LOC-I: Loss of control - inflight; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; UNK: Unknown or undetermined; LOC-G: Loss of control - ground; CFIT: Controlled flight into or toward terrain; CTOL: Collision with obstacle(s) during take-off and landing; AMAN: Abrupt manoeuvre; F-POST: Fire/smoke (post-impact); NAV: Navigation error; USOS: Undershoot/overshoot; GCOL: Ground Collision;.

Over the preceding five-year period, the same occurrence categories dominated the profile: ARC (332), RE (222), SCF-NP (189), SCF-PP (169) and LOC-I (138), with MAC (128) again being the most frequent occurrence category for serious incidents. The consistency with the 2025 results indicates that the overall risk picture remains stable, with most occurrences involving landing-phase or technical events but rarely resulting in fatalities.

The distribution of occurrence categories for fatal accidents over the period 2020–2024 is more clearly defined than the picture for 2025. LOC-I was the predominant category, associated with 58 of the 129 fatal accidents, reflecting stalls, spins and departures from controlled flight at heights from which recovery was not possible. It was followed by UNK (32), F-POST (29), controlled flight into terrain (CFIT, 16) and low-altitude operations (LALT, 11). While ARC and RE account for the largest share of overall occurrences, the fatality risk remains concentrated in loss of control in-flight and controlled flight-into-terrain.

Figure 2.29: Numbers of accidents and serious incidents by occurrence category involving non-commercial other than complex aeroplanes (2020–2024)

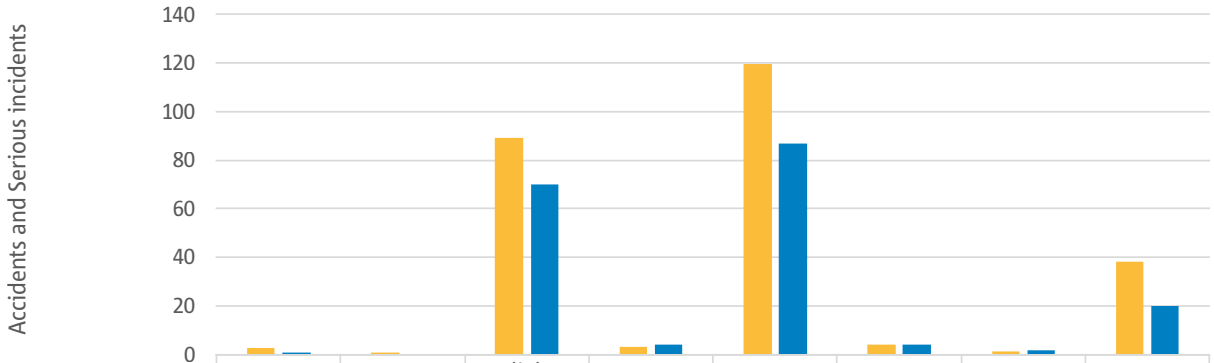


ARC: Abnormal runway contact; RE: Runway excursion; SCF-NP: System/component failure or malfunction [non-powerplant]; SCF-PP: powerplant failure or malfunction; LOC-I: Loss of control - inflight; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; LOC-G: Loss of control - ground; UNK: Unknown or undetermined; GCOL: Ground Collision; CTOL: Collision with obstacle(s) during take-off and landing; CFIT: Controlled flight into or toward terrain; F-POST: Fire/smoke (post-impact); F-NI: Fire/smoke (non-impact); AMAN: Abrupt manoeuvre; FUEL: Fuel related;

Operation type

The highest number of NCO accidents occur in pleasure flights (i.e. flights for leisure purposes), with 87 accidents in 2025 compared to the 10-year average of 119.5. Accidents during flight training/instructional flights follow, decreasing to 70 in 2025 from a 10-year average of 89.1. Accidents in the remaining operations categories are comparatively low: business (1), demonstration (0), other (4), relocation (4) and test flights (2) each remain in single figures, broadly in line with their ten-year averages. The unknown category stands at 20 in 2025, below its average of 38.3, reflecting continued improvement in the classification of operation types as investigations progress and data quality improvements are applied.

Figure 2.30: Accidents and serious incidents by operation type involving non-commercial other than complex aeroplanes



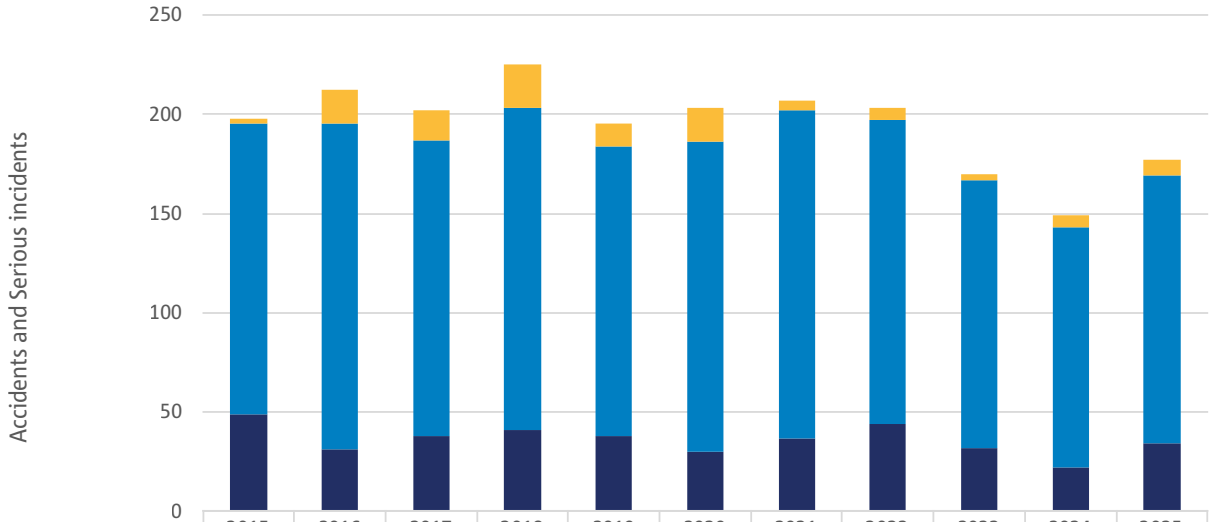
	Business	Demonstration	Flight Training/Instructional	Other	Pleasure	Relocation	Test Flight	Unknown
Average 2015-2024	2.6	1	89.1	3.1	119.5	4.0	1.5	38.3
2025	1	0	70	4	87	4	2	20

Microlights

The diversity of general aviation extends beyond EASA´s regulatory remit, which does not cover aircraft listed in Annex I to Regulation (EU) 2018/1139. However, most accidents involving EASA Member State registered microlight and ultralight aircraft also occur in the EASA Member States, with some accidents also occurring outside this region. Figure 2.31 shows the accidents (fatal and non-fatal) and serious incidents involving EASA Member State registered microlights and ultralights from 2015 to 2025 that were reported into the ECR and to EASA.

There were 34 fatal accidents involving non-commercially operated microlights in 2025, compared with 22 in 2024. This is well below the highest number over the previous decade (49 in 2015). Non-fatal accidents increased to 135 in 2025 from 121 in 2024 but remain below the highest number over the past decade of 165 in 2021. A total of 8 serious incidents were reported in 2025, above the lowest numbers in the previous decade (3 each in 2025 and 2023).

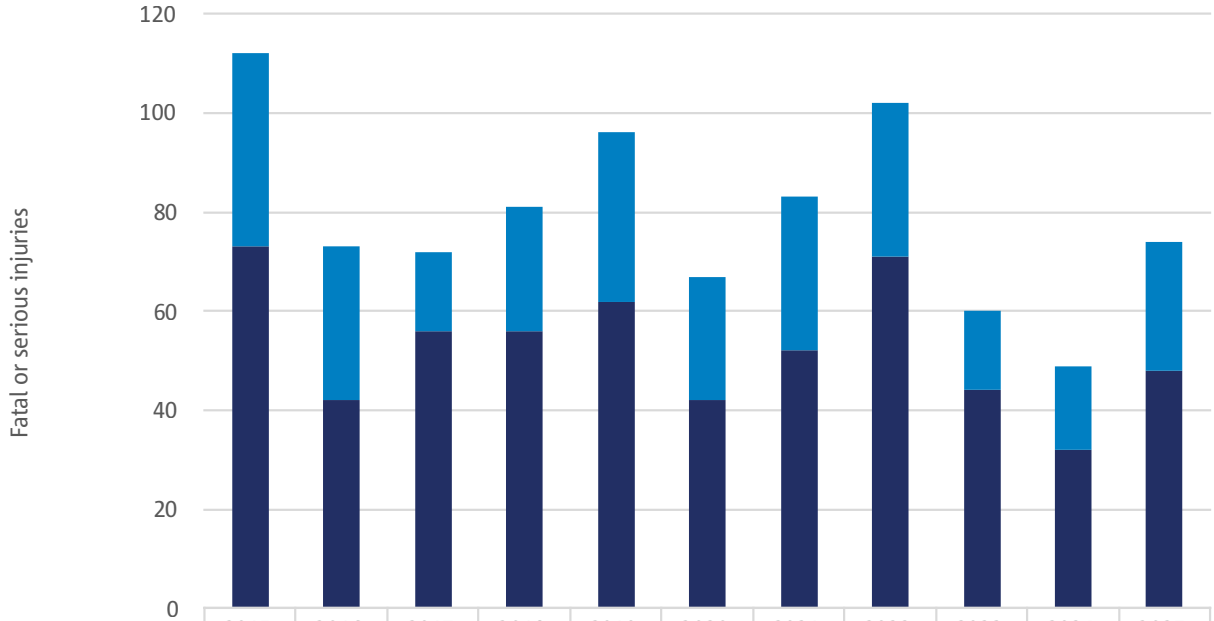
Figure 2.31: Numbers of fatal accidents, non-fatal accidents, and serious incidents per year involving non-commercially operated microlights



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	3	17	15	22	11	17	5	6	3	6	8
Non-fatal accidents	146	164	149	162	146	156	165	153	135	121	135
Fatal accidents	49	31	38	41	38	30	37	44	32	22	34

Figure 2.32 provides an overview of the reported fatalities and serious injuries involving non-commercially operated microlights during the same period. The number of fatalities was 48 in 2025, compared with 32 in 2024. This remains below the highest annual number over the previous decade (73 in 2015). Serious injuries stood at 26 in 2025, compared with 17 in 2024. This means however that 2025 is well above the lowest results in the previous decade (16 in each 2017 and 2023).

Figure 2.32: Numbers of fatal and serious injuries per year involving non-commercially operated microlights



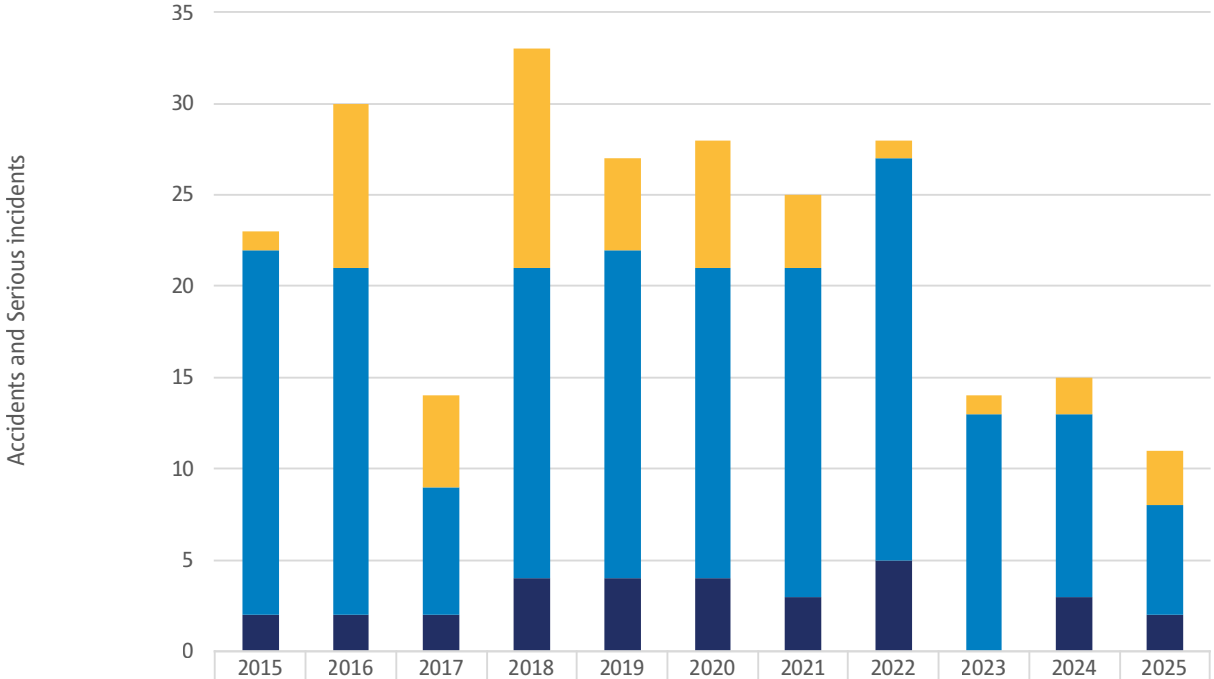
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	39	31	16	25	34	25	31	31	16	17	26
Fatalities	73	42	56	56	62	42	52	71	44	32	48

Aeroplanes registered outside the EASA Member States

Aeroplanes registered outside the EASA Member States but operated inside the union, fall outside of EASA's regulatory remit. Most of these aeroplanes are registered in the United States of America (N-registered aeroplanes), and in the United Kingdom (G-registered aircraft). To provide an overview of this sector, EASA provides figures of accidents and serious incidents that have been reported to or collected by EASA. The dataset only includes certified VLA, LSA and small aeroplanes, the time period used is 2015–2025.

Figure 2.33 shows the fatal accidents, non-fatal accidents and serious incidents per year for non-EASA registered aeroplanes. Non-fatal accidents represent most accidents throughout the period, while the number of fatal accidents is lower. For the year 2025, the respective numbers are two (fatal accidents) and six (non-fatal accidents) in 2025. Additionally, there were three serious incidents in 2025.

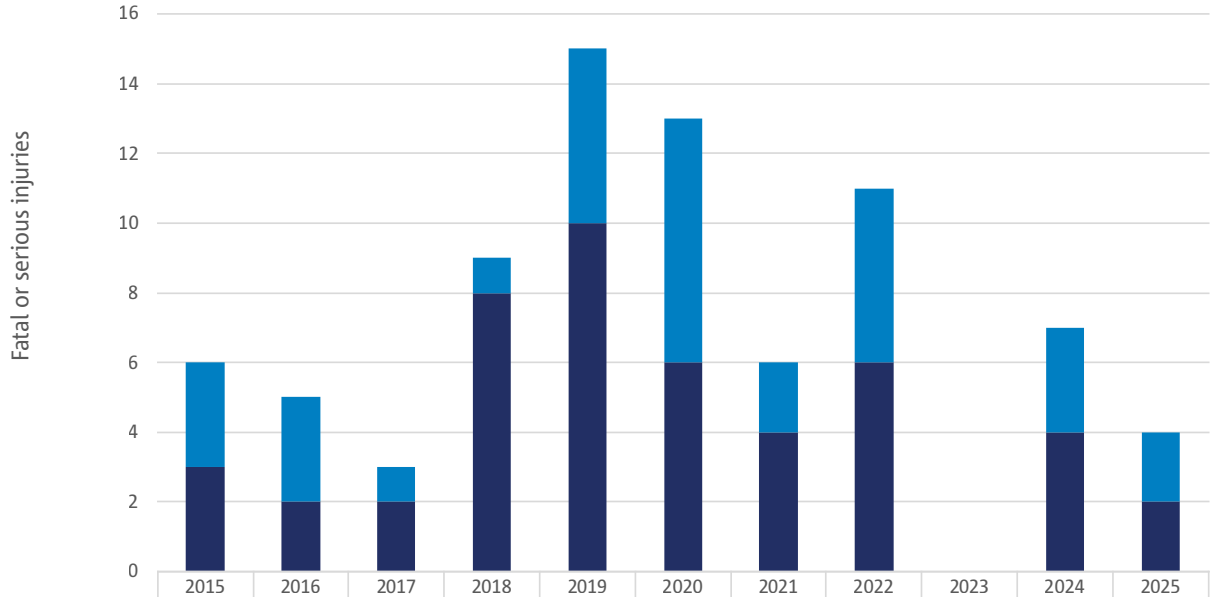
Figure 2.33: Numbers of fatal accidents, non-fatal accidents, and serious incidents in EASA Member States per year involving non-commercially operated aircraft not registered in an EASA Member State



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	1	9	5	12	5	7	4	1	1	2	3
Non-fatal accidents	20	19	7	17	18	17	18	22	13	10	6
Fatal accidents	2	2	2	4	4	4	3	5	0	3	2

Figure 2.34 shows the fatalities and serious injuries per year. In 2025 there were two fatalities and two serious injuries.

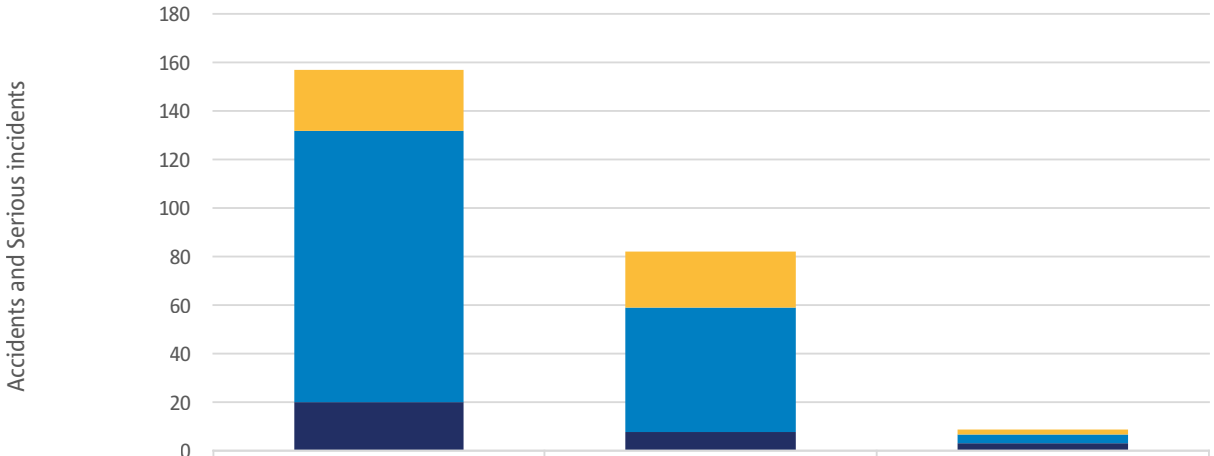
Figure 2.34: Numbers of fatal and serious injuries per year involving non-commercially operated aircraft not registered in the EASA Member State



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	3	3	1	1	5	7	2	5	0	3	2
Fatalities	3	2	2	8	10	6	4	6	0	4	2

Figure 2.35 shows the accidents (fatal and non-fatal) and serious incidents over the 2015–2025 period for non-commercially operated aeroplanes not registered in an EASA Member State but occurring in the EASA Member States, by State of Registry. N-registered aeroplanes account for the largest total number of occurrences (157), comprising of 20 fatal accidents, 112 non-fatal accidents and 25 serious incidents. G-registered aeroplanes follow with 82 occurrences: 8 fatal accidents, 51 non-fatal accidents and 23 serious incidents.

Figure 2.35: Numbers of fatal, non-fatal accidents, and serious incidents on non-commercially operated aeroplanes not registered in the EASA Member State and occurring within the EASA Member State



	N-registered	G-registered	Other
Serious incidents	25	23	2
Non-fatal accidents	112	51	4
Fatal accidents	20	8	3

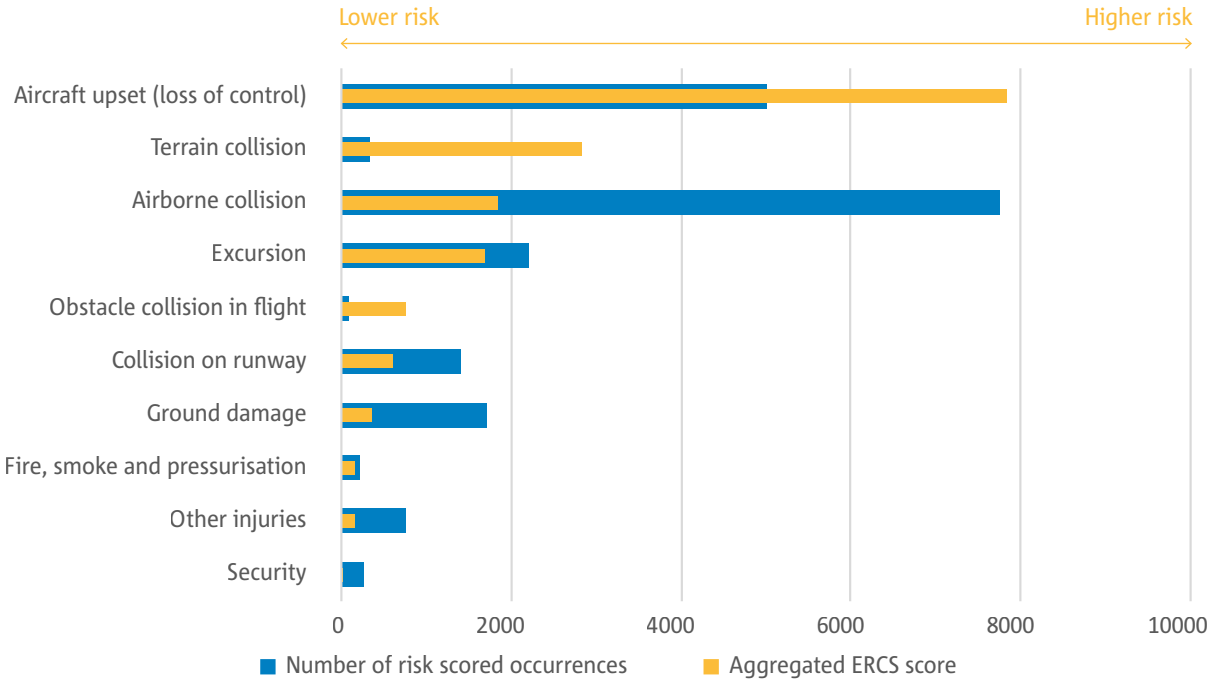
Safety risks

The safety risks for the non-commercially operated small aeroplanes are derived from all classes of occurrences recorded in the ECR, covering the three-year period 2023–2025. From the 28 309 occurrences in reported over the 3-year period, 19 945 occurrences were completed with the KRA and ERCS safety risk score, representing an ERCS completion rate of 70% for the domain. The hereafter information is solely based on this restricted dataset.

The relative comparison between KRAs for this domain is highlighted in Figure 2.36. KRAs and occurrence categories (refer Figure 2.28 and Figure 2.29) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the ASR introduction.

Aircraft upset (loss of control) is the most significant KRA for this domain, accounting for both the highest number of risk-scored occurrences and the highest aggregated ERCS safety risk score. Terrain collision produces the next highest aggregated safety risk score; while it involves fewer occurrences than aircraft upset, its high aggregated score indicates a comparatively high safety risk per occurrence. Airborne collision and excursion also feature among the more prominent Key Risk Areas, followed by obstacle collision in flight and collision on runway.

Figure 2.36: KRAs by aggregated ERCS score and number of risk-scored occurrences involving NCO aeroplanes (2023–2025)





Chapter 3
Helicopters

3. Helicopters

This chapter covers all operations involving EASA certified or validated helicopters. The chapter is divided in four main sections:

- **All helicopter operations** providing aggregated statistics on EASA certified or validated helicopters performing Commercial air transport (CAT), Specialised operations (SPO) or Non-commercial operations (NCO), and for which an EASA Member State is either state of operator, state of registry or state of occurrence;
- **CAT flights** conducted by EASA AOC holders and using certified or validated helicopters. This section brings together CAT helicopter operations for both onshore and offshore flights and includes HEMS, air ambulance, air taxi or sightseeing, and those flights to offshore oil, gas and renewable energy installations;
- **SPO** involving certified or validated helicopters, such as sling load, advertisement, and photography operations where an EASA Member State is the state of the operator or the state of registry;
- **NCO** involving certified or validated helicopters, where an EASA Member State is the state of operator or is state of registry. This section includes, particularly 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.

For each section, the key statistics, occurrence categories and safety risks are presented in the safety review. The overview of the safety risks is solely derived from occurrence data from the ECR.

The list of fatal accidents associated with the scope of this chapter is provided in Appendix 1 of this document.

3.1 All helicopter operations

The scope of this section covers the safety performance of certified or validated helicopters performing CAT, SPO or NCO, for which an EASA Member State is either the state of operator, the state of registry or the state of occurrence.

As there is variation in the figures for the helicopter flying activity at the European level and because it is difficult to estimate the corresponding mission types and hours flown, these figures are not normalised by traffic data. The data presented in this report highlights the importance of safety analysis and the benefits of data collection and sharing. Through its continued cooperation with the European Helicopter Association (EHA), the Rotorcraft Community and other stakeholders, EASA works to improve the quality and completeness of safety data to build a more comprehensive understanding of the sector's safety performance. This collaborative approach is essential for identifying emerging risks, measuring progress and supporting more effective safety actions.

Key statistics

The key statistics for this domain are in Table 3.1 and Table 3.2. It includes a comparison of the number of accidents (fatal and non-fatal) and serious incidents for the last year with the previous 10-year period. Similarly, a comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe is included.

In summary, the total number of fatal and non-fatal helicopter accidents in 2025 changed only a slightly change compared with previous five years. However, the number of reported serious incidents remains significantly higher

than the average recorded over the previous decade. This upward trend is associated with the inherent operational risks, where even serious incidents frequently result in substantial aircraft damage.

Table 3.1: Key statistics for all helicopter operations

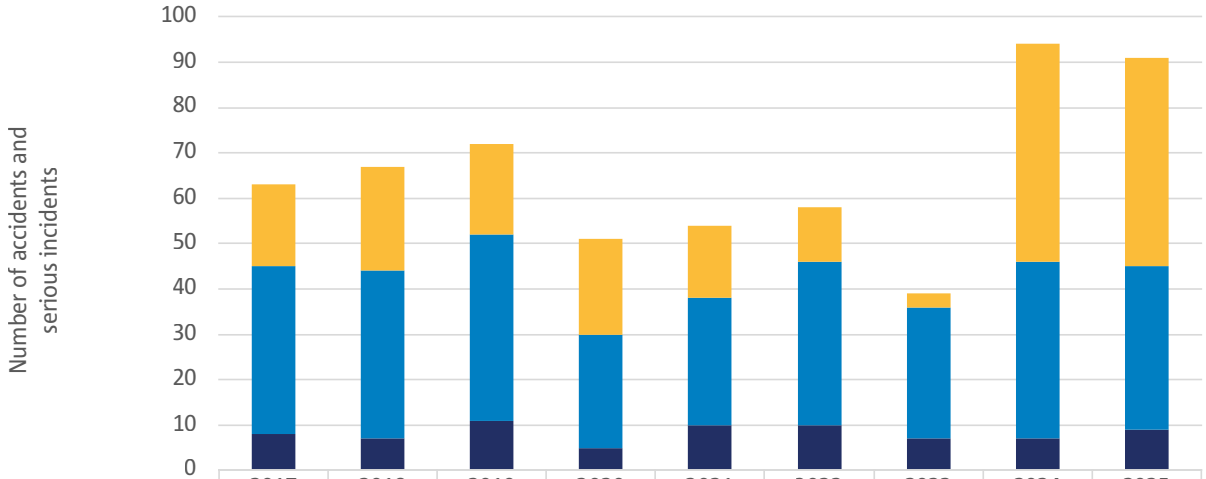
	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	79	9	▲
Non-fatal accidents	347	36	▲
Serious incidents	184	46	▲

Table 3.2: Fatalities and serious injuries involving all helicopter operations

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	181	111
Yearly max number for 2015–2024	37	19
Yearly min number for 2015–2024	9	5
Total number in 2025	18	16

The figure below shows the distribution of fatal, non-fatal accidents, and serious incidents over the period 2015–2025 (Figure 3.1). While the total number of accidents and serious incidents decreased slightly compared with 2024, the increase in fatal accidents and fatalities in 2025 reinforces the need for targeted safety topics and continued focus on risk mitigation measures.

