



FPS MOBILITY AND TRANSPORT
BELGIAN CIVIL AVIATION AUTHORITY

Belgian Plan for Aviation Safety 2022-2026

Update 2022



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Executive Summary

The Belgian Plan for Aviation Safety (BPAS) contains global and national safety initiatives to address safety risks in aviation. The operational safety risks are among others identified based on the analysis of safety outcomes (i.e. accidents, serious incidents and incidents). The BPAS is consistent with what EASA and ICAO are doing at European level. Most of the safety risks and safety actions of the EPAS and the ICAO GASP have therefore been introduced in this BPAS update. We are fully committed to work in partnership with EASA and ICAO to ensure Europe and Belgium maintain the highest possible standards of aviation safety. Systemic risks (e.g. regulatory/policy issues) that underlie the operational performance of the civil aviation system are also addressed in this BPAS update.

Basic Regulation (EU) No 2018/1139¹ introduced a dedicated chapter on aviation safety management, thereby creating a strong legal basis for the establishment and maintenance of the Belgian Aviation Safety Programme (BASP) and the BPAS. The actions contained in the BPAS cover a wide field: rulemaking, safety promotion and focused oversight. The plan plays an important role in prioritizing these actions, so as to ensure that aviation safety is maintained and steadily improved at European and national level. Each action area in the BPAS includes the identification of safety issues as well as the objectives to be achieved. During the period of this plan, the progress on the actions are monitored and evaluated. This feedback loop ensures effective implementation aiming at continuous improvement. The coordinated actions proposed in this edition of the BPAS are expected to make a difference in avoiding accidents and serious incidents.

The EASA MS including Belgium shall anticipate new threats and associated challenges by developing safety risk management principles. Those principles are strengthened by SMS implementation supported by ICAO Annex 19 on safety management and Regulation (EU) No 376/2014² on the reporting, analysis and follow-up of occurrences for reporting reinforcement.

In 2021, the focus remained on the further implementation of Regulation (EU) No 376/2014 and the optimization of our safety risk processes and procedures. Our attention mainly went out to a uniform introduction of safety data into the ECCAIRS database, the protection of this data and to the analysis and follow-up of the reported occurrences. We also have started with the introduction of the common European Risk Classification Scheme (ERCS). The application of this scheme will contribute to an improvement of our safety information management, allowing continuous identification of Key Risk Areas (KRA) to be addressed at both State and Service Providers levels.

The BCAA is currently reviewing his strategy. A new organizational chart will be drawn up on the basis of its elaborated mission and vision. Moreover, the BCAA will invest in the recruitment of new staff in order to meet its oversight obligations and will also start up a new project to review his funding mechanisms.

The focus also remained on the further development of a Just Culture climate. Two Royal Decrees on Just Culture have been published in the Belgian Official Letter in August 2020. The first Royal Decree mainly addresses the creation of a Just Culture body and the protection of the reporter. The second Royal Decree

¹ 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, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91

² 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, amending Regulation (EU) No 996/2010 of the European Parliament and of the Council and repealing Directive 2003/42/EC of the European Parliament and of the Council and Commission Regulations (EC) No 1321/2007 and (EC) No 1330/2007

deals with the establishment and functioning of a Just Culture platform. This platform ensures the necessary exchange of knowledge and experience in the field of Just Culture in collaboration with judicial authorities. End 2021, the Just Culture Body has been created within the FPS of Mobility and Transport, independent from the BCAA.

The Just Culture Body will investigate reported infringements relating to:

- prosecution brought before judicial authorities only because the occurrence was reported, in accordance with Regulation (EU) No 376/2014
- prejudice by their employer of employees or contracted personnel who report occurrences or are mentioned in occurrence reports.

Runway safety (runway excursions, runway incursions and runway collisions) is a strategic priority for the BCAA. The BCAA as regulatory authority responsible for safety oversight, conducts regulatory oversight and inspections on aircraft and aerodrome operators as well as the ANSP in order to monitor the safe provision of these operations and to verify compliance with the regulatory requirements. In addition to the regulatory oversight, it is beneficial that the BCAA keeps a high level, national focus on the risk of runway excursion – runway incursions – runway collisions. This will be achieved by establishing a National Runway Safety Forum (NRSF) in accordance with the GAPRRE and EAPPRI recommendations. The first meeting of the NRSF took place on 25 November 2021.

A potential new operational risk deals with the roll-out of 5G networks across the world and the possible impact on navigational equipment. Therefore, new operational actions will focus on the possible risk of interference between 5G frequencies and aircraft radioaltimeters.

To ensure the safe operations of drones and a level playing field within the European Union, EASA has developed common European Rules. These regulations contribute to the development of a common European market while ensuring safe operations and respecting the privacy and security of EU citizens. They establish three categories of UAS operations - 'open', 'specific' and 'certified'- with different safety requirements, proportionate to the risk. The safe integration of all new entrants into the Belgian airspace will be one of the main challenges in relation to the integration of UAS technologies and related concepts of operations.

Environmental protection and the sustainability of the aviation sector has been growing in importance over the years and has become a key priority for citizens, policymakers and the industry. EASA has an explicit mandate to protect the environment, climate and human health. Belgium also wants to promote sustainable mobility. The priority environmental objectives relating to aviation, as included in the 2021-2023 Governance Agreement, are also adopted in this BPAS update. For this purpose, a new chapter "Environmental protection" has been inserted.

Finally, the COVID-19 pandemic resulted in an extreme reduction in operations that began in late March 2020 and has continued through 2022. The various shutdown and return to service have led to many changes to the operating environment. EASA and the MS have been working closely with industry partners to identify the new or emerging safety issues in relation to COVID-19. The over-arching theme to all of these safety issues was the need for well-functioning management systems, which ensure that we are able to identify and manage our risks effectively. It is vital that everyone is focused on the goal of delivering safe and effective operations.

These will continue to evolve until we reach a “new normal”. This means that we need to address the management of change effectively and to ensure that the results are safe and effective. The BCAA provided and will provide the different stakeholders with various safety promotion material.

The BCAA Director General

Koen Milis

Introduction

Link to the EPAS and the ICAO GASP

In the European aviation system, rulemaking, oversight and safety promotion activities are shared between the MS and the European Institutions. The European Aviation Safety Program (EASP) describes the roles and responsibilities that each of them have while performing these functions. As certain competencies have been transferred from the MS to the European Union, to obtain a complete picture of safety in Belgium, both the EASP and the BASP need to be considered. The EASP describes among others the process to develop and update the EPAS. The safety risks identified in the EPAS are mitigated by safety actions that EASA, the European Commission, the aviation sector and EASA MS take on board. All the partners work together, streamline their activities and add their efforts to drive the accident rate further down.

The BR (EU) No 2018/1139 determines that the BASP shall include at least the elements related to the safety management responsibilities described in the ICAO SARPs. The BR also determines that the BPAS shall include the risks and actions identified in the EPAS that are relevant for Belgium.

The EPAS defines a number of MST's (Member State Tasks) to support the implementation of the BPAS. EPAS MSTs are derived from operational issues identified in the EASA ASR, safety priorities in the ICAO GASP and GANP or through the EASA standardization process. Safety priorities include, but are not limited to, maintaining effective oversight capabilities, the effective implementation of the BPAS and related safety action planning.

Through the BPAS, the BCAA aims to contribute to the realisation of the EPAS. The alignment between the EPAS and the BPAS is shown for all relevant safety actions. EASA recently started conducting standardization inspections on the implementation of the State safety plans and relevant EPAS actions including the identification of possible associated organizational and safety oversight capability shortcomings.

The ICAO Regional Office for the EUR/NAT region and EASA are working together to develop a Regional Aviation Safety Plan (RASP) based on the EPAS, thus allowing Belgium that is part of the ICAO EUR/NAT region to benefit from this approach. The aim of the RASP is to facilitate the achievement of the GASP and GANP goals at regional level.

The EPAS considers the objectives and priorities of the ICAO GASP to enhance the level of safety in aviation and to better prepare EASA MS for the ICAO USOAP audits of their SSP's. The high-risk categories of occurrences in the GASP are addressed in the following sections of the EPAS: aircraft upset in flight, runway safety, airborne conflict (mid-air collisions) and terrain collision.

The purpose of the ICAO GANP is to drive the evolution of the global air navigation system to meet the ever-growing expectations of all sectors of aviation community, in a safe, secure and cost-effective manner while reducing the aviation environmental impact. To this end, the GANP provides a series of operational improvements to increase capacity, efficiency, predictability, flexibility while ensuring interoperability of systems and harmonization of procedures. The ICAO GANP provides a global basis on which regional and national air navigation implementation plans are developed.

Content and structure of the Belgian Plan for Aviation Safety (BPAS)

The BPAS forms a part of the BCAA aviation safety policy and seeks to eliminate potential sources of safety problems through safety promotion activities and through the optimization of regulatory and supervisory activities. The BPAS is the primary tool to report on safety action implementation. The BCAA normally publishes a yearly update of the BPAS. When the BPAS is not updated annually, depending on the timely realization of safety actions, a report on the implementation of safety actions shall be published at least annually. This edition of the BPAS covers the five-year period between 2022 and 2026. Unfinished actions of the previous plan are also included in this 2022 update.

The BPAS consists of three categories of actions: systemic, operational, and environmental actions, each one addressing the main areas and risk mitigating actions.

Therefore, actions are divided into three different types:

- Systemic Actions (SA)
- Operational Actions (OA)
- Environmental Actions (EA)

These actions are realised through rulemaking, safety promotion activities or through focused oversight.

The BPAS provides following information for each safety issue:

- Description – Why has the issue been identified as an important safety issue?
- Objectives – The expected safety benefits
- Safety Performance indicators – How is the improvement monitored?
- The safety actions
- The alignment with the EPAS (MSTs)
- The alignment with the 2021-2023 Governance Agreement

The BPAS has a new chapter, Environmental Protection. Environmental protection and the sustainability of the aviation sector has been growing in importance over the years and is a key priority for citizens, policymakers and the industry. EASA has an explicit mandate to protect the environment, climate and human health. Belgium also wants to promote sustainable mobility. The priority environmental objectives relating to aviation, as included in the 2021-2023 Governance Agreement, are also adopted here in the BPAS. For this purpose, a new chapter “Environmental protection” has been inserted.

The **Appendix C** of the BPAS is containing a status report on the progress made. The following information is provided for each action item:

- A summary of the work done
- The assessment whether the action is progressing according to the BPAS
- The identification of the status of the key deliverables. An action is considered closed when the proposed deliverable is achieved.

This edition of the BPAS applies to commercial air transport (CAT) operations, aerial work operations and general aviation (GA) operations. Safety actions derived from safety recommendations by the AAIU(Be) may also be included in the BPAS.

Finally, this BPAS includes many new systemic and operational actions. In order to be able to offer a transparent document that pays attention to the traceability of the various actions, it has been decided to continue numbering the different actions. Due to the revision of existing chapters, some operational actions have been renumbered. Therefore, a new **Appendix D** is created in which an overview is given of all new, renumbered, deleted and closed actions in this BPAS update.

Belgian Plan for Aviation Safety - information

The BPAS is available on the BCAA website:

http://mobiliteit.belgium.be/nl/luchtvaart/belgisch_veiligheidsprogramma/veiligheidsplan

https://mobiliteit.belgium.be/fr/transport_aerien/programme_belge_de_securite/plan_de_securite_belge

Accidents and serious incidents

This chapter provides information on the number of fatal accidents, non-fatal accidents and serious incidents in Belgium and fatal accidents, non-fatal accidents and serious incidents with Belgian registered aircraft abroad. It also outlines the number of fatalities and serious injuries in the domains of Commercial Air Transport (CAT) and General Aviation (GA).

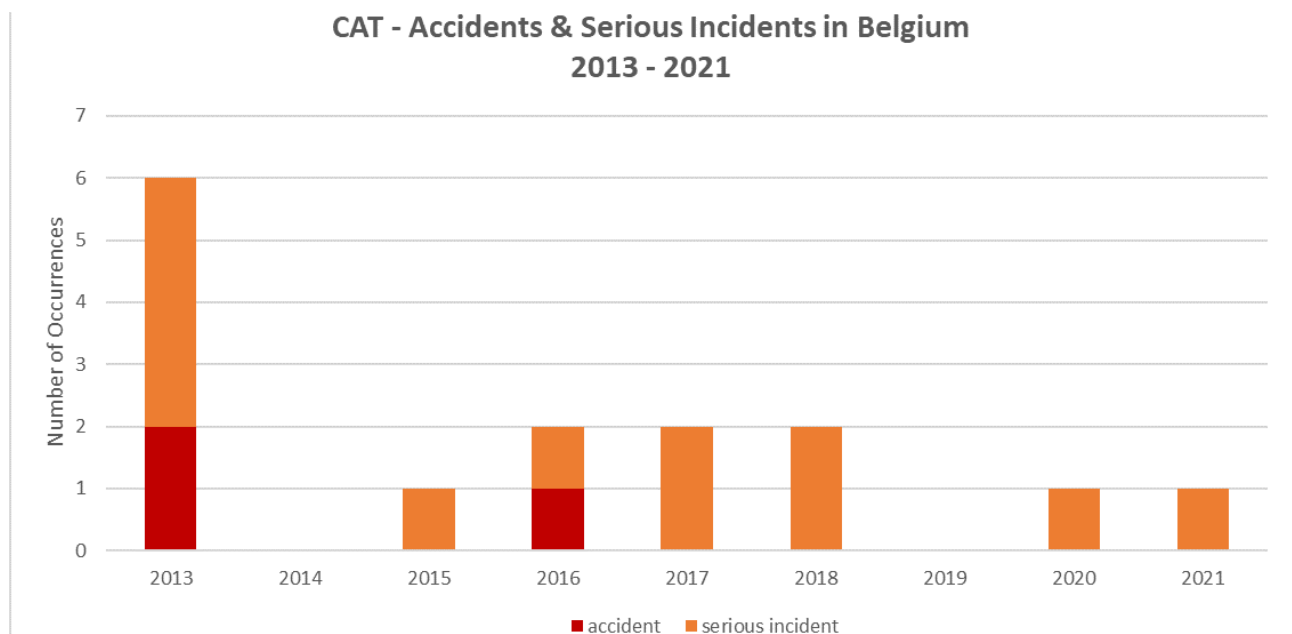
The classification of accidents and serious incidents was done by the AAIU(Be) in accordance with the provisions of the European Parliament and of the Council of Regulation (EU) No 996/2010 and ICAO Annex 13. All data are based on the accidents and serious incidents collected by the BCAA as per Annex 13 investigations.

Commercial Air Transport (CAT)

This domain addresses all types of CAT operations involving airplanes (passenger and cargo operators) and also air taxi and other such operations. This chapter also covers operations in the offshore helicopter domain and all other CAT operations involving helicopters such as passenger flights, air taxi and HEMS.

The key statistics for the CAT domain are in the figures below and include comparison of the number of accidents (fatal and non-fatal) and serious incidents for a 9-year period (2013-2021). It also includes the comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe.

Accidents and serious incidents in Belgium

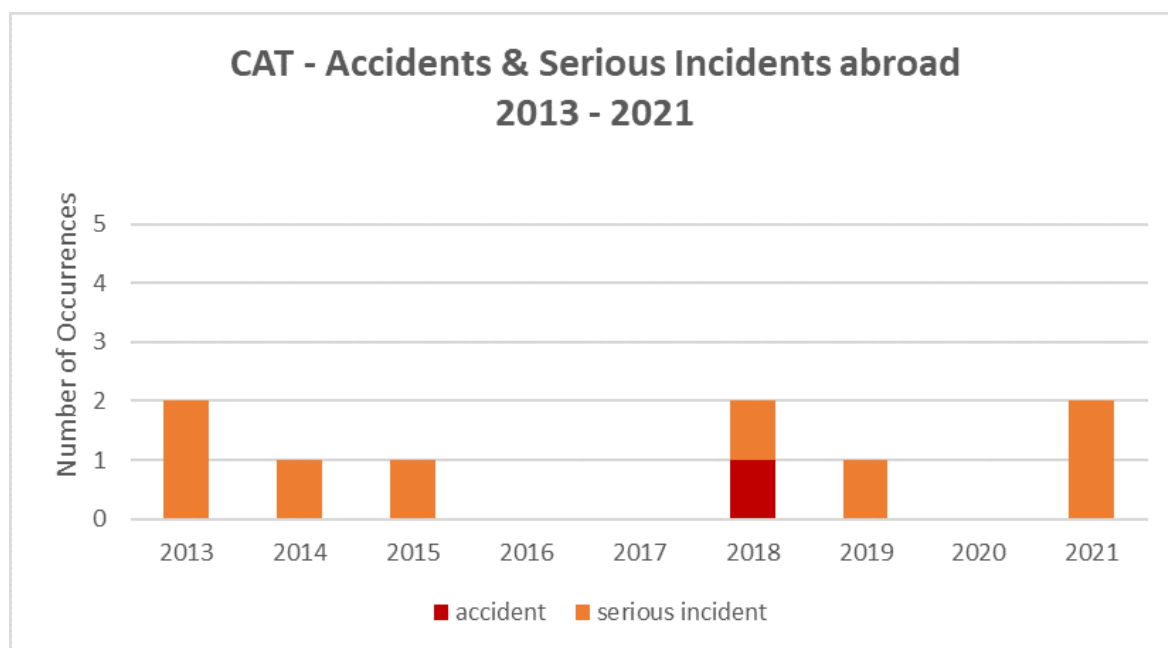


In 2020, there was 1 serious incident involving CAT operations. This serious incident was related to an aborted take-off of a cargo airplane at a speed greater than V1.

In 2021, there was 1 serious incident involving CAT Operations as well. This serious incident was a runway overrun of an air taxi aircraft during landing. All occupants exited the aircraft uninjured.

There were no fatalities or serious injuries during the 2017-2021 period.

Accidents and serious incidents with Belgian registered aircraft abroad



In 2020, there were no accidents and serious incidents involving CAT operations with airplanes or helicopters abroad.

In 2021, there were 2 serious incidents involving CAT operations abroad. One serious incident was a runway incursion by a vehicle during the take-off run of a cargo airplane. The other serious incident was a technical issue with one of the engines of a passenger airplane. The issue happened when the aircraft was cruising at flight level 400. Engine shutdown in flight was performed, followed by a diversion to a surrounding airport and an uneventful single engine precautionary landing.

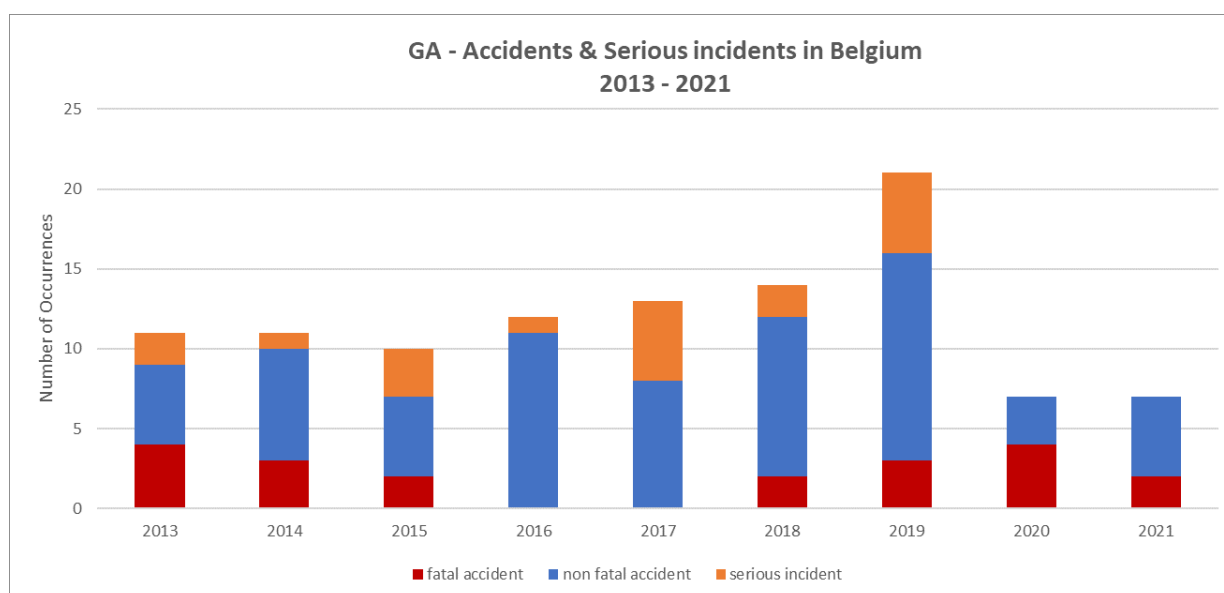
There were no fatalities or serious injuries during the 2017-2021 period.

