

TRAFICOM

Finnish Transport and Communications Agency

Finnish Aviation Safety Review 2022



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1 Safety of Commercial Air Transport in 2022

As a whole, the year 2022 was once again safe in Finnish commercial air transport.

No accidents occurred. Roughly the same number of serious incidents occurred as in the previous years. Most of them were again caused by [near misses](#) with drones in the air.

The traffic volume in Finnish commercial air transport was approximately double the average for the coronavirus pandemic years 2020 and 2021. Compared to 2019, however, the numbers were still roughly 20% lower. The volumes of all commercial air transport (Finnish and foreign) at Finnish airports were nearly 80% higher than on average in 2020–2021, but around 30% lower than in 2019.

The war in Ukraine caused significant changes to flight routes on account of the closure of Russian airspace. Disturbances in aircraft satellite navigation systems were observed in the vicinity of conflict areas in particular. The European Union Aviation Safety Agency EASA published a related [bulletin](#) in March. A NOTAM bulletin warning pilots of GPS outages was also published in Finland in early March and cancelled on 15 March 2022.

In 2020, European aviation safety officials began to assess and mitigate safety threats caused by the coronavirus pandemic. In 2021, attention moved to taking account of the threats due to restarting traffic, and this work was continued in 2022. Most restrictions were given up during the year. Based on this work, a large amount of various kinds of material was produced to support risk management in aviation. Read the [coronavirus bulletins](#) published by Traficom and the EASA [COVID-19 web pages](#).

During the year, there was an increase in reports of inappropriately behaving passengers at airports or on board aircraft. Common event types included inebriation and its secondary effects. This trend was an alarming one and observed worldwide. The European Union Aviation Safety Agency EASA published the [Ready to Fly Campaign](#) in July 2022 to decrease the number of disruptive and unruly passengers.

Globally, in 2022 in commercial air transport (aircraft that are allowed to transport 14 passengers or more) there were 12 fatal accidents in which 225 lives were lost. The numbers did not differ significantly from the 5-year average (11 accidents and 257 fatalities). The most serious accident took place in March, when a Boeing 737 of a Chinese airline crashed into a mountain and 132 lives were lost.

Source: [Aviation Safety Network](#)

1.1 Accidents 2022

In 2022, no accidents occurred in Finnish commercial air transport.

In February, an accident occurred to a Swedish air ambulance helicopter in Åland, and the Safety Investigation Authority, Finland (SIA) initiated an **investigation**. In December 2022, SIA published an **investigation report** of an accident that occurred in December 2021 to a foreign corporate aircraft at Kemi-Tornio Airport. In the accident in question, the aircraft moved forward inadvertently during a warm-up run and hit a lamp post at the edge of the apron. The aircraft could not be stopped due to a malfunctioning hydraulic brake system.

Accidents in Finnish commercial air transport are extremely rare in general; however, an accident occurred in 2020 in which a member of the cabin crew fell down from the open door of the aircraft and was injured. SIA conducted the investigation **L2020-01 into the incident. (in Finnish)**

Before this, an accident involving Finnish aircraft in scheduled traffic occurred in 2005, and the previous accident in other commercial air transport (sightseeing flight) occurred in October 2016.

Occurrences are made proportional to the flight hour data collected e.g. from Finnish aircraft owners. The **flight hour statistics** for 2022 will be compiled during spring 2023.

Based on an initial estimate, the flight hours in commercial air transport approximately doubled in 2022 compared to 2021, i.e. to approx. 240,000 flight hours. As noted, no accidents occurred in 2022, but the average for 2013–2021 was 0.2 accidents per 100,000 flight hours.

Browse accident statistics starting from 2005 using an interactive and updating report **here (in Finnish)**.

List of accidents in 2022 (incl. foreign aircraft in Finland)

1. February 2022: After landing, a foreign air ambulance helicopter slid into a nearby building in Åland.

1.2 Serious incidents 2022

In 2022, there were five serious incidents in Finnish commercial air transport. The number was slightly below the average for 2013–2021 (6.0).

All of the serious incidents were near misses in the air.

Four of the incidents involved drones and one involved a small aircraft. Three of the incidents took place abroad and two at Helsinki Airport. Traficom's possibilities of influencing incidents that take place abroad are limited, but the local authorities are always notified about them so that they can take the necessary measures. In recent years, most of the serious incidents have been caused by near misses in the air between airliners and drones. In this regard, last year was comparable to the previous years. Read more about the development of near misses **here (in Finnish)**.

Foreign commercial air transport was involved in one serious incident in Finland last year, when one of the two pilots became incapacitated during the flight.

In 2022, SIA published two investigations into serious incidents that occurred to foreign aircraft in Finland in 2021. One covered the take-off of a British passenger aircraft with the wrong power setting in Kuusamo (**investigation (in Finnish)** carried out by the Air Accidents Investigation Branch (AAIB) of the United Kingdom with SIA as an authorised representative) and the other the **engine malfunction** of a Swedish aircraft during take-off in Helsinki.