Figure 3.1: Fatal accidents, non-fatal accidents, and serious incidents per year involving all helicopter operations

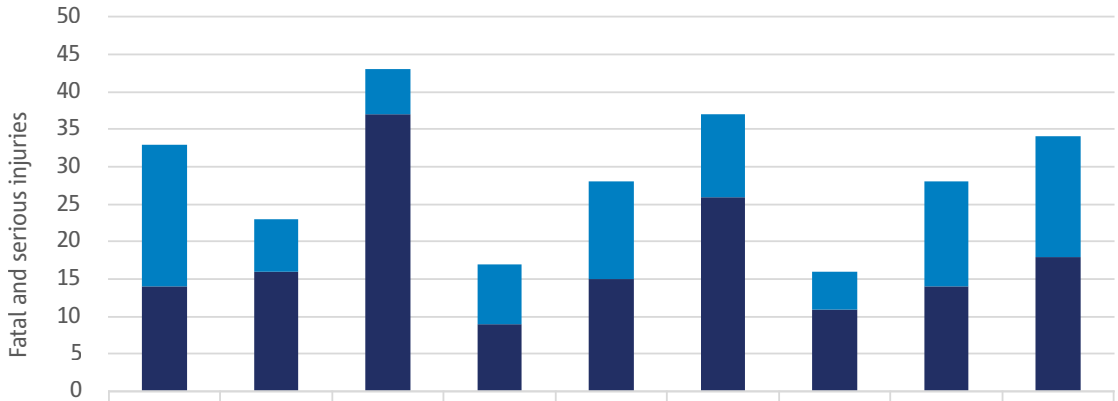


	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	18	23	20	21	16	12	3	48	46
Non-fatal accidents	37	37	41	25	28	36	29	39	36
Fatal accidents	8	7	11	5	10	10	7	7	9

In the last 5-year period (2021–2025), there were 84 fatalities resulting from the 43 identified fatal-accidents.

The number of fatalities and serious injuries per year is shown in Figure 3.2. Compared with the average for 2020–2024, 2025 shows an increase in both fatalities and serious injuries and is above the five-year average for both.

Figure 3.2: Fatal and serious injuries per year involving all helicopter operations



	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	19	7	6	8	13	11	5	14	16
Fatalities	14	16	37	9	15	26	11	14	18

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

Categories are of different natures, for example:

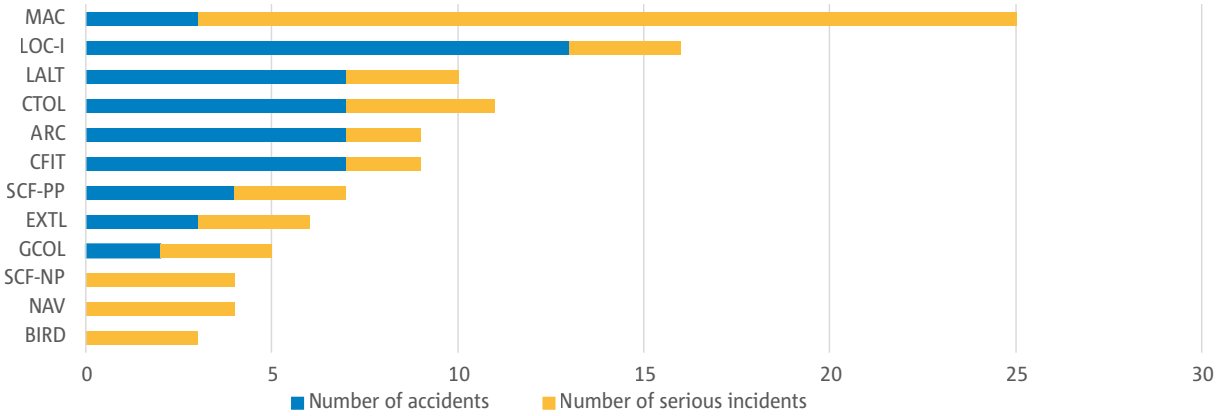
- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

Accidents are complex events involving multiple contributing factors. Where available, the official accident report should be regarded as the authoritative source for describing the event and identifying its causal factors. In some cases, a CICTT occurrence category is assigned based on the information available at the time, particularly when no additional details are expected.

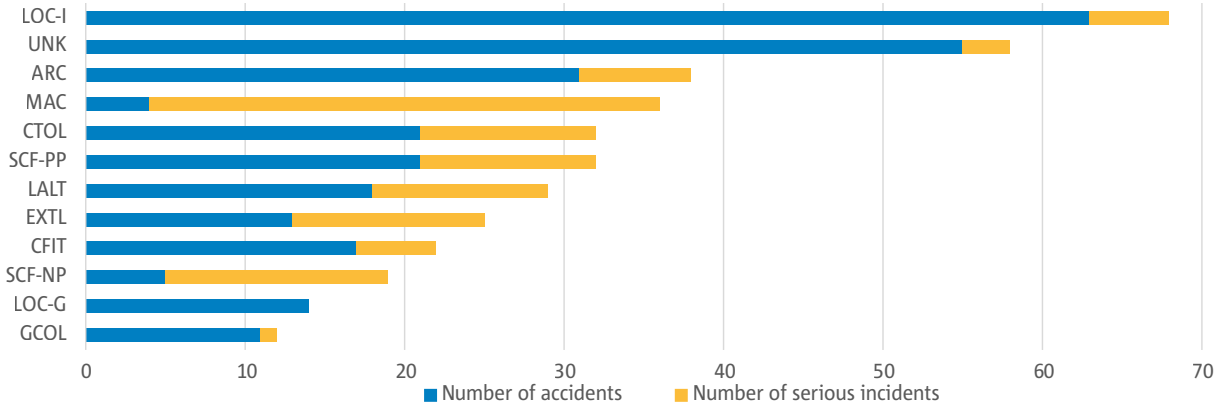
Figure 3.3 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025, while Figure 3.4 illustrates the distribution over the period 2020–2024.

Figure 3.3: Numbers of accidents and serious incidents by occurrence category and occurrence class for all helicopter operations (2025)



MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; LOC-I: Loss of control – inflight; CTOL: Collision with obstacle(s) during take-off and landing; LALT: Low altitude operations; ARC: Abnormal runway contact; CFIT: Controlled flight into or toward terrain; SCF-PP: powerplant failure or malfunction; EXTL: External load related occurrences; GCOL: Ground Collision; SCF-NP: System/component failure or malfunction [non-powerplant]; NAV: Navigation error; BIRD: Bird

Figure 3.4: Numbers of accidents and serious incidents by occurrence category and occurrence class for all helicopter operations (2020–2024)



LOC-I: Loss of control – inflight; UNK: Unknown or undetermined; ARC: Abnormal runway contact; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; CTOL: Collision with obstacle(s) during take-off and landing; SCF-PP: powerplant failure or malfunction; LALT: Low altitude operations; EXTL: External load related occurrences; CFIT: Controlled flight into or toward terrain; SCF-NP: System/component failure or malfunction [non-powerplant]; LOC-G: Loss of control – ground; GCOL: Ground Collision;

In 2025, for serious incidents, MAC — Airprox/ACAS alert/loss of separation/(near) mid-air collisions — was the predominant occurrence category, with 22 reported serious incidents. In the same year, for accidents, loss of control in flight (LOC-I) remained the leading occurrence category. LOC-I refers to the loss of aircraft control while airborne and has accounted for more than 42% of fatal helicopter accidents over the past decade.

In the five-year period 2020–2024, for accidents, both fatal and non-fatal, the three most common occurrence categories were loss of control in flight (LOC-I), abnormal runway contact (ARC), and collision with obstacle(s) (CTOL).

Compared with 2020–2024, the safety profile in 2025 shifted towards more MAC-related serious incidents, while LOC-I continued to be the leading occurrence category for accidents.

Because accidents often involve a chain of events, looking at LOC-I in isolation only shows part of the picture. Accidents are therefore often classified using more than one occurrence category; therefore, it is important to consider the relationship between LOC-I and other risk areas. For example, deteriorating weather conditions

can cause the pilot to lose outside visual references, which can result in disorientation with the inevitable loss of control. The helicopter is naturally dynamically unstable, without extreme care and attention to the flight instruments, loss of control can occur very quickly. Inadvertent IMC is a significant precursor to LOC-I. Recognising this trend, EASA has identified 'Inadvertent entry in IMC for rotorcraft and for General Aviation' as top safety topic.

Recent increases in reported losses of required minimum in-flight separation of aircraft, known as airproxes (MAC), reemphasise the need of pilots to adhere to basic 'see and avoid' practices in all airspace classes, and to improve awareness of the lack of separation risk within every airspace class.

In terms of underlying causes, miscommunication or loss of communication between flight crews and ATC, continue to be an important contributing factor in these occurrences. Such events may reduce situational awareness, cause misunderstandings of clearances or traffic intentions, and result in inadequate aircraft separation. Reported airproxes is considered an important precursor to MAC, although other safety barriers may prevent an actual collision.

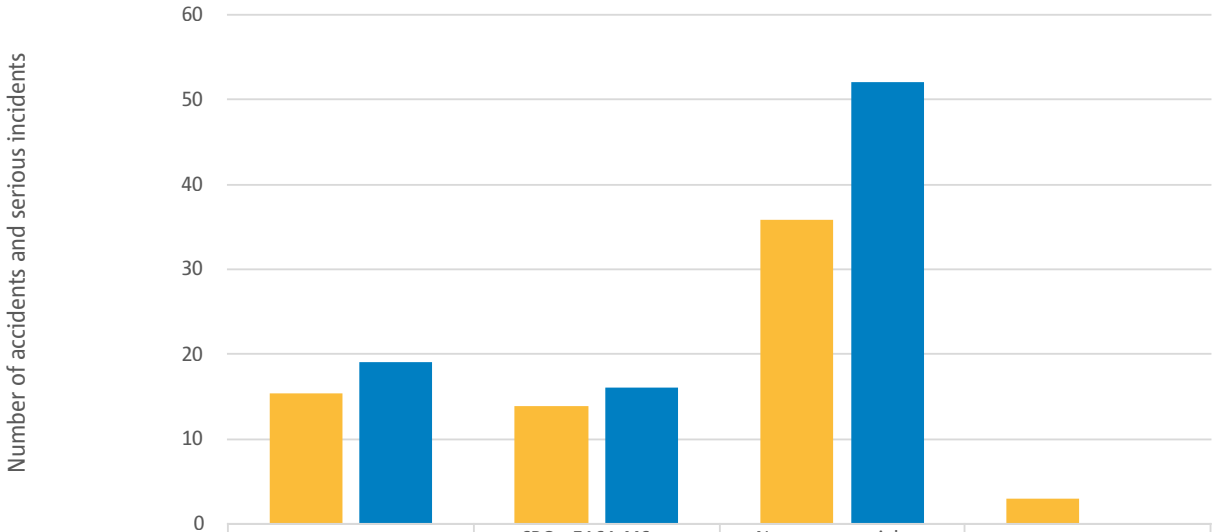
Helicopter operations sub-domains

Figure 3.4 shows the numbers of accidents and serious incidents for the four main sub-domains of operations involving certified and validated helicopters. Compared with the 2015–2024 average, the total number of accidents and serious incidents increased across all sub-domains in 2025.

Over the decade 2015–2024, the proportions of each domain are the following:

- 22.5% of all accidents and serious incidents involved certified and validated helicopters performing CAT conducted by EASA Member State AOC holders. In 2025 an increase from an average of 15.2 to 19 occurrence, approximately 25% increase.
- 20.3% of all accidents and serious incidents involved certified and validated helicopters performing SPO and for which an EASA Member State was either the state of operator or state of registry. In 2025 an increase from an average of 13.7 to 16 occurrence, approximately 17% increase.
- 52.9% of all accidents and serious incidents involved certified and validated helicopters performing non-commercial operations and for which an EASA Member State was either the state of operator or was the state of registry. In 2025 an increase from an average of 35.7 to 52 occurrence, a 46% increase, representing the largest absolute and relative increase.
- 2% of all accidents and serious incidents involved certified helicopters whose state of operator and state of registry were a third country but for which the state of occurrence was an EASA Member State. In 2025 there was no accident or serious incident involving such aircraft.

Figure 3.5: Accidents and serious incidents by helicopter operation sub-domains



	CAT - EASA MS AoC holder	SPO - EASA MS operated or registered	Non commercial - EASA MS operated or registered	Third country registered
Average 2015-2024	15.2	13.7	35.7	2.9
2025	19	16	52	0

Safety risks

The safety risks presented below are based on all classes of occurrences recorded in the ECR between 2023 and 2025. During this period, 8 780 of the 12 650 reported occurrences included a completed safety risk score, resulting in an ERCS completion rate of 69% for the domain.

The information hereafter is solely based on this restricted dataset.

The relative comparison between KRAs for this domain is highlighted in Figure 3.6. KRAs and occurrence categories (refer to Figure 3.3 and Figure 3.4) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the introduction of the ASR document.

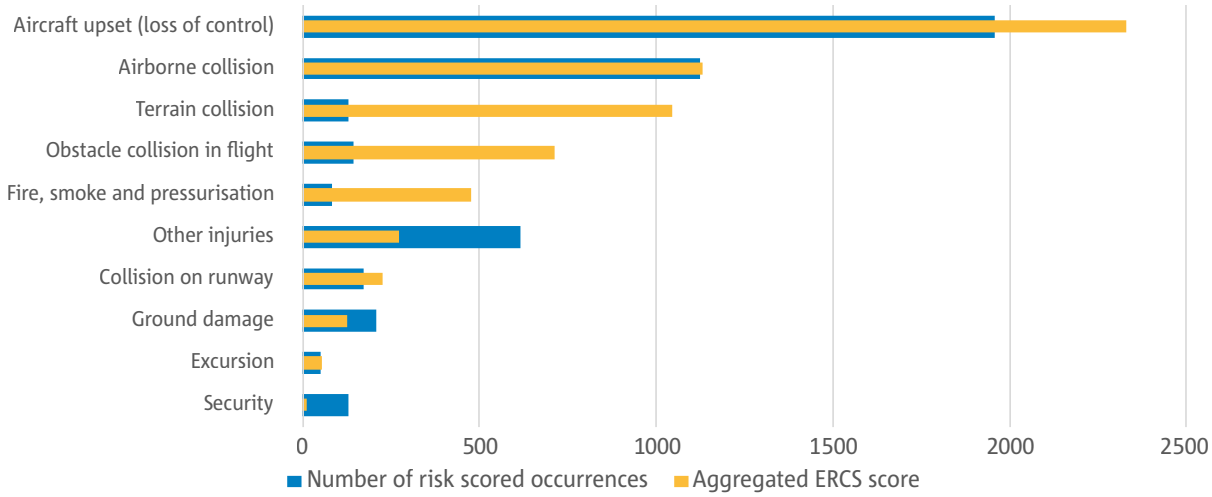
In the visual below you can see the top KRAs with the higher-risk KRAs being:

- **Aircraft upset (loss of control)** refers to an undesired aircraft state characterised by an unintentional deviation from the parameters normally experienced during flight, which may ultimately lead to an uncontrolled impact with terrain. It remains one of the most significant KRAs in the helicopter domain because of the potentially severe consequences associated with such events. Various factors can contribute to an aircraft upset, including engine failures, adverse weather conditions, maintenance-related events and human performance (HP) issues, such as inappropriate energy management, inappropriate automation management, spatial disorientation, weaknesses in monitoring. Preventing and managing these events requires pilots to apply both their technical and non-technical competencies effectively to maximise resilience and minimise the likelihood and consequences of unexpected situations.
- **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 such as UAS (but excluding birds and wildlife). Despite accounting for a relatively small portion of the aggregated

ERCS equivalent score weight, over the past year, airborne collision remains a significant contributor to occurrences. The highlights the importance of effective traffic scanning and situational awareness for both manned and unmanned aircraft. Between 2023 and 2025, the number of reported occurrences associated with airborne collision as a key risk area increased, particularly those involving other airborne objects including also UAS and drones. During the same period, a mid-air collision between two helicopters resulted in five fatalities. Both helicopters were destroyed, and all occupants sustained fatal injuries. The helicopters were not operating as part of a planned or formal formation at the time of the collision. The increase in reported airprox occurrences justifies the continued attention to the prevention of MAC, which EASA identifies as a candidate top safety topic.

- **Terrain collision (CFIT)** includes occurrences in which an aircraft collides with terrain without any indication that the flight crew were unable to maintain control of the aircraft. Although terrain collision is not the most frequent accident outcome in the rotorcraft domain, it has the highest ERCS equivalent weight reflecting the potentially severe consequences of such events. While recent accident data indicate that the number of CFIT occurrences has declined, they continue to represent a significant safety risk.

Figure 3.6: KRAs by aggregated ERCS score and number of risk-scored occurrences involving all helicopter operations (2023–2025)



3.2 Commercial air transport (CAT) helicopters

This section covers the safety performance of EASA certified or validated helicopters performing CAT and operated by an EASA Member State AOC holder. This includes offshore flights, as well as onshore HEMS, air ambulance, sightseeing tours, air taxis or any other operation to transport passengers, cargo or mail for remuneration or other valuable consideration.

Key statistics

The key statistics for this domain are in Table 3.3 and Table 3.4, which include a comparison of the number of accidents (fatal and non-fatal) and serious incidents for the last year and the previous ten-year period. It also includes a comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe.

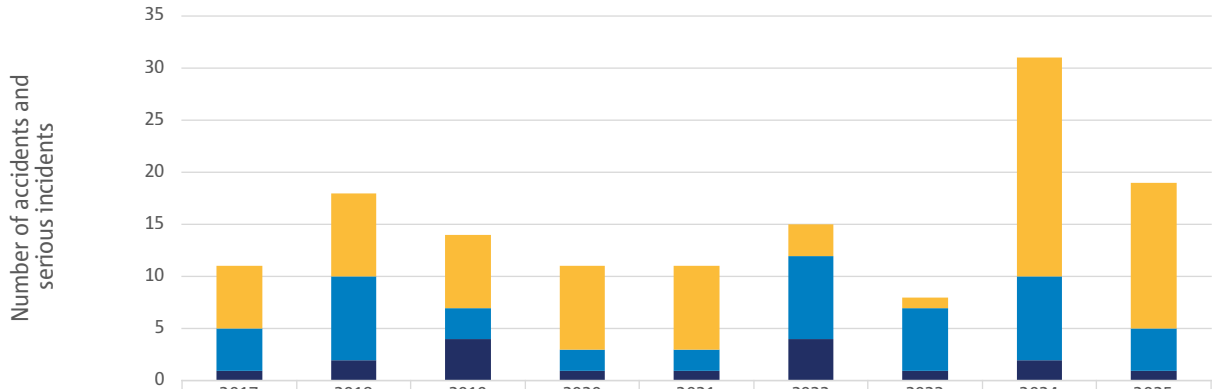
Table 3.3: Key statistics for CAT helicopters

	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	22	1	▼
Non-fatal accidents	55	4	▼
Serious incidents	67	14	▲

Table 3.4: Fatalities and serious injuries involving CAT helicopters

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	95	20
Yearly max number for 2015–2024	27	7
Yearly min number for 2015–2024	1	0
Total number in 2025	3	1

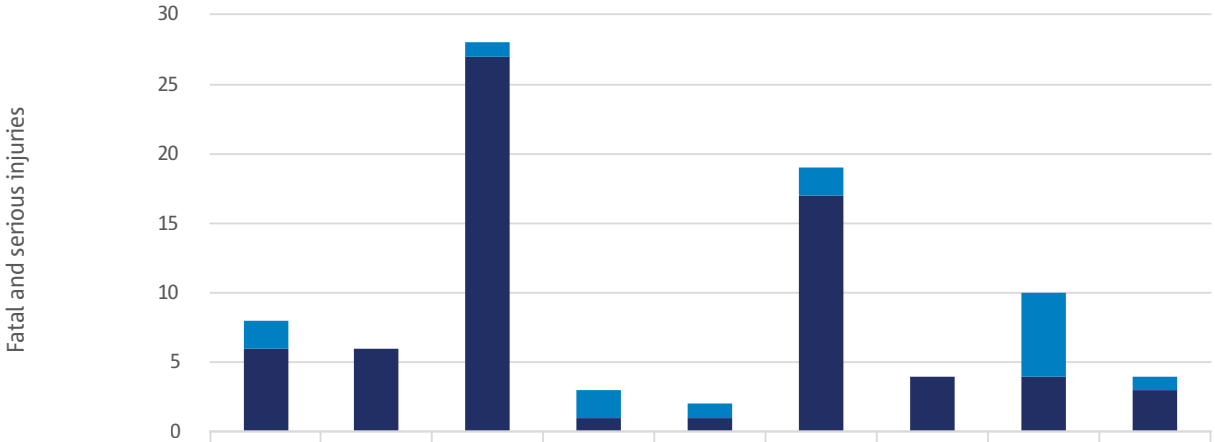
Figure 3.7: Fatal accidents, non-fatal accidents and serious incidents per year involving CAT helicopters



	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	6	8	7	8	8	3	1	21	14
Non-fatal accidents	4	8	3	2	2	8	6	8	4
Fatal accidents	1	2	4	1	1	4	1	2	1

In 2025, the overall number of accidents and serious incidents decreased compared with the historical average; however, the number of reported serious incidents remains high.

Figure 3.8: Fatal and serious injuries per year involving CAT helicopters



	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	2	0	1	2	1	2	0	6	1
Fatalities	6	6	27	1	1	17	4	4	3

In 2025, fatalities and serious injuries were lower than the historical average for the 10-year period.

The serious injury occurred during an alpine search and rescue mission when a person was struck by a tree branch dislodged by the helicopter's rotor downwash.

The fatal accident occurred at night in conditions reported as foggy. However, the preliminary investigation remains ongoing, and the information currently available should not be interpreted as a final determination of causation.

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

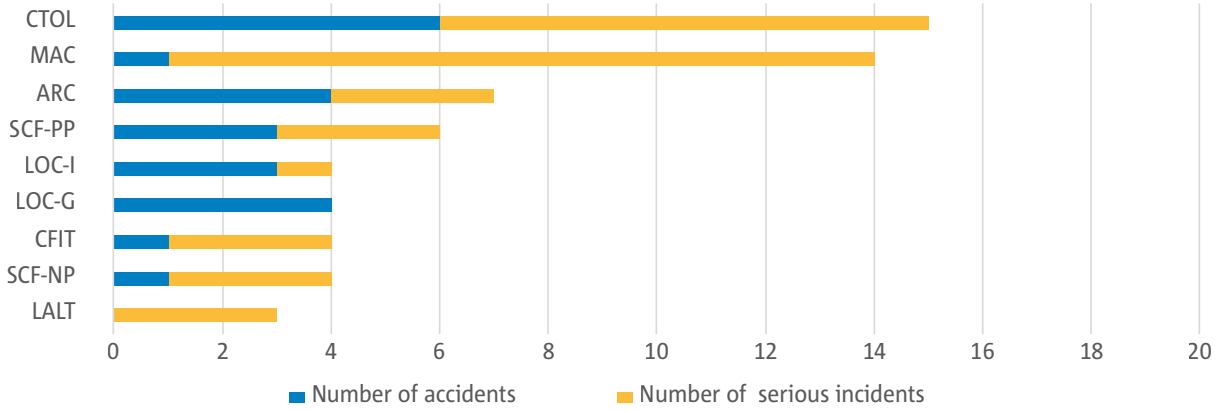
Categories are of different natures, for example:

- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

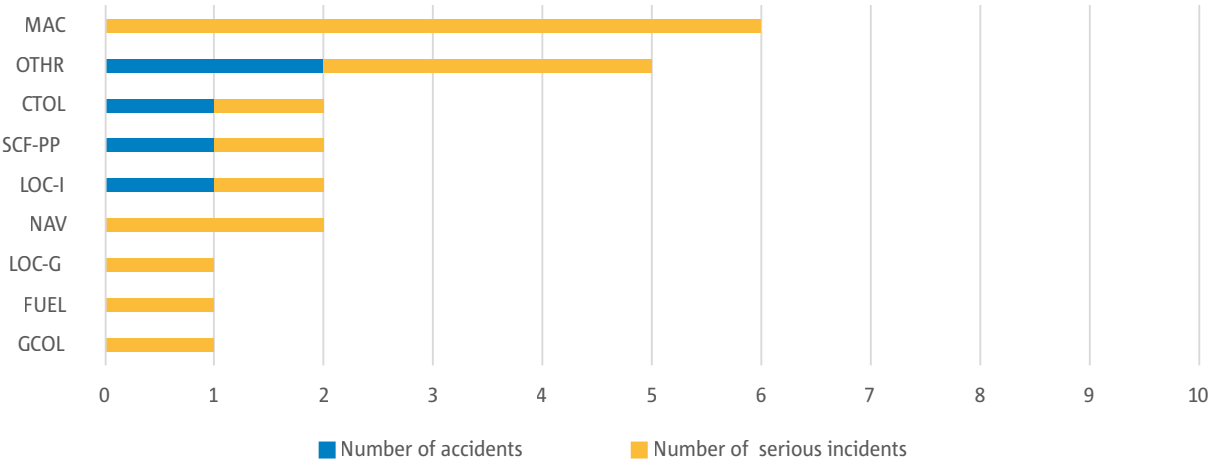
Figure 3.9 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025, while Figure 3.10 illustrates the distribution over the period 2020–2024.

Figure 3.9: Numbers of accidents and serious incidents by occurrence category and occurrence class involving CAT helicopters (2025)



MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; OTHR: Other; CTOL: Collision with obstacle(s) during take-off and landing; SCF-PP: powerplant failure or malfunction; LOC-I: Loss of control – inflight; NAV: Navigation error; LOC-G: Loss of control – ground; FUEL: Fuel Related; GCOL: Ground Collision

Figure 3.10: Numbers of accidents and serious incidents by occurrence category and occurrence class involving CAT helicopters (2020–2024)



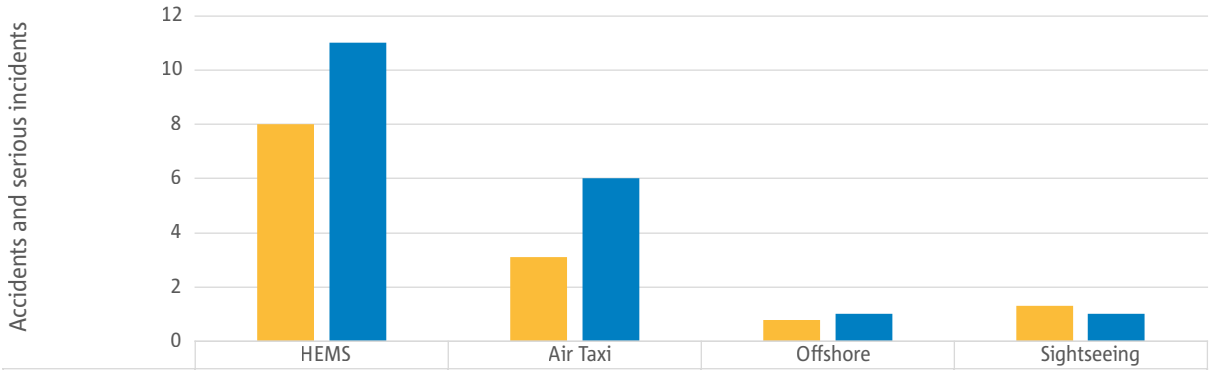
CTOL: Collision with obstacle(s) during take-off and landing; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; ARC: Abnormal runway contact; OTHR: Other; SCF-PP: powerplant failure or malfunction; LOC-I: Loss of control – inflight; NAV: Navigation error; LOC-G: Loss of control – ground; CFIT: Controlled flight into or toward terrain; SCF-NP: System/component failure or malfunction [non-powerplant]; LALT: Low altitude operations

The three most common occurrence categories associated with all accidents involving CAT helicopters over 2020–2024 are: CTOL: Collision with obstacle(s) during take-off and landing with a high number of serious incidents; Airprox/ACAS alert/loss of separation/(near) midair collisions remains high exposed in commercial operations with an increased number in reported serious incidents, followed by ARC: Abnormal runway contact. 2025 CAT operations safety profile remains primarily driven by MAC events.