General Aviation (GA)

This area includes aerial work and GA operations performed by airplanes and helicopters as well as operations performed by gliders, balloons and microlights.

The key statistics for the GA domain are in the figures below and include comparison of the number of accidents (fatal and non-fatal) and serious incidents for the 9-year period (2013-2021). It also includes the comparison of the fatalities and serious injuries sustained in those accidents during the same timeframe.

Accidents and serious incidents in Belgium



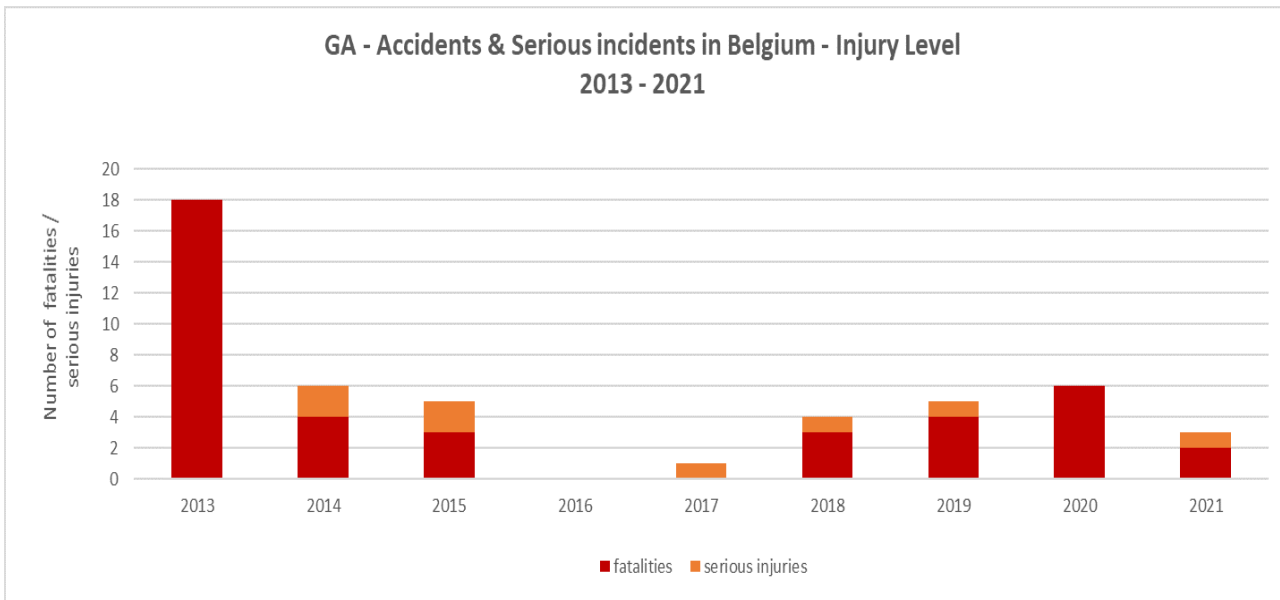
Accidents and serious incidents with UAS are not included in the above graph.

In 2020 there were a total of four fatal accidents in Belgium that caused the death of 6 persons in total. The first fatal accident of 2020 was related to a loss of control in flight of a powered sailplane. The two occupants died. Another fatal accident in 2020 was also related to a loss of control in flight, of an ultralight airplane this time. That accident also caused the death of two people. The third fatal accident was with a very light airplane. During the climb, at an estimated height of 300 feet AGL, the airplane was seen suddenly turning left in a steep descent. The airplane crashed in a garden adjacent to the aerodrome, one person died. The fourth and last fatal accident of 2020 happened with a powered paraglider that was forced to land, causing the death of one person.

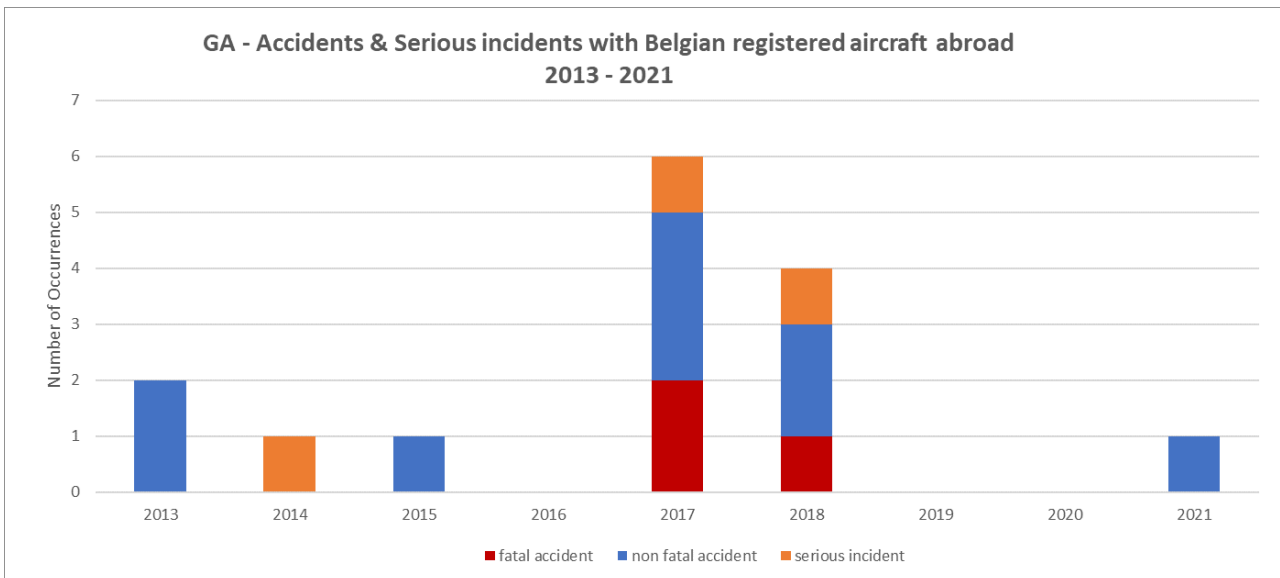
There were 2 fatal accidents in Belgium in 2021. The first fatal accident in 2021 was related to a forced landing of a French-registered ultralight airplane. One person died. The second fatal accident in 2021 was related to a missed approach with a small French registered airplane followed by a loss of control. One person died.

No serious incident has been reported in 2020 and 2021.

In 2020 and 2021, due to the reduction of flights caused by the pandemic, a significant decrease of accidents and serious incidents can be noticed, compared to the previous years. Unfortunately, despite the reduction of the number of accidents, the total number of fatal injuries remains high.



Accidents and serious incidents with Belgian registered aircraft abroad

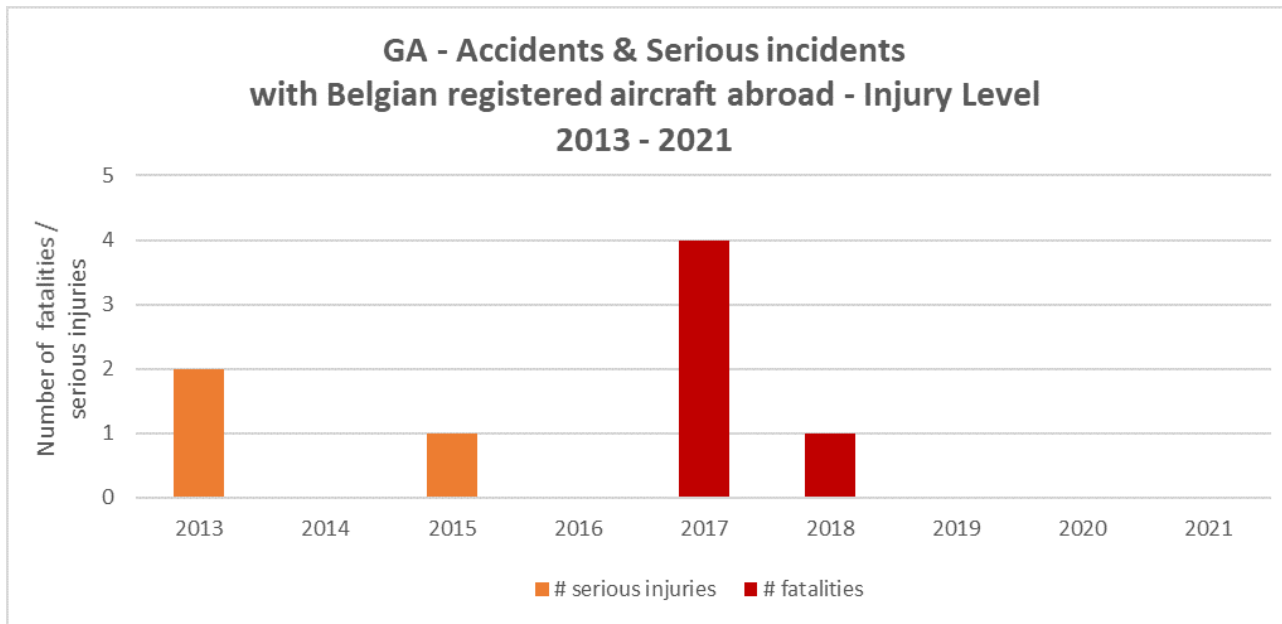


UAS accidents and serious incidents are not included in the above graph.

In 2020, there were no accidents or serious incidents during GA operations abroad.

In 2021, there was one non-fatal accident related to general aviation activities with a Belgian registered aircraft abroad.

During the period 2019-2021, there were no fatal accidents related to general aviation activities with Belgian registered aircraft abroad. The low number of accidents and serious incidents prevents any conclusions from being drawn.



Accidents and serious incidents in Belgium and with Belgian registered aircraft abroad – aircraft categories

The table below includes comparison of the number of accidents (fatal and non-fatal) and serious incidents in Belgium and with Belgian registered aircraft abroad during GA operations for different aircraft categories for a 5-year period (2017-2021).

Aircraft Category	2017		2018		2019		2020		2021	
	accidents	serious incidents	accidents	serious incidents	accidents	serious incidents	accidents	serious incidents	accidents	serious incidents
NCO Aeroplanes	2	4	5	0	6	3	1	0	6	0
NCO Helicopters	2	1	1	0	1	0	0	0	0	0
Microlights	1	0	1	0	5	1	3	0	1	0
Balloons	0	0	0	2	0	1	0	0	0	0
Sailplanes	1	0	3	0	3	0	2	0	1	0
Gyroplanes - Paragliders	0	0	2	0	1	0	1	0	0	0
UAS	2	0	2	0	4	0	4	0	1	0
Total	8	5	14	2	20	5	11	0	9	0

The rate of accidents and serious incidents continued to increase during the period 2017-2019. A significant increase in the number of accidents involving microlights can also be observed during that 2017-2019 period. Since 2020, the rate of accidents and serious incidents has decreased, probably due to the reduction of the number of flights caused by the pandemic.

Systemic safety & competence of personnel

This area addresses system-wide problems that affect aviation as a whole. These problems often relate to deficiencies in organisational processes and human factor aspects. The BCAA and the aviation organizations should anticipate new emerging threats and associated challenges by developing SRM principles. Those principles are strengthened by SMS implementation supported by ICAO Annex 19 and Regulation (EU) No 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation.

1. Further implementation of the Belgian Aviation Safety Program & Plan

Description

The BASP describes the various regulations and activities for maintaining and improving aviation safety and ensures that Belgium operates in compliance with EU regulations and the safety management requirements set forth in ICAO Annex 19. Included in the BASP is the requirement for the implementation of SMS by the service providers. The transition to a SSP requires increased collaboration across operational domains to identify hazards and risks. The analysis of various forms of safety data (accident investigation reports, safety occurrence reports etc.) is needed to develop effective mitigation actions. This requires that service providers and the BCAA have to work closely together on safety risk management.

Collaborative efforts between service providers and the BCAA are also essential to the development of safety performance indicators (SPI's). Safety data are analyzed to support the development and maintenance of SPI's related to the risks of the Belgian aviation system.

The BCAA is a member of the EASA Network of Analysts (NoA). The EASA NoA provides a collaborative framework for the EASA MS to work together on safety analysis activities. The EASA NoA was formalized within Regulation (EU) No 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation and has a role in analyzing the European Central Repository (ECR) of occurrences to support both the EPAS and the SSP's of the EASA MS. The primary mission is to improve aviation safety by identifying safety risks and bringing such risks to the attention of the decision makers. The EASA NoA establishes among others appropriate indicators and analysis methodologies that facilitate the sharing of information. The BCAA is an active member of the EASA NoA working group 'Data Quality & Taxonomy', the AVSEC working group and the new working group 'tools and practices for E2 data processing & analysis'.

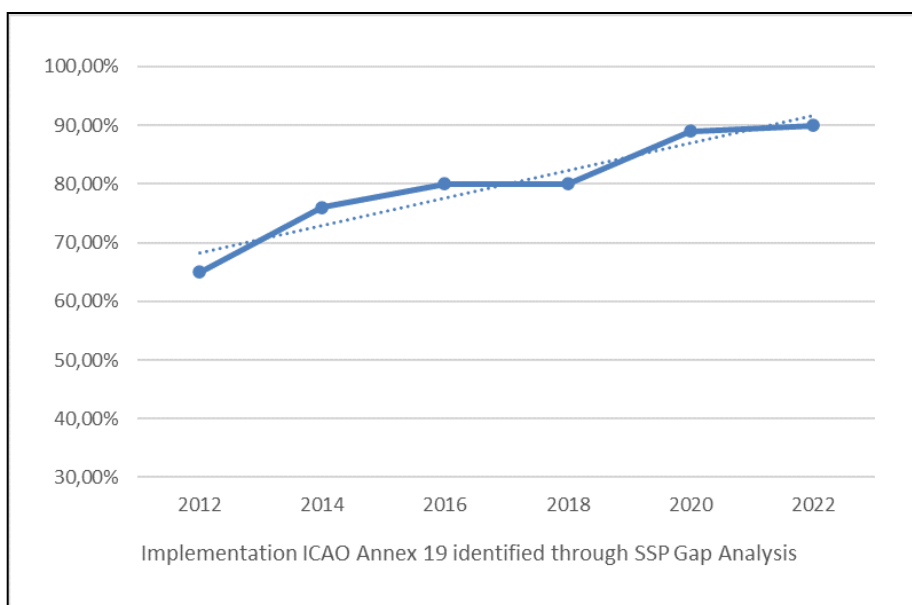
The BCAA conducted a new gap analysis in 2022 to determine the remaining gaps and actions for the further implementation of the BASP. This analysis was done by means of the ICAO Gap Analysis Tool on iSTARS. The further application of ICAO Annex 19 has been delayed by the postponement of the ERCS and by having difficulties with the establishment of Acceptable Levels of Safety Performance (ALoSP), a concept of safety performance indicators and their associated targets. This chapter has been reviewed in accordance with the outcome of the latest version of the EPAS and the result of the latest gap analysis on iSTARS.

Objectives

- Modernize the structure and organization chart of the BCAA in line with the new strategy to address deficiencies in oversight capabilities, as a prerequisite for effective SSP implementation
- Work with international organizations, service providers and military to further implement safety management
- Improve the Belgian safety performance to enable proportionate and timely corrective actions to be taken
- Continue improve the Just Culture policy in Belgium

Safety Performance Indicator

- Implementation of actions and gaps as identified through the ICAO Annex 19 State Safety Program gap analysis



Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
SA01.01	Alignment of the BCAA's safety management processes and procedures with Regulation (EU) No 376/2014	MST.0001 MST.0028
	Objective: To optimize the BCAA's safety management processes and procedures with Regulation (EU) No 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation. The introduction of the new ECCAIRS 2.0 platform and the application of the ERCS are the most important elements of this optimization.	

SA01.02	Application of the Royal Decrees related to just culture for the further implementation of just culture principles	MST.0001
	Objective: To encourage occurrence reporting by protecting reporters against possible sanctions taken against them by their employer or by the relevant authorities.	
SA01.03	Development of a leaflet on safety and just culture principles	MST.0001 MST.0027
	Objective: To explain the roles of different stakeholders regarding safety and just culture and the functioning of the body responsible for the implementation of just culture principles in order to foster positive safety behaviors and encourage occurrence reporting.	
SA01.04	Improvement of industry compliance with applicable SMS requirements	MST.0026
	Objective: To provide feedback to EASA on how the EASA management system assessment tool is used for the purpose of standardisation and continual improvement of the assessment tool and to regularly inform EASA about the status of compliance with SMS requirements and SMS performance of the Belgian aviation industry.	
SA01.05	Enhance collaboration with military where relevant for State management activities including safety promotion initiatives	MST.0001 MST.0028
	Objective: To identify where civil-military coordination and cooperation need to be enhanced to meet the BASP objectives including the possible joint cooperation in the field of safety promotion.	
SA01.09	Perform data-driven risk-based inspections by the BCAA Aviation Inspectorate	MST.0032
	Objective: In addition to the system of periodic inspections, the BCAA Aviation Inspectorate shall conduct risk-based inspections. These inspections shall be data-driven and are based, among others, on the most important aviation risks.	
SA01.10	Modernize the BCAA structure and organization chart in line with the new strategy	MST.0028 MST.0032 GOV.AGR.F.1
	Objective: To develop a mission & vision (both short and long term) and a strategy so that the BCAA is ready for the future. Adjusting the organisation chart to support this strategy and developing a retention policy so that maximum reliance can be placed on BCAA staff to support this strategy. Recruit staff to address deficiencies in oversight capabilities.	

SA01.11	Review the BCAA funding mechanisms	MST.0028 MST.0032 GOV.AGR.F.3
	<p>Objective:</p> <p>To initiate an analysis of the financial income generally generated by the BCAA, to describe the possible mechanisms for financing the BCAA through this income where appropriate, to weigh up the advantages and disadvantages of the different funding mechanisms and to formulate a proposal to the Minister of Mobility and the Executive Committee of the FPS of Mobility and Transport.</p>	
SA01.12	Improve the civil/military cooperation in ATM	MST.0024
	<p>Objective:</p> <p>To enhance the flexible use of airspace (FUA) in the implementation of the Single European Sky, as well as the integration of civil and military air navigation needs.</p>	
SA01.13	Safety and security reporting	MST.0040
	<p>Objective:</p> <p>To ensure that appropriate coordination mechanisms are established between safety and security reporting systems in order to allow for an integrated approach to the management of risks.</p>	

2. Safety training, safety promotion & human factors

Description

According to the EPAS, competence of aviation personnel (flight crew, cabin crew, maintenance staff, ground handling staff, air traffic controllers and BCAA staff) is a strategic priority. As new technologies and/or operating concepts emerge on the market and the complexity of the system continues increasing, it is of key importance to have the right competencies and adapt training methods to scope with new challenges.

The BCAA provides for appropriate initial and recurrent training to maintain and enhance the competence of their technical personnel performing safety-related functions at the desired level. Therefore, the BCAA maintains an internal safety training program that ensures that their staff is trained and competent to perform their BASP duties. Training programs and individual training plans are adapted to fit the needs and complexity of the BCAA's organization. The scope of the safety training is appropriate to each technical functions' involvement in the BASP. The provision of appropriate training to all staff, regardless of their level in the organization, is an indication of the BCAA's management commitment to an effective SSP.

Human factors and the impact on human performance, as well as medical fitness are also strategic EPAS priorities. As new technologies and/or operating concepts emerge on the market and the complexity of the system continues increasing, it is of key importance to properly assess human factors and human performance, in terms of both limitations and its contribution to delivering safety. Human factors relates to fatigue and fatigue management, personal readiness, perception or resource management and communication.

One of the safety objectives in the EPAS is reducing the risk of ineffective communication when pilots and/or controllers need to face an unexpected situation and to use plain language. EASA has started to have a closer look at the language proficiency tests that are provided in the different MS. The BCAA shall provide feedback to EASA on how the language proficiency requirements implementation is implemented for the purpose of harmonization and uniform implementation. After a thorough analysis, EASA plans to promote the selected best practices with the view to harmonizing testing methods.