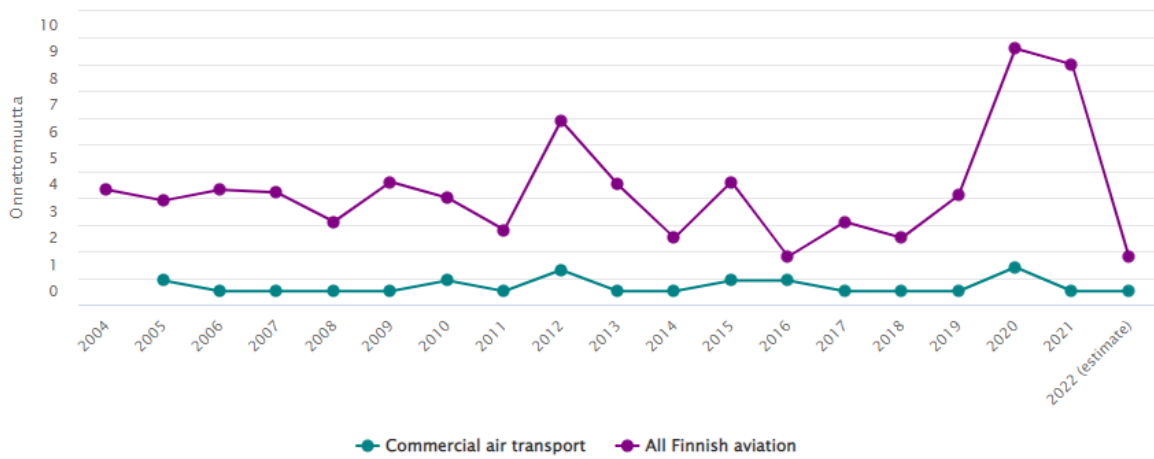
The **flight hour statistics** for 2022 will be compiled during spring 2023. Based on an initial estimate, the flight hours in commercial air transport approximately doubled in 2022 compared to 2021, i.e. to approx. 240,000 flight hours. According to the estimate, approx. 2.1 serious incidents would have occurred per 100,000 flight hours. The average for 2013–2021 was approx. 2.4 serious incidents, meaning that 2022 appears to be roughly at the same level as the previous years.

Browse serious incidents from 2005 using an interactive and updating report **here (in Finnish)**.

List of serious incidents in 2022

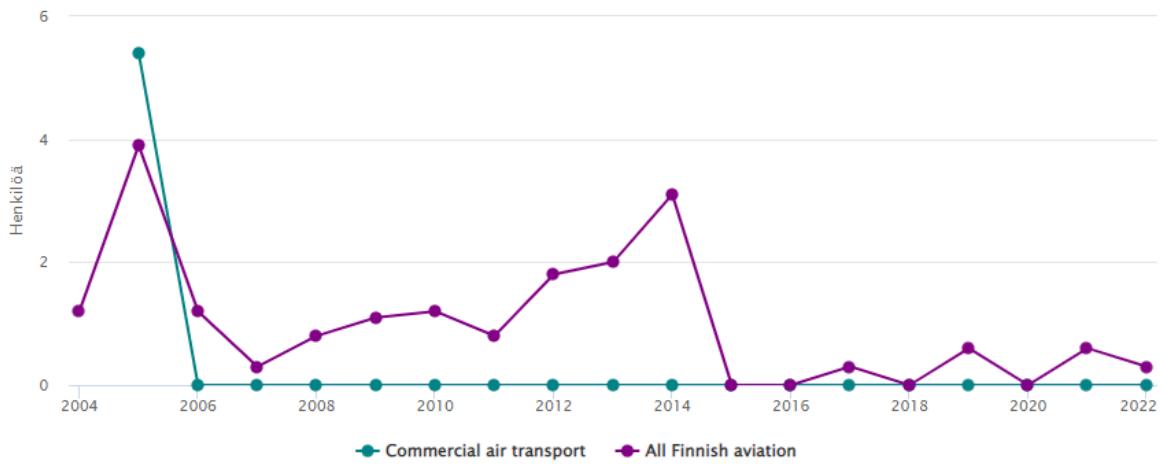
1. March 2022: A Finnish airliner and a foreign small aircraft passed each other closely during the airliner's approach in Germany.
2. May 2022: A near miss abroad between a Finnish airliner and a drone.
3. May 2022: A near miss at Helsinki Airport between a Finnish airliner and a drone.
4. May 2022: A near miss at Helsinki Airport between a Finnish airliner and a drone. The drone was flown above the runway threshold.
5. July 2022: A near miss abroad between an airliner and a drone.

Accidents in Commercial Air Transport per 100 000 flight hours



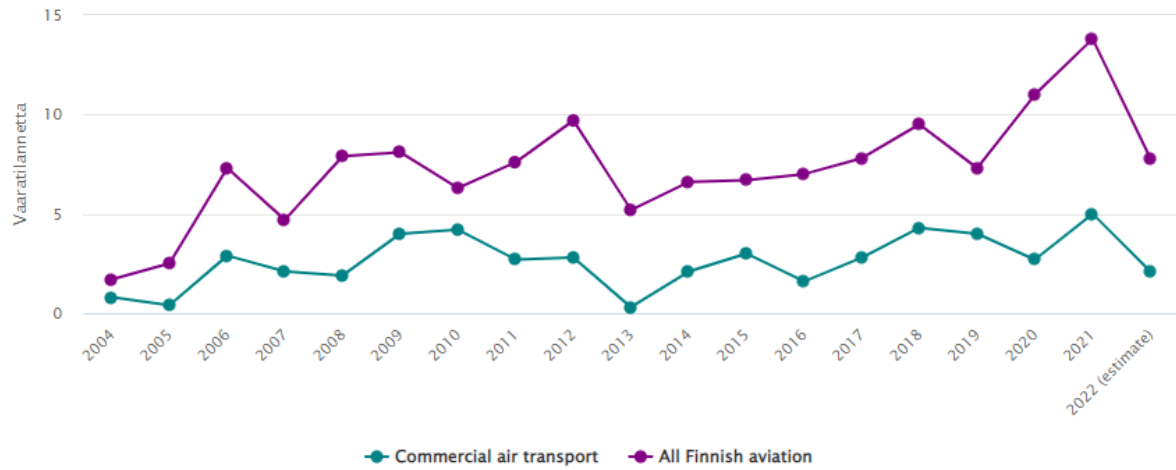
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Fatalities in commercial air transport per 100 000 flight hours