Operation type

Figure 3.11 shows the number of accidents and serious incidents per sub-type of operations. With 19 total occurrences in 2025, five accidents and 14 serious incidents, HEMS operations saw a rise by more than a third above the previous decade's average. Air Taxi operations showed a comparable upward trend.

Figure 3.11: Accidents and serious incidents by operation type involving CAT helicopters



	HEMS	Air Taxi	Offshore	Sightseeing
Average 2015-2024	8	3.1	0.8	1.3
2025	11	6	1	1

Safety risks

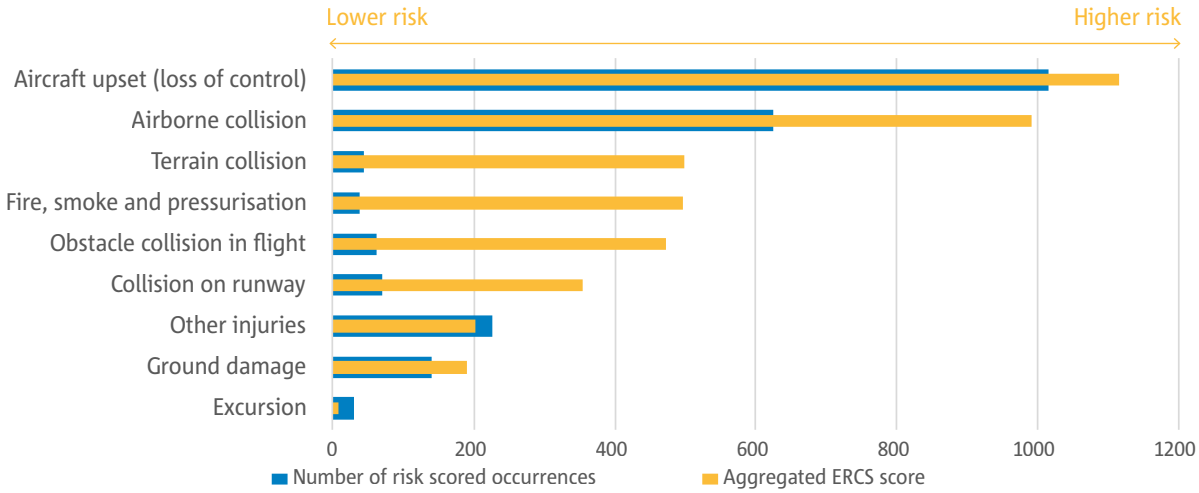
The safety risks presented below are derived from all classes of occurrences recorded in the ECR, covering the three-year period of 2023–2025. Across the three-year period, approximately 5 660 occurrences were reported, of which 4 212 were completed, representing a completion rate of 74% for the domain. The following information is solely based on this restricted dataset.

The relative comparison between KRAs for this domain is highlighted in Figure 3.12. KRAs and occurrence categories (refer to Figure 3.9 and Figure 3.10) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the introduction of the ASR document.

Aircraft upset remains the main KRA for the CAT helicopters domain. Terrain Collision and Fire, Smoke, and pressurisation recorded fatal accidents during the 2023–2024 analysed period, elevating the risk for these key risk areas into the top three. Due to the nature of their activity, the special equipment required and the conditions in which they fly (e.g. operations at low altitudes and in adverse weather conditions, to reach patients in remote or inaccessible areas) CAT helicopters are exposed to many challenging operational and environmental threats.

The aggregated ERCS score ranks airborne collision as the second highest KRA in the helicopter domain. Between 2023 and 2025, the number of reported airprox occurrences increased, particularly those involving other airborne objects such as unmanned aircraft systems (UAS). This trend reflects the increasing complexity of the airspace environment and highlights the importance of maintaining effective see-and-avoid principles, situational awareness and robust operating procedures.

Figure 3.12: KRAs by aggregated ERCS score and number of risk-scored occurrences involving CAT helicopters (2023–2025)



3.3 Specialised Operations (SPO) helicopters

This section covers the safety performance of EASA certified or validated helicopters performing SPO with an EASA Member State being the state of operator or the State of registry. SPO are defined as any operation other than CAT where the aircraft is used for specialised activities such as agriculture, construction, photography, surveying, observation and patrol, aerial advertisement.

Key statistics

The key statistics for this domain are in Table 3.5 and Table 3.6, and include a comparison of the number of accidents (fatal and non-fatal) and serious incidents for the last year and the previous 10-year period. Also included is a comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe.

In 2024, there was a slight increase in the number of serious incidents compared to the previous year, while the occurrences of non-fatal accidents and fatal accidents remained at their lowest levels.

Table 3.5: Key statistics for SPO helicopters

	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	14	2	▲
Non-fatal accidents	91	6	▼
Serious incidents	43	8	▲

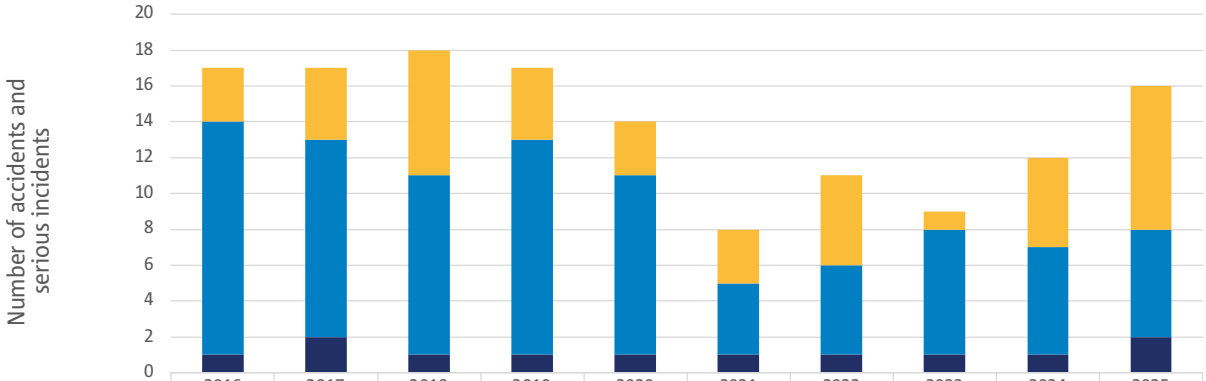
Table 3.6: Fatalities and serious injuries involving SPO helicopters

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	17	37
Yearly max number for 2015–2024	3	6

	Number of fatalities	Number of serious injuries
Yearly min number for 2015–2024	1	1
Total number in 2025	2	6

The number of accidents and serious incidents per year is shown in Figure 3.13.

Figure 3.13: Fatal accidents, non-fatal accidents and serious incidents per year involving SPO helicopters



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	3	4	7	4	3	3	5	1	5	8
Non-fatal accidents	13	11	10	12	10	4	5	7	6	6
Fatal accidents	1	2	1	1	1	1	1	1	1	2

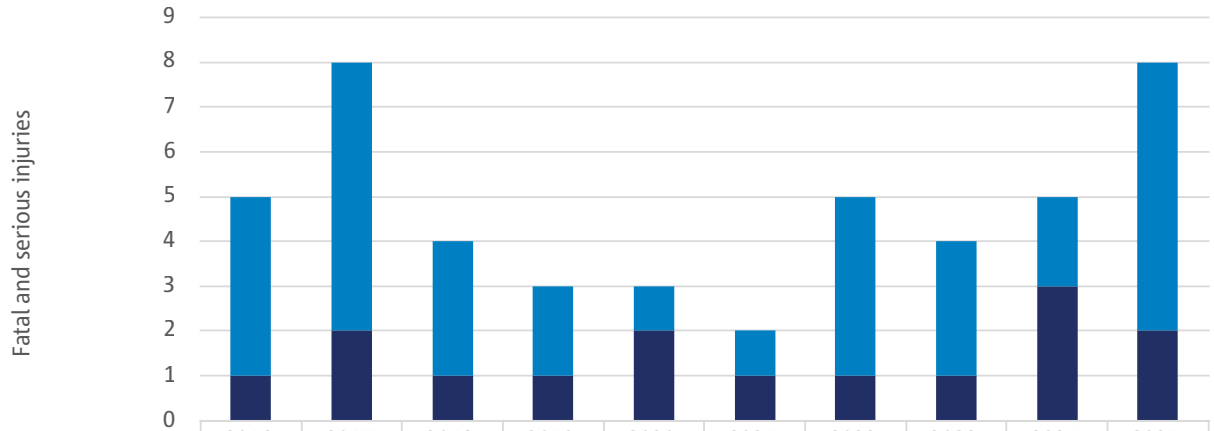
The numbers of fatalities and serious injuries per year are shown in Figure 3.14. The analysis of injuries and fatalities shows that 2025 recorded one of the highest total numbers of casualties in the past decade and, with six reported serious injuries, the highest number of serious injuries during the same period. The HESLO (Helicopter External Sling Load Operations) accidents and serious incidents highlight the specific operational risks associated with external load activities, particularly when conducted in complex environments such as mountainous terrain, confined areas, and worksites with limited margins for error.

Key contributing risk factors include:

- External load handling and load dynamics: loss of control during load transport, unexpected load behaviour can significantly increase operational complexity.
- Mountainous and high-altitude operations: several occurrences took place in mountainous environments, where terrain, weather conditions, and reduced performance margins increase the risk exposure.
- Manoeuvring in confined area operations: operations conducted near obstacles, or areas which require high levels of precision and situational awareness. Collision with obstacles and loss of control in flight remain significant hazards.
- Ground personnel exposure: external load operations involve personnel working in close proximity to the helicopter, increasing the potential consequences of an occurrence, as demonstrated by the fatal injury to a ground worker in one event.

The reported injuries occurred during unloading activities and were linked to the loss of the external load, resulting in injuries to pilots, crew members, and ground personnel.

Figure 3.14: Fatal and serious injuries per year involving SPO helicopters



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	4	6	3	2	1	1	4	3	2	6
Fatalities	1	2	1	1	2	1	1	1	3	2

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

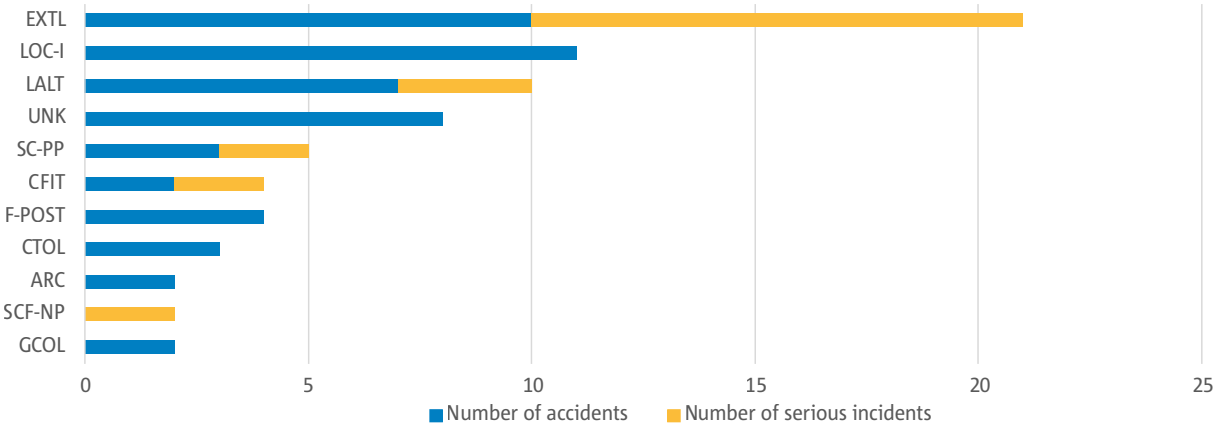
Categories are of different natures, for example:

- Operational such as low altitude operations (LALT);
- External Load Operations (EXTL);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

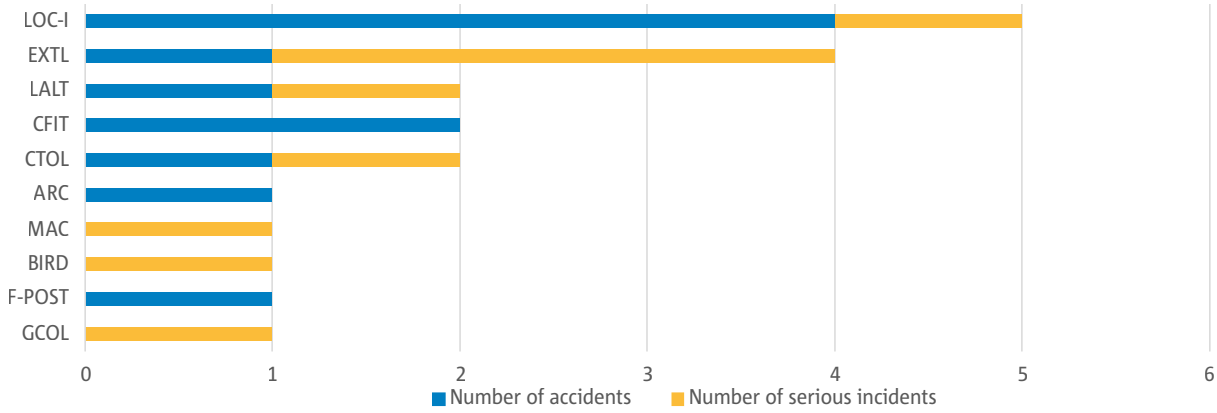
Figure 3.15 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025, while Figure 3.16 illustrates the distribution over the period 2020–2024.

Figure 3.15: Numbers of and accidents and serious incidents by occurrence category and occurrence class involving SPO helicopters (2025)



LOC-I: Loss of control – inflight; EXTL: External load related occurrences; LALT: Low altitude operations; CFIT: Controlled flight into or toward terrain; CTOL: Collision with obstacle(s) during take-off and landing; ARC: Abnormal runway contact; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; BIRD: Bird; F-POST: Fire/smoke (post-impact); GCOL: Ground Collision

Figure 3.16: Numbers of and accidents and serious incidents by occurrence category and occurrence class involving SPO helicopters (2020–2024)



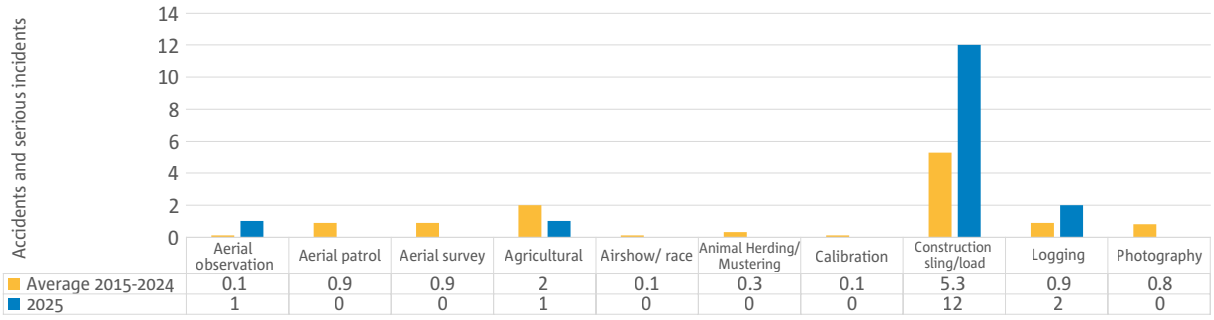
EXTL: External load related occurrences; LOC-I: Loss of control – inflight; LALT: Low altitude operations; UNK: Unknown or undetermined; SCF-PP: powerplant failure or malfunction; CFIT: Controlled flight into or toward terrain; F-POST: Fire/smoke (post-impact); CTOL: Collision with obstacle(s) during take-off and landing; ARC: Abnormal runway contact; SCF-NP: System/component failure or malfunction [non-powerplant]; GCOL: Ground Collision

Specific to this type of operation, helicopters carry external loads for a variety of missions, hence the most frequent occurrence category associated with all accidents and serious incidents is EXTL: External load-related occurrences. It is followed by LOC-I: Loss of control in flight and LALT, both typical hazards for SPO given its low-altitude operations.

Operation type

Figure 3.17 shows the number of accidents and serious incidents per sub-type of SPO operations.

Figure 3.17: Accidents and serious incidents by operation type involving SPO helicopters



	Aerial observation	Aerial patrol	Aerial survey	Agricultural	Airshow/ race	Animal Herding/ Mustering	Calibration	Construction sling/load	Logging	Photography
Average 2015-2024	0.1	0.9	0.9	2	0.1	0.3	0.1	5.3	0.9	0.8
2025	1	0	0	1	0	0	0	12	2	0

Safety risks

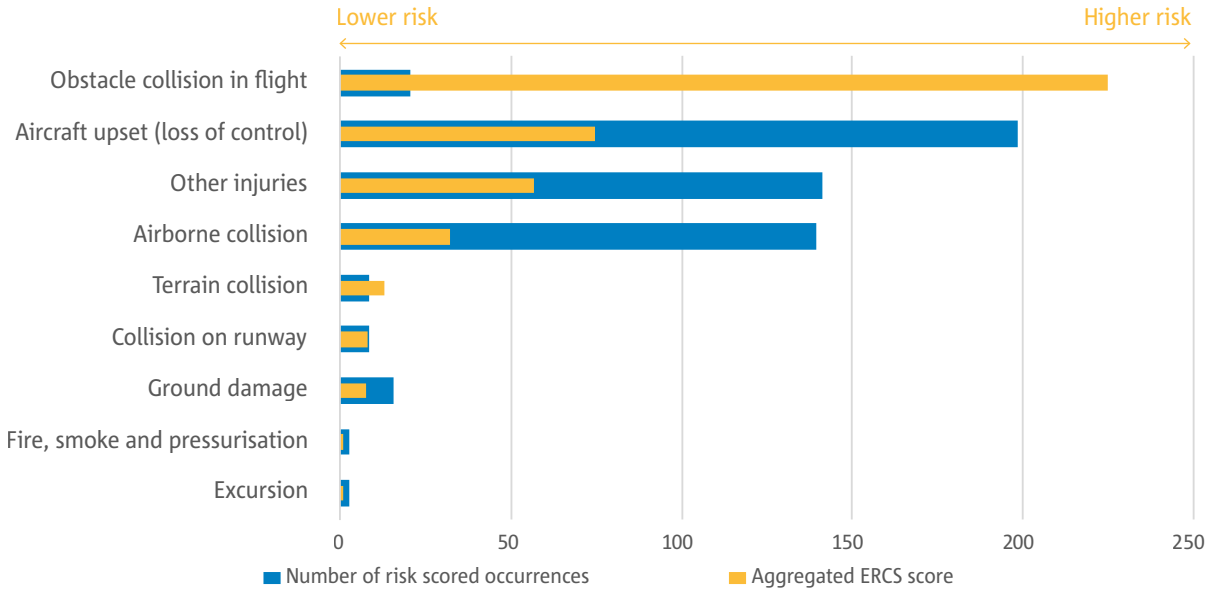
The safety risks presented below are based on all classes of occurrences recorded in the ECR between 2023–2025. Across the three-year period, approximately 1 170 occurrences were reported, of which around 870 were completed with both a KRA and ERCS safety risk score, resulting in an ERCS completion rate of 74% for the domain. The information hereafter is solely based on this restricted dataset.

The relative comparison between KRAs for this domain is highlighted in Figure 3.18. KRAs and occurrence categories (refer to Figure 3.15 and Figure 3.16) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the introduction of the ASR document.

When it comes to KRAs, obstacle collision in flight is the most risky in terms of aggregated risk contribution. This reflects the unique operating environment of helicopters, which routinely operate at low altitudes and in close proximity to terrain, buildings, power lines, trees and other obstacles. Unlike many fixed-wing operations, helicopter missions often take place away from conventional airport environments and frequently involve confined areas, mountainous terrain, offshore operations and temporary landing sites. In these environments, pilots often have limited time and altitude to identify, assess and recover from unexpected situations, increasing both the likelihood and the potential consequences of an obstacle collision.

Aircraft upset or loss of control remains one of the three most significant key risk areas, both in terms of the number of occurrences and the aggregated risk. This highlights the potentially severe consequences of these events and the importance of maintaining the safety barriers designed to prevent their escalation.

Figure 3.18: KRAs by aggregated ERCS score and number of risk-scored occurrences involving SPO helicopters (2023–2025)



3.4 Non-commercial operations (NCO) helicopters

This section covers the safety performance of EASA certified or validated helicopters performing NCO with an EASA Member State as state of operator or State of registry. The types of operation included in this section include flight training, test flights, leisure flights and ferry flights.

Key statistics

The key statistics for this domain are in Table 3.7 and Table 3.8, which includes a comparison of the number of fatal and non-fatal accidents for the last year and the previous 10-year period. Also included is a comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe.

Table 3.7: Key statistics for NCO helicopters

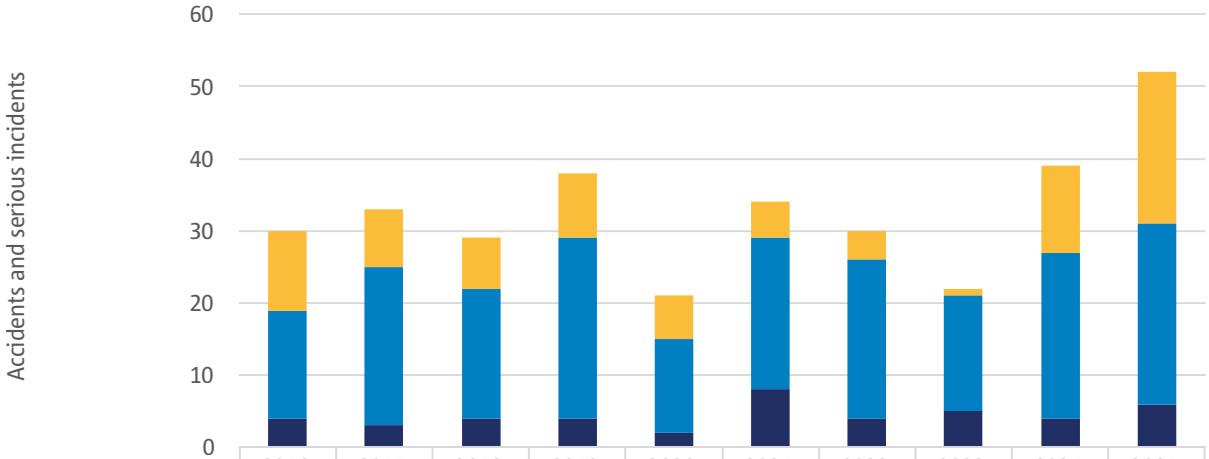
	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	39	6	▲
Non-fatal accidents	198	25	▲
Serious incidents	67	21	▲

Table 3.8: Fatalities and serious injuries involving NCO helicopters

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	66	49
Yearly max number for 2015–2024	14	11
Yearly min number for 2015–2024	1	2

	Number of fatalities	Number of serious injuries
Total number in 2025	14	7

Figure 3.19: Fatal accidents, non-fatal accidents and serious incidents per year involving NCO helicopters

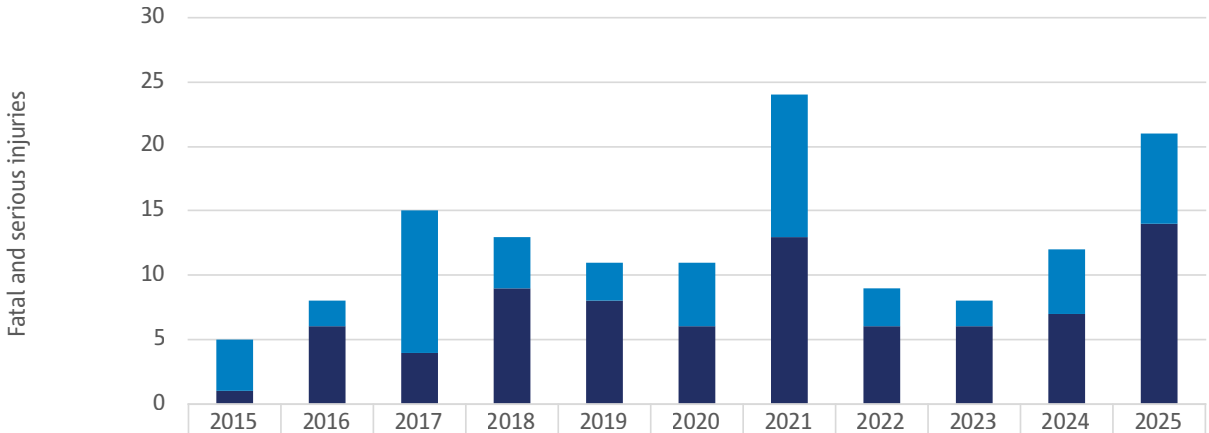


	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	11	8	7	9	6	5	4	1	12	21
Non-fatal accidents	15	22	18	25	13	21	22	16	23	25
Fatal accidents	4	3	4	4	2	8	4	5	4	6

Serious incidents showed the most significant increase over the five-year period reaching the highest level recorded during this timeframe. This trend reflects an increase in occurrences with the potential for serious consequences, despite not resulting in accidents. In 2025, ARC was among the most frequently reported outcomes among serious incidents, particularly during training operations, highlighting the exposure to runway contact risk during instructional flights.

The numbers of fatalities and serious injuries per year are shown in Figure 3.20.

Figure 3.20: Fatal and serious injuries per year involving NCO helicopters



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	4	2	11	4	3	5	11	3	2	5	7
Fatalities	1	6	4	9	8	6	13	6	6	7	14

In 2025 the number of fatalities was the second highest recorded during the ten-year analysis period. This was primarily driven by a single mid-air collision accident involving two helicopters. Both helicopters were

destroyed resulting in five fatalities. At the time of the collision, the helicopters were not flying in a planned or formal formation.

Other contributing factors identified in the 2025 fatal accidents highlight the risks associated with low-altitude flight in poor visibility, particularly when operating or approaching near wooded or rising terrain. Safety investigation authorities specifically identified low-altitude operations near rising or wooded terrain as reducing the available safety margin, with the risk further increased by degraded visibility conditions.

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

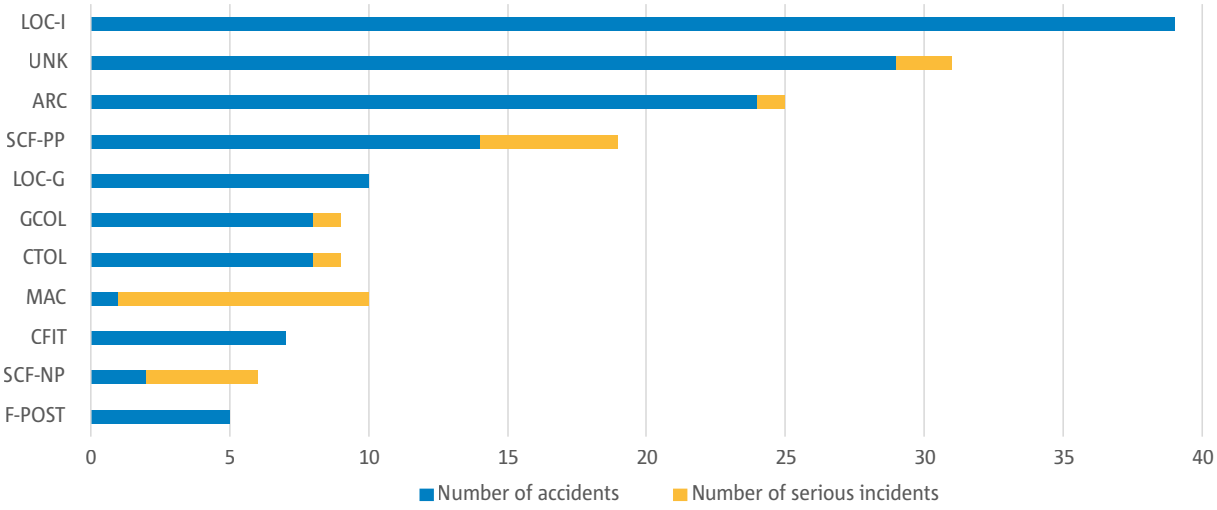
Categories are of different natures, for example:

- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

Figure 3.21 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025, while Figure 3.22 illustrates the distribution over the period 2020–2024.