Safety promotion is a major component of the BASP and together with the BCAA Safety Policy an important enabler for continuous safety improvement. Safety promotion actions in the BPAS involves safety training, awareness/education and dissemination of safety relevant information to further engage and interact with relevant aviation stakeholders in order to positively influence or change individual behavior with the ultimate objective of achieving predetermined aviation safety objectives. It includes the promotion of safety topics, rulemaking and awareness, communicating about safety intelligence, priorities and actions and other tasks to raise awareness with individuals, as well as organizations. Safety promotion can involve a wide range of deliverables that include guides, videos, text for use in websites and printed media, social media and outreach activities.

The External Communication Unit of the FPS of Mobility and Transport and the BCAA have developed formal means of safety communication. These means of safety communication include, but are not limited to:

- The organization of or participation in seminars and workshops
- The sending of emails to Belgian aviation personnel (pilots etc.) and aviation organizations
- The publication of safety information on the website of the FPS of Mobility and Transport
- The spreading of safety messages through social media...

The BCAA organizes or participates in safety seminars and workshops in collaboration with the commercial and general aviation sector, the Belgian Air Accident Investigation Unit, the Ministry of Defense and EASA.

Extensive guidance safety promotion material has been developed by teams of the SMICG and the EASA SPN which among others addresses SMS principles and implementation.

The latest SMICG deliverables include:

- Revised Guidance on SMS for Small Organizations: Considerations for Regulators
- Attitudes and Behaviors for effective SMS (brochure)
- Revised SMS Integration guidance – Points to Consider
- Revised SSP Assessment Tool (reflecting ICAO Annex 19 Amendment 1)

Forthcoming SMICG material:

- A. Effective Surveillance Following the Introduction of SMS
- B. Management of Change at State Level: Considerations
- C. Safety Manager's Role in SMS, including competency and training requirements
- D. Performance-Based/Risk-Based Oversight
- E. Updated Safety Management Terminology
- F. Tool and guidance for evaluating inspector SMS competency

Latest EASA material:

- Guidance on ALoSP, Safety Performance Management and Safety Assurance within the EU environment
- EASA COVID-19 Resources, including the aviation safety issues arising from the COVID-19 pandemic and the role of operators' management systems in the COVID-19 recovery phase
- SMS in CAMO: practical implementation (presentations and takeaways)

Finally, the BCAA is also a member of the EASA SPN. The EASA SPN is a voluntary partnership between EASA, the EASA MS and other aviation organizations. The objective of the EASA SPN is to enhance aviation safety in Europe by providing a framework for the collaboration of safety promotion activity across the EASA MS.

Objectives

- The BCAA staff is trained and competent to perform their SSP duties
- Safety information is communicated and disseminated to the aviation personnel and sector
- Improvement of industry compliance with applicable SMS requirements

Safety Performance Indicator

Not applicable

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
SA02.01	Encourage the implementation of safety promotion material developed by the SMICG and the EASA SPN	MST.0002 MST.0025
	Objective: To encourage the implementation of the methods, guidance, best practices, etc. presented in the safety promotion material developed by the SMICG and the EASA SPN to the service providers and the general aviation sector. https://mobilit.belgium.be/nl/luchtvaart/belgisch_veiligheidsprogramma/veiligheidspromotie https://mobilit.belgium.be/fr/transport_aerien/programme_belge_de_securite/promotion_de_la_securite	
SA02.02	Organize and/or participate in safety seminars and workshops	MST.0015 MST.0025
	Objective: To organize and/or participate in safety seminars and workshops to discuss the most important safety risks with the aviation sector and license holders.	
SA02.03	Share best practices with EASA, to identify areas for improvement for the uniform and harmonized language proficiency requirements implementation	MST.0033
	Objective: To provide feedback to EASA on how the language proficiency requirements are implemented for the purpose of harmonization and uniform implementation	
SA02.04	Focus on the risk of fraud cases in Part-147 examinations	MST.0035
	Objective: To focus on the risk of fraud in Part-147 examinations, including by adding specific items in audit checklists and collecting data on actual cases of fraud.	
SA02.05	Revision of the Royal Decree regulating the operation of ultra-light aircraft	GOV.AGR.C.5
	Objective: To reduce the number of accidents and serious incidents involving ultra-light aircraft by improving the national regulation including in the field of pilot training.	
SA02.06	Raising awareness within the general aviation sector on human factors	MST.0025
	Objective: To reduce the numbers of accidents and serious incidents of general aviation aircraft through the organization of training related to human factors and the development/communication of promotional materials.	

SA02.07	PPL/LAPL learning objectives in the Meteorological Information part of the PPL/LAPL syllabus	MST.0036
	<p>Objective:</p> <p>To develop proportionate learning objectives of a basic, non-academic nature and address key learning objectives in relation to:</p> <ul style="list-style-type: none"> – practical interpretation of ground-based weather radar, strengths and weaknesses; – practical interpretation of meteorological satellite imagery, strengths and weaknesses; – forecasts from numerical weather prediction models, strengths and weaknesses. 	
SA02.08	Foster a common understanding and oversight of Human Factors	MST.0037
	<p>Objective:</p> <p>To organize the implementation of the competency of regulatory staff framework, and plan and conduct the training for the respective regulatory staff.</p>	
SA02.09	Safety promotion to support ramp-up / safe return to operations	MST.0039
	<p>Objective:</p> <p>To manage a dedicated safety promotion campaign in support of safe ramp-up / return to operations, making use of the safety promotion campaigns and deliverables provided by EASA.</p>	
SA02.10	Start a promotion campaign to further improve the reporting culture of occurrences in civil aviation	MST.0001
	<p>Objective:</p> <p>To encourage the reporting of occurrences by ATO's, flying clubs, SPO operators, airfields and general aviation pilots. This campaign is applicable to all possible types of aircraft (airplanes, helicopters, balloons, drones etc.) and includes the development of specific guidelines for the reporting of occurrences through the European reporting portal (https://aviationreporting.eu/).</p>	

Outline of risks in the Belgian civil aviation sector

The risk management performed by the Belgian State relates to any occurrence taking place on Belgian territory and in Belgian airspace. In addition, occurrences taking place on foreign territory and foreign airspace involving Belgian aircraft operators are also included. The various aspects of aviation are considered, including aircraft, companies operating in the aviation sector, approved training organizations, air navigation services, airports, ground handling services, maintenance organizations etc.

All aviation occurrences reported are entered in the ECCAIRS database. The ECCAIRS database is used to gain better insights into potential accident scenarios and to generate specific measures for accident prevention. The ECCAIRS system foresees in the encoding of events and factors. The objectives of encoding are various: memory of accidents, dissemination of safety data, elaboration of safety indicators and safety studies. Another key issue is to identify recurrent factors or patterns to prevent future occurrences. The main safety risks can be deduced from the analysis of these occurrences, and the operational actions to be set by the management in view of accident prevention can be determined. These actions concern both general and commercial aviation. The BCAA Management Team addresses the aviation risks to be dealt with as a priority, selected by considering factors such as the level of risk-mitigation actions already in place.

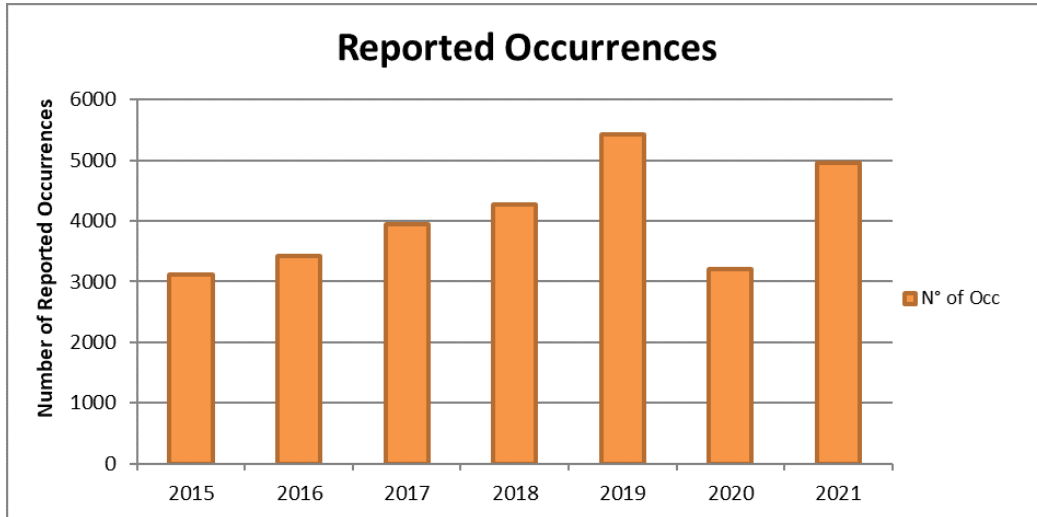
The improvement of the reporting culture within the aviation sector and the reporting of occurrences using formats compatible with the ECCAIRS software in accordance with Regulation (EU) No 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation, are most probably the main reasons for the increase in the number of occurrences reported to the BCAA.

However, there was a huge decrease of reported occurrences in 2020. This is due to the lockdown during the pandemic which allowed for months of very limited passenger air travel. The number of reported occurrences in 2021 is almost at the same level of 2019, despite fewer passenger flights.

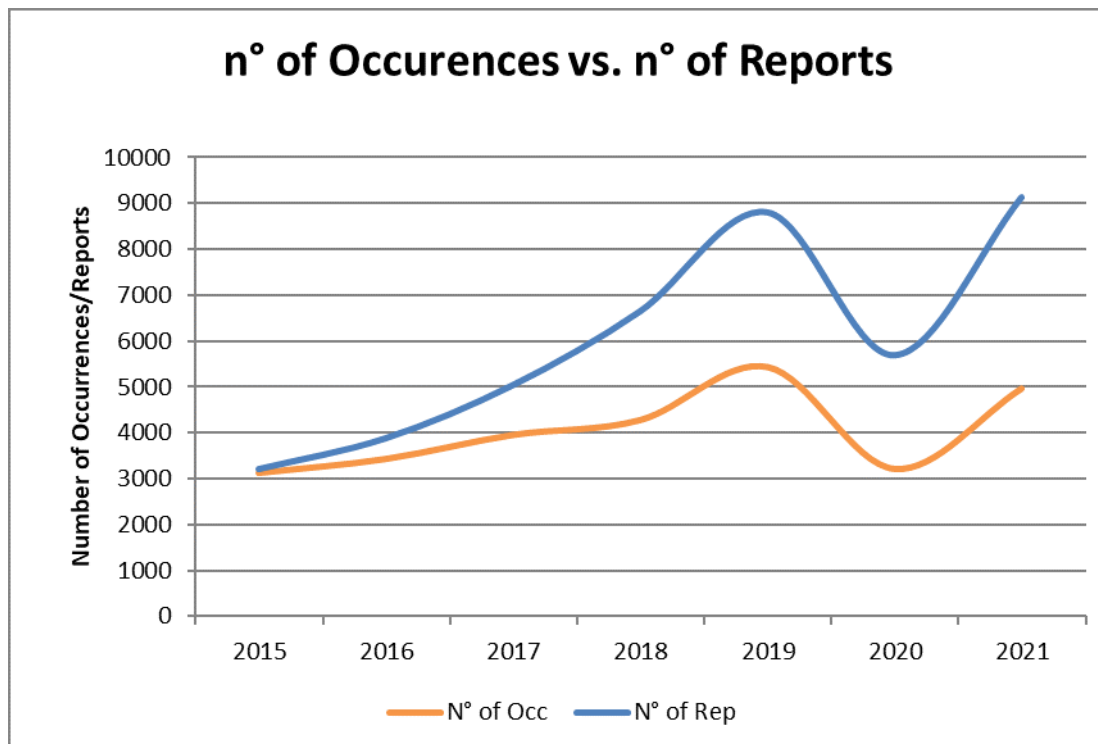
As a result of the COVID-19 pandemic, a huge decrease in passenger flights was observed. On the other hand, more cargo was transported by air. Specific statistics on movements, passengers and cargo (in tons) can be found on the BCAA website:

https://mobiliteit.belgium.be/nl/luchtvaart/luchthavens_en_luchtvaartterreinen/statistieken

https://mobiliteit.belgium.be/fr/transport_aerien/aeroports_et_aerodromes/statistiques



In the course of 2021, the BCAA handled approximately 5000 occurrences. During this period, the BCAA received more than 9.000 occurrence reports from the Belgian commercial and general aviation sector because of the dual and triple reporting of the same occurrence by different actors and because of the notification of initial, follow-up and final reports by the aviation organizations.



The BCAA sends the data of the ECCAIRS database to the ECR of the European Commission in accordance with Regulation (EU) No 376/2014 to support the development of the EASA ASR and the EPAS. This transfer includes the collection of information on occurrences but also information on accidents and serious incidents investigated pursuant to Regulation (EU) No 996/2010.

A risk analysis and risk classification for the period 2020-2021 were conducted to determine the highest aviation risks. The risk classification also takes into account the seriousness of the occurrences (accidents, serious incidents and incidents) as well as the number of occurrences that was reported and stored in the ECCAIRS database.

The table below shows the types of occurrences that are considered posing the highest aviation risks derived from the 2020-2021 risk analysis:

Commercial Air Transport (CAT)	
1.	Ground handling activities
	a. Ground collisions between vehicles with parked aircraft
	b. Cargo loading/unloading
	c. Fuelling activities
	d. Pushback activities
2.	Runway Safety
	a. Runway Incursions
	b. Runway Excursions
3.	Airborne Conflict
	a. Airspace Infringements
	b. Loss of Separation
4.	Deviation from intended flight path
5.	Fire, smoke and fumes – transport of dangerous goods
6.	Wildlife strikes (birds and other animals)
7.	Disruptive passengers

General Aviation (GA)	
1.	Airborne Conflict
	a. Airspace Infringements
	b. Loss of Separation
2.	Runway Safety
	a. Runway Incursions
	b. Runway Excursions
3.	Aircraft Handling – Deviation from intended flight path
4.	Communication by flight crew with ANS

Operational actions

1. Ground safety – ground handling operations

Description

This risk area includes all ground handling and apron management related issues as well as collisions of aircraft with other aircraft, obstacles or vehicles while the aircraft is moving on the ground, either under its own power or being towed. It does not include collisions on the runway. This risk area leads to possibly significant damage to aircraft and equipment, as well as personal injuries to ground staff, highlighting the need for greater safety efforts in ground operations.

Following occurrences are classified as ground handling occurrences and are included in this operational domain: aircraft marshalling, aircraft parking, de-icing, line maintenance, servicing, loading/unloading (baggage, cargo), as well as collision of towed aircraft with objects/obstacles and collision aircraft-vehicle while the aircraft is standing still or being pushed-back or towed.

The Belgian State didn't have sufficiently detailed national regulations in place with respect to ground handling. Therefore, the BCAA has published regulations on the approval of suppliers of ground handling services at Brussels-National airport. Part of the regulation is the introduction of SMS at the suppliers of ground handling services. An SMS involves a systematic approach that includes the administrative structures, accountability, safety policy and procedures required for safety management. Suppliers of ground handling services shall use their SMS to identify safety threats, ensure corrective action to maintain appropriate levels of safety, carry out continuous monitoring and regular assessment of safety levels, and strive for continuous improvement of the SMS. The implementation of following actions should result in lower risk levels as well as in a relative decline in the number of occurrences related to ground handling activities.

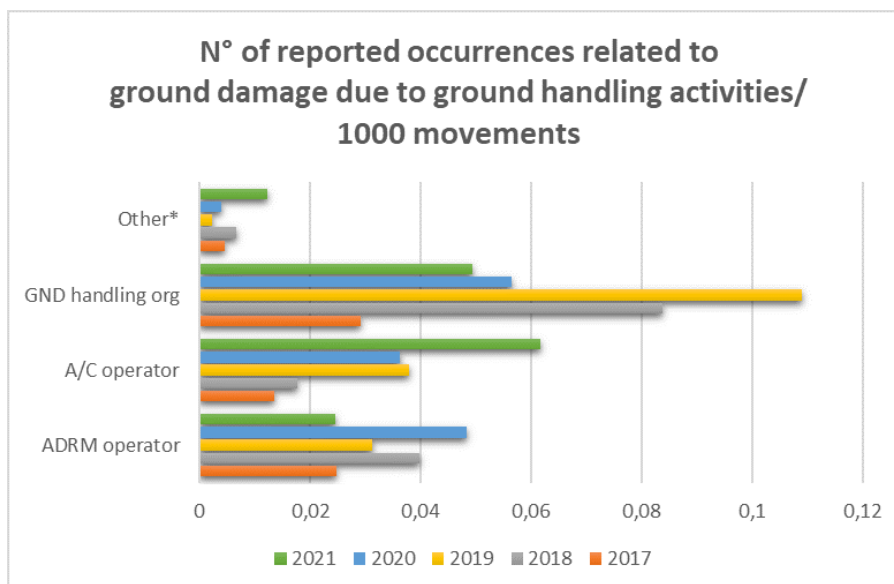
Objectives

- Improved reporting culture by ground handling organizations
- Increased supervision and auditing of ground handling organizations

Safety Performance Indicators

- Number of reported occurrences by ground handling organizations related to ground damage because of ground handling activities in proportion to the number of movements
- Collisions on ground at Belgian aerodromes because of ground handling activities in proportion to the number of movements
- Damage to aircraft due to collisions on ground at Belgian aerodromes because of ground handling activities in proportion to the number of movements

The BCAA launched a promotion campaign to improve the reporting culture of ground handling organizations by developing a guideline on occurrence reporting and by accentuating the importance of occurrence reporting in the context of safety management. The BCAA monitors the reporting rate of individual ground handling organizations and oversees received occurrence reports on data quality and data completeness. The graph below clearly shows that the reporting culture of the ground handling organizations has improved considerably in 2019. During the period 2020-2021, there was a decrease of reporting by the ground handling organizations. This decrease was most probably due to the COVID-19 pandemic.

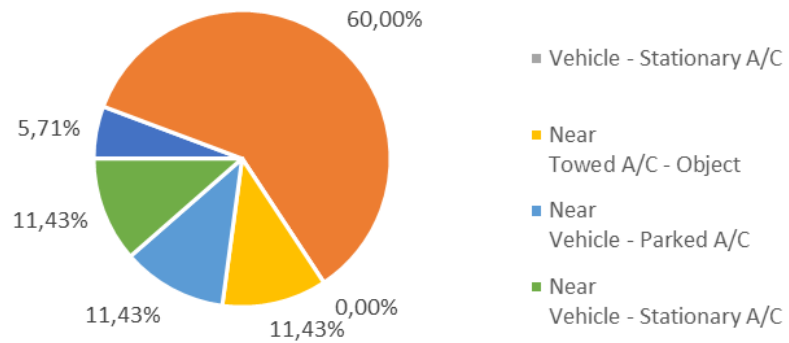


Ground handling organizations have released a lot of staff during the pandemic. With business coming back sporadically and classroom training difficult due to social distancing rules, there was a concern that there will be more inexperienced staff on the ramp than would be usual. Airlines, aerodrome operators and ground handling organizations need to consider whether procedures and turnaround times need to be altered in these circumstances.

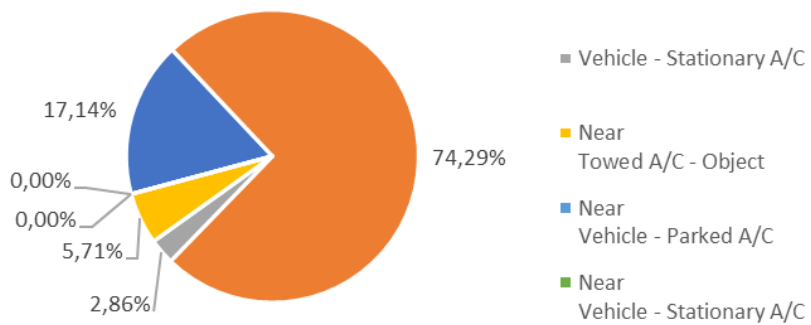
In addition to the problems faced for all personnel in missing training, ground handling has a high staff turnover, less secure employment, seasonal staff recruitment and seasonal training (such as for winter operations). Ground handling organizations have lost staff and those left have managed a very varied workload with fewer daily aircraft movements. If traffic increases steeply, there is a combination of staff who are no longer used to a busy airport environment and newly recruited staff.