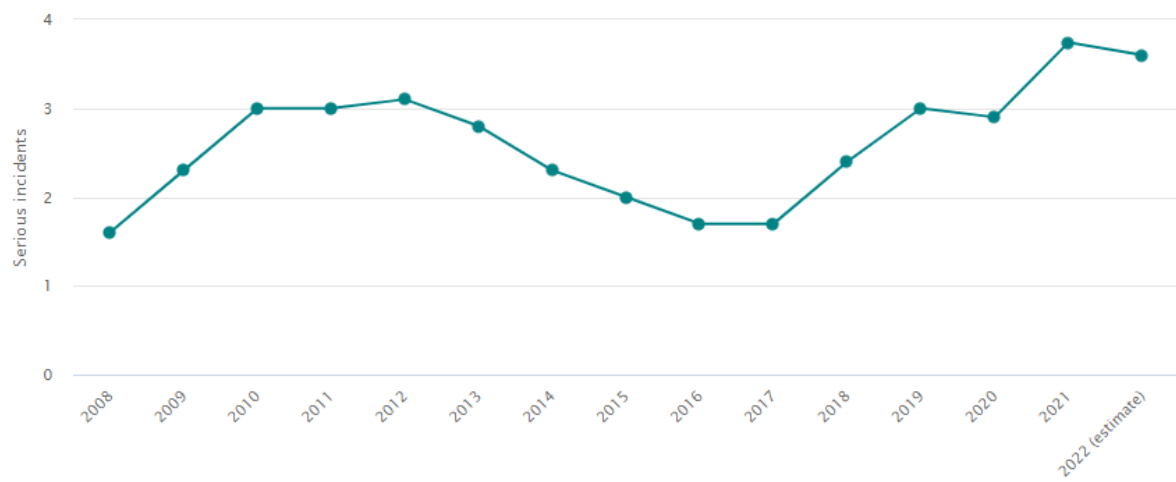
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Serious incidents in Commercial air transport per 100 000 flight hours



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Serious incidents in commercial air transport per 100 000 flight hours, 5 year average



2 Safety of general and recreational aviation in 2022

There were four accidents in Finnish general and recreational aviation, which is less than half of the average for 2013–2021.

One of the accidents led to the death of the pilot. 2021 also saw one fatal accident.

There were 18 serious incidents, which is slightly above the average of previous years. Overall, the safety situation of general and recreational aviation has developed into a positive direction in recent years.

According to tier 2 indicators (main causes of accidents), there were slightly more **CFIT incidents** (in Finnish) and collisions while taxiing (**GCOL** (in Finnish)) than in previous years. You can read more about these incidents in the relevant sections. On a positive note, the number of **near misses in the air** (in Finnish) was lower than average. Likewise, the number of **losses of aircraft control in flight** (in Finnish) was only around a third of the average for 2013–2021.

The number of general and recreational aviation operations (incl. aerial work) at Finnish airports in 2022 was a little less than 10% lower than in 2021 and approx. 35% lower than in 2019.

A large share of general and recreational aviation takes place on uncontrolled aerodromes, and more accurate information on this will be available in spring 2023 as the annual **flight time statistics** on aircraft are compiled. Based on an initial estimate, the numbers of hours flown do not differ significantly from the previous year.

Please note that this review does not cover the situation of hang gliding and paragliding or skydiving.

2.1 Accidents 2022

There were four accidents in 2022, which is less than half of the average for 2013–2021 (9.6). According to this assessment of the number of accidents, last year was exceptionally good. However, one person unfortunately died in one of the accidents. More on the accident in question below.

Of the accidents last year, three occurred in general aviation and one in recreational aviation. The majority occurred during landing. Even in previous years, accidents have most often occurred at the landing stage.

In recreational aviation (ultralight aircraft, gliders), the number of accidents in 2022 (1) was exceptionally low, as there were on average 6.3 accidents in recreational aviation each year in 2013–2021. The number of accidents in recreational aviation has been clearly declining in recent years.

In the accident that took place last year, a glider hit the trees after an off-runway landing. The aircraft became unrepairable, but the pilot survived without any major injury.

In general aviation, the number of accidents (3) was more or less on the level of the average for 2013–2021 (3.2). One of the accidents led to a fatality. General aviation has not experienced a similar decline in the number of accidents than recreational aviation.

There were no connecting factors to last year's accidents. In one, the landing gear hit a pile of soil at the end of the runway after take-off; in the other, the aircraft ran out of fuel mid-flight and hit a power line in connection with an emergency

landing. **The investigation** into the third accident that led to a fatality at Tikkakoski in April is still underway.

On the whole, the safety of general and recreational aviation has developed in a more positive direction in the past ten years, especially when assessing the number of fatal accidents. One turning point was the accident involving a skydiving plane in 2014, in which eight people died. After the accident, an extensive **project for developing the safety of recreational aviation (in Finnish)** was started; different kinds of tools and support functions were developed in the project to ensure that things like the safety management of flying clubs and the attitudes of aviators would develop in a more safety-oriented direction.