Figure 3.21: Numbers of accidents and serious incidents by occurrence category involving NCO helicopters (2025)

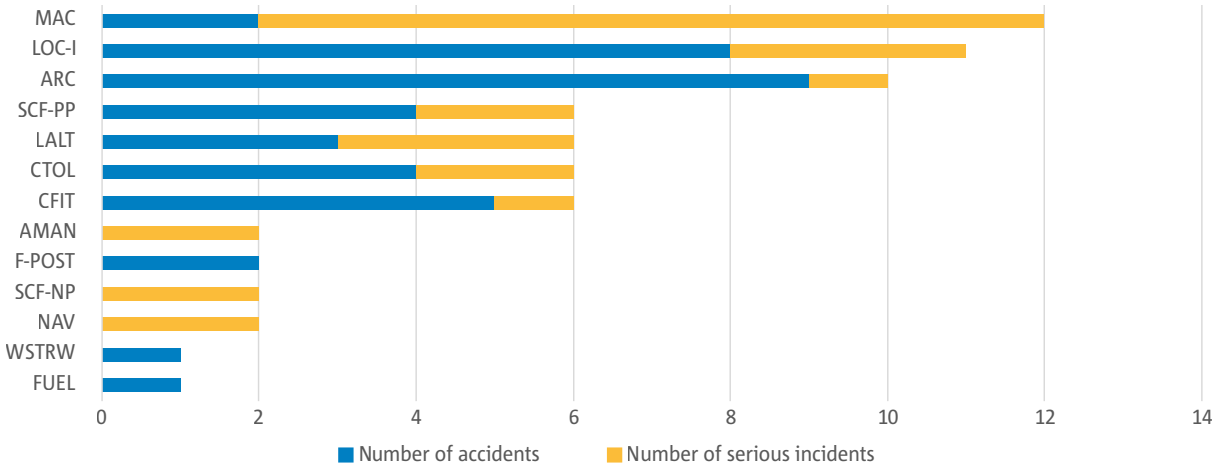


MAC: Mid-air collision; LOC-I: Loss of control – inflight; ARC: Abnormal runway contact; SCF-PP: powerplant failure or malfunction; LALT: Low altitude operations; CTOL: Collision with obstacle(s) during take-off and landing; CFIT: Controlled flight into or toward terrain; AMAN: Abrupt manoeuvre; F-POST: Fire/Smoke (post-impact); SCF-NP: System/ component failure or malfunction [non-powerplant]; NAV: Navigation error; WSTRW: Wind shear or thunderstorm; FUEL: Fuel Related

The 2025 data indicate loss of control in flight (LOC-I), abnormal runway contact (ARC), and mid-air collision (MAC) are the three highest risk areas. In 2025, MAC emerged as the highest risk, reflecting an increase in reported serious mid-air collision incidents, particularly those involving aircraft and other airborne objects such as unmanned aircraft systems (UAS).

Over the previous five years, LOC-I and ARC have consistently remained the primary risk areas for NCO operations.

Figure 3.22: Numbers of accidents and serious incidents by occurrence category involving NCO helicopters (2020–2024)



LOC-I: Loss of control – inflight; UNK: Unknown or undetermined; ARC: Abnormal runway contact; SCF-PP: powerplant failure or malfunction; LOC-G: Loss of control – ground; GCOL: Ground Collision; CTOL: Collision with obstacle(s) during take-off and landing; MAC: Airprox/ACAS alert/loss of separation/ (near) midair collisions; CFIT: Controlled flight into or toward terrain; SCF-NP: System/ component failure or malfunction [non-powerplant]; F-POST: Fire/smoke (post-impact);

Loss of control in flight (LOC-I) emerges as the primary occurrence category in non-commercial operations, with flight training accounting for a significant proportion of the reported occurrences. Importantly, all occurrences classified as LOC-I resulted in accidents, highlighting the severity of this type of event.

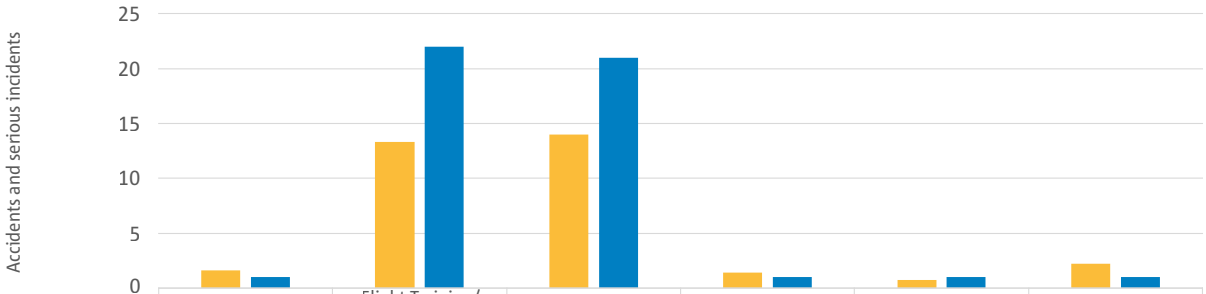
Abnormal ground contact with the runway (ARC) is the second KRA. Similarly, this scenario is one of the main ones appearing in flight training and excursion from/overshooting the helipad. Events such as hard/heavy landings, off centre landings are included in this category. This includes any rotor striking the intended landing surface during take-off and landing. However, if loss of control or collision occurred, the event is also coded under the appropriate categories: LOC-I: Loss of control – inflight; LOC-G: Loss of control – ground; GCOL: Ground Collision; CTOL: Collision with obstacle(s) during take-off and landing.

Operation type

Figure 3.23 shows the number of accidents and serious incidents per type of operation.

In 2024, as in the previous decade, the highest number of occurrences with identified operation types were in pleasure flights and flight training/instructional operations. Notably, in 2024, there were three fatal accidents in flight training/instructional operations out of four of total in NCO operation, the highest number recorded during the analysed period.

Figure 3.23: Accidents and serious incidents by operation type involving NCO helicopters



	Business	Flight Training/ Instructional	Pleasure	Relocation	Test Flight	Other / Unknown
Average 2015-2024	1.6	13.3	14	1.4	0.7	2.2
2025	1	22	21	1	1	1

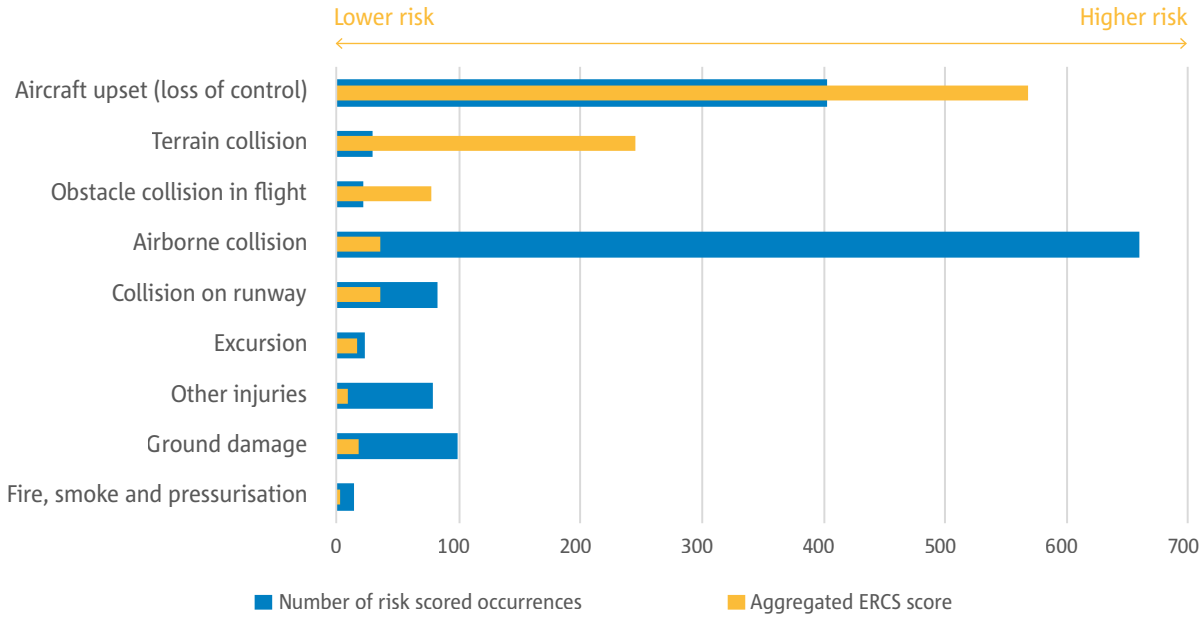
Safety risks

The safety risks identified presented below are derived from occurrences data recorded in the ECR, covering the three-year period of 2023–2025. Across the three-year period, 3 030 occurrences were reported, of which around 2526 were completed, representing a completion rate of 83% for the domain. The following information is solely based on this restricted dataset.

The relative comparison between KRAs for this domain is highlighted in Figure 3.24. KRAs and occurrence categories (refer to Figure 3.21 and Figure 3.22) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the ASR introduction.

The analysis of occurrences involving NCO helicopters shows that terrain collision is by far the highest -ranked KRA in terms of aggregated risk, followed by aircraft upset. This is consistent with the operational environment of non-commercial helicopter operations, where flights are often conducted at low altitude and in close proximity to terrain where accidents typically involve high impact speeds. Incidents in this domain are more likely to escalate into accidents, with limited opportunity for recovery once the event develops. Aircraft Upset (Loss of Control) also represents a significant risk, both in terms of the number of occurrences and the aggregated ERCS score. This is particularly evident in-flight training operations, where pilots are routinely exposed to more demanding manoeuvres, including engine-off landings, practice forced landings and advanced autorotation exercises. Airborne collision remains one of the top KRAs in terms of both frequency and aggregated risk. This highlights the importance of maintaining situation awareness, applying effective see-and-avoid principles and ensuring the safe integration of all airspace users within an increasingly complex operating environment.

Figure 3.24: KRAs by aggregated ERCS score and number of risk-scored occurrences involving NCO helicopters (2023–2025)





Chapter 4
Balloons

4. Balloons

This chapter covers the safety performance of hot air balloon operations where the state of registry or the state of operator 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 accidents from other official sources. It presents key statistics, occurrence categories and safety risks for balloon operations. The overview of the safety risks is solely derived from occurrence data from the European Common Repository (ECR).

Hot-air balloon operations are conducted predominantly under visual meteorological conditions and differ from most other aviation domains because pilots have only limited control over the aircraft's horizontal trajectory, relying on prevailing winds while managing altitude to influence the flight path. Safe operation therefore depends on continuous assessment of meteorological conditions, terrain, obstacles and the availability of suitable landing areas. These operational challenges are also reflected in recent safety promotion activities, which have identified weather-related decision-making, obstacle awareness and the management of commercial balloon operations as continuing priorities for improving operational safety. Recent investigations conducted by European safety investigation authorities consistently show that adverse outcomes most often arise from the interaction of changing weather conditions, constrained landing opportunities and obstacles encountered during low-level flight, most notably during approach and landing. These operational characteristics are reflected throughout the occurrence data presented in this chapter.

Key statistics

Table 4.1 summarises the number of fatal accidents, non-fatal accidents and serious incidents recorded in 2025 and compares them with the preceding ten-year period (2015–2024). Table 4.2 presents the associated fatalities and serious injuries.

In 2025, one fatal accident, 13 non-fatal accidents and four serious incidents were recorded. Compared with the annual average for 2015–2024, the number of fatal accidents remained unchanged. Non-fatal accidents were below the historical average and serious incidents were above the historical average. Given the relatively small size of the balloon sector, annual occurrence numbers should be interpreted alongside longer-term trends rather than individual yearly fluctuations. The inclusion of serious incidents provides additional insight into operational situations with a high accident potential in which more severe consequences were avoided.

Other key observations for this chapter are the following:

- Serious injuries reduced to nine, equalling the lowest annual total recorded during the 2015–2025 reporting period (previously observed in 2016).
- Abnormal runway contact remained the most frequently reported occurrence category, which for balloons translates to hard landings (see Figure 4.3).
- Obstacle collision in flight represented the highest overall safety risk despite occurring less frequently than airborne collision (see Figure 4.6).

Table 4.1: Key statistics for balloons

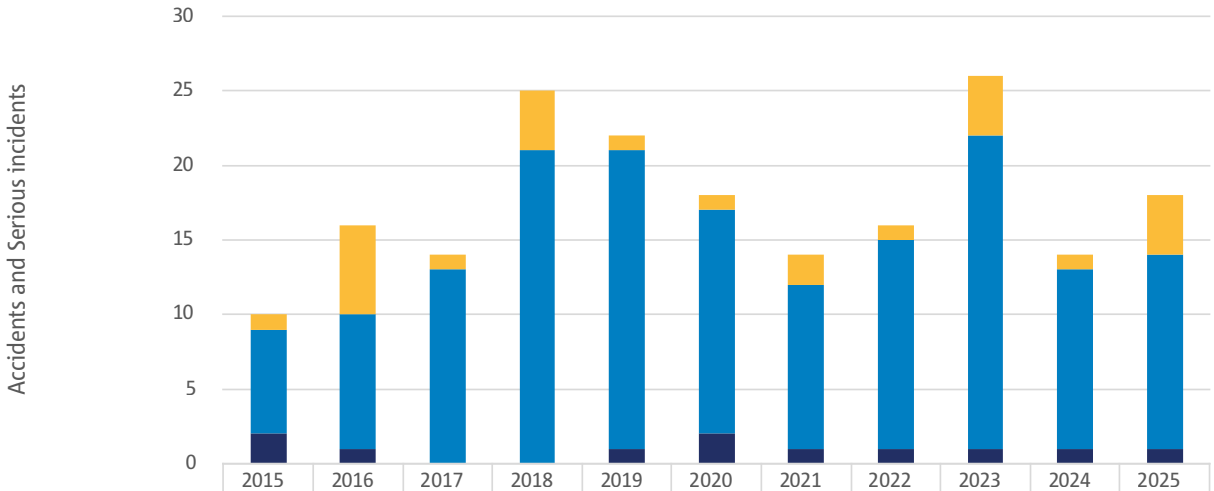
	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	10	1	–
Non-fatal accidents	143	13	▼
Serious incidents	22	4	▲

Table 4.2: Fatalities and serious injuries involving balloons

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	12	170
Yearly max number for 2015–2024	3	23
Yearly min number for 2015–2024	0	9
Total number in 2025	1	9

Figure 4.1 illustrates the trend in fatal and non-fatal accidents from 2015 to 2025. A total of 18 accidents and serious incidents were recorded in 2025, comprising one fatal accident, 13 non-fatal accidents and four serious incidents. This represents a decrease compared with both 2023 (26 reports) and 2018 (25 reports), which recorded the highest annual totals during the reporting period. Fatal accidents remained infrequent throughout the period, varying between zero and two annually, while non-fatal accidents consistently accounted for most reported occurrences. Serious incidents fluctuated from year to year but did not surpass the maximum of six observed in 2016. Overall, the data indicate normal annual variation rather than a sustained change in the safety performance of balloon operations.

Figure 4.1: Fatal accidents, non-fatal accidents, and serious incidents per year involving balloons



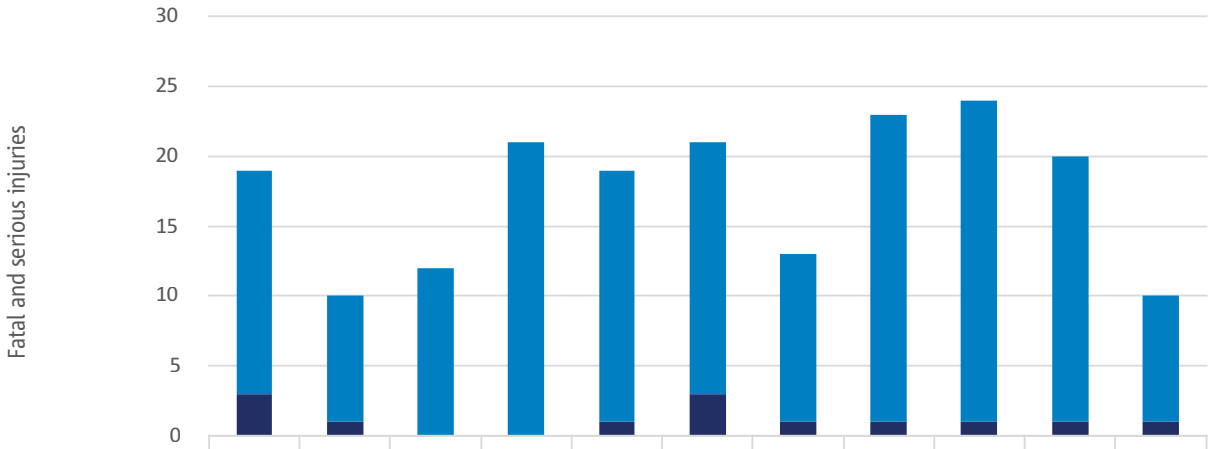
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	1	6	1	4	1	1	2	1	4	1	4
Non-fatal accidents	7	9	13	21	20	15	11	14	21	12	13
Fatal accidents	2	1	0	0	1	2	1	1	1	1	1

Figure 4.2 presents the annual number of fatalities and serious injuries resulting from balloon accidents. Fatalities fluctuated between zero and three annually. In 2025, one fatality and nine serious injuries were recorded. Serious

injuries fluctuated more markedly, reaching a maximum of 23 in 2023 before decreasing to 19 in 2024 and nine in 2025, the joint lowest annual value recorded during the eleven-year period.

Although serious injuries continue to occur, the reduction observed in 2025 demonstrates that changes in accident frequency do not necessarily correspond to changes in injury severity. European investigation reports consistently show that serious injuries frequently result from hard or dynamic landings, basket dragging and basket overturning. These events can expose passengers to substantial deceleration forces. These findings reinforce the importance of assessing not only how often accidents occur but also the operational circumstances and injury mechanisms associated with them. Investigation reports further demonstrate that effective passenger briefings and correct landing posture remain among the most effective mitigations for reducing the severity of injuries in survivable accidents. These findings are consistent with European safety promotion material highlighting passenger preparation and standardised briefing practices as important defences against injury during dynamic landings.

Figure 4.2: Fatalities and serious injuries involving balloons



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	16	9	12	21	18	18	12	22	23	19	9
Fatalities	3	1	0	0	1	3	1	1	1	1	1

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

Categories are of different natures, for example:

- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

Figure 4.3 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025, while Figure 4.4 illustrates the distribution over the period 2020–2024.

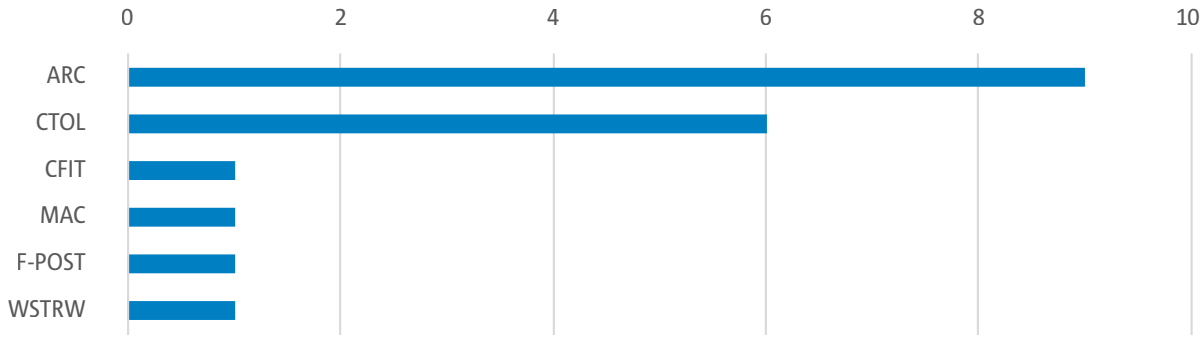
In 2025, hard and other abnormal landings, classified with the common aviation taxonomy as abnormal runway contact (ARC), remained the most frequently reported occurrence category with nine occurrences. This was followed by collision with obstacles during take-off or landing (CTOL) with six occurrences. Controlled flight into terrain (CFIT), airprox/ACAS alert/loss of separation (MAC), post-impact fire/smoke (F-POST) and windshear or thunderstorm (WSTRW) category were each recorded once. No occurrences were classified under loss of control in flight, ground collision, fire/smoke (non-impact), system/component failures or the remaining occurrence categories, unlike last year.

The five-year distribution (2020–2024) shows a similar pattern. Abnormal runway contact remained the most frequently recorded occurrence category (27 occurrences), followed by the broad 'Other' category (18 occurrences) and collision with obstacles during take-off or landing (16 occurrences). Loss of control in flight and unknown categories each accounted for eight occurrences, while all remaining occurrence categories occurred comparatively infrequently. This consistency indicates that the operational challenges faced during balloon flights have remained broadly invariable over recent years.

Abnormal runway contact continues to dominate because balloon landings frequently involve basket dragging, multiple ground contacts or basket overturning before the balloon comes to rest. While many of these events result in only minor damage to the balloon, they remain a major cause of passenger injuries. Investigations have shown that injury severity is not only influenced by touchdown conditions but also by passenger preparation, including the effectiveness of the pre-landing safety briefing and the adoption of the correct landing position.

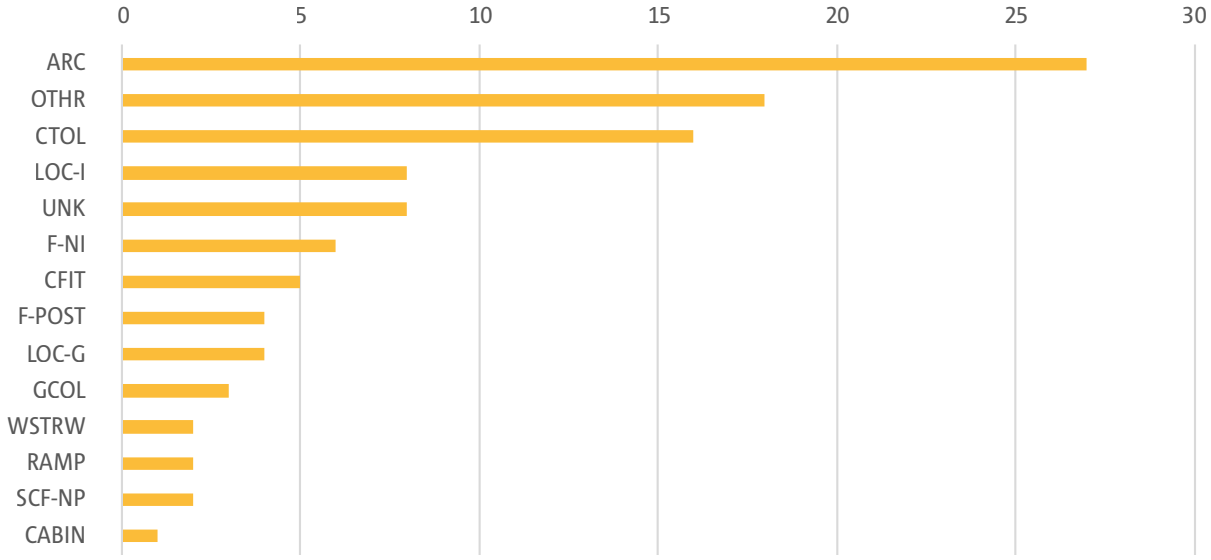
Collisions with obstacles during take-off and landing remain the second most common occurrence category and represent a recurring feature of European balloon accident investigations. Collision with trees, power lines and other fixed obstacles are re-occurring because balloon pilots may have limited opportunities to alter their flight path once committed to an approach. Changing wind conditions can rapidly reduce the availability of suitable landing sites, requiring approaches into increasingly constrained environments where the options for avoiding obstacles become progressively more limited. This is illustrated by the crash in August 2025 of the Cameron Balloons Ltd. Z-750 (PH-GPH) operating a commercial flight with 34 occupants experiencing a high-impact landing following a sudden wind shift. The basket's heavy dragging resulted in passenger ejections, one fatality and three serious injuries.

Figure 4.3: Numbers of accidents and serious incidents by occurrence category involving balloons (2025)



ARC: Abnormal runway contact; CTOL: Collision with obstacle(s) during take-off and landing; CFIT: Controlled flight into or toward terrain; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; F-POST: Fire/smoke (post-impact); WSTRW: Windshear or thunderstorm;

Figure 4.4: Numbers of accidents and serious incidents by occurrence category involving balloons (2020–2024)

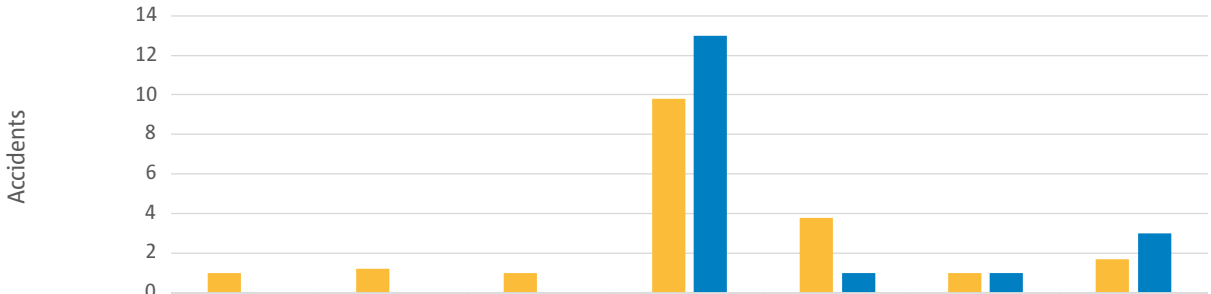


ARC: Abnormal runway contact; CTOL: Collision with obstacle(s) during take-off and landing; UNK: Unknown or undetermined; CFIT: Controlled flight into or toward terrain; LOC-G: Loss of control - ground; WSTRW: Windshear or thunderstorm; SCF-NP: System/component failure or malfunction [non-powerplant];

Operation type

Figure 4.5 presents the distribution of accidents and serious incidents by operation type. Passenger operations accounted for the largest proportion of reported occurrences in 2025, with 13 occurrences compared with a historical annual average of 9.8. Pleasure flights accounted for one occurrence, substantially below the historical average of 3.8. One occurrence involved a test flight, while two occurrences were recorded with an unknown operation type. No accidents or serious incidents were reported in business, instructional or airshow/race operations.

Figure 4.5: Accidents and serious incidents involving balloons by operation type



	Airshow / Race	Business	Flight training / instructional	Passenger	Pleasure	Test flight	Blank/Unknown
Average 2015-2024	1	1,2	1	9,8	3,8	1	1,7
2025	0	0	0	13	1	1	3

Safety risks

The safety risks for balloons are derived from all classes of occurrences recorded in the ECR, covering the three-year period 2023–2025. From the 623 occurrences, 350 occurrences were completed with the KRA and ERCS safety risk score, representing a completion rate of 56% for the domain. Compared to the previous 37% this is a notable improvement in capturing the occurrence details. The information that follows is solely based on this dataset.

Figure 4.6 illustrates the distinction between occurrence frequency and overall safety risk. Airborne collision accounted for the largest number of risk-scored occurrences (187), whereas obstacle collision in flight generated the highest aggregated ERCS score (258 302) despite involving only 36 risk-scored occurrences. Other injuries (35

occurrences; aggregated ERCS score 192 552) and Aircraft upset (loss of control) (40 occurrences; aggregated ERCS score 150 485) also made significant contributions to the overall balloon risk profile. All remaining KRAs accounted for comparatively few risk-scored occurrences and substantially lower aggregated ERCS scores.