Most collisions during ground handling activities happen between vehicles of ground handling organizations and parked aircraft during loading and de-loading activities of baggage and cargo, followed by collisions between aircraft being towed.

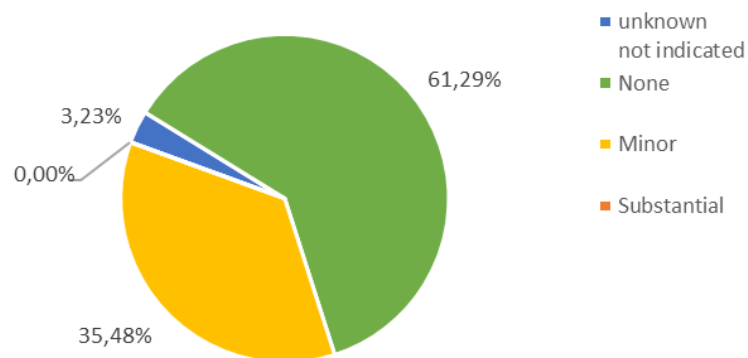
Ground handling activities
Ground collisions - 2020

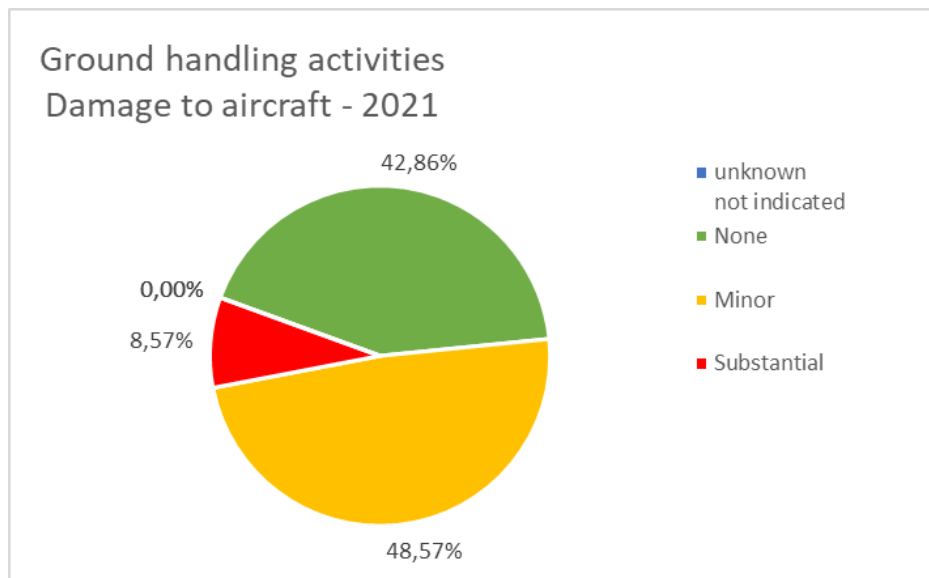


Ground handling activities
Ground collisions - 2021



Ground handling activities
Damage to aircraft - 2020





In 2021, 57 % of the collisions due to ground handling activities leads to minor and substantial damage to aircraft which in turn can lead to flight delay and cancellation.

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA01.01	Approval of maintenance and renewal programs of centralized infrastructure at Brussels National airport	MST.0028
	Objective: Airlines need safe, functional and affordable airport infrastructure for their operations. This infrastructure should be maintained and renewed at a high level. In relation to this, the BCAA shall approve the centralized infrastructures' maintenance and renewal program of the Brussels Airport Company.	
OA01.02	Perform focused inspections on ground handling operations and the conditions for roadworthiness testing of rolling stock at Brussels-National airport	MST.0028
	Objective: To improve ground handling safety by organizing BCAA focused inspections on the conditions for roadworthiness testing of rolling stock at Brussels-National airport for ground handling organizations in accordance with the relevant legislation.	
OA01.03	Improve the reporting culture at Brussels-National airport for ground handling organizations	MST.0028
	Objective: To improve the reporting culture of ground handling organizations by monitoring the reporting rate of individual ground handling organizations and to oversee received occurrence reports on data quality and data completeness. The BCAA shall use these results as an indicator of the reporting culture within ground handling organizations.	

OA01.04	Conduct continuous oversight of ground handling activities at Brussels-National airport for ground handling organizations with a focus on management system requirements	MST.0028
<p>Objective:</p> <p>To improve aviation safety by organizing a continuous oversight of ground handling activities at Brussels-National airport for ground handling organizations in accordance with the relevant Ministerial Decree with a focus on compliance with management system requirements (SMS/QMS relationship).</p>		
OA01.05	Improve safety awareness related to ground safety at Brussels Airport	MST.0028
<p>Objective:</p> <p>To continuously increase safety awareness on the prevention of incidents related to ground handling activities at Brussels Airport through safety promotion material (safety leaflets, videos) developed by Brussels Airport Company.</p> <p>https://www.youtube.com/playlist?list=PLkFpCH_t7P-QCoG0M-fZamGf0v4qf-Lrm</p>		
OA01.06	Start the renewal process of ground handling approvals at Brussels-National airport	MST.0028
<p>Objective:</p> <p>To improve aviation safety by starting up the renewal process of the ground handling approvals at Brussels-National airport in accordance with the relevant Ministerial Decree with a focus on compliance with management system requirements (SMS/QMS relationship) and safety risk registers.</p>		

2. Runway safety – runway incursions & excursions

The prevention of runway collision is a key issue for airport safety. Therefore, the Belgian State keeps a high level focus on the risk of runway incursions – runway excursions – runway collisions. The European Action Plan for the Prevention of Runway Incursions (EAPPRI) and the Global Action Plan for the Prevention of Runway Excursions (GAPPRE) contain several recommendations to authorities, aerodrome operators, ANSP's and EASA to mitigate the risks. EASA has already included many of these recommendations in the Aerodromes Regulation (EU) No 139/2014³ and in the relevant acceptable means of compliance/guidance material.

The BCAA has recently set up a NRSF to keep a high level, national focus on the risk of runway incursions – runway excursions – runway collisions. The NRSF will address specific hazards identified nationally and make recommendations to reduce the risk of runway incursions – runway excursions – runway collisions. Furthermore, the NRSF will share best practices and learning with representatives from aircraft operators, the Belgian ANSP, aerodromes, the Belgian Aircraft Accident Investigation Unit and the BCAA. The BCAA will among others provide an environment where safety sensitive data can be exchanged taking into account Just Culture principles.

2.1 Runway incursions

Description

This key risk area includes all occurrences involving actual or potential runway collisions between an aircraft and other aircraft, vehicle or person that occurs on the runway of an international airport 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.

The implementation of EAPPRI recommendations will enhance runway safety. The development of mature and performant Local Runway Safety Teams (LRST's) at the certified airports remains a key objective for the BCAA. LRST's should be dealing with runway safety and runway incursions based on local risks. The BCAA is an active member of all Belgian LRST's.

The BCAA sends for each runway incursion a standard questionnaire to the pilot. The BCAA then performs an in-depth statistical analysis of all questionnaires to gain insight into the possible hazards that can lead to runway incursions. The analysis of the reported incidents indicates that a significant number of runway incursions are caused by general aviation aircraft.

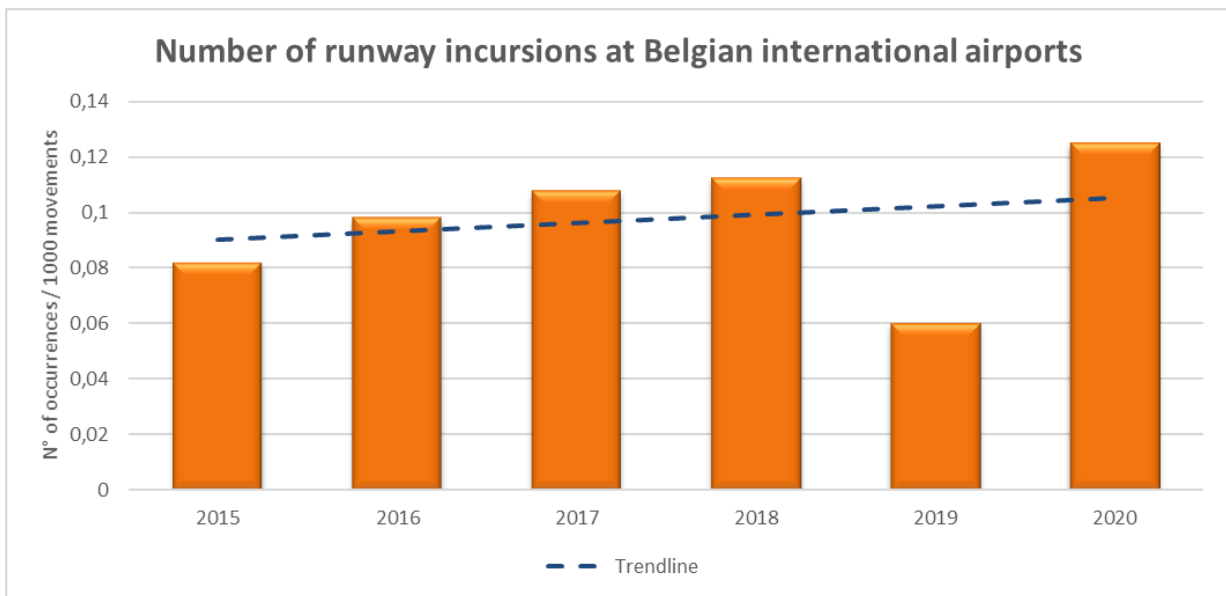
Objectives

- Reduce the number of RIs in general and commercial air transport

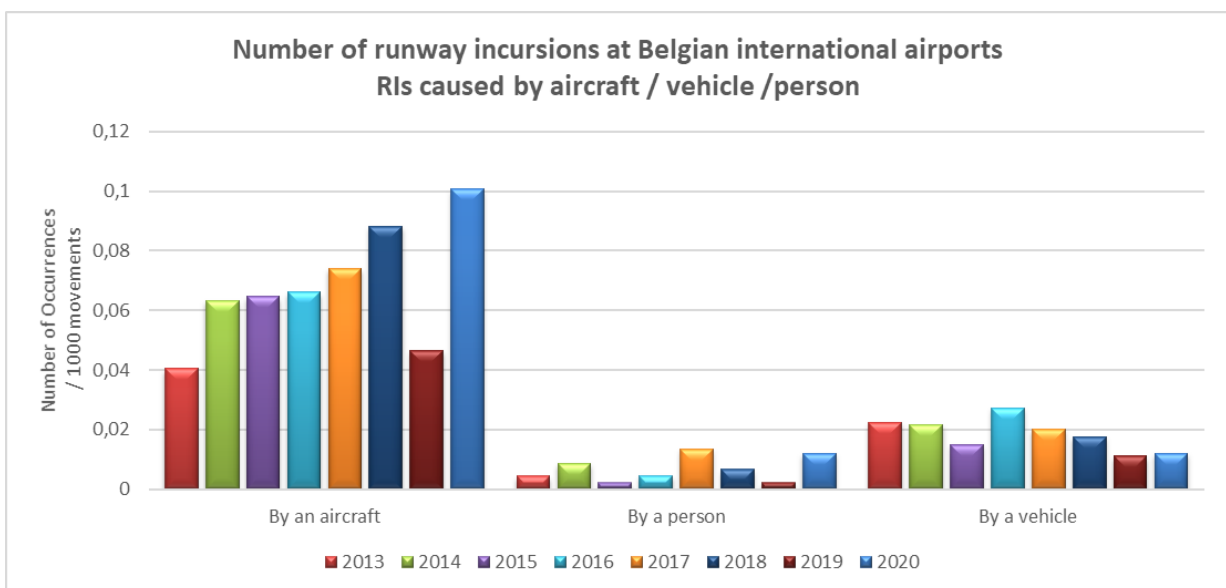
³ Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council

Safety Performance Indicators

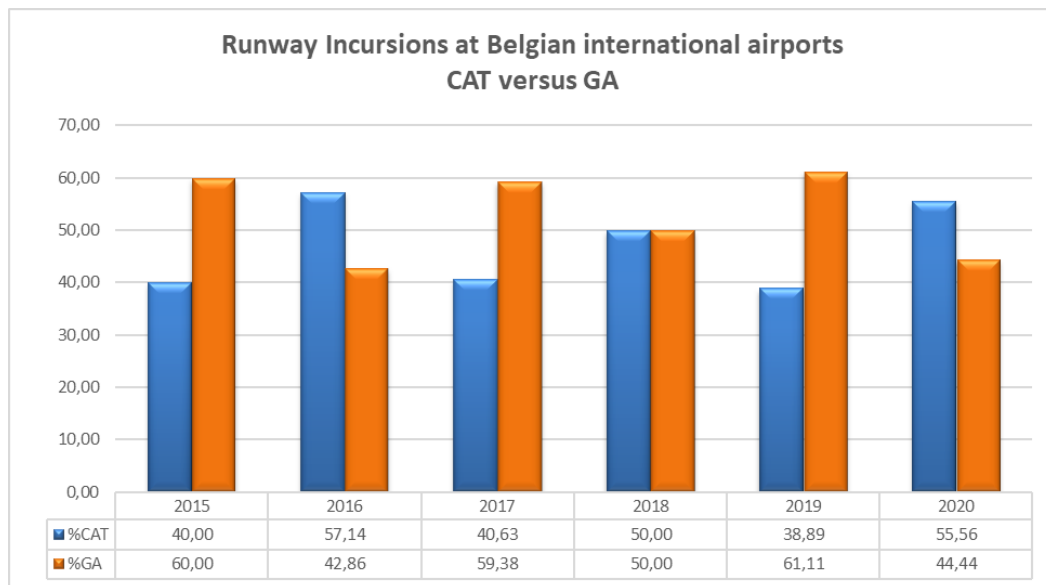
- Number of RIs at Belgian international airports in proportion to the number of movements
- Number of RIs by aircraft at Belgian international airports in proportion to the number of movements
- Number of RIs by vehicles at Belgian international airports in proportion to the number of movements
- Number of RIs by persons at Belgian international airports in proportion to the number of movements
- RIs at Belgian international airports - ratio CAT versus GA
- RIs at Belgian international airports – ANS Risk Analysis Tool (RAT) risk levels



The number of runway incursions in 2019 decreased considerably. This decrease was mainly due to the reduction of the number of runway incursions caused by aircraft. However, an increase of the rate of runway incursions has been observed at the Belgian international airports in the course of 2020.



A large number of runway incursions are caused by general aviation aircraft at international airports. Therefore, the BCAA has performed an analysis of the runway incursion occurrences and the reported runway incursion questionnaires.

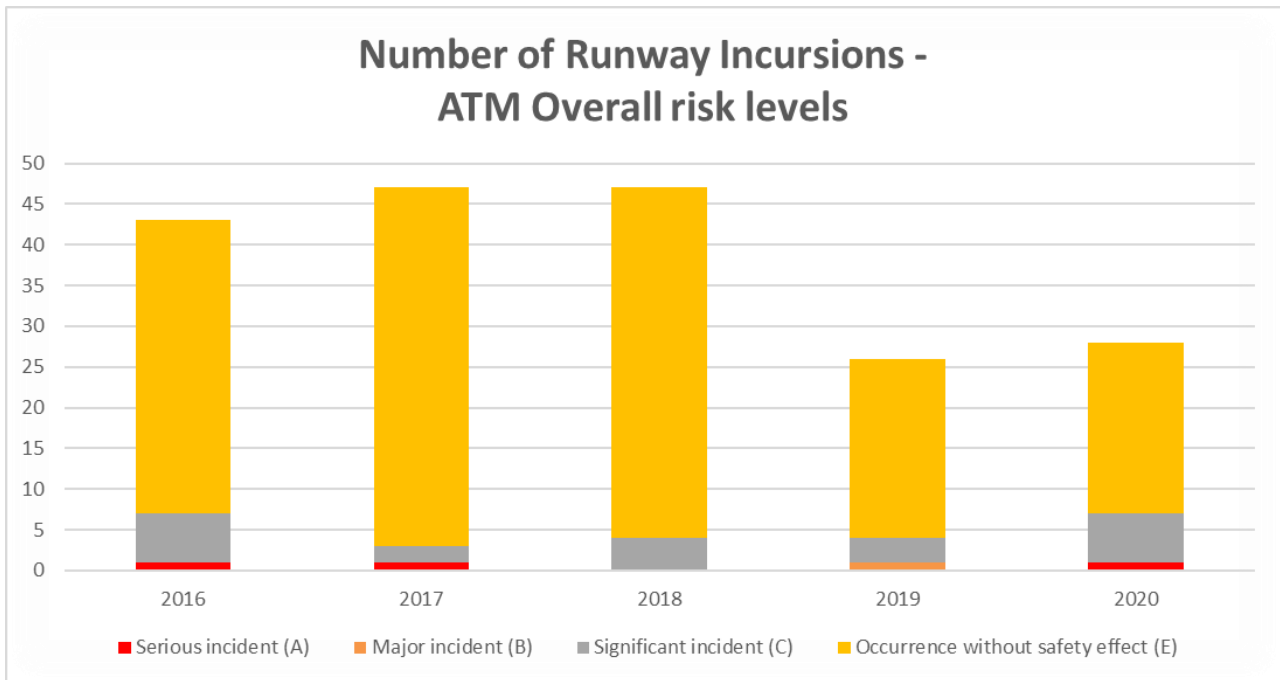


Runway incursions are among others caused by pilots who have difficulties to understand and comply with the standard phraseology "hold short of runway". In order to help reduce the risk of runway incursions, the BCAA developed an ASIL on this issue to remind the definition of this radiotelephony phraseology as "to hold not closer to the runway than the runway holding point". In 2021, the BCAA communicated the ASIL to all aviation pilots and ATO's.

The risk classification for the runway incursion occurrences is also performed by means of the ANS "Risk Analysis Tool (RAT)" in accordance with the performance framework in the ATM/ANS domain. The RAT methodology allows a report of an "Overall" score composed of the ATM (Air Traffic Management) ground and the ATM airborne part. The ATM ground being the extent to which ATM ground's actions contributed to the occurrence and the ATM airborne being the extent to which pilot's actions contributed to the occurrence.

The RAT uses the following incident classification:

- A: serious incident
- B: major incident
- C: significant incident
- D: not determined
- E: no safety effect



Class A and class B can be considered as high risk events. Class D incidents are not included in the graph because the BCAA has an “Overall” score for all RI incidents. The global number of runway incursions during the 2020 period has slightly increased compared to 2019 but decreased considerably compared to previous years. Most of the runway incursion occurrences had no safety effect.

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA02.01	Ensure that Local Runway Safety Teams are in place and effective	MST.0028
	Objective: LRST’s have been established at each Belgian international airport, which comprise representatives from aircraft operators, air navigation service providers (civil and military), airport operators and the BCAA. The BCAA is an active member of those teams. LRST’s focus on local solutions for the prevention of runway incursions where participating partners have management control.	
OA02.02	Development of safety promotion material on the prevention of runway incursions	MST.0028
	Objective: To further reduce the number of runway incursions, the BCAA shall perform an analysis of the reported runway incursion occurrences and the runway incursion questionnaires to gain insight into the possible hazards. Depending on the results, the BCAA shall develop new or update existing safety promotion material.	

OA02.03	Promote the European Action Plan for the Prevention of Runway Incursions (EAPPRI) to organizations by establishing a NRSF	MST.0028
<p>Objective:</p> <p>To increase the understanding of runway incursion causal and contributory factors and to help organizations implement effective runway incursion prevention measures.</p>		
OA02.04	Improve safety awareness related to airside safety at Brussels Airport	MST.0028
<p>Objective:</p> <p>To continuously increase safety awareness on the prevention of runway incursions at Brussels Airport through safety promotion material (safety leaflets, videos...) developed by Brussels Airport Company.</p> <p>https://www.youtube.com/playlist?list=PLkFpCH_t7P-QCoG0M-fZamGf0v4qf-Lrm</p>		
OA02.07	Provide a digital platform to exchange data and best practices on runway safety between the various stakeholders	MST.0028
<p>Objective:</p> <p>To provide a protected data-environment platform to the stakeholders where the participants of the NRSF can share safety information with the sole intention to improve safety.</p>		

2.2 Runway excursions

Description

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

The GAPPRE comprises a set of consensus-based recommendations representing industry best practices and interventions that go beyond regulatory compliance. The recommendations address both risk and resilience factors. Runway excursion risk is a complex combination of factors involving different segments of the aviation industry including operators, airports, aircraft manufacturers and ANSP's. Mitigating the risk is best done cooperatively among the stakeholders. The complexity of runway excursion prevention efforts is derived from the fact that the effect of the risk and resilience factors is highly cumulative – runway condition maintenance and reporting, aircraft performance and operations, collaborative approach path management, and adherence to robust policies for safe descent and approach planning, stabilised approach, safe landing and go-around all play roles.