Even though the situation as a whole has improved compared to the previous years, it is good to keep in mind that being satisfied with the safety level reached is not enough; safety must be created again every day. Furthermore, in general and recreational aviation, the difference between a serious incident, an accident and a fatal accident is often paper thin. For instance, in 2019 and 2020 there were clearly more accidents than on average, while there were fewer serious incidents, and people survived accidents without any fatalities. In contrast, the number of accidents in 2021 and 2022 was clearly below the average, while the number of serious incidents was above it. Even so, the accidents led to one fatality in both years.

Accidents and serious incidents are annually made proportional to the flight hour data collected from Finnish aircraft owners. The **flight hour statistics** for 2022 will be compiled during spring 2023.

According to a preliminary estimate, the number of flight hours in general and recreational aviation does not differ significantly from 2021, when approx. 45,000 hours were flown in general aviation and approx. 22,000 hours in recreational aviation.

Therefore, when made proportional to the estimated flight hours, approx. 6.7 accidents per 100,000 flight hours occurred in general aviation and approx. 4.4 per 100,000 flight hours in recreational aviation in 2022.

The average for 2013–2021 was 8.9 accidents per 100,000 hours flown in general aviation and 25.6 accidents per 100,000 hours flown in recreational aviation. In other words, according to the preliminary estimate, last year was better than average, in recreational aviation in particular.

2.1.1 Fatalities

There was one fatality in aviation accidents in 2022, when an experimental aircraft crash-landed at Tikkakoski and the pilot perished. An SIA **investigation** into the accident is underway.

The average for 2013–2021 was approx. 1.8 fatal accidents and approx. 2.7 lives lost in accidents per year.

The previous fatal accident occurred in Hyvinkää in September 2021. SIA published their **investigation** into this accident in September 2022. The flight was a refresher training flight with the instructor occupying the rear seat and the pilot receiving instruction occupying the front seat. According to the investigation report, the 78-year-old pilot receiving instruction suffered a bout of illness that led to sudden incapacitation during a simulated forced landing. Control of the aircraft was lost, and it impacted the ground before the runway. The pilot receiving instruction was fatally injured while the instructor sustained serious injuries.

The SIA investigation issued three recommendations. One was issued to the Finnish Transport and Communications Agency Traficom and focused on the fact that the rear seat of the accident aircraft had no instruments or rudder pedals and that the aircraft was not suitable for a refresher training flight. A specific approval for the training use of amateur-built and experimental aircraft must be obtained from the aviation authority. Therefore, on 13 December 2022, Traficom published an **amendment (in Finnish)** to the aviation regulation OPS M2-11 taking into account the SIA recommendation.

The other two recommendations were aimed at the European Aviation Safety Agency and ICAO, focusing on the number of elderly pilots and assessing their health from an aeromedical point of view.

Calculated on the basis of the initial estimate of the number of hours flown, there were approx. 1.5 fatal accidents in general and recreational aviation per 100,000 flight hours last year. Likewise, there were approx. 1.5 fatalities per 100,000 flight hours.

The average for 2013–2021 was approx. 2.2 fatal accidents and 3.9 fatalities per 100,000 flight hours.

Browse accident statistics starting from 2005 using an interactive and updating report **here**. (in Finnish)

List of accidents in 2022 (incl. foreign aircraft in Finland)

1. April 2022: The experimental aircraft Monnet Sonerai I crash-landed at Tikkakoski, and the pilot died. Investigation by SIA.
2. May 2022: The landing gear of a general aviation aircraft hit a pile of soil at the end of the runway during take-off at a light aerodrome. The landing gear sustained damage, but the aircraft was able to land at another aerodrome.
3. May 2022: An aircraft on a forest fire patrol flight ran out of fuel mid-flight and its engine stopped. The pilot carried out an emergency landing on a nearby field, but hit a power line in connection with the landing. The people on board the aircraft were uninjured, but the aircraft sustained severe damage.
4. August 2022: A glider hit the trees after an off-runway landing. The aircraft became unrepairable, but the pilot survived with a short visit to the hospital.

2.2 Serious incidents 2022

There were 18 serious incidents in Finnish general and recreational aviation in 2022, which is above the average for 2013–2021 (15.7). Of the incidents, nine occurred in general aviation and nine in recreational aviation.

Furthermore, one serious incident occurred to a foreign general aviation helicopter.

In recreational aviation, the number of serious incidents (9) was above the average for 2013–2021 (6.9). Most of them occurred in May–September at uncontrolled aerodromes in connection with landing or take-off, meaning that 2022 was very typical in this respect compared to previous years. The types of incidents varied, but the most common ones involved engine failures and near misses in the air.

In general aviation, the number of serious incidents (9) was more or less on the level of the average for 2013–2021 (9.8). Most of the incidents took place in April–August in both controlled and uncontrolled aerodromes. Most occurred in

connection with landing. The types of incidents varied greatly from technical malfunctions to runway excursions and the loss of a door mid-flight. The most common type was the engine malfunctioning or shutting down for various reasons. Typically, it was a matter of fuel supply, either fuel running out, selecting the wrong fuel tank or some other fault in fuel supply.

Browse statistics on serious incidents starting from 2005 using an interactive and updating report [here](#) (in Finnish).

Accidents and serious incidents are annually made proportional to the flight hour data collected from Finnish aircraft owners. The **flight hour statistics** for 2022 will be compiled during spring 2023.

According to a preliminary estimate, the number of flight hours in general and recreational aviation does not differ significantly from 2021, when approx. 45,000 hours were flown in general aviation and approx. 22,000 hours in recreational aviation.