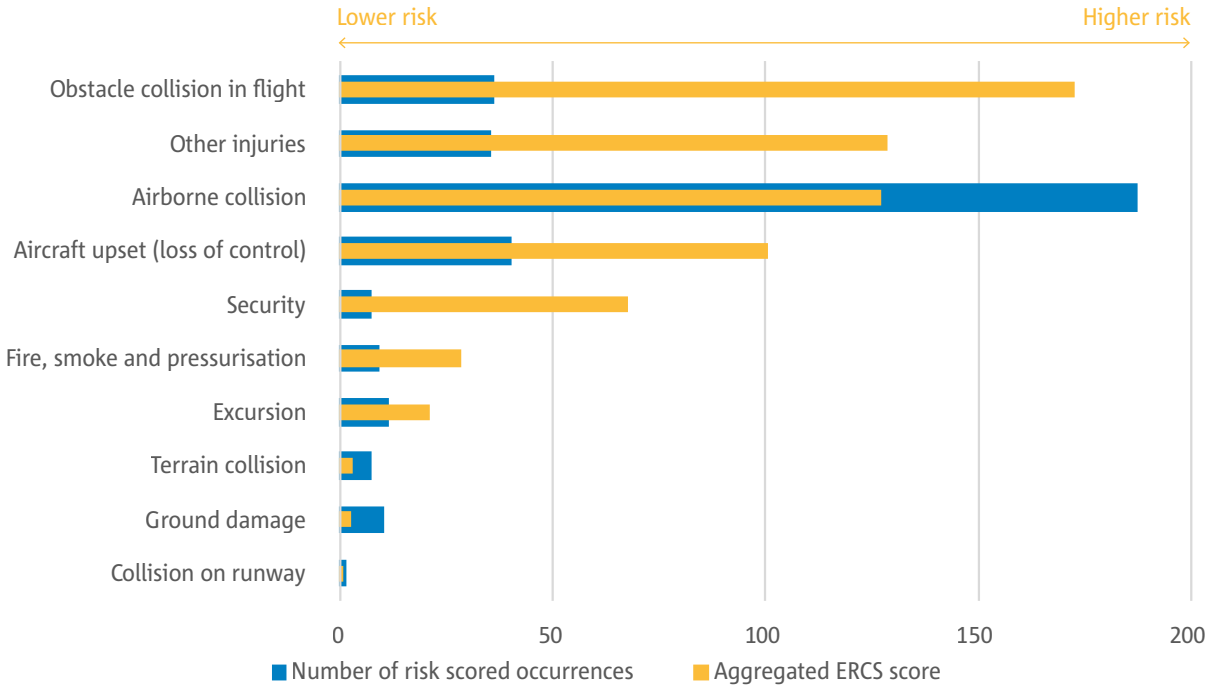
The ERCS analysis demonstrates that occurrence frequency alone does not adequately represent operational risk. Although airborne collisions were reported more frequently, collisions with obstacles during flight produced the greatest overall safety risk because of their substantially higher potential severity. European investigation reports consistently show that such events develop through the interaction of several operational factors rather than a single initiating event. Strengthening or changing winds may progressively reduce the availability of suitable landing sites, leading to approaches in increasingly obstacle-rich environments where the limited horizontal manoeuvrability of balloons provides few opportunities for recovery. Rejected landings, late recognition of obstacles and collisions with trees or power lines therefore represent recurring accident sequences identified across European investigations.

The ERCS findings also complement the injury patterns observed earlier in this chapter. While obstacle collisions present the greatest potential for catastrophic outcomes, hard landings continue to account for a substantial proportion of serious injuries, even where structural damage to the balloon is limited.

Taken together, the analyses presented throughout this chapter indicate a stable and clear operational safety profile for European balloon operations. Annual accident numbers continue to fluctuate within the range expected for a relatively small aviation sector, while the underlying safety themes remain consistent. Across the occurrence-category analysis, investigation findings and ERCS risk assessment, the approach, landing and low-level flight environment emerge as the phases in which safety margins are most frequently challenged. Hard landings, basket dragging, changing wind conditions and collisions with fixed obstacles continue to dominate the safety picture, with power lines remaining a recurrent feature of high-severity accidents. These findings emphasise the importance of thorough pre-flight meteorological assessment, continuous evaluation of landing options, effective obstacle awareness, appropriate passenger briefings and robust occurrence reporting. Continued high-quality occurrence categorisation and comprehensive ERCS assessments will help to identify trends and help prioritise future safety actions across the European balloon community.

The consistency between occurrence data, investigation findings and European safety initiatives confirms that the primary risks to balloon flights are predictable and well-documented. As these hazards are well understood, future safety improvements should focus on effective implementation of proportionate measures addressing the identified risks, particularly weather-related decision-making, landing-site selection, obstacle awareness and occupant protection.

Figure 4.6: KRAs by aggregated ERCS score and number of risk-scored occurrences involving balloons (2023–2025)





Chapter 5
Sailplanes

5. Sailplanes

This chapter covers the safety performance of sailplane operations 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 accidents from other official sources.

The chapter provides the key statistics, the occurrence categories and the safety risks for non-powered and powered sailplanes. It excludes ultralight sailplanes.

Sailplane operations are unique, largely due to how gliding is performed. Unlike other types of aviation where aircraft are powered by engines, most sailplane operations (with the notable exception of increasing numbers of self-launching sailplanes) depend on teamwork to safely tow the sailplane into the air, using an aircraft or a winch. This operational complexity of gliding has helped to develop a strong culture of collaboration within the gliding community, where pilots, clubs and associations work closely together to share knowledge, exchange experience and promote safe operations. Through the leadership of the European Gliding Union (EGU), the community has worked closely with EASA in the development of the EU rules on Sailplane Air Operations (OPS) and Flight Crew Licensing (FCL) rules, providing valuable operational knowledge and practical expertise to support both rulemaking and safety promotion activity.

This collaboration continues through the Sailplane Safety Risk Portfolio Review Group, in which EASA experts and EGU representatives work together to analyse occurrence data, identify the safety issues and develop actions to improve the safety of sailplane operations. Several of the risks visible in this chapter have already been recognised by the group, in particular loss of control in mountainous terrain.

The list of fatal accidents associated with the scope of this chapter is provided in Appendix 1 of this document.

Key statistics

The key statistics for this domain are in Table 5.1 and Table 5.2 and include a comparison of the number of accidents (fatal and non-fatal) and serious incidents for the last year and the previous 10-year period. Also included is a comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe.

Table 5.1 shows a downward trend in the number of accidents (fatal and non-fatal) and serious incidents in 2025 when compared with the 2015–2024 yearly average. Fatal accidents decreased by 11%, non-fatal accidents by 50%, and serious incidents by 59%. The observed decrease in accident figures is encouraging but should be viewed in the context of flying rates. This decline may not solely reflect improved safety and could be influenced by reduced sailplane activity.

Table 5.2 shows the figures on the number of fatalities and serious injuries. In 2025 there were 16 fatalities and 10 serious injuries. Compared with the 2015–2024 yearly average, the number of fatalities decreased by 16% and the number of serious injuries decreased by 57%. The number of fatalities in 2025 remained above the minimum of 11 recorded over the preceding 10-year period, while serious injuries fell below the previous yearly minimum of 13.

Table 5.1: Key statistics for sailplanes

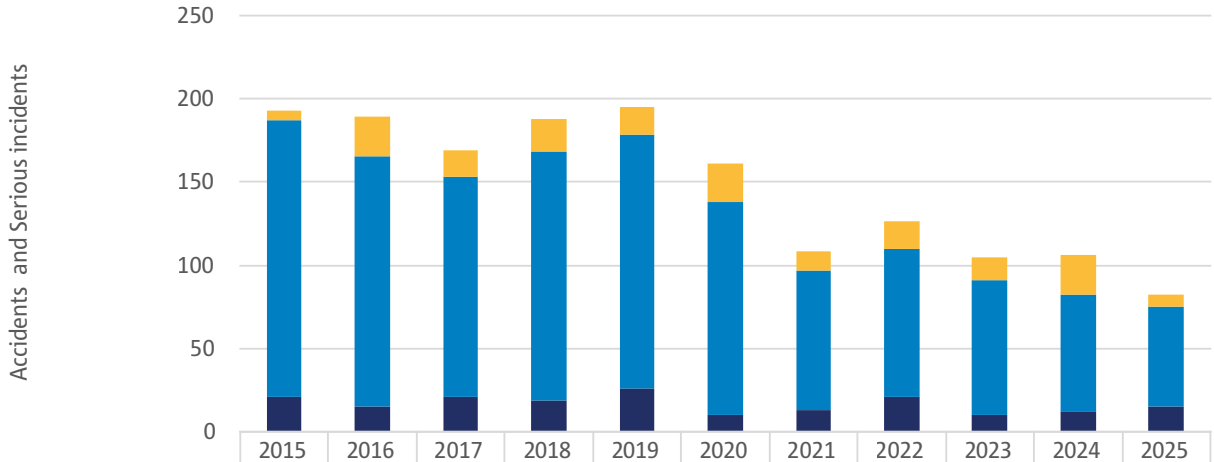
	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	168	15	▼
Non-fatal accidents	1201	60	▼
Serious incidents	171	7	▼

Table 5.2: Fatalities and serious injuries involving sailplanes

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	191	235
Yearly max number for 2015–2024	28	46
Yearly min number for 2015–2024	11	13
Total number in 2025	16	10

Figure 5.1 provides an overview of accidents (fatal and non-fatal) and serious incidents from 2015 to 2025. The number of fatal accidents varied over the period, reaching the highest number of 26 in 2019, and a record low of 10 in 2020. In 2025 there were 15 fatal accidents. The number of non-fatal accidents continued its downward trend, decreasing to 60 in 2025 from 70 in 2024, and remained below the 10-year average.

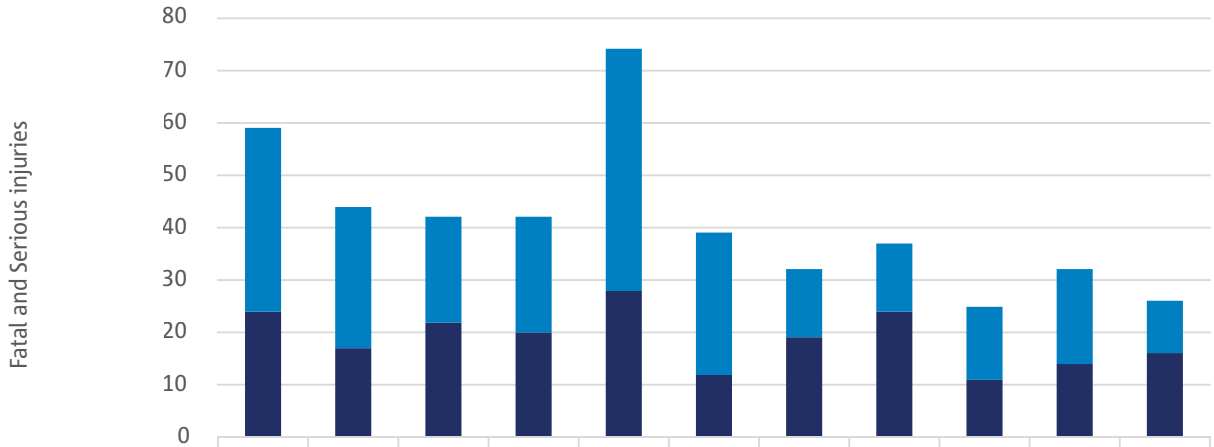
Figure 5.1: Fatal, non-fatal accidents, and serious incidents per year involving sailplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	6	24	16	20	17	23	11	16	14	24	7
Non-fatal accidents	166	150	132	149	152	128	84	89	81	70	60
Fatal accidents	21	15	21	19	26	10	13	21	10	12	15

Figure 5.2 shows the number of fatalities and serious injuries over the period. The highest number of fatalities, 28, was reported in 2019, decreasing to 16 in 2025, slightly above the 14 recorded in 2024. There were 10 serious injuries in 2025, the lowest number over the period and less than half the 18 recorded in 2024.

Figure 5.2: Fatal and serious injuries per year involving sailplanes



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	35	27	20	22	46	27	13	13	14	18	10
Fatalities	24	17	22	20	28	12	19	24	11	14	16

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

Categories are of different natures, for example:

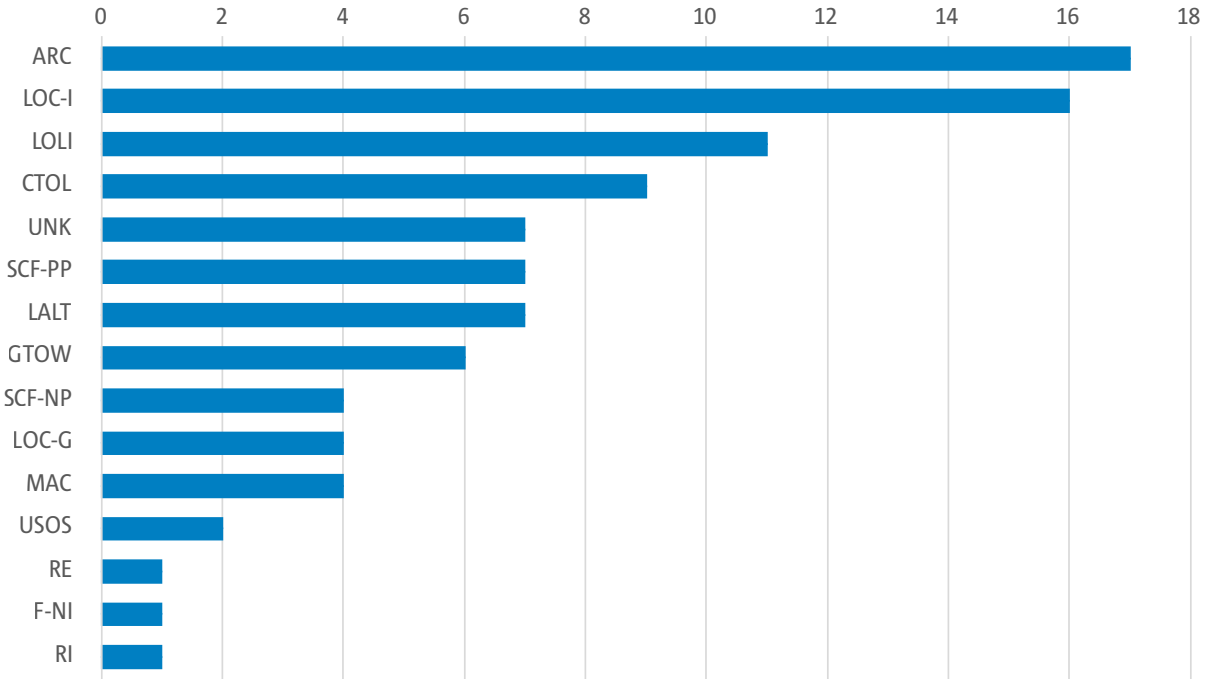
- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., GTOW: Glider towing related events and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

Figure 5.3 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025, while Figure 5.4 illustrates the distribution over the period 2020–2024.

In 2025, the distribution of occurrence categories remained consistent with the preceding five-year period. ARC was again the most frequent category, associated with 21 non-fatal accidents and no fatal accidents, showing that hard landings on the airfield remain costly but survivable accidents. LOLI followed, again associated with damage during off-field landings, and CTOL with obstacle collisions in the take-off and landing phases.

Figure 5.3: Numbers of accidents and serious incidents by occurrence category involving sailplanes (2025)

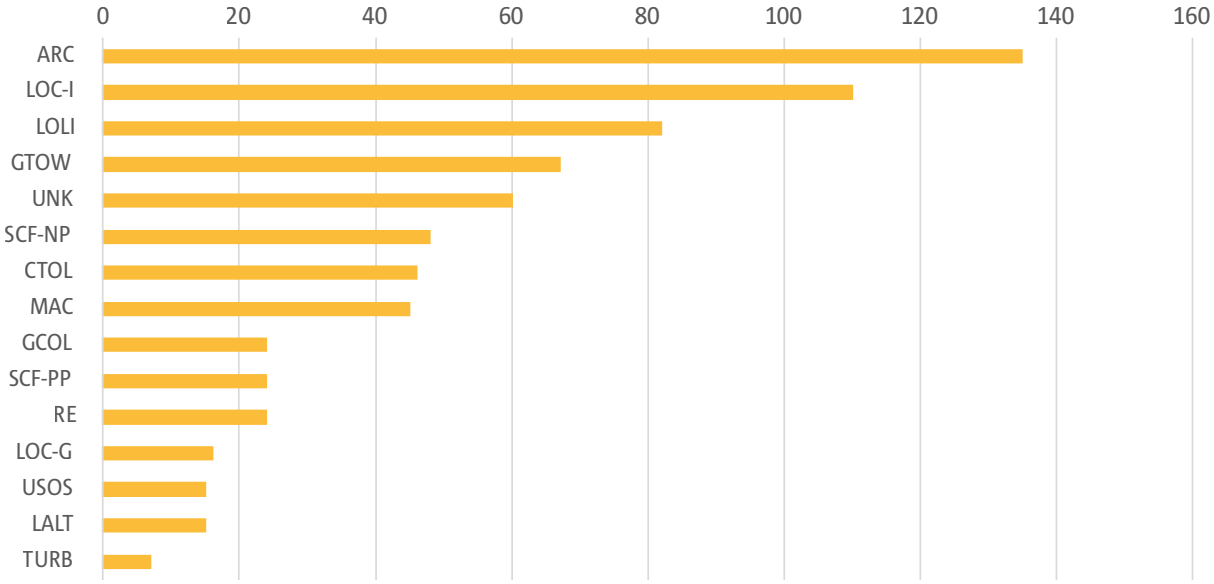


ARC: Abnormal runway contact; LOC-I: Loss of control - inflight; LOLI: Loss of lifting conditions en-route; CTOL: Collision with obstacle(s) during take-off and landing; UNK: Unknown or undetermined; SCF-PP: powerplant failure or malfunction; LALT: Low altitude operations; GTOW: Glider towing related events; SCF-NP: System/ component failure or malfunction [non-powerplant]; LOC-G: Loss of control – ground; MAC: Airprox/ ACAS alert/ loss of separation/ (near) mid-air collisions; USOS: Undershoot/ overshoot; RE: Runway excursion; F-NI: Fire/ smoke (non-impact); RI: Runway incursion - vehicle, aircraft or person;

For the period 2020–2024, the main occurrence categories were abnormal runway contact (ARC), which for sailplanes predominantly reflects hard or heavy landings on the airfield, resulting in damage to the aircraft but very rarely leads to serious injuries. It was followed by loss of control in-flight (LOC-I), loss of lifting conditions en route (LOLI), glider towing related events (GTOW), and collision with obstacles during take-off and landing (CTOL).

LOLI occurrences are situations familiar to every sailplane pilot, in which loss of lifting conditions is experienced en route and an off-field landing is required. The off-field landing itself is a normal part of gliding, but the accident review shows that this is where the damage happens: collisions with fences, power lines and crops, ground loops on soft or sloping terrain, and landings in fields that ultimately were too short for a safe landing.

Figure 5.4: Numbers of accidents and serious incidents by occurrence category involving sailplanes (2020–2024)



ARC: Abnormal runway contact; LOC-I: Loss of control - inflight; LOLI: Loss of lifting conditions en-route; GTOW: Glider towing related events; UNK: Unknown or undetermined; SCF-NP: System/ component failure or malfunction [non-powerplant]; CTOL: Collision with obstacle(s) during take-off and landing; MAC: Airprox/ ACAS alert/ loss of separation/ (near) mid-air collisions; GCOL: Ground Collision; SCF-PP: powerplant failure or malfunction; RE: Runway excursion; LOC-G: Loss of control – ground; USOS: Undershoot/ overshoot; LALT: Low altitude operations; TURB: Turbulence encounter;

The occurrence categories associated with fatal accidents tell a different story from the overall totals. Of the 15 fatal accidents in 2025, nine were associated with loss of control in-flight (LOC-I), a similar percentage to 2020–2024, when LOC-I featured in over 60% of fatal accidents. The safety risks concentrate around: stalls and spins during the launch phase, particularly winch launches where speed decays or the cable releases prematurely at low height; loss of control while manoeuvring or thermalling at low altitude; and flight in mountainous terrain, where several of the 2025 fatal accidents occurred.

Glider towing related events (GTOW) were associated with two fatal accidents in 2025, both in the take-off phase, consistent with the 2020–2024 record, in which winch launch upsets that developed into a stall or spin close to the ground account for most towing-related fatalities.

From the total number of 15 fatal accidents in 2025, five remain categorised as unknown or undetermined (UNK), a higher share than in previous years, reflecting investigations that are still ongoing; this share is expected to decrease as investigations conclude. Several of these accidents involved accidents in mountainous terrain.

Serious incidents capture a different area of the safety picture. Airprox and near mid-air collision events (MAC) were the leading serious incident category in 2025, as they were throughout 2020–2024. The airprox conflicts occurred in the immediate airfield environment: gliders landing while others were being winch-launched, towing combinations crossing the path of other traffic, and evasive manoeuvres in the circuit. For pilots, the message from this category is that the highest collision exposure is not only in thermals but also in the launch and landing environment, where winch cables, towing combinations and landing traffic share the same airspace within a short time window.

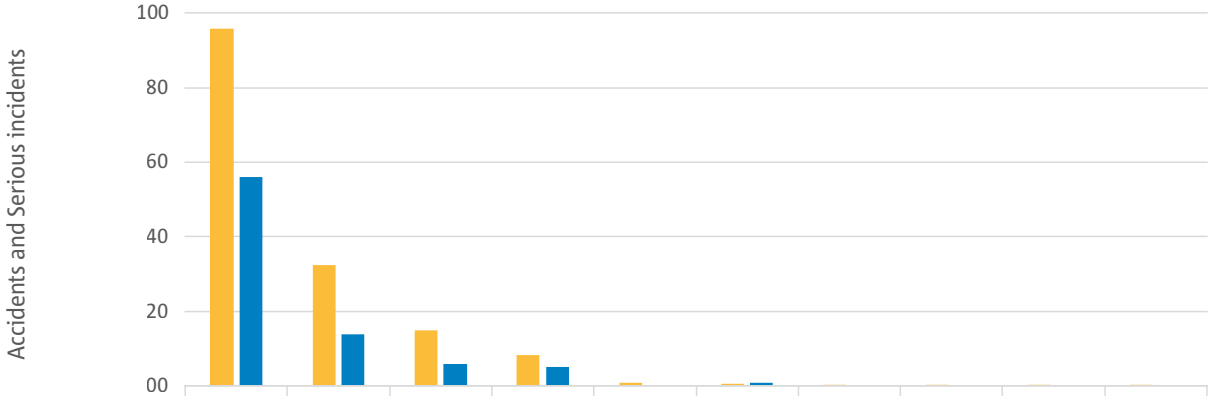
The 2025 data confirm the pattern established over 2020–2024: the categories that generate the most occurrences are hard landings and damage during off-field landings, which rarely have a fatal outcome. The fatal risk remains concentrated in loss of control at low height, during the launch and in mountainous terrain, where the height needed for recovery from a stall or spin is not available.

Operation type

As in previous years, most sailplane accidents and serious incidents occurred during pleasure flights (i.e flight for leisure purposes.): 56 in 2025 compared to a 2015–2024 average of 95.9. Flight training/instructional flights were again the second largest category, with 14 occurrences in 2025 compared to an average of 32.3. Accidents and serious incidents with unknown operation type also fell, from an average of 15.0 to 6 in 2025; as in previous years, this reflects cases where the operation type has not yet been established because the accident is still under investigation by the national safety investigation authority. Airshow/race (competition) flights accounted for five occurrences, down from an average of 8.4. All remaining operation types: test flight, other, demonstration, relocation, towing and aerial survey; each accounted for zero or one occurrence in 2025, consistent with their historically low frequency.

From the 15 fatal accidents in 2025, 11 occurred during leisure/private flights, two during flight training/instructional flights and two during airshow/race (competition) flights. This pattern is consistent with the picture over 2015–2024, where pleasure flying has accounted for the largest percentage of fatal accidents.

Figure 5.5: Accidents and serious incidents by operation type involving sailplanes



	Pleasure	Flight Training / Instructional	Unknown	Airshow / Race	Other	Test Flight	Demonstration	Relocation	Towing	Aerial Survey
Average 2015-2024	96	32	15	8	1	1	0	0	0	0
2025	56	14	6	5	0	1	0	0	0	0

Safety risks

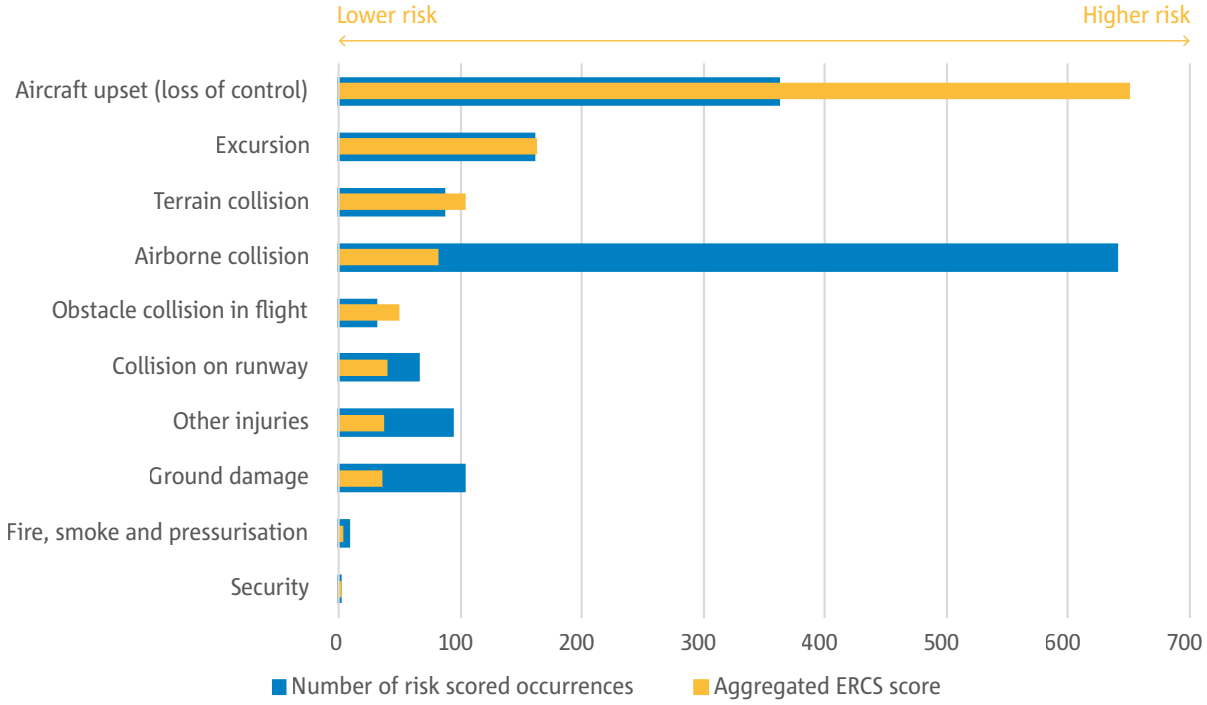
The safety risks identified for sailplanes are derived from all classes of occurrences recorded in the ECR, covering the three-year period 2023–2025. From the 2 661 occurrences, a number of 1 563 occurrences were completed with the KRA and ERCS safety risk score, representing an ERCS completion rate of 58.7% for the domain. The hereafter information is solely based on this restricted dataset.

The KRAs for sailplanes are shown in Figure 5.6. KRAs and occurrence categories (refer to Figure 5.3 and Figure 5.4) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the ASR introduction.

Aircraft upset is the key risk area with the highest ERCS safety risk score over the 3-year period, from a total number of 362 risk-scored occurrences. Its aggregated score is more than three times that of the next-ranked key risk area, reflecting both the frequency of loss of control occurrences and the higher risk of the accidents they could escalate to.

Excursion is second, with 161 occurrences and the second highest aggregated risk score, followed by terrain collision in third place, with 87 occurrences. Airborne collision, although the most frequently recorded key risk area with 640 occurrences, ranks only fourth by aggregated ERCS score, which reflects a lower average risk per occurrence. Obstacle collision in flight follows in fifth place, with 31 occurrences in the same time period.

Figure 5.6: KRAs by aggregated ERCS score and number of risk-scored occurrences involving sailplanes (2023–2025)





Chapter 6
Unmanned Aircraft Systems (UAS)

6. Unmanned Aircraft Systems (UAS)

The chapter covers the safety performance of unmanned aircraft systems (UAS) and their operations. The chapter is based on accidents and serious incidents involving UAS where the state of occurrence is an EASA Member State.

The data presented are based on the accidents and serious incidents notified to the Agency in accordance with Regulation (EU) 996/2010 on accident and serious incident investigation, and those reported to the European Central Repository (ECR) in accordance with Regulation (EU) 376/2014 on occurrence reporting. The occurrence class of the occurrences found were cross-checked with available sources from the Safety Investigation Authorities (SIAs).

The UAS domain differs from other aviation domains because the scope of mandatory occurrence reporting is more limited. Under the European regulatory framework, occurrences involving UAS for which no certificate or declaration of design is required are not subject to mandatory reporting unless they result in a fatal or serious injury to a person or it involved an aircraft other than unmanned aircraft[18]. Nevertheless, the ECR does contains several voluntary reports of accidents or serious incidents involving UAS, even if they did not lead to fatal or serious injuries or interfered with manned aviation. These have also been considered in this chapter.