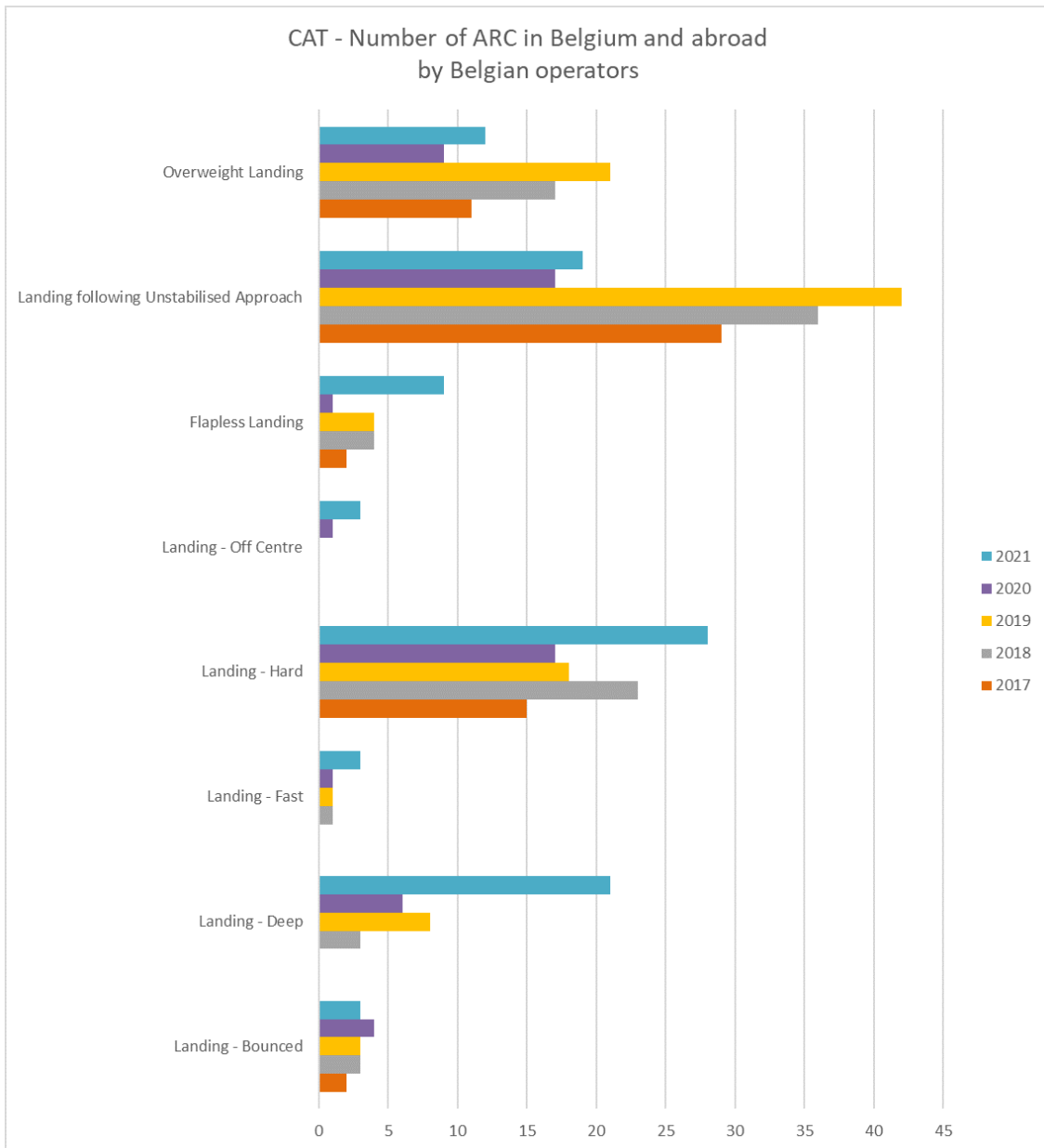
Shortfalls in the provision of weather information and runway safety conditions to the crew by the Automatic Terminal Information Service (e.g., tail wind on ground, gusts) during the approach phase may lead to an increase of the risks of runway excursions. Investigations revealed shortfalls in the accuracy and timeliness of the current assessment and reporting methods of these runway safety conditions. The ICAO Global Reporting Format (GRF) is based on a total assessment of the coverage with contaminants of the runway surface. The Belgian ANSP and the BCAA have developed safety promotion material on this issue.

Objectives

- Reduce the number of REs in general and commercial air transport

Safety Performance Indicators

- Abnormal Runway Contacts by Belgian CAT operators in Belgium and abroad



The chart shows the abnormal runway contacts (ARC) involving aircraft from Belgian operators in Belgium and abroad. Most of these incidents are related to landings following unstable approaches or hard and deep landings. Overweight landings are often the result of aircraft return due to medical emergencies or technical problems with the aircraft.

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA02.05	<p>Promote the GAPPRE to organizations by establishing a National Runway Safety Forum (NRSF)</p>	MST.0028
	<p>Objective: To increase the understanding of runway excursion causal and contributory factors and to help organizations implement effective runway excursion prevention measures.</p>	
OA02.08	<p>Analyze the GAPPRE self-analysis from stakeholders and check the status of GAPPRE recommendations during BCAA oversight activities</p>	MST.0028
	<p>Objective: To keep a high level, national focus on the risk of runway excursion – runway collisions.</p>	
OA02.09	<p>Provide a digital platform to exchange data and best practices on runway safety between the various stakeholders</p>	MST.0028
	<p>Objective: To provide a protected data-environment platform to the stakeholders where the participants of the NRSF can share safety information with the sole intention to improve safety.</p>	

3. Airborne conflict (mid-air collisions)

Airborne conflict includes direct precursors such as loss of separation, separation minima infringements (SMIs), genuine traffic collision avoidance system (TCAS) resolution advisories or airspace infringements.

3.1 Airspace infringements

Description

Airspace infringement is also referred to as an unauthorized penetration of airspace and is generally defined as a flight into notified airspace without previously requesting and obtaining approval from the controlling authority of that airspace in accordance with international and national regulations. Airspace infringements by GA aircraft into controlled airspace is an important safety risk specifically in the context of the collision risk posed by aircraft without transponders.

The Aviation Safety Directorate (ASD) of the Ministry of Defense, the Belgian ANSP and the BCAA joined forces in order to reduce the number of airspace infringements. The approach to this problem is one of documenting the incidents, drawing conclusions, implementing improvements and stimulating awareness and training on the matter instead of blaming and punishing. The BCAA sends for each reported airspace infringement a standard questionnaire to the pilot. The BCAA performs a periodic in-depth statistical analysis of these questionnaires to gain insight into the possible hazards that can lead to airspace infringements in Belgian airspace.

The analysis of the reported incidents clearly indicates that most of the infringements are committed by GA flights. The analysis also shows that airspace infringements affect both novice and experienced pilots and can occur in all phases of flight and at all altitudes. However, the vast majority of them occur in daylight and in excellent meteorological conditions.

The Belgian promotion campaigns mainly focus on the importance of flight preparation, GA pilot's awareness of the Belgian airspace complexity, the correct use of navigation technology and the use of the transponder. The BCAA periodically informs the analysis results of the reported airspace infringement questionnaires to all Belgian pilots. The BCAA website also provides links to entertaining yet informative videos and suggests useful tips that will help pilots to reduce the risk of airspace infringement and mid-air collisions.

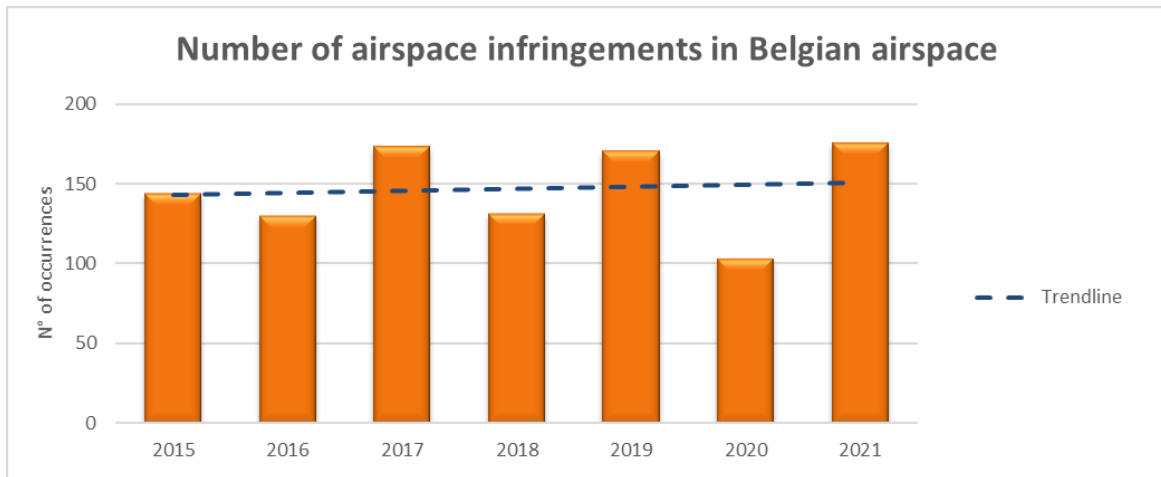
During the RNO phase (first quarter of 2021), a significant increase of airspace infringement incidents has been noticed. In order to help reduce the risk of airspace infringements and mid-air collisions, the BCAA developed an ASIL on the prevention of airspace infringements to provide all pilots with a few tips that could be useful before, during and after every flight.

Objectives

- Increase safety by reducing the risk of mid-air collisions caused by airspace infringements

Safety Performance Indicator

- Number of airspace infringements in Belgian airspace



The chart above shows the number of airspace infringements in Belgian airspace caused by general and commercial aviation pilots. In 2020 there was a significant reduction in the number of airspace infringements. This reduction was mainly due to the lockdown during the COVID-19 pandemic.

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA03.01	Raise awareness among pilots with regard to the prevention of airspace infringements in Belgian airspace	MST.0028
	<p>Objective:</p> <p>To decrease the number of airspace infringements in Belgian airspace by periodically analyzing the reported airspace infringement occurrences and the received questionnaires. The BCAA shall periodically revise the airspace infringement analysis and communicate the results to all Belgian pilots for raising awareness of the hazards involved with this type of occurrence.</p> <p>The BCAA shall also develop a set of materials for the prevention of airspace infringements in order to help all pilots to reduce the risk of airspace infringements and mid-air collisions.</p>	
OA03.02	Airspace complexity and traffic congestion	MST.0038
	<p>Objective:</p> <p>To redesign the airspace in order to reduce “airspace complexity” and “traffic congestion” with the aim of reducing the risk of airborne collisions involving uncontrolled traffic.</p>	

3.2 Loss of separation

Description

The horizontal or vertical spacing between aircraft during flight is referred to as a separation. Loss of separation between aircraft occurs whenever specified separation minima are breached. The minimum separation is meant to secure traffic procedures and thus to maximize airspace capacity.

The Belgian State has created the "Airspace Review below 4500ft AMSL Working Group (ARBWG)". Participants in this working group are the airspace users, the ANSP's, the Ministry of Defense and the BCAA. The objective is to redesign the airspace in order to reduce "airspace complexity" and "traffic congestion" with the aim of reducing the risk of airborne collisions involving uncontrolled traffic.

The scope of the "Airspace Review below 4500ft AMSL Working Group" will be the simplification of the airspace design according to user needs.

This will include:

- an inventory of all restricted/ danger areas with their use as a basis for a clean-up, redesign and simplification;
- a review of the size and activation of CTR's, TMA's and CTA's with the aim to harmonize where possible;
- a review of Class G airspace;
- a review of the dimensions and sectorization of segregated airspaces;
- a review of the airspace utilizations utilized throughout Belgium.

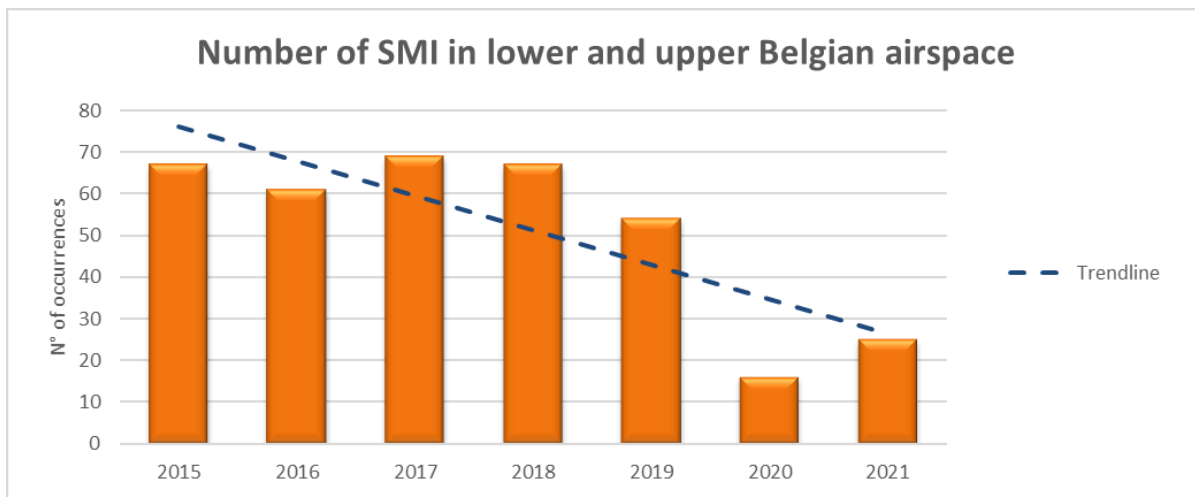
A EBKT Project Team composed by representatives from the Ministry of Defense, skeyes and the BCAA has been established in order to further analyze the best option to optimize the airspace structure around EBKT. The BCAA has among others developed the ASIL "IFR/VFR Operations in Class G Airspace (Surrounding EBKT)". This leaflet has been communicated to all Belgian pilots and ATO's.

Objectives

- Increase safety by reducing the risk of mid-air collisions caused by loss of separations

Safety Performance Indicator

- Number of Separation Minima Infringements in lower and upper Belgian airspace
- Separation Minima Infringements in lower and upper Belgian airspace – ANS Risk Analysis Tool (RAT) risk levels

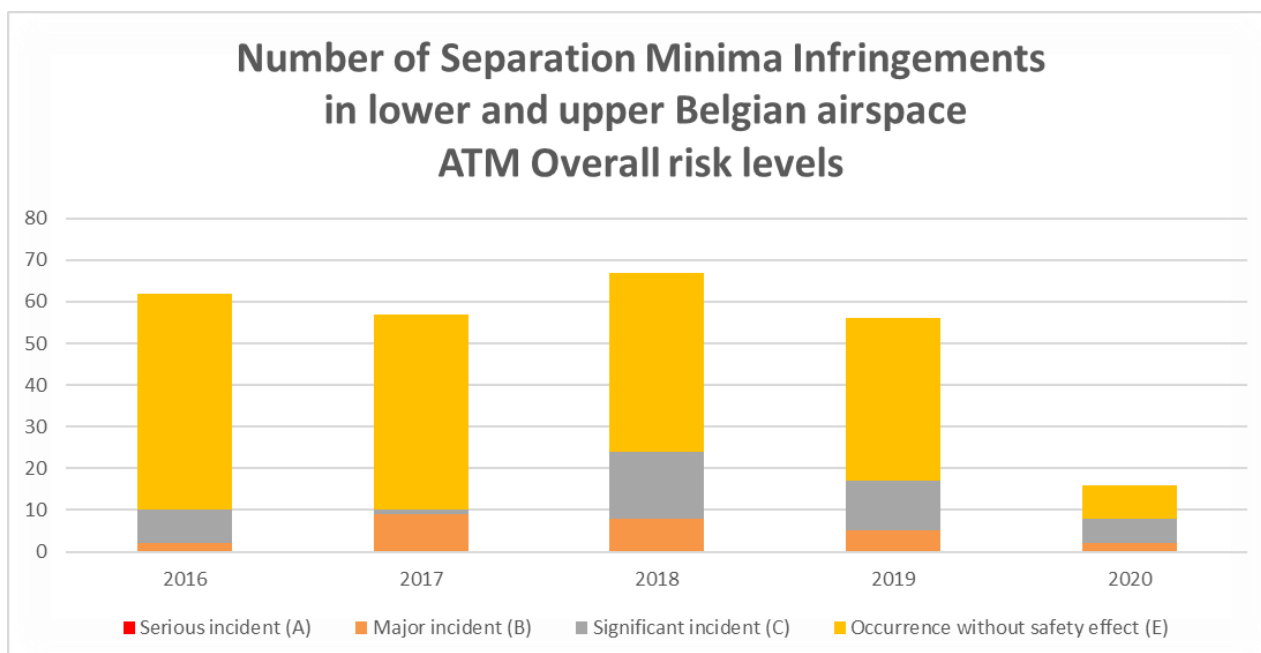


The chart shows the number of SMI in lower and upper Belgian airspace. A significant decrease in the number of SMIs can be observed.

The risk classification for the SMI occurrences has also been performed by means of the ANS “Risk Analysis Tool (RAT)” in accordance with the performance framework in the ATM/ANS domain. The RAT methodology allows a report of an “Overall” score composed of the ATM (Air Traffic Management) ground and the ATM airborne part. The ATM ground being the extent to which ATM ground’s actions contributed to the occurrence and the ATM airborne being the extent to which pilot’s actions contributed to the occurrence.

The RAT uses the following incident classification:

- A: serious incident
- B: major incident
- C: significant incident
- D: not determined
- E: no safety effect



Class A and class B can be considered as high risk events. Class D incidents are not included in the graph because the BCAA has an “Overall” score for all SMI incidents. In view of the growth of air traffic, the global number of SMI during the 2019 period has decreased compared to previous years. In 2020 the huge decrease of SMI incidents is due to the fact that, due to the pandemic, less flights were performed. Most of the SMI occurrences had no safety effect. There were no Class A risk events.

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA03.03	Deconfliction between IFR versus VFR flights	MST.0028
	Objective: To introduce airspace & procedure changes where an effective deconfliction between IFR and VFR flights outside class A-E airspace is provided to prevent AIRPROX events and ultimately airborne collisions.	
OA03.04	Airspace complexity and traffic congestion	MST.0038
	Objective: To redesign the airspace in order to reduce “airspace complexity” and “traffic congestion” with the aim of reducing the risk of airborne collisions involving uncontrolled traffic.	

4. Deviation from intended flight path

Description

The phrase “loss of control” may cover only some of the cases during which an unintended deviation from flightpath occurred. Therefore, the term ‘Deviation from Intended Flightpath’ is a more accurate description of the safety topic at stake and focusses on areas that were identified as some of the most frequent contributing factors like aircraft upset, flight parameter exceedance, weather and environmental encounters, warning systems triggered and aircraft handling.