When made proportional to the estimated flight hours, approx. 22 serious incidents per 100,000 flight hours occurred in general aviation and approx. 40 per 100,000 flight hours in recreational aviation in 2022.

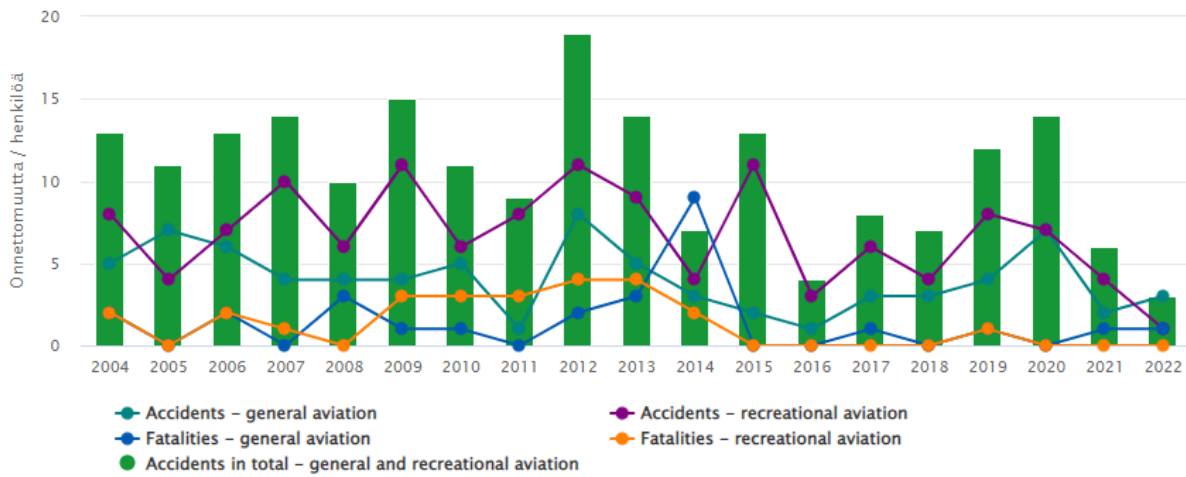
The average for 2013–2021 was around 25.7 serious incidents in general aviation and 28.8 serious incidents in recreational aviation per 100,000 hours flown. So based on a preliminary assessment, last year was slightly better than average in general aviation, but clearly worse than average in recreational aviation.

List of serious incidents in 2022 (incl. foreign aircraft in Finland)

1. January 2022: An ultralight aircraft made an emergency landing on a field after its engine stopped.
2. April 2022: In connection with a touch-and-go, a general aviation trainer aircraft slid off the runway into grass. A contributing factor was a gust of wind that made the aircraft swing to the left.
3. April 2022: Engine failure of an experimental aircraft after take-off, loss of RPM and oil pressure. Successful landing on a frozen lake.
4. May 2022: During approach, the wing of an ultralight aircraft hit the tops of trees before the runway. A contributing factor was gusty winds increasing the descent of the aircraft before the runway area began. The wing sustained minor damage.
5. May 2022: A skydiver landed directly in front of a landing general aviation aircraft that performed a go-around to avoid hitting the skydiver.
6. May 2022: An ultralight aircraft was landing on a field, but the touchdown happened already before the planned threshold. The propeller and landing gear of the aircraft sustained damage. A contributing factor was the pilot misjudging the gliding properties of the aircraft when in ground effect.
7. May 2022: The engine of a skydiving aircraft turned off while the aircraft was ascending to the exit altitude. The skydivers were dropped off, and a moment later, the pilot discovered the fuel valve had turned to the empty tank. The engine turned on once the valve was turned, and the aircraft landed normally.
8. May 2022: The aerodrome traffic circuit of a general aviation aircraft was too short, and the aircraft entered the final approach at a higher altitude and faster speed than normally. The landing was expedited, but touchdown took place halfway down the runway. The pilot decided to perform a go-around, the rotation of which took place quite near the end of the runway. The aircraft hit a willow thicket at the end of the runway, but the pilot was able to maintain control of the aircraft and land successfully.
9. June 2022: The canopy locking of an experimental aircraft broke down in the downwind leg. The pilot was unable to close the canopy and began to land immediately. The landing was successful, but the manoeuvrability of the aircraft on