This chapter focuses on the state of occurrence being the EASA Member States, where the detailed European regulatory framework for UAS operations is applicable. Consequently, accidents and serious incidents involving EU-registered manned aircraft with UAS but occurring outside EASA Member States are not included. Such occurrences would be found among the accidents and serious incidents covered in other chapters of this ASR, namely Chapter 2 – Aeroplanes and Chapter 3 – Helicopters. Different from other chapters the dataset underlying the UAS chapter of the ASR includes accidents and serious incidents by experimental UAS during test flights because in this domain such aircraft are within the remit of the EASA Basic Regulation. These UAS are therefore also in the remit of Regulation (EU) 376/2014, since such experimental UAS are not included in the Annex I of the EASA Basic Regulation which contains the categories of manned aircraft to which that Regulation does not apply. Furthermore, this chapter covers accidents and serious incidents caused by model aircraft, because model aircraft are also considered UAS based on the definition of 'unmanned aircraft' found in the EASA Basic Regulation[19], the definition of 'unmanned aircraft system' in the European rules for UAS[20], as well as the specific rule found therein addressing operations of UAS in the framework of model aircraft clubs and associations[21]. Moreover, because the ASR focuses

18 See Article 3.2 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: *"This Regulation applies to occurrences and other safety-related information involving civil aircraft to which Regulation (EU) 2018/1139 of the European Parliament and of the Council (1) applies". However, this Regulation shall not apply to occurrences and other safety-related information involving unmanned aircraft for which a certificate or declaration is not required pursuant to Article 56(1) and (5) of Regulation (EU) 2018/1139, unless the occurrence or other safety-related information involving such unmanned aircraft resulted in a fatal or serious injury to a person or it involved aircraft other than unmanned aircraft.*

19 Article 3 - Definitions, *(30) 'unmanned aircraft' means any aircraft operating or designed to operate autonomously or to be piloted remotely without a pilot on board´*, see Regulation (EU) 2018/1139 of the European Parliament and of the Council on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency.

20 Article 2 – Definitions under *(1) ´Unmanned aircraft system' ('UAS') means an unmanned aircraft and the equipment to control it remotely´* in Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft, as well as article 16 - UAS operations in the framework of model aircraft clubs and associations in of the same regulation.

21 Such operations take place in areas managed by nationally authorized model aircraft clubs and associations. Model clubs and associations must comply with national rules and with the rules described in article 16 of the Regulation (EU) 2019/947.

on civil aviation only, this chapter excludes accidents and serious incidents involving UAS operated by the state, i.e. the military, police or other governmental agencies, unless the occurrence also involved a civil aircraft[22].

However, accidents and serious incidents by UAS used in search and rescue and firefighting operations are included in the analysis.

Despite the reporting limitations and exclusions, this chapter presents the key statistics and occurrence categories for UAS operations.

The list of fatal accidents associated with the scope of this chapter is provided in Appendix 1 of this document. This list contains the fatal accident involving a UAS in 2023.

Key statistics

The key statistics for this domain in the tables below and include a comparison of the number of accidents (fatal and non-fatal) and serious incidents for the year 2025 and the previous 2-year period. Also included is a comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe

Table 6.1: Key statistics for unmanned aircraft systems (UAS)

	Total number of occurrences per occurrence class for 2023–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2023–2024 per occurrence class
Fatal accidents	1	0	▼
Non-fatal accidents	34[23]	27	▲
Serious incidents	15	12	▲

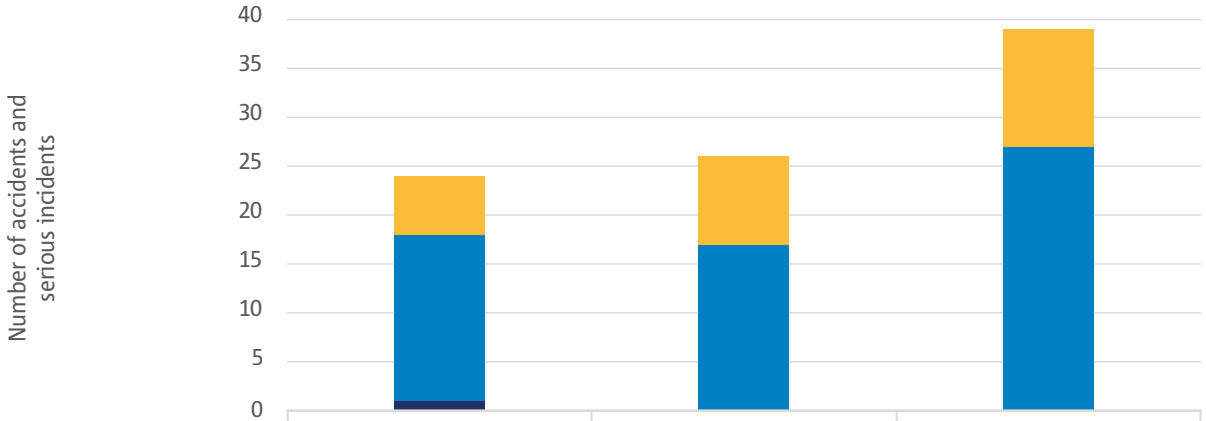
Table 6.2: Fatalities and serious injuries involving UAS

	Number of fatalities - ground	Number of serious injuries - ground
Total number for 2023–2024	1	1
Yearly max number for 2023–2024	1	1
Yearly min number for 2023–2024	0	0
Total number in 2025	0	2

22 The collision between Eurocopter AS350 Écureuil operated by the police and a small UAS (570 gr) in France in April 2025 is not contained in the data set, but due to the UAS having been operated in the open category of UAS operations, this is clearly a borderline case; however, as the occurrence was not reported into the ECR it was not considered.

23 Due to new information becoming available, the total number of non-fatal accidents reported for 2023–2024 was corrected from 30 to 34 when compared to last year's UAS chapter of the ASR. The total number of serious incidents reported for 2023–2024 was corrected from 10 to 15.

Figure 6.1: Fatal accidents, non-fatal accidents, and serious incidents per year involving UAS

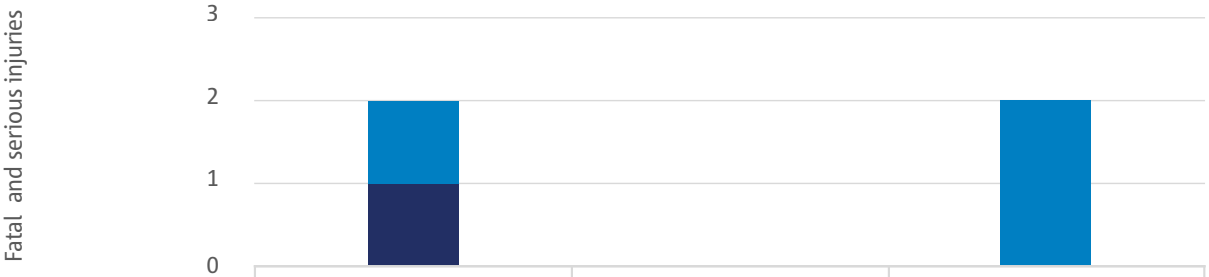


	2023	2024	2025
Serious incidents	6	9	12
Non-fatal accidents	17	17	27
Fatal accidents	1	0	0

Figure 6.1 above shows the total number of fatal accidents, non-fatal accidents, and serious incidents in 2025 and the previous two years for the UAS domain. In 2025 no fatal accident involving UAS occurred.

Figure 6.2 below shows the number of fatalities and serious injuries for the UAS domain over the last three years. The year 2025 saw two accidents which resulted in serious injuries but no fatalities involving a UAS.

Figure 6.2: Fatalities and serious injuries per year involving UAS



	2023	2024	2025
Serious injuries	1	0	2
Fatalities	1	0	0

Involvement of persons on the ground in accidents with UAS

The specific characteristics of the UAS domain make it particularly important to monitor the risk posed to people on the ground by unmanned aircraft operations. Table 6.2 shows fatalities and serious injuries caused by UAS since the year 2023[24]. In 2025 there were two accidents resulting in serious injuries involving UAS, while in 2024 there were no injuries of any kind. One of the 2025 injuries with UAS occurred during UAS operations supporting agriculture, while the other was sustained by a person operating a model aircraft, which are also considered UAS.

24 Based on Article 5 of Regulation (EU) No 996/2010, as amended by Regulation (EU) 2018/1139 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, a safety investigation by the responsible safety investigation authority is required for accidents involving a UAS resulting in fatal or serious injuries.

Involvement of manned aviation in accidents and serious incidents with UAS

It is important to monitor the number of accident and serious incidents by UAS in which manned aircraft was involved. In the year 2025 the domain recorded six such events: one accident and five serious incidents. The accident involved a collision between a small UAS (249gr) and manned balloon. This accident resulted in a minor injury to the pilot and a tear to the scoop of the balloon. The UAS fell into the basket of the balloon carrying eight persons. The balloon flight was able to continue without further incident.

The five serious incidents mentioned occurred in Germany (two) and Switzerland (three). Four of the serious incidents were Airprox events. The manned aircraft involved in these serious incidents were helicopters and fixed wing aircraft. A remote pilot of a UAS after becoming aware of having caused such an encounter is required to report the event, but such self-reporting by UAS remote pilots is rare. One serious incident was the interference by unauthorised UAS with the orderly operation of the aerodrome of Munich. While many similar incidents of interferences by UAS occurred at aerodromes in 2025, only this event was classed as a serious incident and is therefore reflected in this chapter. This serious incident was given a ERCS score[25] of X1 (red).

In summary, Table 6.3 shows that 15% of the 39 accidents and serious incidents in the year 2025 involved a manned aircraft in addition to involving a UAS. This is a decrease by more than half from the 38% in the year 2024.

Table 6.3: Number of occurrences by UAS in which manned aircraft were involved

	Total number of accidents and serious incidents	Number of accidents and serious incidents in which manned aircraft were involved
2023	24	5 (21%)
2024	26	10 (38%)
2025	39	6 (15%)

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

Categories are of different natures, for example:

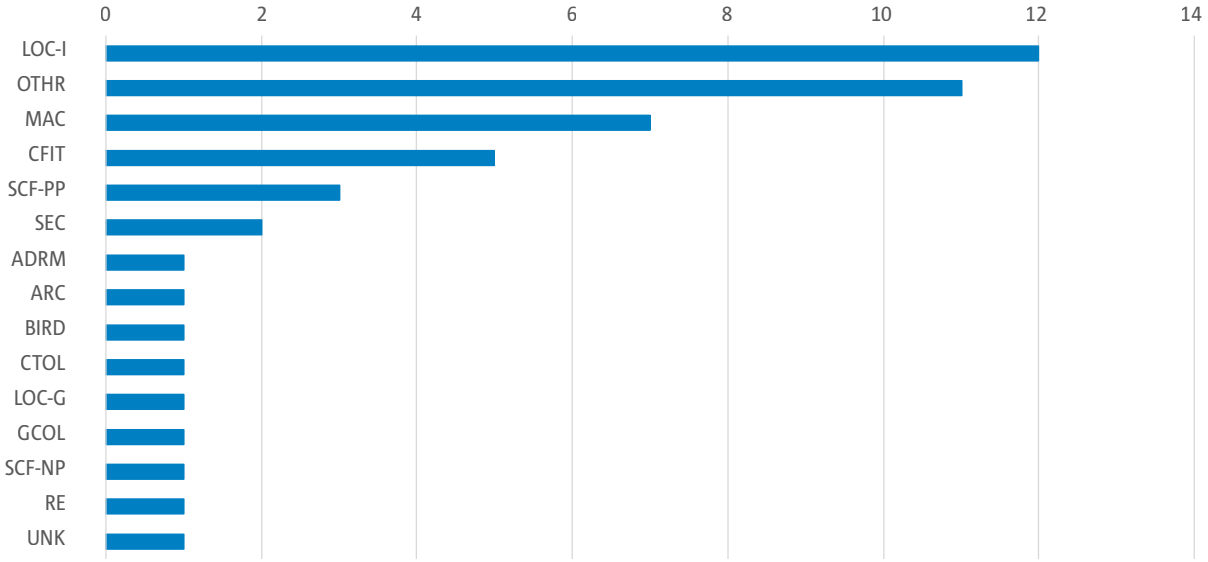
- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories can therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

25 'European risk classification scheme' or 'ERCS' means the methodology applied for the assessment of the risk posed by an occurrence to civil aviation in the form of a safety risk score; see Commission Delegated Regulation (EU) 2020/2034 of 6 October 2020 supplementing Regulation (EU) No 376/2014 of the European Parliament and of the Council as regards the common European risk classification scheme.

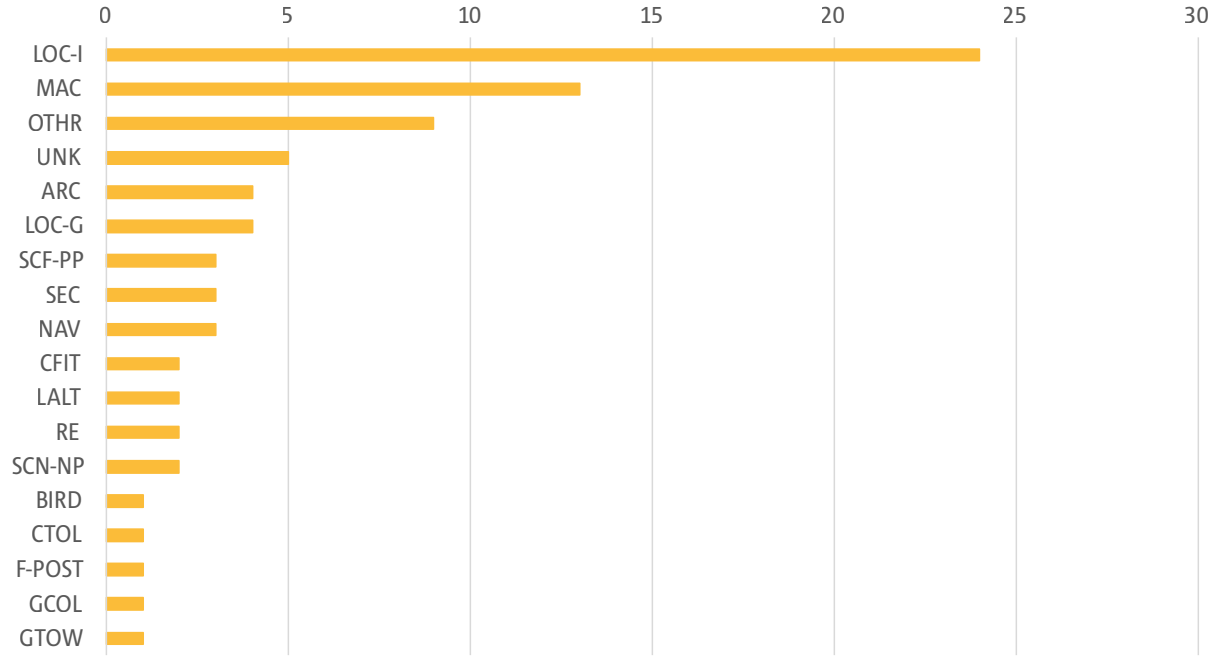
Figure 6.3 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025 in the UAS domain, while Figure 6.4 illustrates the distribution over the period 2023–2024.

Figure 6.3: Numbers of accidents and serious incidents by occurrence category involving UAS (2025)



LOC-I: Loss of control - inflight; OTHR: Other; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; CFIT: Controlled flight into or toward terrain; SCF-PP: System/Component failure or malfunction [powerplant]; SEC: Security; ADRM: Aerodrome; ARC: Abnormal runway contact; BIRD: Bird; CTOL: Collision with obstacle(s) during take-off and landing; GCOL: Ground collision; LOC:-G: Loss of control – ground; SCF-NP: System/component failure or malfunction [non-powerplant]; RE: Runway excursion; UNK: Unknown or undetermined.

Figure 6.4: Numbers of accidents and serious incidents by occurrence category involving UAS (2023–2024)



LOC-I: Loss of control - inflight; MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; OTHR: Other; UNK: Unknown or undetermined; ARC: Abnormal runway contact; LOC:-G: Loss of control – ground; SCF-PP: System/Component failure or malfunction [powerplant]; CFIT: SEC: Security; NAV: Navigation error; Controlled flight into or toward terrain; LALT: Low altitude operations; RE: Runway excursion; SCF-NP: System/component failure or malfunction [non-powerplant]; BIRD: Bird; CTOL: Collision with obstacle(s) during take-off and landing; F-POST: Fire/ smoke (post impact); GCOL: Ground collision; GTOW: Glider towing related events.

In the period 2023–2024, there were 50 accidents and serious incidents involving UAS. The two most common occurrence categories were 'LOC-I: Loss of control – inflight' and 'MAC: Airprox/ACAS alert/loss of separation/ (near) mid-air collisions' which were assigned 37 times to the serious incidents and non-fatal accidents of 2023 and 2024. The occurrence category 'OTHR: Other' was assigned to nine serious incidents and accidents, of which one resulted in the fatality of 2023 involving the model aircraft/UAS on a model aircraft terrain. The category 'OTHR' is meant for 'any occurrence not covered under another category'[26]. The occurrence category ´UNK` was assigned five times. The occurrence categories ´ARC: abnormal runway contact´ and ´LOC: G: Loss of control – ground´ were each assigned four times. The category 'LALT: Low altitude operations' was assigned to two of the non-fatal accidents, one of which resulted in the serious injury recorded for the year 2023 shown in Figure 6.2.

The distribution of the occurrence categories in 2025 do not exactly mirror those observed during the 2023–2024 period. The five highest-ranked categories in 2025 are: LOC-I, OTHR, MAC, CFIT and SCF-PP. The two occurrence categories for System/Component failures or malfunctions play an important role in this domain, because when the two categories SCF-PP and SCF-NP are taken together, they contributed to four occurrences in 2025, while the represent a yearly average of 2 in the previous two years. Finally, the occurrence category SEC: Security was assigned to two occurrences in 2025 alone, while in the period 2023–2024 this category was assigned to three occurrences, which means 1.5 times per year. Although the number of reported occurrences remains low, security-related events must be monitored.

Safety risks

The safety risks presented below are derived from all classes of occurrences recorded in the ECR, covering the three-year period of 2023–2025. From the 5 047 occurrences, only 3 667 occurrences were completed with the KRA and ERCS safety risk score, representing an ERCS completion rate of 72.7% for the domain. The hereafter information is solely based on this restricted dataset.

The relative comparison between KRAs for this domain is highlighted in Figure 6.5. KRAs and occurrence categories (refer to Figure 6.3 and Figure 6.4) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the introduction of the ASR document.

As illustrated in Figure 6.5, the most relevant KRA for the UAS domain is ´Airborne collision´. It has the largest number of occurrences, many of which are related to the UAS sightings and (very rarely) the near collisions between manned aircraft and UAS. The aggregated risk score for this KRA is in line with the number of occurrences. The average numerical equivalent score per UAS occurrence under this KRA is 639. However, the serious incident already at Munich airport in October 2025 was assigned a ERCS safety risk score of X1 (red) and therefore contributed with a numerical equivalent score of 100 000 to the aggregated ERCS risk score under this KRA. The impact of UAS interferences at aerodromes on the aviation system as whole was recently studied by the German Federal Aviation Office (LBA) and the German Aerospace Centre (DLR) where they looked at the cost of the disruptions in relation to the 116 occurrences of interferences of airport/ tower operations by UAS (drones) in 2025[27].

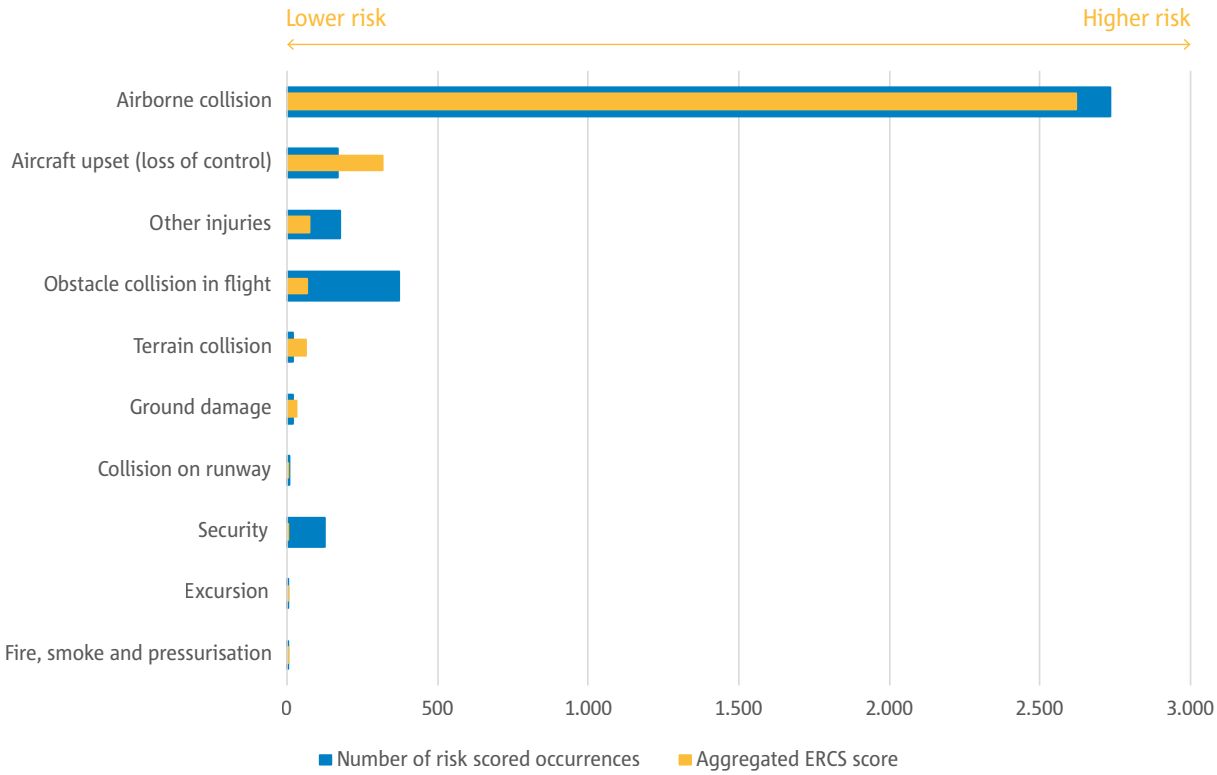
The second most common potential accident outcome in the UAS domain is ´Obstacle collision in flight´. Occurrences where ´Aircraft upset´ was reported as the KRA came 2nd in terms of safety risk but were 16 times less likely to occur, they were however eight times less risky than the top reported KRA of ´airborne collision´.

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26 Aviation Occurrence Categories, Definitions and Usage, ICAO Common Taxonomy Team, May 2021.

27 DLR analysis of the consequences of unauthorized drone flights: this study by DLR Institute for Air Transport is based on a dataset from the Federal Aviation Office (LBA) with 226 reported drone incidents in 2025. From this, 116 relevant disruptions were identified at a total of 25 commercial airports in Germany (8 June 2026)

Figure 6.5: KRAs by aggregated ERCS score and number of risk-scored occurrences involving UAS (2023–2025)





Chapter 7

Aerodromes and ground handling

7. Aerodromes and ground handling

This chapter covers the safety performance of aerodrome and ground handling domain in the EASA Member States. The data presented is based on 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.

The accidents and serious incidents that are considered in this chapter are the following:

- Those happening to aircraft on the apron and on the taxiway of aerodromes;
- Those involving a runway excursions and runway incursions, whenever aerodrome operations or the aerodrome infrastructure may have been contributors to these occurrences;
- Those with the aircraft being airborne, whenever the aerodrome operations or aerodrome infrastructure or ground handling operations may have been contributors to these occurrences.

This chapter only includes accidents and serious incidents that are in line with the definitions of accident and serious incident found in Regulation (EU) 996/2010, that stipulate that the accident or serious incident *'takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked'*[28]. Therefore, accidents and serious incidents related to occupational health and safety are not considered in this chapter.

This chapter includes accidents and serious incidents that occurred at aerodromes located in the EASA Member States. This means that the data presented here may stem from aerodromes that fall under the scope of the EASA Basic Regulation[29], but also from aerodromes that fall under the scope of national regulations. Also, and as already mentioned above, events of runway excursions and incursions where the aircraft and its operation caused the occurrence would be found in the chapters covering the respective products (e.g. Chapter 2 – Aeroplanes) or if ATC contributed to the accident or serious incident in the relevant chapter (e.g. Chapter 8 – ATM/ANS.).

This chapter provides the key statistics and occurrence categories for accidents and serious incidents in the domain, as well as the safety risks for the aerodrome and ground handling occurrences. The overview of the safety risks is solely derived from occurrence data taken from the ECR based on a domain specific query of the data base with certain parameters.

The list of fatal accidents associated with the scope of this domain is provided in Appendix 1 of this document. However, in the last decade there has not been a fatal accident in the EASA region attributable to the domain.

Key statistics

The key statistics for the domain of aerodromes and ground handling are shown in Table 7.1 and Table 7.2. The number of accidents in 2025 was lower than the average of the preceding decade. In 2025, there were no fatal accidents related to aerodrome and ground handling in EASA Member States. Also, none of the accidents in this domain resulted in serious injuries.

28 Article 2(1) of Regulation (EU) 996/2010. For information, this definition changes in the case of an unmanned aircraft, where an accident would *"take place between the time the aircraft is ready to move with the purpose of flight until such time it comes to rest at the end of the flight, and the primary propulsion system is shut down"*.

29 As per Article 2(1)(e) of the EASA Basic Regulation (Regulation (EU) 2018/1139).

Table 7.1: Key statistics for aerodromes and ground handling

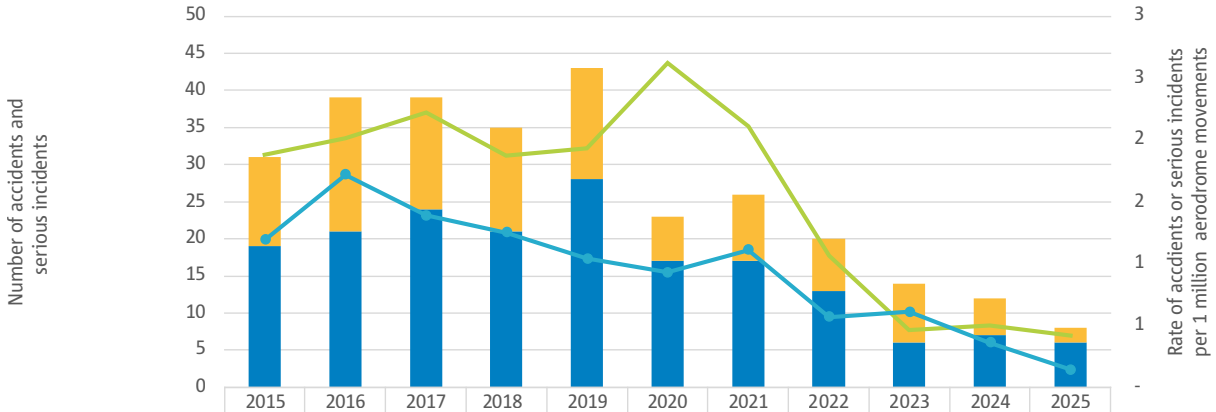
	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	0	0	—
Non-fatal accidents	173	6	▼
Serious incidents	109	2	▼

Table 7.2: Fatalities and serious injuries for aerodromes and ground handling

	Number of fatalities	Number of serious injuries
Total number for 2015–2024	0	17
Yearly max number for 2015–2024	0	4
Yearly min number for 2015–2024	0	0
Total number in 2025	0	0

Figure 7.1 shows the number of accidents per year over the last decade, as well as the rate of these occurrences per 1 million aerodrome movements in the EASA Member States. The number of accidents for the year 2025 has decreased and was the lowest observed over the time frame analysed; the same as in the year 2023. Compared to the previous year, the accident rate per million aerodrome movements has decreased a further in 2025. This confirms the downward trend of the last five years. Regarding serious incidents, these have also continually decreased for the last four years, and this occurrence class is now at its lowest in over a decade. The serious incident rate per million aerodrome movements is at the lowest is has been in over a decade. EASA will continue to monitor these rates over the next few years to determine if this positive development is sustainable.