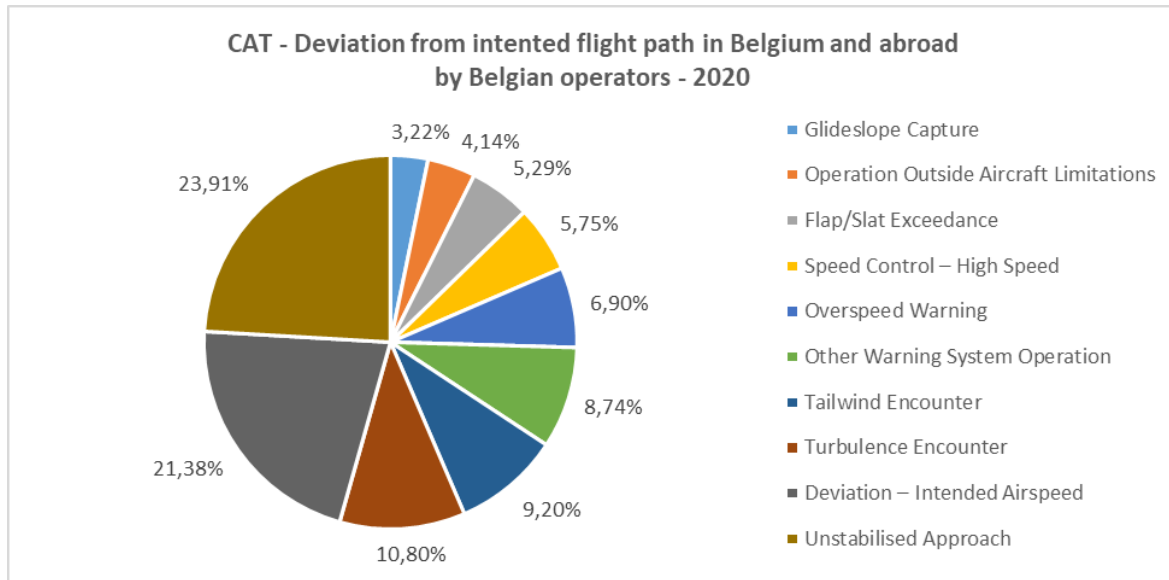
Deviation from intended flight path also addresses subjects such as flying skills, pilots’ awareness and the management of the upset or stall at take-off, in flight, or during approach and landing, flight preparation, aborting take-off and going around.

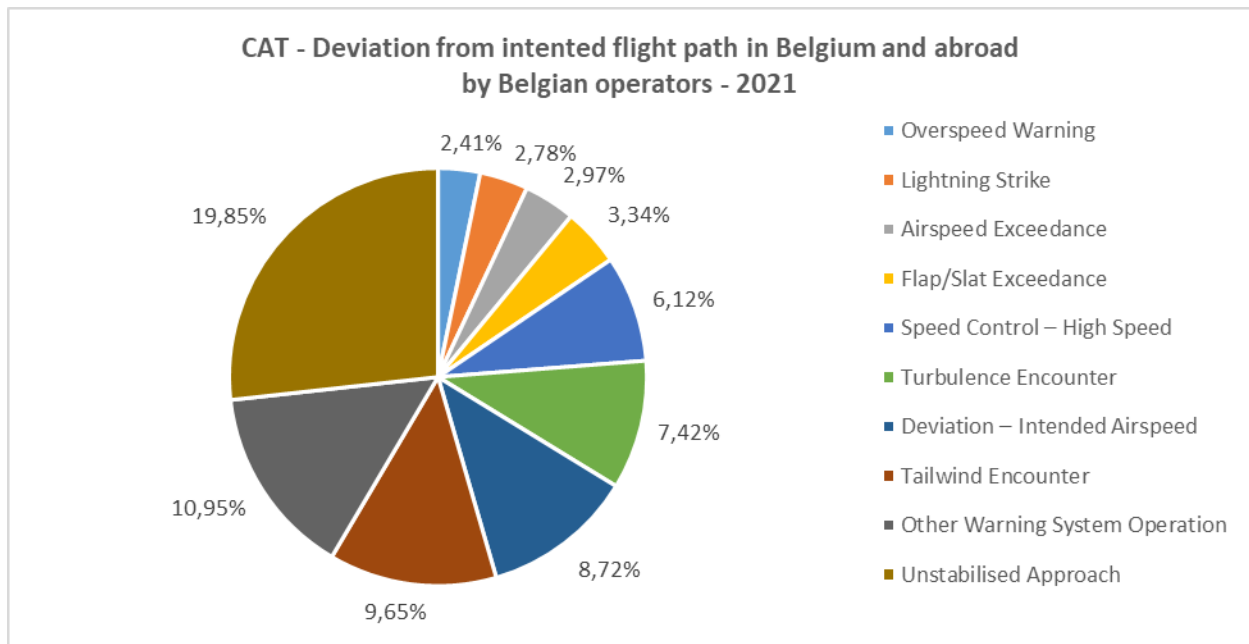
Objectives

- Increase safety by mitigating the risk of deviation from intended flight path

Safety Performance Indicator

- Deviation from intended flight path in flight by Belgian operators in Belgium and abroad





The safety indicator focusses on occurrences that involved areas that were identified as some of the most frequent contributing factors concerning deviation from intended flightpath:

- Aircraft upset
- Flight Parameter Exceedance
- Warning System Triggered
- Aircraft handling
- Weather and Environmental Encounters

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA04.01	Raise awareness among pilots with regard to the prevention of aircraft upset in flight	MST.0024
	Objective: To systematically inform pilots and organizations on the availability of new safety promotion materials covering topics such as aircraft performance, flight preparation and management, aircraft upset and recovery, and startle and surprise management.	
OA04.02	Develop an ASIL on “Guidelines for VFR procedures at uncontrolled aerodromes”	MST.0028

Objective:

To inform the general aviation pilots that:

- situational awareness is the key factor when flying in the vicinity of an uncontrolled aerodrome;
- It is essential to be aware of, and look out for, other traffic, and exchange traffic information when approaching or departing from an uncontrolled aerodrome;
- use of the appropriate radio frequency and communications protocols is critical to the safety of both IFR and VFR traffic at an uncontrolled aerodrome.

5. Terrain collision - Congestion and interference of the electromagnetic spectrum (5G)

Description

The electromagnetic spectrum is crucial to the management of aviation activity as frequencies are required for ATM and ground movements control, navigation aids, weather and ATC radars, radio-altimetry, air-air communications, terrain and ground collision avoidance systems. The spectrum is becoming increasingly congested as traffic levels grow and the increasing demand for bandwidth from other users such as telecoms, radio and television services have led to some portions of the spectrum previously allocated to aviation being diverted for this purpose. This in turn leads to equipage changes (e.g. radar frequencies) and radiotelephony (RTF) frequency congestion. The proximity of competing users can have interference effects that cannot be managed or controlled by either user.

The roll-out of 5G across the world will have an impact on navigational equipment. The issue is that the equipment may not be robust enough against certain 5G frequency bandwidths.

It also includes the potential for interference from 5G transmissions from the passenger cabin.

Objectives

- To make sure that a roll-out of 5G in Belgium takes into account the possible risk of interference effects

Safety Performance Indicator

- Not applicable

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA05.01	Develop safety promotion material on the possible 5G problem on altitude meters	/
	Objective: To raise awareness among aircraft operators (airplanes & helicopters) and air traffic service providers with regard to the possible 5G problem on altitude meters.	
OA05.02	Coordinate the roll-out of 5G in Belgium with the Belgian Institute for Postal Services and Telecommunications (BIPT) and other relevant stakeholders where appropriate	/
	Objective: To make sure that a roll-out of 5G in Belgium takes into account the possibility that the risk of interference proves to be real.	

6. Aircraft environment – smoke/fumes & transport of dangerous goods

Description

Dangerous goods are articles or substances which are capable posing a risk to health, safety, property or the environment. These include obvious things, such as: explosives, radioactive materials, flammable liquids, dangerous or volatile chemicals, strong acids, compressed gases, poisons and aerosols. Everyday items that are considered dangerous goods include toiletries, aerosols, tools and lithium batteries.

One of the safety actions related to fire, smoke and fumes are aimed to raise awareness on the risks associated with the transportation of lithium batteries. Smoke or fumes, whether they are associated with fire or not, can lead to passenger and crew incapacitation. The major risk associated with the transport of lithium batteries and battery-powered equipment is thermal runaway, where the batteries heat up and produce toxic and flammable gasses because of short circuit, malfunctioning or mishandling of the batteries. Aircraft operators should be informed of the risks associated with the transport of dangerous goods and more particularly with the transport of lithium batteries. Passenger awareness should also be raised, therefore preventing them from unintentionally carrying non-allowed items while acknowledging the risks posed by lithium batteries.

The important risks associated with fire, smoke and fumes and in particular the transportation of lithium batteries on board an aircraft are identified from the EASA SRM process, accidents/serious incidents and inputs from EASA stakeholders. Therefore, the BCAA has contributed to the development of new EASA promotion material covering lithium battery education for passengers and ground staff as well as other associated cabin safety topics.

During the pandemic in 2020-2021, cargo has been carried in the passenger cabin. Carrying cargo in the passenger cabin is not straightforward. It requires consideration of issues such as weight and balance, smoke/fire detection, crashworthiness, evacuation procedures and modified loading procedures.

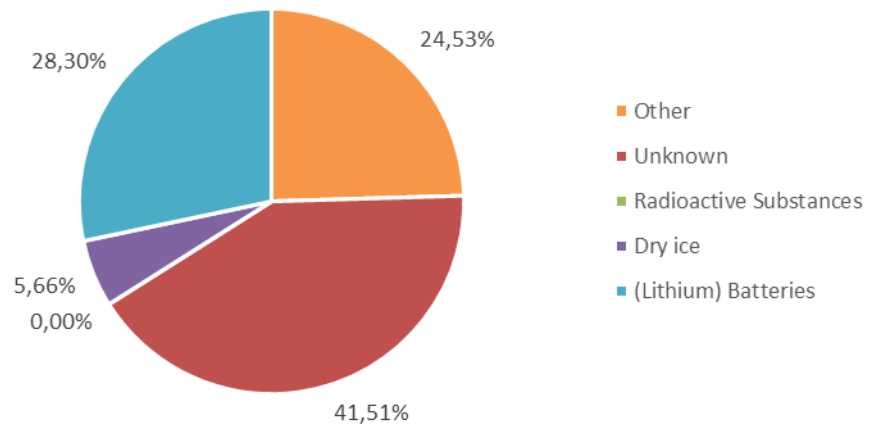
Objectives

- Further reduce the risks of accidents and serious incidents related to the transport of dangerous goods

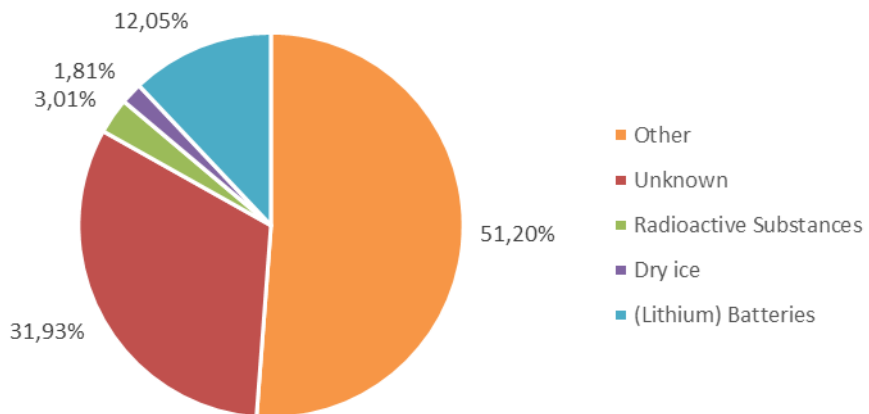
Safety Performance Indicator

- Occurrences related to the transport of dangerous goods reported by Belgian organizations

Transport of dangerous goods - 2020



Transport of dangerous goods - 2021



Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA06.01	Approval of the transport of dangerous goods activities for ground handling companies	MST.0028
	Objective: To approve the transport of dangerous goods activities for ground handling companies in accordance with the relevant Belgian legislation.	
OA06.02	Systematic auditing of operators' outstations in the field of the transport of dangerous goods	MST.0028
	Objective: To improve aviation safety by organizing a systematic monitoring of the transport of dangerous goods at the operators' outstations.	
OA06.03	Contribute to the development of safety promotion material covering the transportation of lithium batteries on board an aircraft	MST.0028
	Objective: To inform all involved parties (operators, ground handlers, forwarders, airport operators, etc.) and raise passenger awareness on the risks associated with the transport of lithium batteries on board an aircraft. Therefore, the BCAA shall contribute to the development of new EASA SPN material covering lithium battery education for passengers and ground staff.	
OA06.04	Approval of training activities on the transport of dangerous goods	MST.0028
	Objective: To approve the training activities on the transport of dangerous goods for training organizations in accordance with the relevant Belgian legislation to achieve a safer transport of dangerous goods in the air.	

7. Wildlife strikes

Description

The presence of wildlife strikes (birds and other animals) on and near an aerodrome poses a serious threat to aircraft operational safety. Most collisions occur at low altitudes, near an airport during take-off and landing. Operators of a certified aerodrome are required to take the necessary actions to identify, manage and mitigate the risk to aircraft operations posed by wildlife by adopting actions likely to minimize the risk of collisions between wildlife and aircraft, to as low as reasonably practicable.

The appropriate authorities are required to have in place procedures for the identification and control of wildlife hazards on and near an aerodrome, and to ensure that competent personnel evaluates the wildlife hazard on a continuing basis.

At present, hundreds of wildlife strikes are reported each year to the BCAA. These type of occurrences can be a significant threat to aircraft safety. For smaller aircraft, significant damage may be caused to the aircraft structure and all aircraft, especially jet-engine powered ones, are vulnerable to the loss of thrust which can follow the ingestion of birds into engine air intakes. Larger jet-engine powered aircraft are most likely to experience the hazardous effects of strikes as the consequences of engine ingestion. Partial or complete loss of control may be the secondary result of either small aircraft structural impact or large aircraft jet engine ingestion.

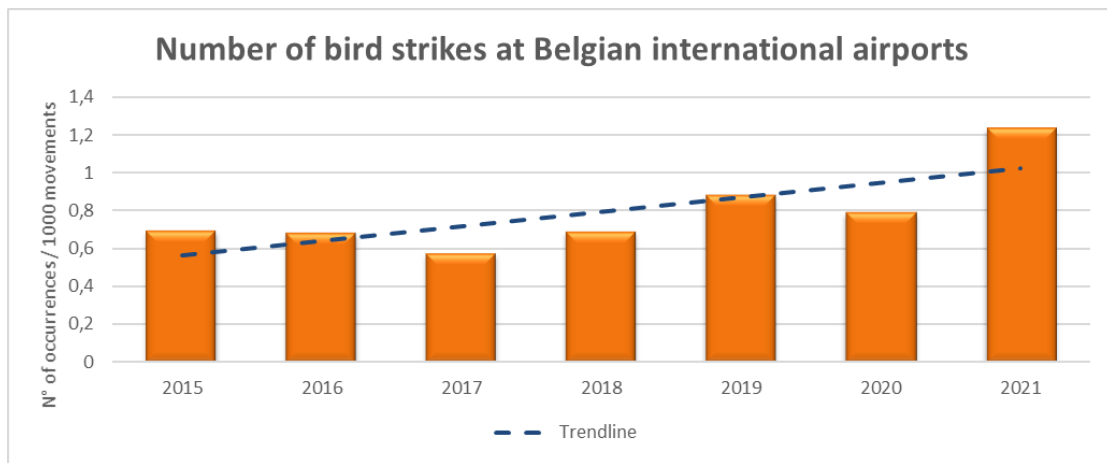
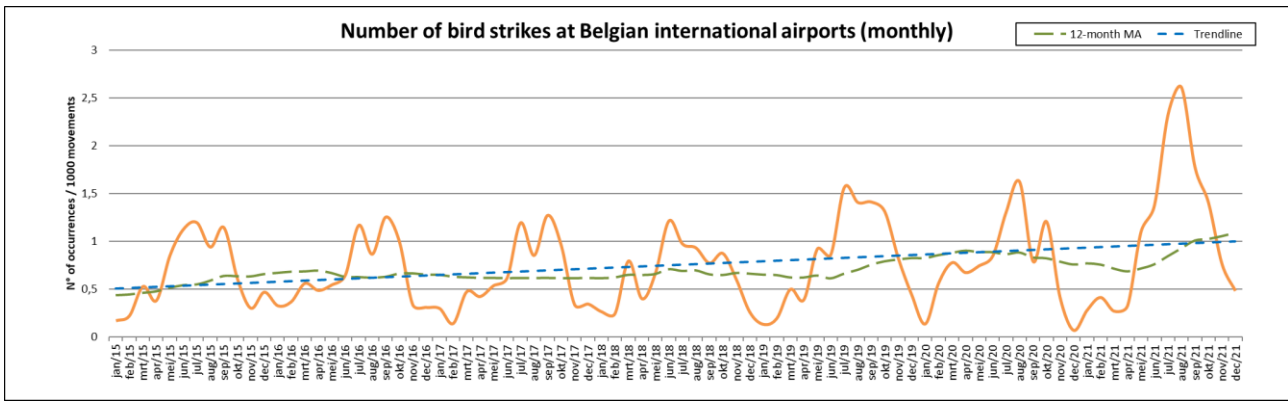
The Belgian airport authorities needed a discussion forum to exchange ideas about specific technical issues in the field of wildlife management. The BCAA therefore established the Belgian Aviation Wildlife Hazard Committee (BAWiHaC) to exchange information and expertise on the subject of wildlife strikes. The BAWiHaC members are the airport authorities of the certified aerodromes, the Aviation Safety Department (ASD) of the Ministry of Defense and the BCAA. The BAWiHaC members invite from time to time other aviation community players in order to widen their scope of experience. The BAWiHaC meets at least once a year. One of the latest topics of the BAWiHaC meetings was related to obtain a more detailed reporting of wildlife and bird strike information in the ECCAIRS database for improving the identification of trends and hazards in the field of wildlife management.

Objectives

- Reduce the risk of collision with birds and other animals

Safety Performance Indicator

- Number of bird strikes at Belgian international airports
- Number of wildlife strikes excluding bird strikes at Belgian international airports
- Consequential events related to wildlife strikes with Belgian operators in Belgium and abroad

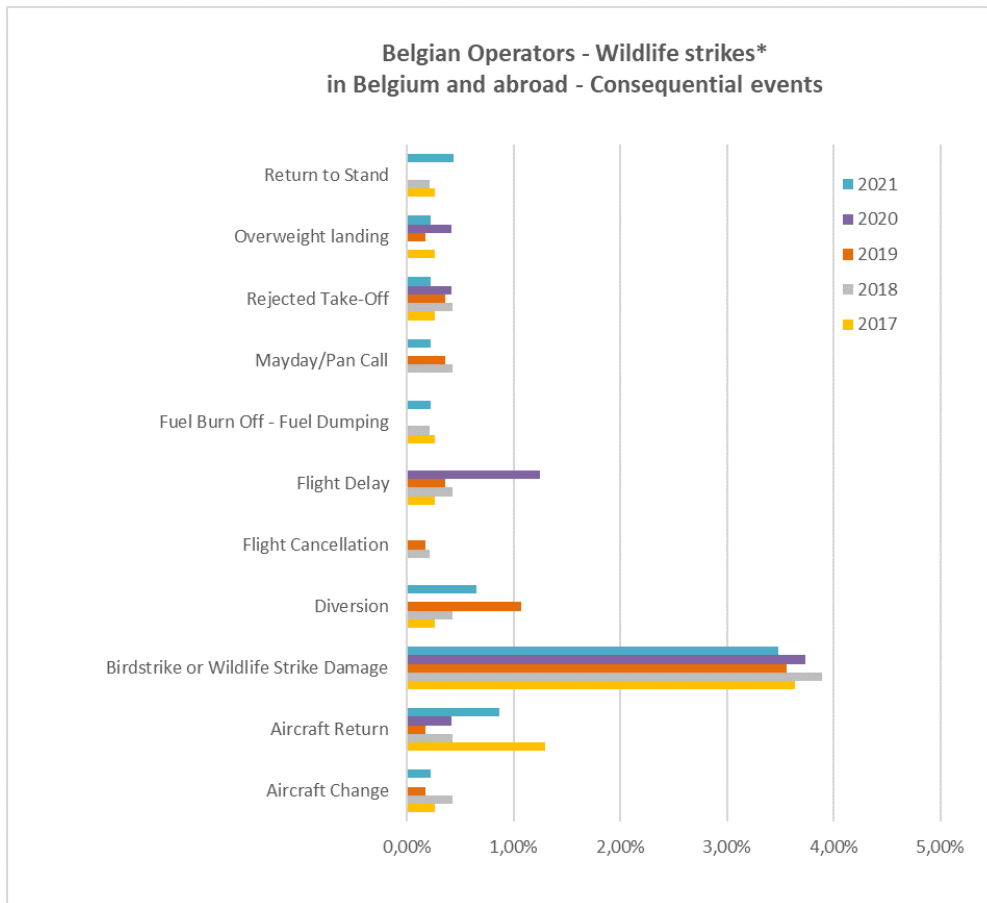


Note: the 12-month moving average (MA) is the average calculated over the previous 12 months

The charts above show the number of bird strikes at Belgian international airports during the period 2015-2021. There was a significant increase in the number of bird strikes in 2021. The reduced traffic at aerodromes has increased the presence of wildlife habitation at aerodromes. This carries the risk not only of birds and insects nesting in stored aircraft and equipment, but also bird strikes to aircraft once airborne. In the course of 2021, the Belgian aerodromes have taken the necessary preventive measures to decrease the risk of collisions with birds and other animals.