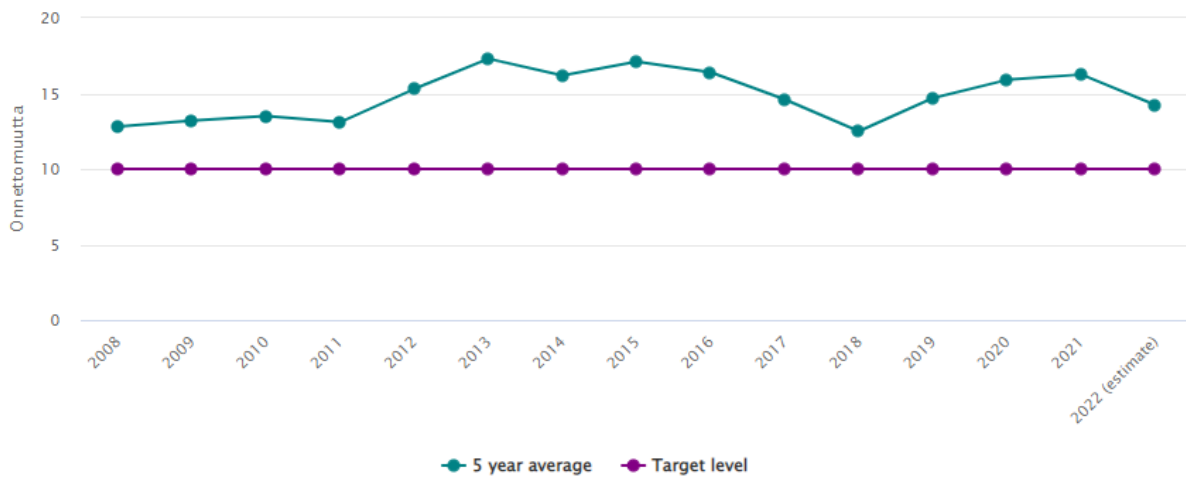
- the ground was diminished and it drifted off the runway, damaging the propeller and landing gear.
10. June 2022: A foreign general aviation helicopter flew close to a crane during approach to an uncontrolled aerodrome.
 11. June 2022: The engine of a general aviation aircraft towing a glider malfunctioned, and due to a full water ballast load, the towed glider descended at high vertical speed on the runway and was damaged. The towing aircraft was able to land on the remaining section of the runway without damage.
 12. July 2022: An ultralight aircraft was forced to make an emergency landing on a field.
 13. July 2022: The engine of an experimental aircraft turned off in the aerodrome traffic circuit, and the aircraft did not glide to the aerodrome but stalled to the ground from a height of a couple of metres. The pilot survived without any injuries; the aircraft was damaged. The engine was unable to get fuel for some reason, although there was some left in the tank of one of the wings.
 14. July 2022: The wing and body of an experimental aircraft sustained breaks in connection with landing.
 15. August 2022: A near miss between an ultralight aircraft and drone during the final approach.
 16. August 2022: The door of a general aviation trainer aircraft came off en route. The pilot managed to land the plane without other damage. Investigation by SIA.
 17. September 2022: A near miss between two ultralight aircraft in the traffic circuit of an uncontrolled aerodrome.
 18. September 2022: The engine of an experimental aircraft was unable to get fuel and stopped. The pilot managed to make an emergency landing on a mire. According to the pilot's estimate, the engine drew air during the final approach.
 19. September 2022: In connection with a hard landing, the nose wheel of an ultralight aircraft came off and the aircraft landed on the nose landing gear.

Accidents and fatalities

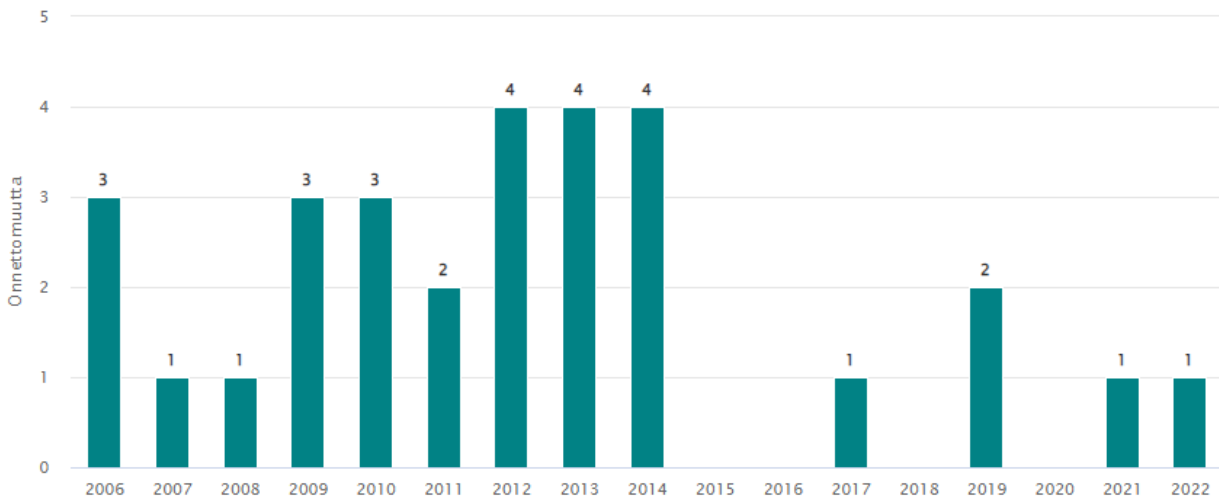


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Accidents per 100 000 flight hours, 5 year average



Fatal accidents in general and recreational aviation

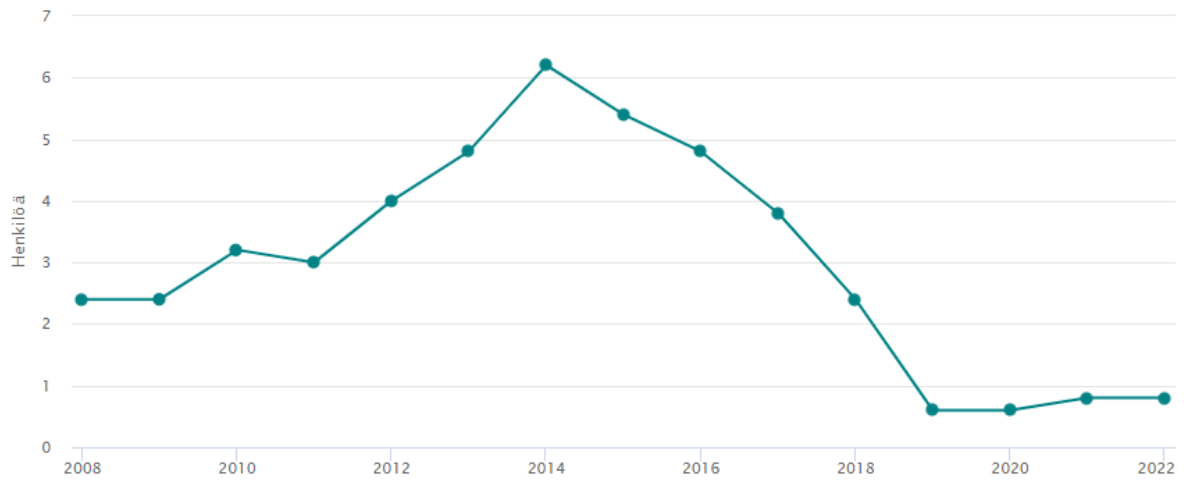


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Fatal accidents in general and recreational aviation per 100 000 flight hours, 5 year average