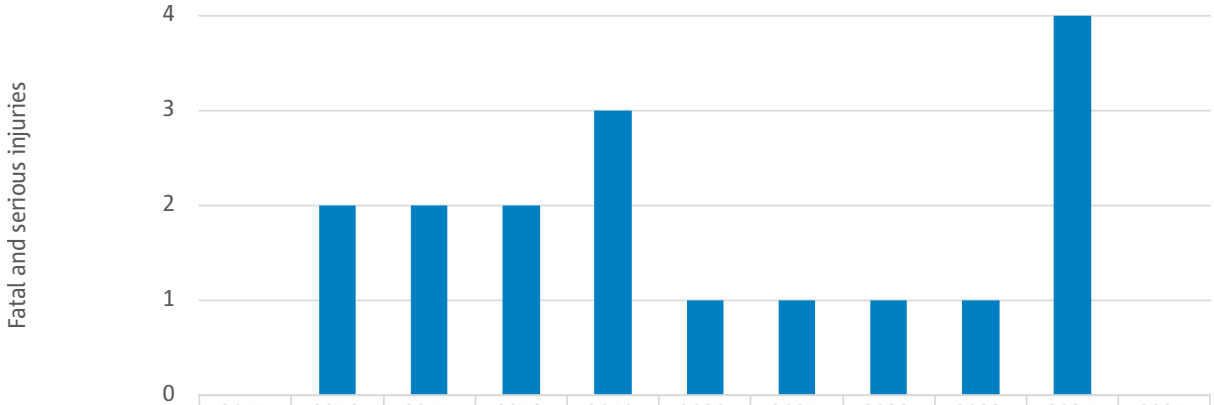
Figure 7.1: Numbers of fatal, non-fatal accidents, and serious incidents involving aerodromes and ground handling, and rates per million aerodrome movements



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	12	18	15	14	15	6	9	7	8	5	2
Non-fatal accidents	19	21	24	21	28	17	17	13	6	7	6
Fatal accidents	0	0	0	0	0	0	0	0	0	0	0
Accident rate	1.9	2.0	2.2	1.9	1.9	2.6	2.1	1.1	0.5	0.5	0.4
Serious incident rate	1.2	1.7	1.4	1.3	1.0	0.9	1.1	0.6	0.6	0.4	0.1

The number of fatalities and serious injuries per year is shown in Figure 7.2. There were no serious injuries at an aerodrome in the EASA region[30] in 2025. However, there was one serious incident where a minor injury occurred. While this safety performance of the domain is positive, it is important to be aware that incidents with injuries and even fatalities may also occur airside at aerodromes which do not meet the definition of accident found in Regulation (EU) 996/2010 on accident and serious incident investigation.

Figure 7.2: Fatal and serious injuries per year involving aerodromes and ground handling



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	0	2	2	2	3	1	1	1	1	4	0
Fatalities	0	0	0	0	0	0	0	0	0	0	0

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

Categories are of different natures, for example:

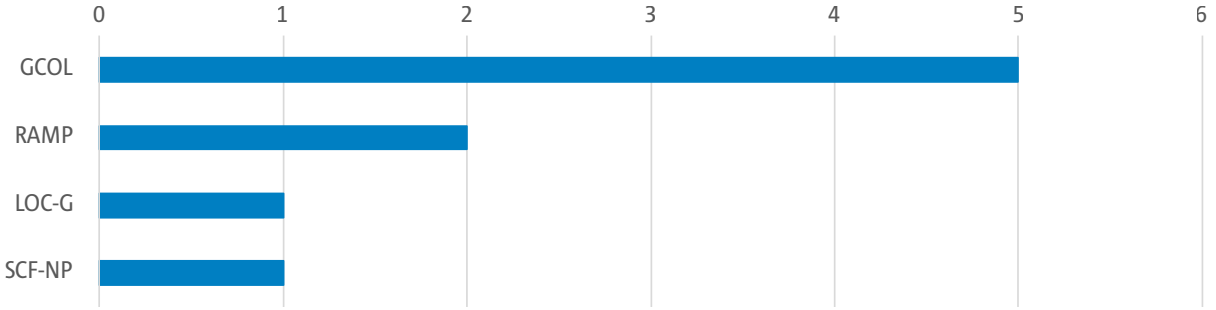
- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that happened in the period.

Figure 7.3 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025 in the domain, while Figure 7.4 illustrates their distribution over the period 2020–2024.

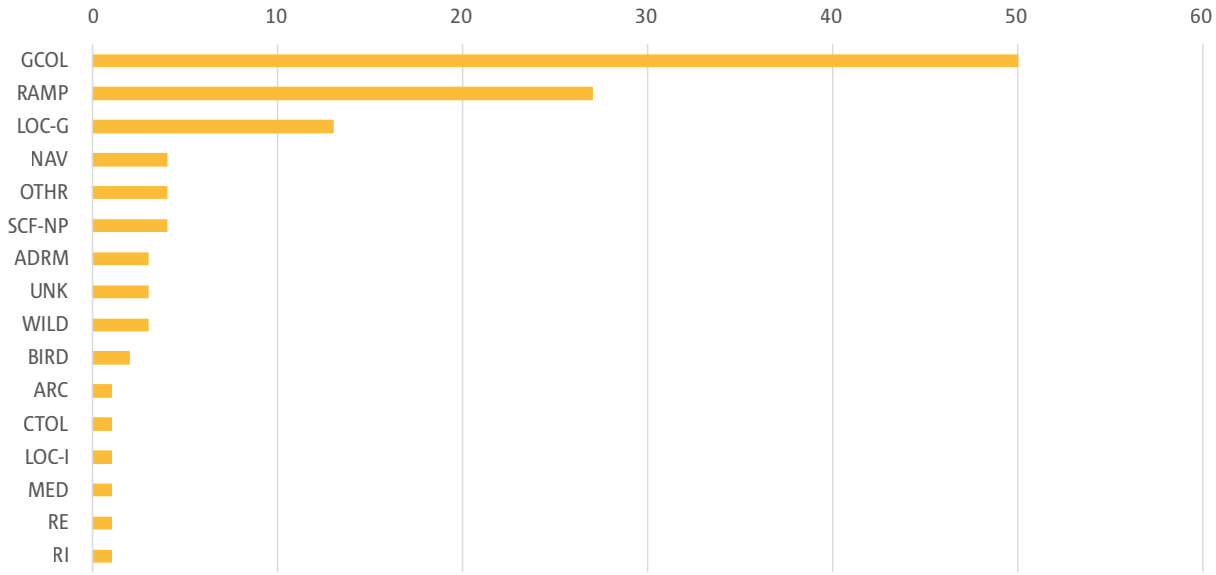
30 An occurrence involving a serious injury will qualify the occurrence as an accident if that occurrence also fulfils the "intention to fly" criterion of the definition of (aviation) accident found in Regulation (EU) 996/2010.

Figure 7.3: Number of accidents by occurrence category involving aerodromes and ground handling (2025)



GCOL: Ground Collision; RAMP: Ground Handling; LOC-G: Loss of control – ground; SCF-NP: System/component failure or malfunction [non-powerplant].

Figure 7.4: Number of accidents by occurrence category involving aerodromes and ground handling (2020–2024)



GCOL: Ground Collision; RAMP: Ground Handling; LOC-G: Loss of control – ground; NAV: Navigation error; OTHR: Other; SCF-NP: System/component failure or malfunction [non-powerplant]; ADRM: Aerodrome; UNK: Unknown and undetermined; WILD: Wildlife; BIRD: Bird; ARC: Abnormal runway contact; CTOL: Collision with obstacle(s) during take-off and landing; LOC-I: Loss of control – inflight; MED: Medical, RE: Runway excursion; RI: Runway incursion.

In the year 2025 ground collisions were the most frequent type of accident and serious incident, followed by Ramp/ ground handling and Loss of control - ground. These three top occurrence categories are also those of period 2020–2024. These occurrence categories are to be expected for this domain.

Safety risks

The safety risks for aerodrome and ground handling operations identified by EASA are derived from all classes of occurrences recorded in the ECR, covering the three-year period 2023–2025. From the total of 266,268 occurrences in the domain, 165 295 occurrences were completed with the Key Risk Area (KRA) and the ERCS safety risk score. This represents a completion rate of 61.1% for the domain[31]. This being the case the information hereafter is solely based on this restricted dataset.

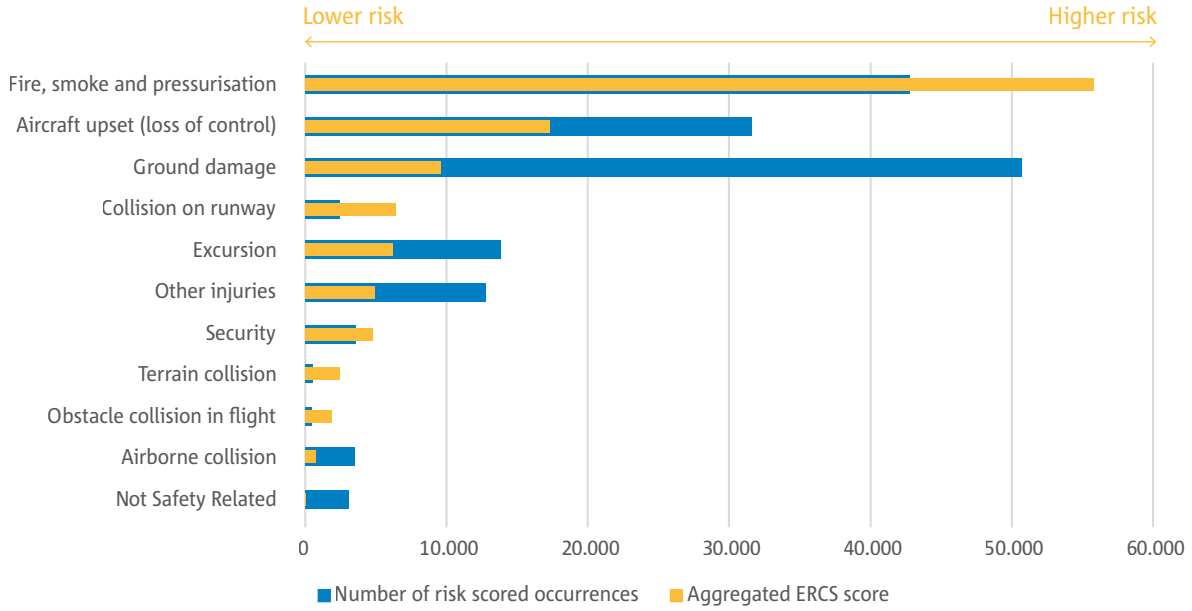
31 This completion rate is above the completion rate for occurrences with CAT complex aeroplanes (48.5%) and below that for occurrences in the ATM/ANS domain (70.4%).

The relative comparison between KRAs for this domain is highlighted in Figure 7.5. The KRAs and occurrence categories (refer to Figure 7.3 and Figure 7.4) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence escalated or could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the introduction to this ASR.

In the three-year period 2023–2025, the KRA ground damage was the most likely type of accident to which occurrences escalated or could have escalated (with a total of 50 726 occurrences). This KRA did however only represent the third highest cumulative safety risk (as represented by the yellow bar) in the domain. The highest risk KRA was fire, smoke and pressurisation, which was also the second most numerous potential accident outcome (with a total of 42 793 occurrences). Thie position of this KRA as the highest risk is due to a high number of occurrences into the ECR in relation to batteries/ dangerous goods being found in the checked luggage of passengers.

The second and third highest safety risks are aircraft upset and ground damage respectively. Aircraft upset had less occurrences than ground damage but had a higher aggregated ERCS score. Collision on the runway is the fourth highest cumulative safety risk, even though there were fewer occurrences (1 433) than the fifth highest risk of runway or taxiway excursion. Finally, it should be noted that the KRA other injuries moved from the seventh rank in 2024 to the sixth rank, while the security move from the sixth to the seventh.

Figure 7.5: KRAs by aggregated ERCS score and number of risk-scored occurrences involving aerodromes and ground handling (2023–2025)





Chapter 8

Air Traffic Management or Air Navigation Services (ATM/ANS)

8. Air Traffic Management or Air Navigation Services (ATM/ANS)

This chapter covers the safety performance of provision of Air Traffic Management or Air Navigation Services (ATM/ANS) in EASA Member States. The data 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.

The accidents and serious incidents in this chapter involve at least one aircraft, either fixed-wing aeroplanes with a maximum take-off mass of at least 2 250 kg, a small (CS-27) or a large (CS-29) helicopter, which is used in commercial air transport (CAT) and which occurred within the airspace under the responsibility of EASA Member States.

The accidents and serious incidents reviewed in this chapter comprise occurrences where the provision of services by the ATM/ANS was, either directly or indirectly, a contributing factor in the occurrence or played a role in aggravating the occurrence encountered by the aircraft.

This chapter provides in the core document the key statistics, occurrence categories and safety risks of ATM/ANS occurrences. The overview of the safety risks is solely derived from occurrence data from the European Central Repository (ECR).

The list of fatal accidents associated with the scope of this chapter is provided in Appendix 1 of this document. Notably no fatal accidents were attributed to ATM/ANS direct or indirect contribution.

Key statistics

The key statistics for this domain are found in Table 8.1 and Table 8.2, which includes a comparison of the number of accidents (fatal and non-fatal) and serious incidents for the last year and the previous 10-year period. Also included is a comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe.

There were no accidents in 2025 with ATM/ANS contribution, continuing a long-standing period without a fatal accident and extending the absence of non-fatal accidents observed since 2015. There were however, four serious incidents in 2025.

The absence of any accidents is an important positive outcome, but it does not provide a complete picture of safety performance. The four serious incidents recorded in 2025 represent situations in which the safety margin were significantly reduced and the potential for more severe consequences existed. Their inclusion provides a more comprehensive view of safety within the ATM/ANS domain.

Table 8.1: Key statistics for ATM/ANS contribution accidents

	Total number of occurrences per occurrence class for 2015–2024	Number of occurrences per occurrence class in 2025	Comparison 2025 vs yearly average for 2015–2024 per occurrence class
Fatal accidents	0	0	—
Non-fatal accidents	3	0	▼
Serious incidents	104	4	▼

As shown in Table 8.2, the four serious incidents in 2025 resulted in no fatalities or serious injuries. Over the period 2015–2024, no fatalities and one serious injury were recorded.

Table 8.2: Number of fatalities and serious injuries involving ATM/ANS contribution

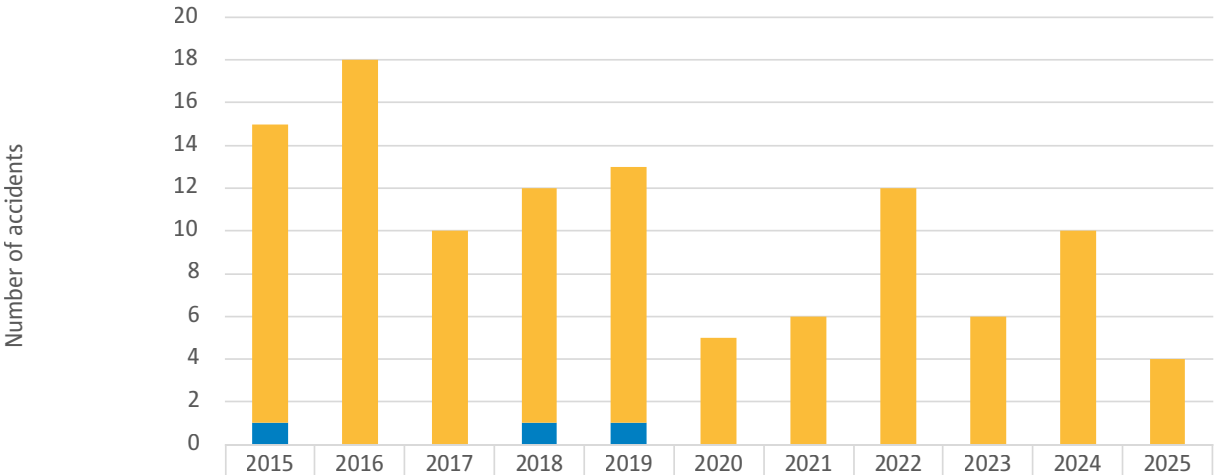
	Number of fatalities	Number of serious injuries
Total number for 2015–2024	0	1
Yearly max number for 2015–2024	0	1
Yearly min number for 2015–2024	0	1
Total number in 2025	0	0

Figure 8.1 shows the number of accidents and serious incidents for the period 2015–2025, together with the rates per one million flights for the period 2019–2025.

The rates are calculated over a seven-year period (2019–2025) to align with the regulatory framework of the Single European Sky (SES) Third Reference Period (RP3). This approach was adopted because the introduction of RECAT-EU and Time-Based Separation (TBS) fundamentally changed operational spacing requirements and, consequently, the baseline for what constitutes a separation minima infringement. As a result, data collected before 2019 are not directly comparable.

The accident rate has continued to decline since 2019, with no accidents involving a direct or indirect ATM contribution recorded during this period. The serious incident rate decreased from 1.05 per million flights in 2024 to 0.40 in 2025. Over the longer term, the overall trend indicates an improvement in safety performance, although annual fluctuations should be interpreted with caution, particularly when the number of occurrences is small.

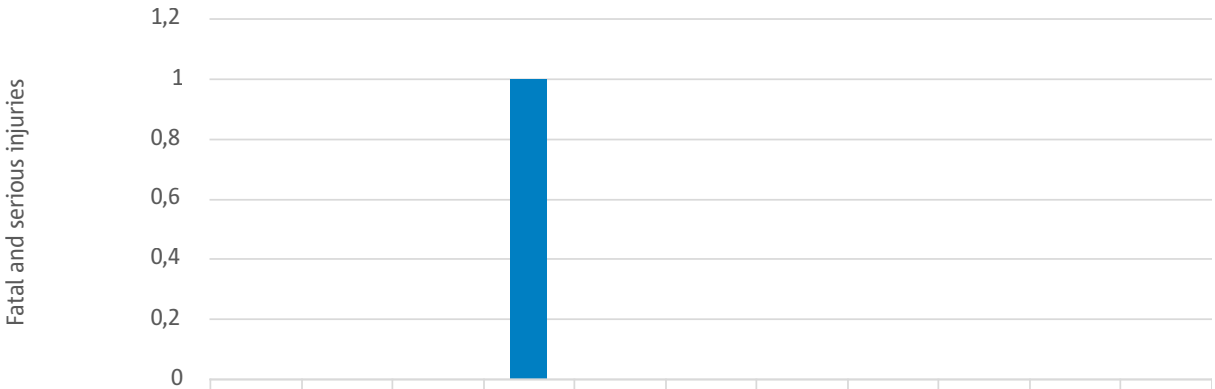
Figure 8.1: Numbers and rates of fatal accidents, non-fatal accidents, and serious incidents per year and one million flights



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious incidents	14	18	10	11	12	5	6	12	6	10	4
Non-fatal accidents	1	0	0	1	1	0	0	0	0	0	0
Fatal accidents	0	0	0	0	0	0	0	0	0	0	0

The number of fatalities and serious injuries per year are shown in Figure 8.2. Only in 2018 there was one occurrence with ATM/ANS contribution where a serious injury was reported.

Figure 8.2: Fatalities and serious injuries per year involving ATM/ANS contribution



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Serious injuries	0	0	0	1	0	0	0	0	0	0	0
Fatalities	0	0	0	0	0	0	0	0	0	0	0

Occurrence categories

Occurrences are categorised using the ICAO Accident/Incident Data Reporting (ADREP) taxonomy for occurrence categories, developed for supporting common coding of the main elements of an occurrence that should be investigated, recorded, and analysed.

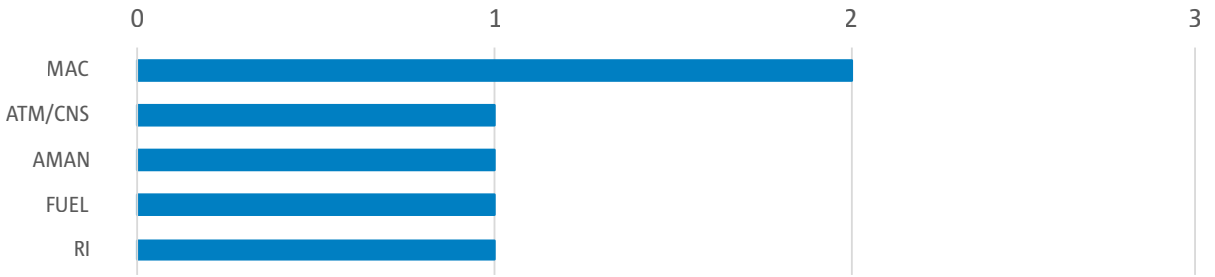
Categories are of different natures, for example:

- Operational such as low altitude operations (LALT);
- Environmental such as turbulence encounter (TURB);
- Technical such as system/component failure or malfunction [non-powerplant] (SCF-NP):
- Consequential such as fire/smoke resulting from impact (F-POST); etc.

Multiple categories may therefore be assigned to a single occurrence. For example, if an engine failure occurred, and loss of control followed, the occurrence would be coded in both categories, i.e., SCF-PP: powerplant failure or malfunction and LOC-I: loss of control in flight. The sum of the numbers of occurrences per category may therefore be greater than the total number of occurrences that were realised in the period.

Figure 8.3 outlines the leading occurrence categories associated with the accidents and serious incidents in 2025. MAC (airprox/ACAS alert/loss of separation/(near) midair collisions) was the most frequently assigned category, appearing in two occurrences. Followed with one occurrence in each of the following categories: ATM/CNS (Air Traffic Management/Communication, Navigation and Surveillance), AMAN (abrupt manoeuvre), FUEL (fuel related) and RI (runway incursion - vehicle, aircraft or person).

Figure 8.3: Numbers of accidents and serious incidents by occurrence involving ATM/ANS contribution (2025)

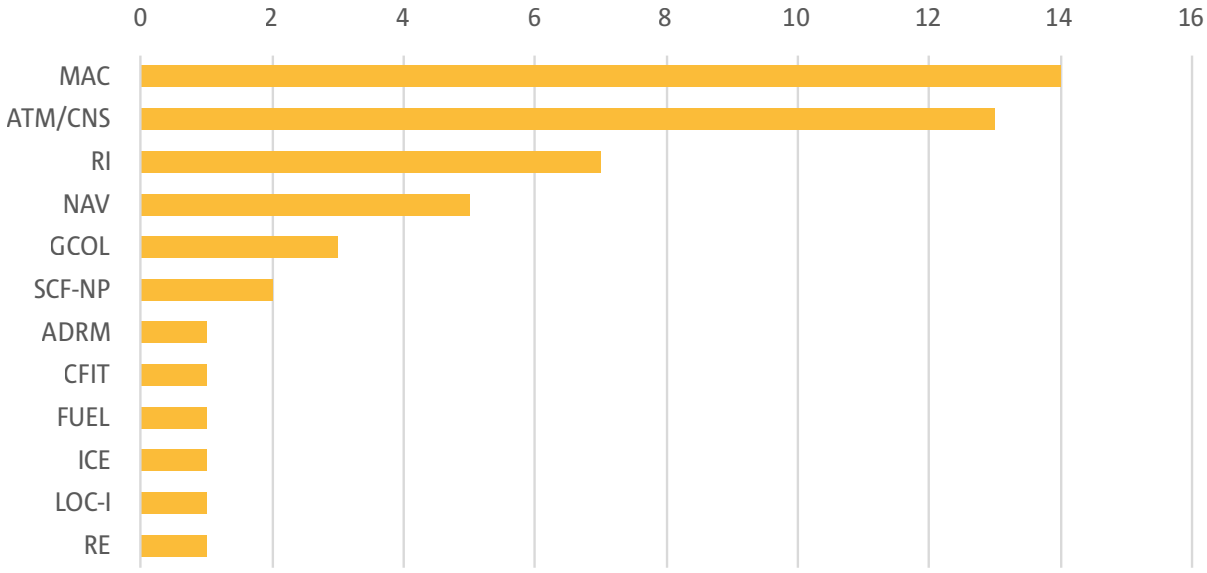


MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; ATM/CNS: Air traffic management or communications, navigation, or surveillance service; AMAN: Abrupt manoeuvre; FUEL: Fuel related management, exhaustion or contamination; RI: Runway incursion - vehicle, aircraft or person.

Figure 8.4 provides the five-year context for 2020–2024. During this period, MAC (airprox/ACAS alert/loss of separation/(near) midair collisions) was the leading category, followed by ATM/CNS (air traffic management/communication, navigation and surveillance) and RI (runway incursion - vehicle, aircraft or person). Comparing 2025 with the previous five-year period shows that ATM/CNS and MAC remain the top two most represented categories. However, AMAN (abrupt manoeuvre), which does not appear in the previous five-year period, was recorded in 2025 with one event.

The category distribution should not be interpreted as a ranking of risk. It describes the nature of the occurrences, not the severity of the outcomes to which they could have escalated. That potential is considered through the Key Risk Area analysis in the next section.

Figure 8.4: Numbers of accidents and serious incidents by occurrence category involving ATM/ANS contribution (2020–2024)



MAC: Airprox/ACAS alert/loss of separation/(near) midair collisions; ATM/CNS: Air traffic management or communications, navigation, or surveillance service issues; RI: Runway incursion - vehicle, aircraft or person; NAV: Navigation error; GCOL: Ground Collision; SCF-NP: System/component failure or malfunction [non-powerplant]; ADRM: Aerodrome; CFIT: Controlled flight into or toward terrain; FUEL: Fuel-related management, exhaustion or contamination, ICE: atmospheric or carburettor icing; LOC-I: Loss of control - inflight; RE: Runway excursion;

Safety risks

The safety risks identified for ATM/ANS are derived from all classes of occurrences recorded in the ECR and where the ATM/ANS was either directly or indirectly involved, covering the three-year period 2023–2025. From the 39 310 occurrences, 27 681 occurrences were completed with the KRA and ERCS safety risk score, representing an ERCS completion rate of 70% for the domain. The following information is solely based on the 27 681 occurrences with completed safety risk scores.

The KRAs for ATM/ANS are shown in Figure 8.5. KRAs and occurrence categories (refer to Figure 8.3 and Figure 8.4) have different purposes. While occurrence categories describe actual factors and outcomes of an occurrence, KRAs describe the potential outcome of an occurrence. The KRA is defined by the most likely type of accident that an occurrence could have escalated to. Unlike occurrence categories, where multiple categories may be assigned to a single occurrence, there can only be one KRA per occurrence. The KRA is one element of the ERCS. This scheme is applied when determining the safety risk score of an occurrence and is further detailed in the ASR introduction.

Analysis of the risk scored data reveals that Airborne collision remains the most critical safety risk within the ATM/ANS domain, accounting for both the highest volume of occurrences and the highest aggregated ERCS score. Out of the 39 310 classified occurrences, 12 073 were attributed to this KRA.

Collision on runway is the second highest KRA. While it recorded fewer total events (2 619 occurrences), its aggregated ERCS score is disproportionately high, reflecting the severe potential outcome of runway conflicts. Occurrences during the 2023–2025 reporting period emphasise that runway incursion remains one of the top two systemic vulnerabilities.