The chart above shows the number of wildlife strikes excluding bird strikes at Belgian international airports during the period 2015-2021. The trend is a small increase in the number of wildlife strikes.



The chart shows the consequential events with Belgian operators related to the number of wildlife strikes in Belgium and abroad during the period 2017-2021. Almost 4% of the wildlife strikes results in minor or substantial aircraft damage. In turn, damage to aircraft causes aircraft return, diversion, flight delay and rejected take-off.

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA07.01	<p>Periodic exchange of experiences on specific technical issues in the field of wildlife management through the Belgian Aviation Wildlife Hazard Committee (BAWiHaC)</p>	MST.0028
	<p>Objective:</p> <p>To create a strong and open collaboration between the international airports for Bird Control Unit matters and to give a higher priority to wildlife issues on all levels of management. The BCAA shall interact with the BAWiHaC to translate the identified trends and hazards in the field of wildlife management into safety actions.</p>	
OA07.02	<p>Consult stakeholders on the reporting of data related to wildlife strikes</p>	MST.0028
	<p>Objective:</p> <p>To obtain a more detailed reporting of wildlife and bird strike information in the ECCAIRS database for improving the identification of trends and hazards in the field of wildlife management.</p>	
OA07.03	<p>Implement a "Wildlife Hazard Management System" as part of the aerodrome operators management system</p>	MST.0028
	<p>Objective:</p> <p>To apply a management system approach to reduce the risk that wildlife poses to safe aerodrome operations.</p>	

8. Unmanned Aircraft Systems - drones

Description

To ensure the safe operation of drones and a level playing field within EASA Member States, EASA has developed common European rules. They contribute to the development of a common European market while ensuring safe operations and respecting the privacy and security of EU citizens.

Commission's Implementing Regulation (EU) No 2019/947⁴ regulates the operations of UAS in Europe and the registration of drone operators and of certified drones. Commission's Delegated Regulation (EU) No 2019/945⁵ defines the technical requirements for drones. Both were published on 11 June 2019. The Delegated Regulation is immediately applicable while the Implementing Regulation has become gradually applicable. With these regulations, the proposed EASA general concept, establishing three categories of UAS operations ('open', 'specific' and 'certified' with different safety requirements, proportionate to the risk), is adopted at the European level.

Moreover, as the number of UAS operations increases, there is a need to establish unmanned traffic management (UTM) systems (named 'U-space' in Europe). There has been a huge development of U-space during the last year. The ATM Master Plan reflects the details about the integration of UAS in the EU airspace. The safe integration of all new entrants into the airspace network will be one of the main challenges in relation to the integration of UAS technologies and related concepts of operation.

The unauthorized use of drones at or around aerodromes may lead to unacceptable disruption of operations, affecting the air and transportation system. Other safety issues with UAS are the insufficient separation between unmanned and manned aircraft in Belgian airspace and the possible increase of the number of airspace infringements caused by unmanned aircraft. Therefore, education of the public to prevent and reduce misuse of drones remains a safety priority. An adequate occurrence reporting in accordance with Regulation (EU) No 376/2014 shall also play an important role in maintaining a record of UAS occurrences for trend analysis and initiating proactive measures.

Objectives

- Reduce the risk of collision with drones

Safety Performance Indicator

- Not applicable

⁴ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft

⁵ Commission Delegated Regulation (EU) 2019/945 of 12 March 2019 on unmanned aircraft systems and on third-country operators of unmanned aircraft systems

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA08.01	<p>Communicate about the implementation of the new EU rules and promote safe operations of drones to the public and the UAS business</p>	<p>MST.0028 SPT.0091</p>
	<p>Objective:</p> <p>To continuously inform and sensitize the public and the UAS business of the hazards involved in flying UAS.</p>	
OA08.02	<p>Further improve the collaboration between all stakeholders for handling infringements with UAS</p>	<p>MST.0028</p>
	<p>Objective:</p> <p>To improve the cooperation between the ANSP, the Federal Police, the Brussels Airport Company and the BCAA to develop, review and assess the procedures to follow in the case of infringements to the new EU rules with UAS.</p>	
OA08.03	<p>Implement the EU common rules on drones</p>	<p>MST.0028</p>
	<p>Objective:</p> <p>To implement the new EU rules for UAS in Belgium, in particular in relation to the harmonized implementation of the adopted regulations for the 'open' and 'specific' categories, the implementation of future regulations for the 'certified' category and the safe and harmonized development and deployment of U-space across the EU.</p>	

9. Disruptive passengers

Description

A disruptive passenger is defined by Annex 17 to the ICAO Chicago Convention as: "A passenger who fails to respect the rules of conduct at an airport or on board an aircraft or to follow the instructions of the airport staff or crew members and thereby disturbs the good order and discipline at an airport or on board the aircraft." And by the Tokyo Convention (1963) as: "Acts which, whether they are offences [against the penal law of a State], may or do jeopardize the safety of the aircraft or of persons or property therein or which jeopardize good order and discipline on board".

Basically, disruptive passenger refers to a passenger behavior that jeopardizes or might jeopardize the safety of the aircraft, persons or property therein or the accepted level of good order and discipline on board.

Potential consequences of disruptive passengers are the return of the aircraft, flight delay and flight diversion. Unruly passenger incidents on board of an aircraft which threaten safety and security have become a significant issue faced by airlines, flight and cabin crew on a daily basis.

These occurrences have a direct impact on both the safety of crew and of passengers. Any kind of unruly or disruptive behavior whether related to intoxication, aggression or other factors introduces an unnecessary risk to the normal operation of a flight. An intoxicated person will not be able to follow safety instructions when needed, aggressive behavior distracts the crew from their duties. Physical violence results in injury and it is a traumatic experience for everybody on board and if a member of the crew gets injured, their capacity to act in case of an emergency is reduced.

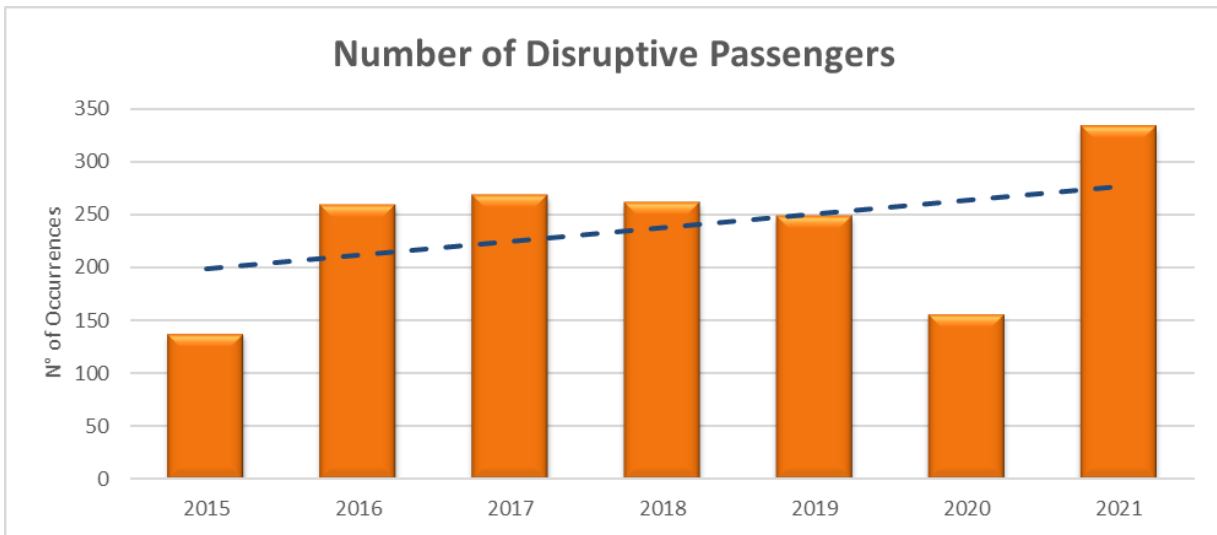
Even though the number of disruptive passengers is small considering the total number of people flying, the impact of their actions can have a disproportionate effect both on the smooth operation of the flight and, most importantly, on its safety. The rise in serious disruptive passenger behavior is a great concern to the aviation community and particularly to airlines.

Objectives

- Reduction of the number of occurrences related to disruptive passengers

Safety Performance Indicator

- Number of Disruptive Passenger Occurrences



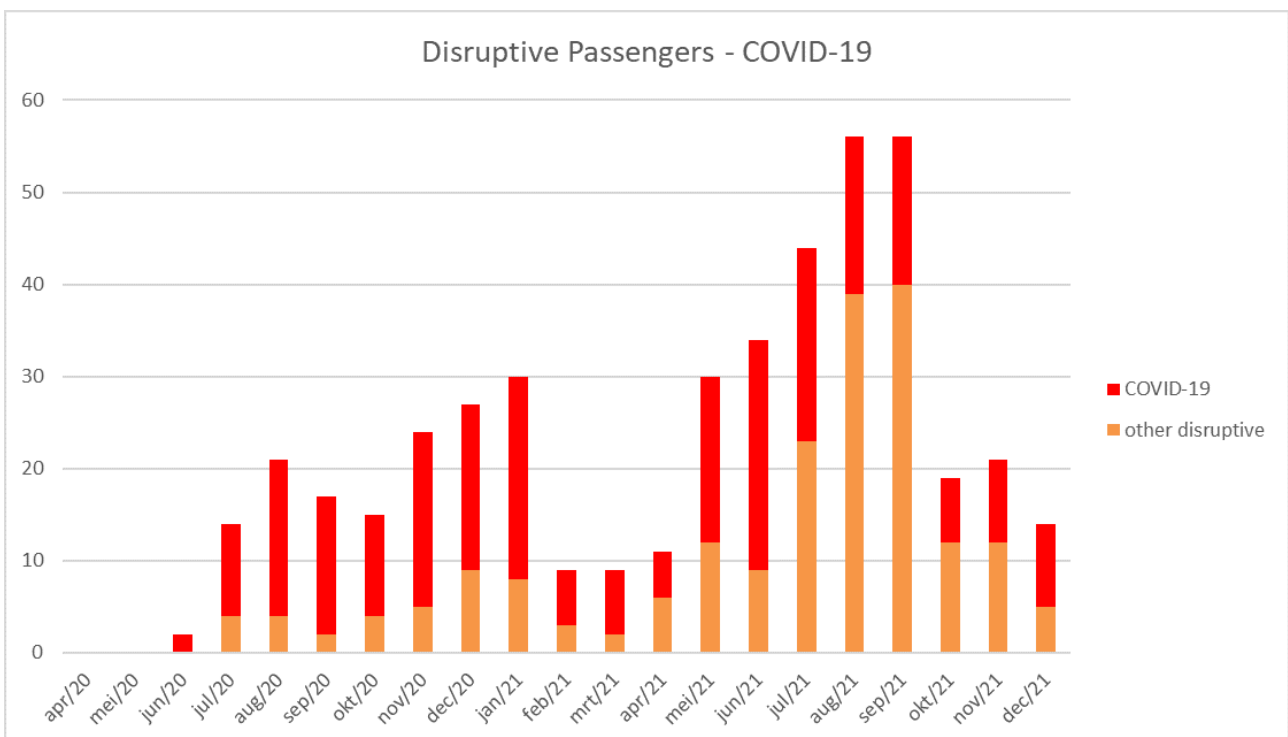
Before 2020, most of the disruptive passenger occurrences are related to smoking in the lavatories of the aircraft, the use of mobile devices on board of the aircraft and to drunk passengers.

As a result of the COVID-19 pandemic, a huge decrease in passenger flights was observed. Specific statistics on movements, passengers and cargo (in tons) can be found on the BCAA website:

https://mobiliteit.belgium.be/nl/luchtvaart/luchthavens_en_luchtvaartterreinen/statistieken

https://mobiliteit.belgium.be/fr/transport_aerien/aeroports_et_aerodromes/statistiques

The decrease of the number of disruptive passenger occurrences in 2020 is mainly due to the lockdown during the pandemic which allowed for months of very limited passenger air travel. Since 2020, managing disruptive passengers while maintaining physical distancing has involved changes to procedures with additional verification tasks and increased cabin crew workload. Cabin crew members reported that passengers are frequently slow, reluctant or need repeated reminding to wear face masks, creating a potential point of conflict that needs to be managed.



In 2021, an increase in the number of disruptive passengers can be noted in relation to the number of flights operated. Quite a few of these reported occurrences were due to disruptive passengers on board who were not so adherent to the COVID-19 protection measures.

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA09.01	Further improve the collaboration between all stakeholders for handling infringements with disruptive passengers	-
	Objective: To strengthen the cooperation between the Federal Police, the airports authorities and the BCAA to improve the prosecution of disruptive passengers. Actual offences are transferred to the competent Crown Prosecutor.	

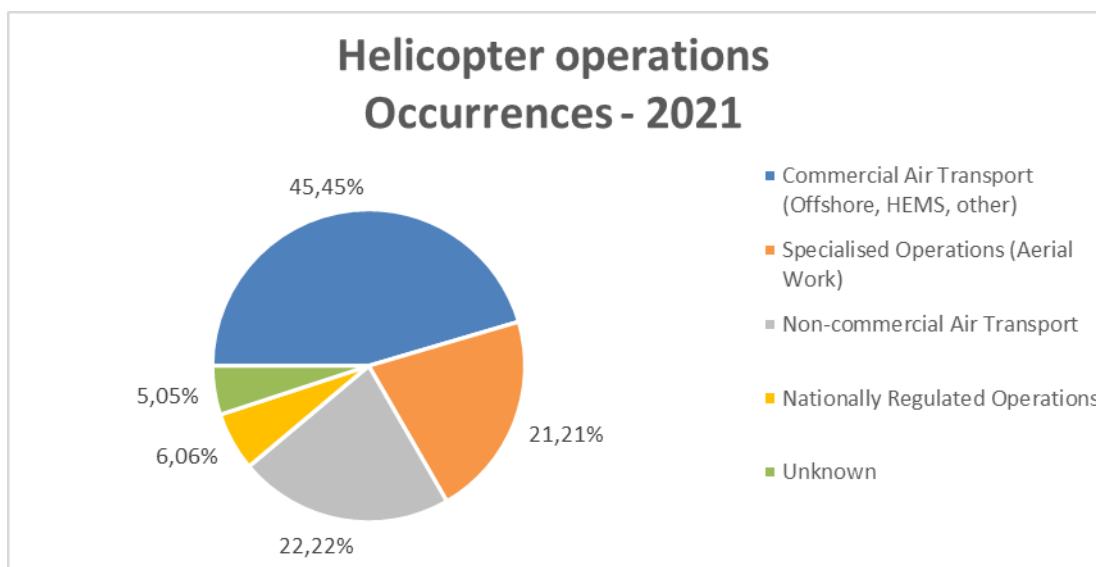
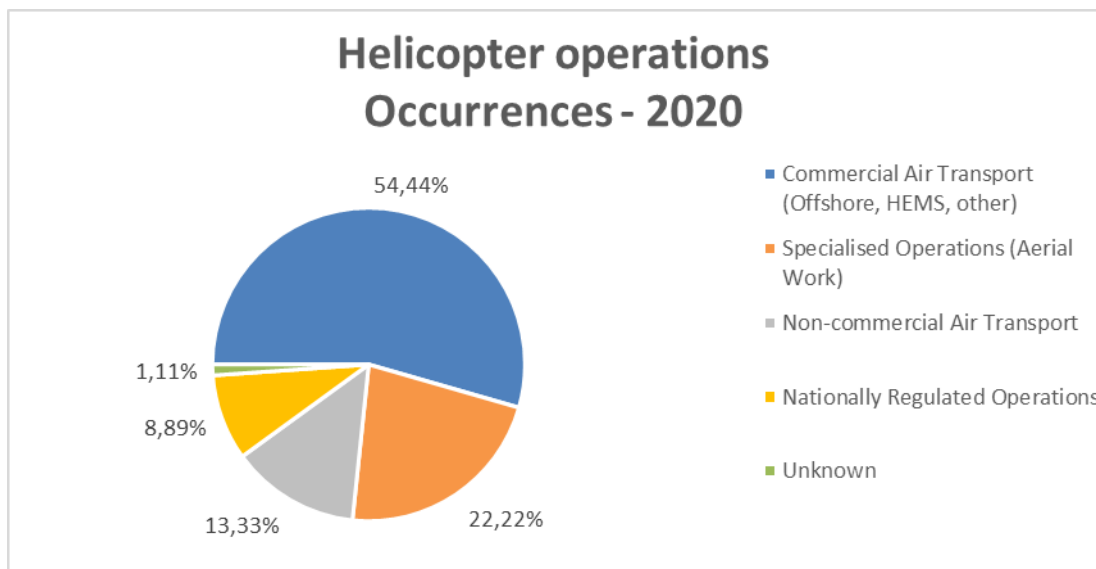
10. Helicopters

Description

This chapter groups the actions in the area of rotorcraft operations. The EASA Roadmap aims at significantly reducing the number of rotorcraft accidents and incidents and focusses on traditional/conventional rotorcraft including GA rotorcraft where the number of accidents is recognized to be higher. The EASA Roadmap focuses on safety and transversal issues that are affected by the different domains including training, operations, initial and continuing airworthiness, environment and innovation.

Helicopter operators perform a wide range of highly specialized operations in Belgium. This area includes five types of operations involving certified helicopters:

- passenger and cargo flights to and from offshore installations in CAT (Belgian AOC holders)
- other CAT operations, passenger and cargo (Belgian AOC holders)
- SPO, such as advertisement, photography...(Belgium as State of operator or State of registry)
- Non-commercial operations (NCO) with helicopters registered in Belgium or for which Belgium is the State of operator
- Operations with state aircraft.



The largest number of reported occurrences relates to CAT operations with helicopters (offshore, HEMS and commercial transport of passengers) followed by specialized operations (aerial work).

Objectives

- Further reduce the risks of accidents and serious incidents related to operations with helicopters.

Safety Performance Indicator

- Accidents and serious incidents in Belgium (see also chapter “Accidents and serious incidents)
- Accidents and serious incidents with Belgian registered aircraft abroad (see also chapter “Accidents and serious incidents

During the period 2020-2021, there were no accidents and no serious incidents involving helicopter operations.

These data are based on the accidents and serious incidents collected by the BCAA as per Annex 13 investigations. The low number of accidents and serious incidents in this domain prevents any conclusions from being drawn regarding the most important key risks.

The EPAS highlights the following key risk areas:

- Helicopter upset in flight (loss of control)
This is the key risk area with the highest priority in CAT helicopter operations and the most common accident outcome for SPO. Loss of control for offshore helicopter operations generally falls into two scenarios: technical failure that renders the aircraft uncontrollable or human factors. In addition, it is the second most common accident outcome for aerial work operations.
- Terrain collision and obstacle collision in flight
This is the second priority key risk area for helicopter operations (CAT, SPO and non-commercial operations), although equipment is now fitted to helicopters in this domain that will significantly mitigate the risk of this outcome. Obstacle collisions is the second most common accident outcome in the CAT helicopters domain. This highlights the challenges of HEMS operations and their limited selection and planning for landing sites. Terrain collision and obstacle collision in flight are also the second most common outcomes for SPO.

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA10.01	Participate in helicopter safety events and workshops with helicopter industry representatives and license holders every two years	MST.0002 MST.0015 MST.0025
	Objective: To discuss the most important safety risks and to promote safety promotion materials to the helicopter sector (see also safety action SA02.02).	

11. General Aviation

Description

This area includes aerial work and GA operations performed by airplanes as well as operations performed by gliders, balloons, microlights and paragliders.

Recognising the importance of General Aviation and its contribution to a safe European aviation system, EASA in partnership with EC and other stakeholders has created the GA roadmap in 2013, and has started the in 2019 a new phase of the project called GA Roadmap 2.0.