Fatalities in general and recreational aviation, 5 year average

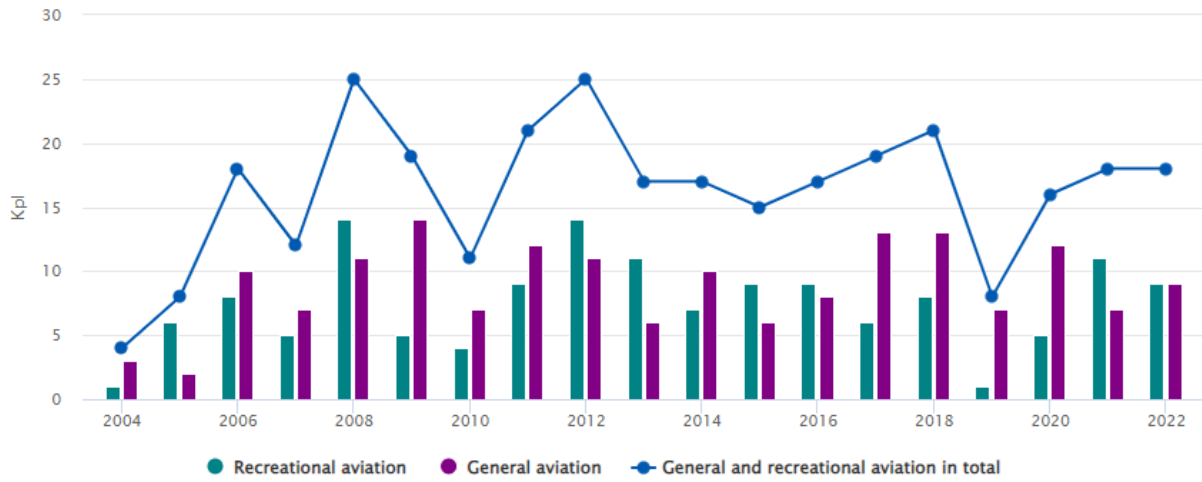


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Fatalities in general and recreational aviation per 100 000 flight hours, 5 year average

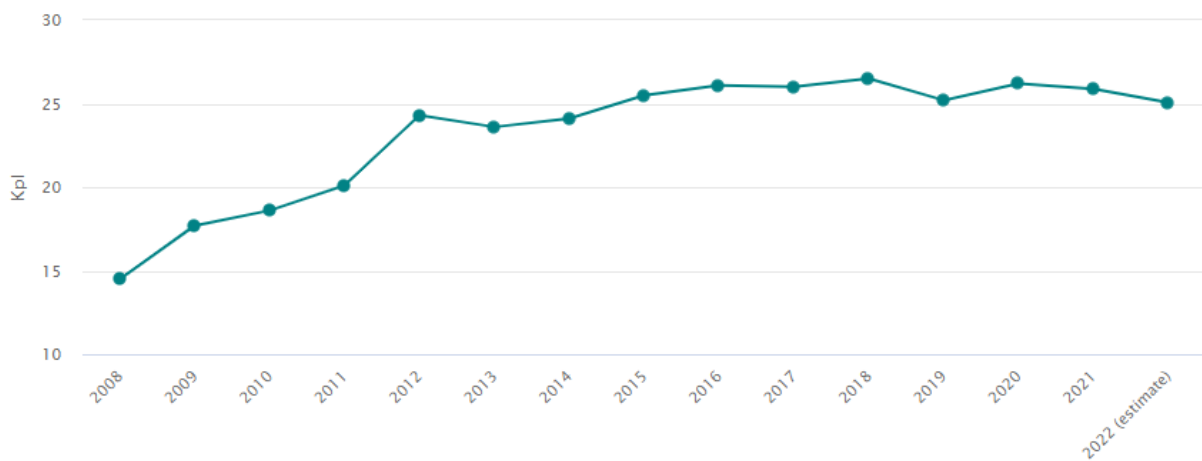


Serious incidents in general and recreational aviation



[Save the graph data as a CSV file](#)

Serious incidents in general and recreational aviation per 100 000 flight hours, 5 year average



3 Safety performance of other aviation domains in 2022

3.1 Air navigation services

In 2022, the number of separation minima infringements with Finnish ATC contribution was 31.

The number was slightly below the average for 2013–2021 (35.4). In relation to the number of operations, however, the number of infringements of separation minima at airports was slightly higher than the average for 2013–2021. The separation minima infringements mostly took place at Helsinki Airport.

Of the incidents, 16 were radar separation minima infringements between aircraft, eight were wake turbulence separation minima infringements and the rest were mainly infringements between aircraft and different types of controlled airspace. None of the incidents caused significant risk to air traffic. The overall situation of separation minima infringements remained fairly stable compared to the previous years.