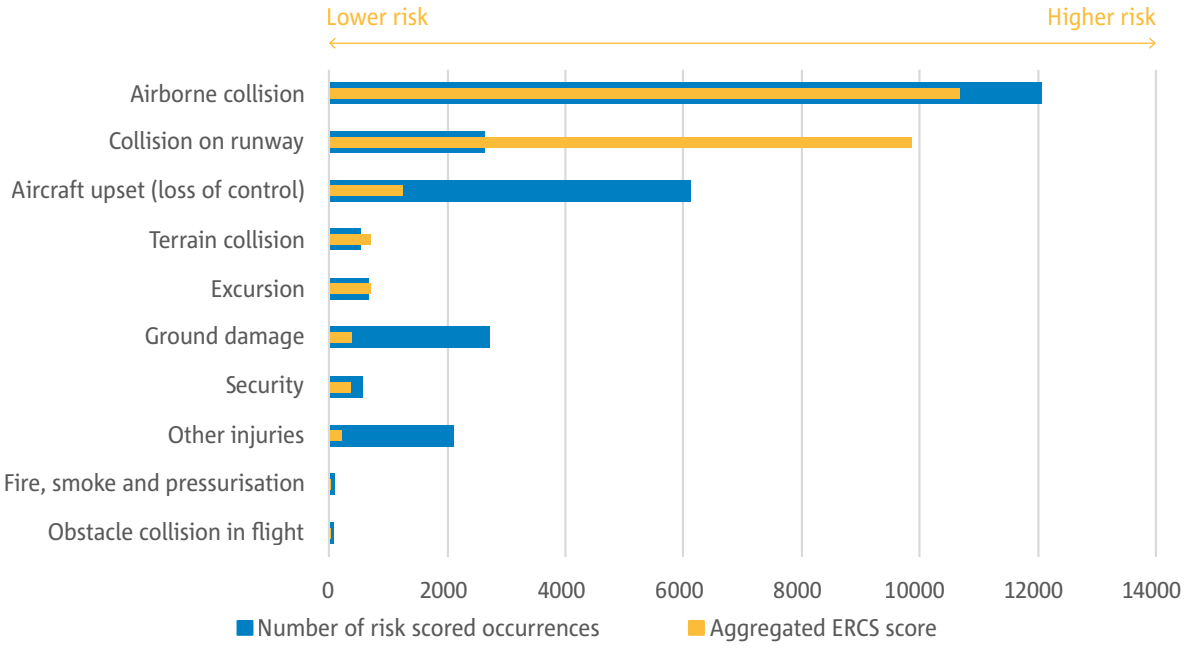
On October 23, 2023, a serious runway incursion occurred at Stuttgart Airport[32] when a landing Boeing 737 descended to 18 feet above the runway threshold while an Airbus A321 was still accelerating for take-off, according to the German Federal Bureau of Aircraft Accident (BFU) investigation. The investigation found that a last-minute change to the departure sequence, miscalculation of required time and a delayed go-around order caused the incident. At Nice in September 2025[33], an aircraft cleared to land on one parallel runway aligned with the other runway, which was occupied by an aircraft ready for departure and flew over it before going around. The investigation into this occurrence is still ongoing.

These incidents provide examples as to why the runway collision KRA carries such a high aggregated risk.

In contrast, certain categories show that as flight volume increases, risk severity decreases. For instance, Aircraft upset (loss of control) generated a substantial number of recorded occurrences at 6 126. However, the majority of these events involved minor turbulence encounters or localised operational deviations that were successfully contained by the prompt and decisive actions of the flight crews leading to a lower risk score.

Terrain collision remains the third highest risk priority, underlining the continued importance of preventing controlled flight into terrain (CFIT) during the approach phase, low-altitude operations and operations during adverse weather.

Figure 8.5: KRAs by aggregated ERCS score and number of risk-scored ATM/ANS occurrences (2023–2025)



The top KRAs in the ATM/ANS domain are airborne collision and collision on runway reflecting the role of ATM/ANS in guiding and separating aircraft.

32 BFU final report file number BFU23-1010-EX
33 BEA preliminary report file number BEA2025-0423

- **Airborne collision.** This includes occurrences involving actual or potential airborne collisions between aircraft, and occurrences involving an aircraft and other controllable airborne objects, such as UAS thereby excluding birds. Therefore, it includes all separation-related occurrences regardless of the cause. It does not include false TCAS/ACAS alerts that are caused by equipment malfunctions or loss of separation with at least one aircraft on the ground.
- **Collision on runway.** This 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.



Chapter 9
Standardisation

9. Standardisation

Safety is the Agency's core business. Standardisation[34] is one of the Agency's main tasks, aimed at maintaining a high and uniform level of safety within the EU, a level playing field for industry, mutual recognition of licenses and certificates and international recognition of the European system. The Agency conducts standardisation activities to monitor the application of the requirements of the Basic Regulation[35] and its Implementing Rules, the occurrence reporting regulation[36] and its delegated and implementing rules, as well as their uniform implementation by the National Competent Authorities (NCAs), in order to ensure that:

- Passengers can fly safely to, from and within the EU;
- The EU industry benefits from a level playing field;
- Certificates issued by NCAs are mutually recognised; and
- The European system is recognised by international partners.

Standardisation activities include the continuous assessment of the NCAs' ability to discharge their safety oversight responsibilities (Continuous Monitoring Activities: CMA), as well as conducting standardisation inspections as necessary to directly verify the implementation of the European rules. Such inspections are prioritised, planned and performed using a risk-based approach, based on the Agency's assessment of well- defined indicators. Feedback from stakeholders has shown that NCAs generally see standardisation inspections as a valuable means to discuss implementation issues and share best practices, also facilitated by the participation of NCAs in inspections as team members or observers.

This chapter summarises the standardisation activities conducted by the Agency in 2025. During 2025, the Agency performed standardisation inspections and CMA in the following domains:

- Aerodromes (ADR).
- Aircrew - Licensing (FCL).
- Aircrew - Medical (MED).
- Aircrew - Flight Simulation Training Devices (FSTD).
- Air Operations (OPS).
- Airworthiness (Production and Maintenance) (AIR).
- Air Traffic Management/Air Navigation Services (ATM/ANS).
- Ramp inspections (RAMP).
- Systemic Enablers for Safety Management (SYS).
- Unmanned Aircraft Systems (UAS).

During the year, the Agency continued building-up its standardisation activities in the UAS domain. In addition, the scope of the inspection programmes has continued to grow, with new elements such as U-Space, the European Risk Classification Scheme (ERCS), as well as the extension of safety management systems (SMS) requirements in production and maintenance. In the future, the new domains of information security and ground handling will also be integrated into the standardisation process.

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34 The Agency defines standardisation as the process of monitoring how each Member State applies the common EU rules on aviation safety. The process is based on Commission Implementing Regulation (EU) No 628/2013 of 28 June 2013

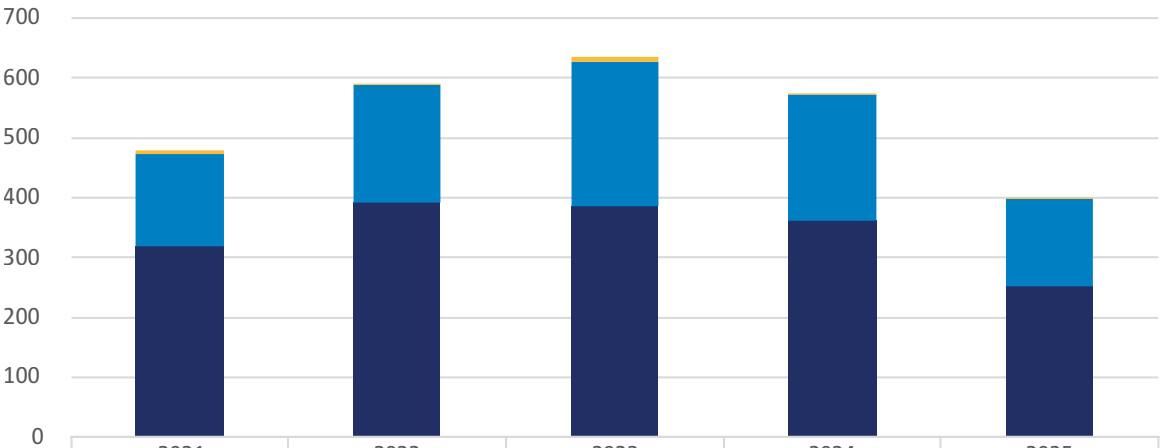
35 Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018

36 Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014. Since 2018, the Agency has conducted standardisation of Regulation (EU) No 376/2014 and its delegated and implementing regulations on a specific mandate from the European Commission

A significant effort is being made to adapt the standardisation method to cope with the continuous expansion of scope, the volume of rules to be monitored and the corresponding workload. The approach to this issue is to enhance the standardisation continuous monitoring approach (CMA) and to replace the current model with a more risk based one. The objective is to implement a maturity model that credits mature Member States for the good performance of their State Safety Management. The maturity assessment will enable to establish a State Monitoring Programme (SMP) with the perspective to reduce the number of on-site inspections and have more combined inspections for mature States, while releasing resources to more closely monitor those requiring more support.

While these efforts are underway and are being tested, in 2025 standardisation activity continued to rely on the established CMA. In 2025, the number of new findings decreased to 398 findings of non-compliance, including one immediate safety concern (ISC), see Figure 9.1. This is an overall decrease of 30.7% compared to 574 findings in 2024. Class C findings decreased by 31.6% and class D findings by 30.2% during the same period.

Figure 9.1: Number of findings by class and year



	2021	2022	2023	2024	2025
Class G	6	2	7	1	1
Class D	155	198	243	212	145
Class C	318	391	385	361	252

This reduction in the number of findings can be explained by the nature of the inspections conducted in 2025 with three State Monitoring Programmes, a global inspection on collaborative oversight across Denmark, Norway and Sweden of Scandinavian Airlines (SAS), as well as the use of resources for a holistic assessment of a third country. This change led to individual domain visits being combined and coordinated into larger cross-domain inspection programmes. It can also be explained by the implementation of maturity level assessments which require more time on-site to validate the maturity level assessments.

Class C findings (252 in 2025) raise mainly standardisation concerns, whereas class D findings (145 in 2025) also raise safety concerns, if not timely corrected, and class G findings (one in 2025) represent immediate safety concerns (ISCs) requiring the concerned NCA to take immediate corrective actions.

Figure 9.2: Distribution of Class C findings by Critical Element

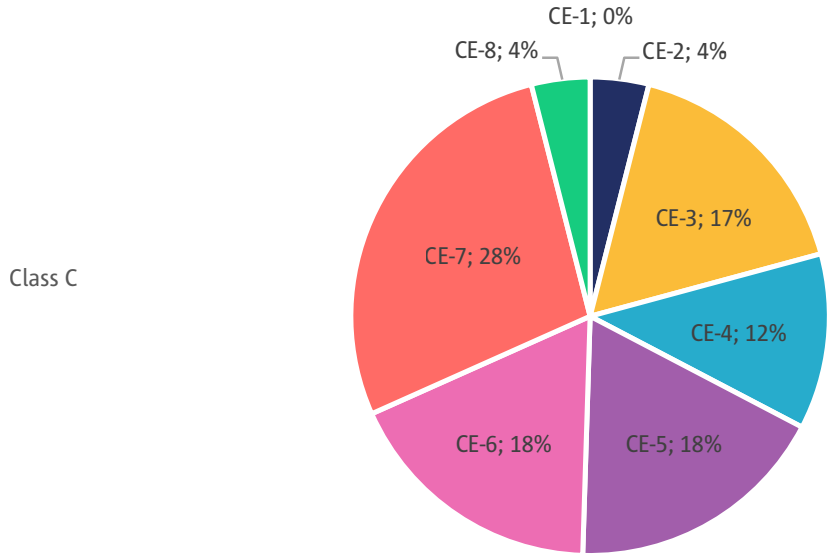


Figure 9.3: Distribution of Class D findings by Critical Element

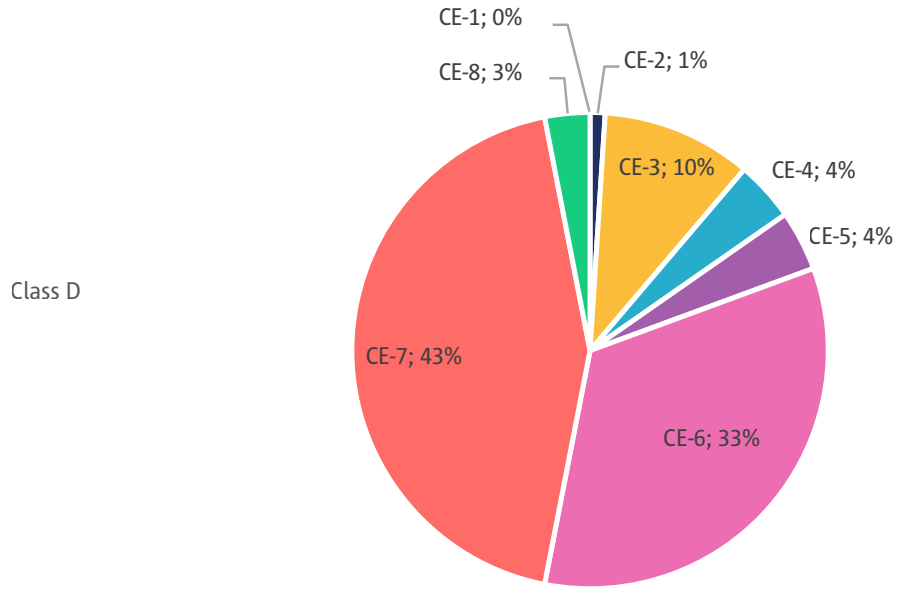


Figure 9.2 and Figure 9.3 illustrate the distribution of class C and D findings raised in 2025 according to the eight Critical Elements (CEs) of a State's Safety Oversight System defined by the International Civil Aviation Organisation (ICAO) in its Doc 9734 'Safety Oversight Manual'. The ICAO CEs are the main constituents of a safety oversight system. They encompass the whole spectrum of civil aviation oversight activities, and their effective implementation is an indication of a State's capability in providing safety oversight. The eight CEs are:

- **CE-1** Primary aviation legislation.
- **CE-2** Specific operating regulations.
- **CE-3** State civil aviation system and safety oversight functions.
- **CE-4** Technical personnel qualification and training.
- **CE-5** Technical guidance, tools and the provision of safety-critical information.
- **CE-6** Licensing, certification, authorisation and approval obligations.
- **CE-7** Surveillance obligations.
- **CE-8** Resolution of safety concerns.

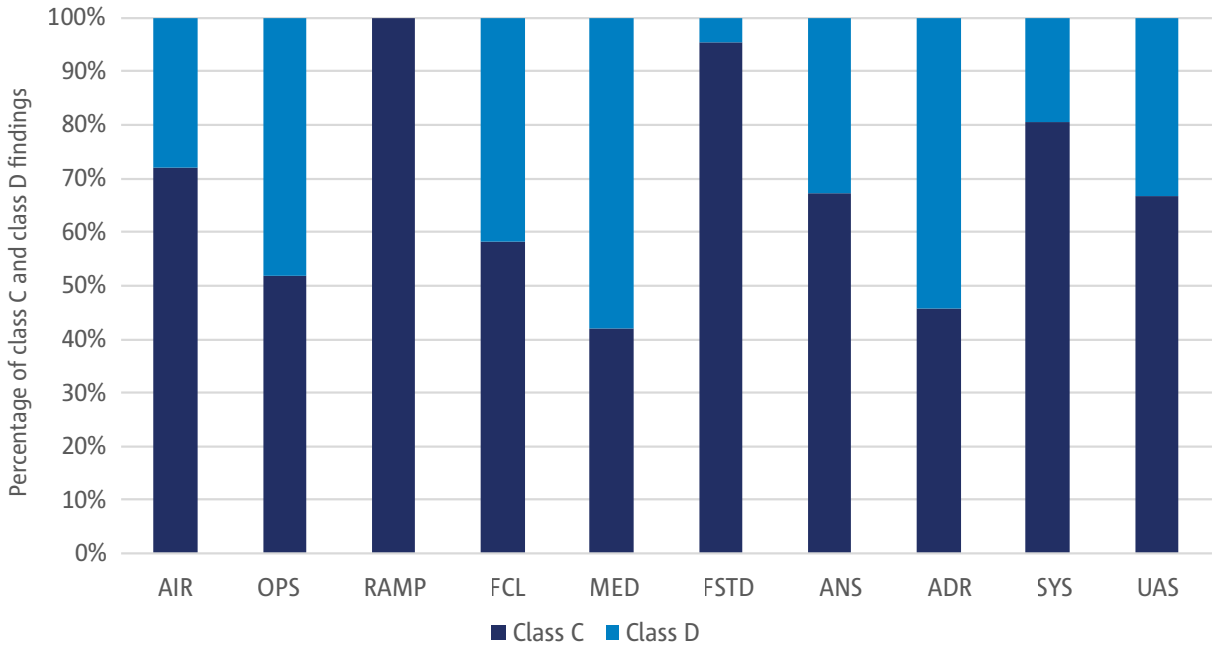
As in previous years, most class D findings (76%) relate to CE-6 (initial certification/approval) and CE-7 (continued oversight/surveillance). This confirms the continued safety impact of the inadequacy of certification and oversight processes that was already observed in the previous years; it represents a long-standing concern, and it is a focus area for standardisation inspections.

For class C findings, the main areas of concern are CE-5, CE-6, and CE-7, followed by, CE-3 and CE-4; combined, they account for 92% of all class C findings. Besides certification and oversight, the unavailability of proper procedures and tools and technical training and qualification of personnel (CE-5), remain a source of standardisation concern.

In 2025 a single ISC was raised in the OPS domain. This is the same number as in 2024, and it is the lowest number of ISCs in the last five years. The ISC related to an inadequate verification of compliance before granting an Electronic Flight Bag (EFB) approval.

The distribution of findings between the classes varies from year to year. In 2025, 36.4% of the findings were classified as D, compared with 36.9% in 2024, 38.3% in 2023 and 33.5% in 2022. For class C findings, the ratio in 2025 is 63.3% compared with 62.9% in 2024, 60.6% in 2023 and 66.2% in 2022. The number of class G findings, immediate safety concerns, was the same in 2025 as in 2024 (one), but the ratio rose to 0.3% from 0.2% in 2024. For 2023 the number was seven (1.1%) and in 2022 the number was two (0.3%). This distribution varies by domain, see Figure 9.4.

Figure 9.4: Ratio of class C and D findings per domain in 2025



AIR - Airworthiness; OPS - Air Operations; RAMP - Ramp inspections; FCL - Aircrew Licencing; MED - Aircrew Medical; FSTD - Flight Simulation Training Devices; ANS - Air Traffic Management/Air Navigation Services; ADR – Aerodromes, SYS - Systemic Enablers for Safety Management; UAS - Unmanned Aircraft Systems

More generally, the key outcomes from standardisation activities in 2025 can be summarised as follows:

- **Regulatory amendments overload** was highlighted on several occasions by the industry and authorities, especially in the short term to prepare for the implementation of SMS and Part-IS for production and maintenance organisations. The overload is also visible in having to accommodate the exponential growth in Unmanned Aircraft Systems (UAS) with more complex operations using larger drones, the volume of occurrence reports, which need to be coded in accordance with ERCS, and new oversight responsibilities due to U-space and the new ground equipment regulations with

a transition period until 2028. It is expected that the Rules Simplification programme will help to harmonise and align authority and safety management requirements across all various domains. This has the potential to simplify the management system and strengthen compliance, which is a recurrent weakness identified by standardisation. It should also slow down the extent of regulatory changes in various domains.

- **Less compliance, more performance.** The novel standardisation model is being developed to adapt to the growing volume of rules and complement the traditional compliance-based approach with a maturity level that credits the States' performance. The roll-out of the maturity level assessment during inspections in 2025 led to a global decrease of findings due to a reduction of domain-centric inspection visits but also due to the time spent on-site to validate maturity level assessments. Consequently, the backlog of findings still open at the end of the year decreased. While mature States have put effort into their self-assessments in providing evidence, struggling States have often put less effort in documenting their maturity level, thus leading to a lower scoring and a need to keep more frequent visits. This risk-based approach is supported by more focused inspections replacing comprehensive ones, the use of priority check items in ADR and AIR, selected inspection programmes in Aircrew, ANS and OPS. The NCA feedback acknowledged that findings were proportionate with less minor administrative ones.
- **Lack of effective oversight**. As in previous years, the NCAs' performance of certification and oversight tasks (ICAO Critical Elements CE-6 and CE-7) reflect the recurrent issues, usually with a safety impact which standardisation aims to correct. This is evident in nearly all technical domains, where the non-compliance of visited undertakings went undetected by NCA oversight. One recurrent causal factor is the shift of state financial resources towards other activities, resulting in budget cuts and the shortage or high inspector turnover as evidenced in the manpower calculations in several competent authorities. A growing number of authorities are using contracted experts to circumvent the problem when they cannot offer competitive conditions compared to industry. Additional issues come when using too many inspectors near or over retirement age, which jeopardise the sustainability of staffing, when allocating multiple roles on sole individuals and on finding specialists in very specific areas such as Part-IS.
- **Oversight efficiency improves with common tools.** The oversight toolbox (OTB) for OPS, developed and shared by the Agency, supports NCAs and operators by strengthening the verification of compliance of operations manuals with the applicable requirements. The toolbox is maintained and updated based on regulatory amendments and practices identified during standardisation. The Agency also shared its airworthiness procedures and its Management System Assessment Tool. These support NCAs, particularly in smaller States, to discharge their oversight responsibilities. Various initiatives aim at supporting directly the NCA inspectors such as the new Production & Airworthiness Technical Board Platform, the OPS Monitoring Bulletins on key safety priorities, the 'FAQ book' in Aircrew as well as the FAQ database and focused technical groups in ANS or the ADR workshops.
- **Cooperative oversight proof of concept** was demonstrated after a complex inspection of Denmark, Norway and Sweden who are jointly responsible in accordance with Article 62(5) of Regulation (EU) 2018/1139 for the oversight of the AOC of Scandinavian Airlines System (SAS) in the Air Operations, Aircrew, Airworthiness and SYS domains. For many years, the three Scandinavian countries have been working under a cooperation agreement describing how different aspects related to SAS airline oversight are covered. The inspection confirmed that cooperative oversight does work. It also provided recommended practices on cooperative oversight but also showed the complexity of such a setup.
- **Growth of overdue findings.** Some states continue to lag behind in correcting their non-conformities. This is illustrated by safety-related findings (class D) that remain open and overdue for more than three months at the end of 2025, which increased from 26 at the end of 2024 to 51 at the end of 2025. The 51 overdue findings were spread across 15 states, an increase from 9 states at the end of 2024.

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List of Abbreviations

Abbreviation	Meaning
AB	Advisory Bodies
AC	Advisory Circular
ACNS	Airborne Communications Navigation and Surveillance
AD	Airworthiness Directive
ADR	Aerodromes
ADRM	Aerodrome
AFM	Aircraft Flight Manual
AMAN	Abrupt manoeuvre
AMC	Acceptable Means of Compliance
AME	Aero-Medical Examiner
ANAC	Autoridade Nacional de Aviação Civil (Portugal)
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
ANSV	Agenzia Nazionale per la Sicurezza del Volo (Italy)
ARC	Aviation Rulemaking Committee
ARGH	Authority Requirements for Ground Handling Services
ATM	Air Traffic Management
ATM/CNS	Air traffic management or communications, navigation, or surveillance service
ATS	Air Traffic Services
BAAI	Bureau of Air Accident Investigation (Malta)
BASA	Bilateral Aviation Safety Agreement
BEA	Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile (France)
BIRD	Bird strike
BOP	Balloon Operations
BPRS	Ballistic Parachute Recovery System
BPS	Ballistic Parachute System
CAG	Collaborative Analysis Groups
CARI	Continued Airworthiness Review Item
CAT	Commercial Air Transport
CFIT	Controlled Flight into Terrain
CIAIAC	Comisión de Investigación de Accidentes e Incidentes de Aviación Civil (Spain)
CIVP	Continued Integrity Verification Programme

Abbreviation	Meaning
CL	Checklist
CM	Certification Memorandum
CRI	Certification Review Item
CS	Certification Specification
CTOL	Collision with obstacle(s) during take-off and landing
CVR	Cockpit Voice Recorder
DAH	Design Approval Holder
DGAC	Direction Générale de l'Aviation Civile
EASA	European Union Aviation Safety Agency
EC	European Community
ECCAIRS	European Coordination Centre for Accident and Incident Reporting Systems
ED	Executive Director
EFR	European Rotorcraft Forum
ELT	Emergency Locator Transmitter
ENCASIA	European Network of Civil Aviation Safety Investigation Authorities
EPAS	European Plan for Aviation Safety
ETSO	European Technical Standard Order
EU	European Union
EUROCAE	European Organisation for Civil Aviation Equipment
EVT	Evaluation Task
EXTL	External load related occurrences
F-NI	Fire/smoke (non-impact)
F-POST	Fire/smoke (post-impact)
FAA	Federal Aviation Administration (USA)
FAR	Federal Aviation Regulation (USA)
FATA	Federal Air Transport Agency (Russia)
FCOM	Flight Crew Operating Manual
FDR	Flight Data Recorder
FUEL	Fuel-related management, exhaustion or contamination
GA	General Aviation
GCOL	Ground Collision
GH	Ground Handling
GM	Guidance Material
GPIAAF	Gabinete de Prevenção e Investigação de Acidentes com Feronaves e de Acidentes Ferroviários (Portugal)
GPWS	Ground Proximity Warning System

Abbreviation	Meaning
GTOW	Glider towing related events
HEMS	Helicopter Emergency Medical Service
IAC	Interstate Aviation Committee (Russia)
ICA	Instructions for Continued Airworthiness
ICAO	International Civil Aviation Organization
ILS	Instrument Landing System
IMA	Instructions for Maintenance
IST	Implementation Support Task
JAR	Joint Aviation Requirements
JRC	European Joint Research Center
LALT	Low altitude operations
LBA	Luftfahrt-Bundesamt
LOC-G	Loss of control - ground
LOC-I	Loss of control - inflight
LOLI	Loss of lifting conditions en-route
LRD	Load Reduction Device
MAC	Airprox/ACAS alert/loss of separation/(near) midair collisions
MASPS	Minimum Aviation System Performance Standard
MED	Medical
MEG	Medical Expert Group
MGB	Main Gear Box
MLG	Main Landing Gear
MOPS	Minimum Operational Performance Specifications
MRBR	Maintenance Review Board Report
MS	Member States
NAA	National Aviation Authority
NAV	Navigation error
NCA	National Competent Authorities
NCC	Non-Commercial Operations with Complex motor-powered aircraft
NCO	Non-Commercial Operations with Other than complex-motor-powered aircraft
NDI	Non-Destructive Inspection
NDT	Non-Destructive Test
NPA	Noticed of Proposed Amendment
O-FF	Oxygen-Fed Fire
OHA	Oxygen Hazards Analysis

Abbreviation	Meaning
OM	Operations Manual
ORGH	Organisation Requirements for Ground Handling Services
OTHR	Other
OVS	Oversight
PBE	Protective Breathing Equipment
QMS	Quality Management System
RAMP	Ground Handling
RE	Runway excursion
RES	Research Project
RFM	Rotorcraft Flight Manual
RI	Runway incursion - vehicle, aircraft or person
RMT	Rulemaking Task
RTCA	RTCA, Inc. (formerly known as Radio Technical Commission for Aeronautics
SAR	Search And Rescue Centers
SARP	Standards and Recommended Practices
SB	Service Bulletin
SCF-NP	System/component failure or malfunction [non-powerplant]
SCF-PP	powerplant failure or malfunction
SEC	Security
SERA	Standardised European Rules of the Air
SESAR	Single European Sky ATM Research
SI	Safety Issue
SIA	Safety Investigation Authority
SIB	Safety Information Bulletin
SMS	Safety Management System
SPO	Specialised Operations
SPT	Safety Promotion Task
SR	Safety Recommendation
SRGC	Safety Recommendation of Global Concern
SRIS	Safety Recommendations Information System
SRM	Safety Risk Management
SRUR	Safety Recommendation of Union-wide Relevance
SSA	System Safety Analysis
SSP	State Safety Programme
STC	Supplemental Type Certificate

Abbreviation	Meaning
STSB	Swiss Transportation Safety Investigation Board (Switzerland)
SW	Software
TAWS	Terrain Avoidance and Warning System
TBO	Time Between Overhaul
TBR	Time Between Replacements
TC	Type Certificate
TCAS	Traffic Collision Avoidance System
TCH	Type Certificate Holder
TIP	Technical Implementation Procedures
TOPMS	Take-Off Performance Monitoring System
TSO	Technical Standard Order
TURB	Turbulence encounter
UAV	Unmanned Aerial Vehicles
UM	User Manual
UNK	Unknown or undetermined
USA	United States of America
USOS	Undershoot/ overshoot
VHM	Vibration Health Monitoring
WG	Working Group
WILD	Wildlife
WSTRW	Windshear or thunderstorm

EASA
European Union Aviation Safety Agency

European Union Aviation Safety Agency
Safety Intelligence & Performance Department

Postal address
Postfach 101253
50452 Cologne, Germany

Visiting address
European Union Aviation Safety Agency
Konrad-Adenauer-Ufer 3, D-50668
Köln, Germany

Tel. +49 221 89990-000
Mail info@easa.europa.eu
Web **www.easa.europa.eu**

An agency of the European Union