It is difficult to precisely measure the evolution of safety performance in GA due to lack of consolidated exposure data (accumulated flight hours, number of movements). However, the statistics below justify the actions already undertaken to mitigate risks leading to accidents and serious incidents with GA aircraft. These actions address also systemic or transversal issues that affect GA as a whole and are common to several risk areas.

Objectives

- Further reduce the risks of accidents and serious incidents related to operations with GA aircraft

Safety Performance Indicator

- Accidents and serious incidents in Belgium (see also chapter “Accidents and serious incidents)
- Accidents and serious incidents with Belgian registered aircraft abroad (see also chapter “Accidents and serious incidents)

The table includes comparison of the number of accidents (fatal and non-fatal) and serious incidents in Belgium and with Belgian registered aircraft abroad for different aircraft categories for a 5-year period (2017-2021).

Aircraft Category	2017		2018		2019		2020		2021	
	accidents	serious incidents	accidents	serious incidents	accidents	serious incidents	accidents	serious incidents	accidents	serious incidents
NCO Aeroplanes	2	4	5	0	6	3	1	0	6	0
NCO Helicopters	2	1	1	0	1	0	0	0	0	0
Microlights	1	0	1	0	5	1	3	0	1	0
Balloons	0	0	0	2	0	1	0	0	0	0
Sailplanes	1	0	3	0	3	0	2	0	1	0
Gyroplanes - Paragliders	0	0	2	0	1	0	1	0	0	0
UAS	2	0	2	0	4	0	4	0	1	0
Total	8	5	14	2	20	5	11	0	9	0

The rate of accidents and serious incidents continued to increase during the period 2017-2021. This increase is largely due to the high number of accidents with microlights during the 2019 period. Therefore, the BCAA has taken the necessary regulatory actions to reduce the number of accidents with microlights (see action SA02.05).

Since 2020, the rate of accidents and serious incidents has decreased, probably due to the reduction of the number of flights caused by the pandemic.

These data are based on accidents and serious incidents collected by the BCAA as per Annex 13 investigations.

Investigation of the accidents and serious incidents with GA aircraft for the 2020-2021 period identifies aircraft upset as the most important key risk area. Aircraft upset with GA aircraft generally falls into two scenarios: human factors and technical failure that renders the aircraft uncontrollable.

The EPAS highlights the following key risk areas:

- For non-commercially operated small airplanes: aircraft upset, terrain collision, obstacle collision in flight
- For sailplanes: aircraft upset, terrain collision, obstacle collision in flight
- For balloons: obstacle collision in flight, balloon landings, fire and smoke

Actions

The following systemic and operational BPAS actions are also applicable or partly applicable to the general aviation sector:

Action Number	Action title
SA01.03	Development of a leaflet on safety and just culture principles
SA02.01	Encourage the implementation of safety promotion material developed by the SMICG and the EASA SPN
SA02.02	Organize and/or participate in safety seminars and workshops (EPAS MST.025)
SA02.05	Revision of the Royal Decree regulating the operation of ultra-light aircraft
SA02.06	Raising awareness within the general aviation sector on human factors
SA02.07	PPL/LAPL learning objectives in the Meteorological Information part of the PPL/LAPL syllabus
SA02.09	Safety promotion to support ramp-up / safe return to operations
SA02.10	Start of a promotion campaign to further improve the reporting culture of occurrences in civil aviation
OA02.02	Development of safety promotion material on the prevention of runway incursions
OA03.01	Raise awareness among pilots with regard to the prevention of airspace infringements in Belgian airspace

OA03.03	Deconfliction between IFR versus VFR flights
OA03.02	Airspace complexity and traffic congestion
OA04.01	Raise awareness among pilots with regard to the prevention of aircraft upset in flight
OA04.02	Develop an ASIL on “Guidelines for VFR procedures at uncontrolled aerodromes”
OA06.03	Transportation of lithium batteries on board an aircraft
OA10.01	Participate in helicopter safety events and workshops with helicopter industry representatives and license holders every two years

12. Miscellaneous

12.1 Setting up a dialogue with the Belgian aircraft operators on FDM programs

Description

Many of the safety performance measures established to monitor safety issues at industry level rely on data from FDM programs. FDM is the pro-active use of digital flight data from routine operations to improve aviation safety and is mandatory for airplanes with a Maximum Certificated Take-Off Mass more than 27.000 kg. FDM offers the ability to monitor and evaluate operational safety trends, identify hazards and risk precursors, and take appropriate remedial action.

EASA and National Aviation Authorities have formed a group of experts called the European Authorities coordination group on FDM (EAFDM). EASA will foster actions by States to improve FDM programs by the aircraft operators and assist States to monitor the standardization of FDM events relevant to State Safety Program top safety priorities.

The BCAA promotes the operational safety benefits of FDM and fosters an open dialogue on FDM programmes that takes place in the framework of just culture. BCAA has set up a FDM Forum with the Belgian operators. BCAA is an active member of the FDM Forum. General information on the EOFDM activities has been published at the BCAA website.

Due to the COVID-19 pandemic, the organisation of an information event to present EOFDM good-practice documents to the CAT operators has been postponed until 2022.

Objectives

- Improve and promote FDM programs with the objective to bring safety benefits to operators
- Sharing experience between aircraft operators

Safety Performance Indicator

Not applicable

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA12.01	Maintain a regular dialogue with the Belgian aircraft operators on FDM programs Objective: To make concerned professionals aware of the European operators FDM forum (EOFDM) by publishing, as part of SMS-related information, general information on EOFDM activities on the BCAA website. The operators will be encouraged to make use of the good-practice documents produced by EOFDM and similar safety initiatives. Therefore, the BCAA shall organize an information event to promote EOFDM good practice documents to the Belgian CAT operators. Safety managers and FDM program managers of all concerned operators shall be invited.	MST.0003

12.2 Flight time specification schemes

Description

One of the new safety areas in the EPAS focusses on the effective implementation of operators' flight time specification schemes. The BCAA technical personnel should possess the required competence to approve and oversee these schemes, particularly those including provisions subject to fatigue risk management. The BCAA shall focus on the verification of effective implementation of the processes established to meet operators' responsibilities requirements and to ensure an adequate management of fatigue risks. The BCAA shall consider the latter when performing audits of the operator' management system.

Objectives

- Qualified BCAA technical personnel to support effective safety oversight

Safety Performance Indicator

Not applicable

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
OA12.02	Oversight capabilities /focus area: flight time specification schemes	MST.0034
	Objective: To ensure that the BCAA technical personnel possesses the required competence to approve and oversee the operator's flight time specification schemes, in particular, those including fatigue risk management.	

Environmental protection

In the Belgian 2021-2023 Governance Agreement, the policies on environment and multimodality are merged into an ambition on sustainable mobility, which will keep pace with the European Green Deal.

1. Implementation of an ambitious environmental policy at national and international level

Both national and international statistics show that transport in general is a sector with a significant environmental impact. To better understand this impact and support the political decision-making process for a more ambitious environmental policy, several studies will be carried out.

The first action point concerns the EASA Environmental Label Program. As part of the EU's policy for sustainable and intelligent mobility, EASA has been mandated to develop an eco-labelling scheme for aviation. The pilot phase of the project will focus on refining existing measurements and developing a digital prototype for an eco-labelling scheme for aircraft, airlines and airports, integrating a life cycle approach based on the carbon footprint of manufacturers and cooperating with the European Railway Agency on intermodal comparison.

Objectives

- To better understand the environmental impact of the transport sector

Safety Performance Indicator

- Not applicable

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
EA01.01	Promote the EASA Environmental Label Program among Belgian airlines and supporting them in its implementation	GOV.AGR.A.2
	Objective: To refine existing measurements and develop an eco-labelling scheme for aircraft, airlines and airports, integrate a life cycle approach based on the environmental footprint of products and collaborate with the European Railway Agency on intermodal enrichment.	
EA01.02	Developing a long-term vision for the development of civil aviation in Belgium	GOV.AGR.A.2
	Objective: To develop a long-term vision for the development of civil aviation in Belgium, taking into account safety, security, the economic importance of the sector and the need to drastically reduce the ecological footprint.	
EA01.03	Proactively contributing to the development of a noise reduction policy in Brussels	GOV.AGR.A.2
	Objective: To contribute to the development of a noise reduction policy in Brussels, in particular by analyzing the problem or formulating opinions and proposals, participating in meetings and providing technical support.	

2. Support the introduction of sustainable aviation fuels

The Belgian State will prepare and promote the use of sustainable fuels at a regulatory level, as well as the renewal of the fuel supply contract for Brussels National Airport, including the preparation, the possible amendment of the regulations and the approval of specifications and the follow-up of it.

Objectives

- To support the introduction of new technologies in transport

Safety Performance Indicator

- Not applicable

Actions

Action Number	Action title & Objective	Alignment EPAS & GOV.AGR.
EA02.01	Preparing and promoting the use of sustainable aviation fuel at the regulatory level	GOV.AGR.A.3
	Objective: To prepare and promote the use of sustainable aviation fuel at the regulatory level (European, federal and, if necessary, in cooperation with the regions).	
EA02.02	Preparing and promoting the renewal of the fuel supply contract for Brussels Airport	GOV.AGR.A.3
	Objective: To prepare and promote the renewal of the fuel supply contract for Brussels Airport, including the preparation, possible amendment of the regulations and approval of the specifications and their follow-up.	

Appendix A: Acronyms and definitions

Acronyms

A/C	aircraft
AAIU(Be)	air accident investigation unit (Belgium)
ADRM	aerodrome
AGL	above ground level
ALoSP	acceptable level of safety performance
AMSL	above main sea level
ANS	air navigation service
ANSP	air navigation service provider
AOC	air operator certificate
ARBWG	airspace review below 4500FT AMSL working group
ARC	abnormal runway contact
ASD	aviation safety directorate
ASIL	aviation safety information leaflet
ASR	annual safety review
ATC	air traffic control
ATM	air traffic management
ATO	approved training organization
AVSEC	aviation security
BASP	Belgian aviation safety program
BAWiHaC	Belgian aviation wildlife hazard committee
BCAA	Belgian civil aviation authority
BIPT	Belgian Institute for Postal Services and Telecommunications
BPAS	Belgian plan for aviation safety
BR	basic regulation
CAT	commercial air transport
CFIT	controlled flight into terrain
COVID	coronavirus disease
CTA	control area
CTR	controlled traffic region
EAFDM	European authorities coordination group on flight data monitoring

EAPPRI	European action plan for the prevention of runway incursions
EASA	European aviation safety agency
EASP	European aviation safety program
ECCAIRS	European coordination center for aviation incident reporting systems
ECR	European central repository
EPAS	European plan for aviation safety
EOFDM	European operators flight data monitoring
ERCS	European risk classification scheme
EU	European Union
EUR/NAT	European and North Atlantic
FDM	flight data monitoring
FPS	federal public service
FUA	flexible use of airspace
GA	general aviation
GANP	global air navigation plan
GAPPRE	global action plan for the prevention of runway excursions
GASP	global aviation safety plan
GND	ground
GOV. AGR.	governance agreement
GRF	global reporting format
HEMS	helicopter emergency medical service
ICAO	international civil aviation organization
IFR	instrument flight rules
iSTARS	integrated safety trend analysis and reporting system
KRA	key risk area
LOC-I	loss of control in flight
LRST	local runway safety team
MA	moving average
MAC	mid-air collision
MP	master plan
MS	member state
MST	member state task
NCO	non-commercial
NoA	network of analysts
NRSF	national runway safety forum

OA	operational action
QMS	quality management system
RASP	regional aviation safety plan
RAT	risk analysis tool
RE	runway excursion
RI	runway incursion
RMT	rulemaking task
RNO	return to normal operations
SA	systemic action
SAF	sustainable aviation fuels
SARP	standards and recommended practice
SESAR	single European sky ATM research
SMI	separation minima infringement
SMICG	safety management international collaboration group
SMS	safety management system
SPI	safety performance indicator
SPN	safety promotion network
SPO	specialized operations
SPT	safety promotion task
SRM	safety risk management
SSP	state safety program
TCAS	traffic alert and collision avoidance system
UAS	unmanned aircraft systems
USOAP	universal safety oversight audit program
UTM	unmanned traffic management
VFR	visual flight rules

Definitions

Aerial work

Aerial Work is an aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue or aerial advertisement.

Airspace Infringement

Airspace infringement occurs when an aircraft penetrates an area into which special clearance is required without having such clearance.

Belgian Aviation Safety Program

The Belgian approach to the ICAO requirements of State Safety Programs. It contains an integrated set of regulations and activities to improve safety within the Belgian State. The latest version is available at http://mobilit.belgium.be/nl/luchtvaart/belgisch_veiligheidsprogramma/beleid_en_programma (Dutch version) and http://mobilit.belgium.be/fr/transport_aerien/programme_belge_de_seculte/politique_et_programme (French version)

Commercial air transport

Commercial air transport operations involve the transportation of passengers, cargo and mail for remuneration or hire.

Controlled Flight Into Terrain

Controlled Flight Into Terrain (CFIT) occurs when an airworthy aircraft under the complete control of the pilot is inadvertently flown into terrain, water, or an obstacle. The pilots are generally unaware of the danger until it is too late.

European Aviation Safety Program

European regional approach to the ICAO requirements of State Safety Programs. It contains an integrated set of regulations and activities to improve safety within EASA Member States. The latest version is available at <http://easa.europa.eu/easa-and-you/safety-management/safety-management-system/sms-europe>.

General Aviation

General Aviation means all civil aviation operations other than commercial air transport or an aerial work operation.

Mid-air collision

A mid-air collision (MAC) is an accident where two aircraft come into contact with each other while both are in flight.

Local Runway Safety Team

Local Runway Safety Teams (LRSTs) are aerodrome-centric, multi-organizational groups of experts providing practical suggestions to resolve runway incursion causal factors.

Loss of Control In-Flight

Loss of control in-flight (LOC-I) usually occurs because the aircraft enters a flight regime which is outside its normal envelope, usually, but not always at a high rate, thereby introducing an element of surprise for the flight crew involved.

Occurrences

Any safety-related event which endangers or which, if not corrected or addressed, could endanger an aircraft, its occupants or any other person and includes an accident or serious incident.

Runway excursion

According to the definition provided by ICAO, a runway excursion (RE) is a veer or overrun off the runway surface. Runway excursion events can happen during take-off or landing.

Runway incursion

A runway Incursion (RI) is defined as 'any occurrence at an aerodrome involving the incorrect presence of an aircraft vehicle or person on the protected area of a surface designated for the landing and take-off aircraft'. (ICAO Doc 4444 - PANS-ATM)

Safety management system

A safety management system (SMS) is a systematic approach to manage safety, including the necessary organizational structures, accountabilities, policies and procedures (ICAO). ICAO through various Annexes to the Chicago Convention has incorporated requirements for service providers in various domains of aviation to have an SMS.

State Safety Program

According to the ICAO definition, a State Safety Program (SSP) it is an integrated set of regulations and activities aimed at improving safety. ICAO requires contracting States to implement SSPs.

Appendix B

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Appendix C: BPAS Status Report

This document provides the individual details concerning each of the BPAS action items. It includes the latest status of the implementation of each action [until February 2022](#).

Appendix D: Overview of new actions, renumbered actions, deleted actions and completed actions

New:

Action number	Action title
SA01.10	Modernize the BCAA structure and organization chart in line with the new strategy
SA01.11	Review the BCAA funding mechanisms
SA01.12	Improve the civil/ military cooperation in ATM
SA02.07	PPL/LAPL learning objectives in the Meteorological Information part of the PPL/LAPL syllabus
SA02.08	Foster a common understanding and oversight of Human Factors
SA02.09	Safety promotion to support ramp-up / safe return to operations
SA02.13	Safety and security reporting
OA02.07 & OA02.09	Providing a digital platform to exchange data and best practices on runway safety between the various stakeholders
OA02.08	Analyze the GAPPRE self-analysis from stakeholders and check status of GAPPRE recommendations during BCAA oversight activities
OA03.02 & OA03.04	Airspace complexity and traffic congestion
OA04.02	Develop an ASIL on "Guidelines for VFR procedures at uncontrolled aerodromes"
OA05.01	Develop safety promotion material on the possible 5G problem on altitude meters
OA05.02	Coordinate the roll-out of 5G in Belgium with the Belgian Institute for Postal Services and Telecommunications (BIPT) and other relevant stakeholders where appropriate
OA07.03	Implement a "Wildlife Hazard Management System" as part of the aerodrome operators management system
EA01.01	Promote the EASA Environmental Label Program among Belgian airlines and supporting them in its implementation
EA01.02	Developing a long-term vision for the development of civil aviation in Belgium
EA01.03	Proactively contributing to the development of a noise reduction policy in Brussels
EA02.01	Preparing and promoting the use of sustainable aviation fuel at the regulatory level
EA02.02	Preparing and promoting the renewal of the fuel supply contract for Brussels Airport

Renumbered:

New number	Action title	Reason
SA02.10 (former SA01.06)	Start a promotion campaign to further improve the reporting culture of occurrences in civil aviation	Action is related to safety promotion
OA06.01 (former OA05.01)	Approval of the transport of dangerous goods activities for ground handling companies	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 5 has been renumbered as “Chapter 6 – Aircraft environment – smoke/fumes & dangerous goods”
OA06.02 (former OA05.02)	Systematic auditing of operators’ outstations in the field of the transport of dangerous goods	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 5 has been renumbered as “Chapter 6 – Aircraft environment – smoke/fumes & dangerous goods”
OA06.03 (former OA05.03)	Contribute to the development of safety promotion material covering transportation of lithium batteries on board an aircraft	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 5 has been renumbered as “Chapter 6 – Aircraft environment – smoke/fumes & dangerous goods”
OA06.04 (former OA05.04)	Approval of training activities on the transport of dangerous goods	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 5 has been renumbered as “Chapter 6 – Aircraft environment – smoke/fumes & dangerous goods”
OA07.01 (former OA06.01)	Periodic exchange of experiences on specific technical issues in the field of wildlife management through the Belgian Aviation Wildlife Hazard Committee (BAWiHaC)	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 6 has been renumbered as “Chapter 7 – Wildlife strikes”
OA07.02 (former OA06.02)	Consult stakeholders on the reporting of data related to wildlife strikes	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 6 has been renumbered as “Chapter 7 – Wildlife strikes”
OA08.01 (former OA07.01)	Communicate about the implementation of the new EU rules and promote safe operations of drones to the public and the UAS business	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 7 has been renumbered as “Chapter 8 – Unmanned Aircraft Systems - drones”
OA08.02 (former OA07.02)	Further improve the collaboration between all stakeholders for handling infringements with UAS	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 7 has been renumbered as “Chapter 8 – Unmanned Aircraft Systems - drones”

OA08.03 (former OA07.03)	Implement the EU common rules on drones	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 7 has been renumbered as “Chapter 8 – Unmanned Aircraft Systems - drones”
OA09.01 (former OA08.01)	Further improve the collaboration between all stakeholders for handling infringements with disruptive passengers	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 8 has been renumbered as “Chapter 9 – Disruptive passengers”
OA10.01 (former OA09.01)	Participate in helicopter safety events and workshops with helicopter industry representatives and license holders every two years	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 9 has been renumbered as “Chapter 10 – Helicopters”
	Chapter 11 – General Aviation	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 10 has been renumbered as “Chapter 11 – General Aviation”
OA12.01 (former OA11.01)	Setting up a dialogue with the Belgian aircraft operators on FDM programs	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 11 has been renumbered as “Chapter 12 – Miscellaneous”
OA12.02 (former OA11.02)	Oversight capabilities /focus area: flight time specification schemes	As a result of a new “Chapter 5 – Terrain Collision”, former Chapter 11 has been renumbered as “Chapter 12 – Miscellaneous”

Deleted:

Action number	Action title	Reason
OA03.02	Develop an “airspace charter” related to the civil/military cooperation in ATM	As this operational action is more applicable to systemic safety, the operational action is removed here and is resumed under the new SA01.12

Closed:

Action number	Action title
SA01.07	Manage the BCAA internal risks related to the COVID-19 pandemic
SA01.08	Improve the system to plan the availability of personnel
OA02.06	Develop safety promotion material on the Global Reporting Format (GRF) by the ANSP and the BCAA

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