The number of runway incursions with Finnish ATC contribution was 4.

The number was below the average for 2013–2021 (4.8) and at the level of the average in relation to the number of operations at airports. The incidents did not cause significant risk.

In recent years, runway incursions with ATC contribution have been fairly rare.

3.2 Ground vehicles

In 2022, the number of runway incursions caused by ground vehicles at airports was 22.

The number more than doubled from the previous year (8) and was also above the average for 2013–2021 (13.2).

When made proportional to the number of operations at airports, the number was also clearly higher than the average for 2013–2021. The most runway incursions occurred at Helsinki Airport and Rovaniemi.

In other words, the positive downward trend of the previous years in the number of runway incursions caused by ground vehicles turned into an incline last year. The increase was caused by several runway incursions that occurred in January and December. Read more about the situation [here \(in Finnish\)](#).

In addition to the cases at airports, two runway incursions caused by vehicles took place at uncontrolled aerodromes in Nummela and Lahti-Vesivehmaa.

3.3 Ground handling

Ground handling services were not involved in accidents or serious incidents during the year.

Ground handling activities caused one GCOL case, when the driver of a tow tractor forgot to move the passenger boarding bridge away from the aircraft before towing. As a result, the bridge was dragged by the open door of the aircraft.

Incidents related to ground handling services typically involve reports of different kinds of dents caused by ground handling equipment to aircraft, errors in weight calculations or security incidents in connection with loading.

Last year, it was observed that more prohibited or incorrectly packed items (such

as battery power banks and equipment for making a fire) were found from passengers than in previous years.

3.4 Drones

Drone activities started to increase in 2015, which led to several airspace infringements and thereby also near-miss situations between a drone and manned aircraft in the following years. Some of them caused a serious incident, but collisions were nevertheless avoided.

The situation has improved and somewhat stabilised in the last couple of years.

In 2022 there were seven near misses caused by a drone in Finland while the average for 2014–2021 was 8.1. Out of these, three caused a serious incident, while the average for 2014–2021 was 2.0.

Abroad, 14 near misses caused by a drone occurred with a Finnish aircraft as the other party. The number was more than double the average for 2013–2021 (5.1). The cases did not occur in any particular country but varied across Europe.

Most near misses in Finland and abroad involved a drone being flown clearly in the wrong place very near the runway while other aircraft were entering it. Complete disregard or lack of understanding of aviation safety was evident in these cases.

The situation will hopefully be improved by the Europe-wide regulation on drone activities that entered into force at the start of 2021, whereby drone pilots are subject e.g. to a registration obligation and training requirements.

In Finland, pilots can use the Aviamaps map application that makes it easy to check the airspace restrictions at the flight location.

More information on regulations and drone activities can be found on the www.droneinfo.fi/en pages maintained by Traficom.

Last year, many professional drone operators were commendably active in reporting incidents that have occurred during their own activities, such as situations involving loss of control when the control connection has broken or when the device has collided with an obstacle, for instance.

4 Traficom's work to improve safety in 2022

In 2022, the focus of the Finnish aviation safety management measures was on identifying the changes and threats to operations caused by the war in Ukraine and taking them into account in oversight and safety promotion.

In addition to oversight, Traficom has in recent years invested strongly in aviation cyber security, e.g. by producing a strategic situational picture of aviation cyber security in cooperation with key aviation operators. Furthermore, Traficom has encouraged operators to carry out a self-evaluation of their cyber security management performance with the help of the Kybermittari service developed by the National Cyber Security Centre Finland and published and updated its **aviation cyber security website** (in Finnish).

The significance of this work was emphasised as the cyber operating environment changed along with the escalating situation in Ukraine.

In 2020–2021, the management of threats caused by the coronavirus pandemic played a central role. Traficom continued this work also in 2022, but as the restrictions related to the pandemic eased in the spring, the operations began to return to normal. The focus increasingly shifted to ensuring that returning to normal operations happened safely, e.g. by means of reliable change and fatigue management.

National risk management work (see: FASP Chapter 2.6) continued in all aviation domains according to a model that has already been used for years. Joint risk workshops were arranged together with operators from different aviation domains. The national aviation risk management process and tools were made more efficient during the year.

Safety promotion (see FASP, chapter 4.2) remained an important part of the measures and was done through offering necessary guideline and safety communication material to officials and aviation operators.

In January, Traficom organised a **webinar on safety culture as part of SMS work** (in Finnish) for all aviation operators, aiming to provide operators with tools and perspectives for developing a positive safety culture. The domain-specific risk workshops arranged during the year focused on a practical approach to the themes of safety culture together with aviation operators, while taking into account the special characteristics of each domain. The extensive **safety culture website** (in Finnish) provides further information.

Traficom published five **safety bulletins** (in Finnish) during the year on themes such as winter operation both in commercial air transport as well as general and recreational aviation. The two winter operation bulletins were also translated into English and communicated widely to foreign operators.

The annual **Lentoon! seminar** (in Finnish) for operators in general and recreational aviation was arranged as a remote event in cooperation with Fintraffic ANS (responsible for the arrangements), Finavia, the Finnish Meteorological Institute, Finnish Aeronautical Association (SIL) and AOPA Finland (SMLL).

Traficom also continued as usual to implement the other measures of the **Finnish Plan for Aviation Safety 2022-2026 (PDF)** (External link) published in April.

You can find more information on aviation safety, such as links to the safety bulletins published by Traficom and other sources of safety information, at **Traficom's website on aviation safety information**.

5 Reporting in 2022

Open reporting of occurrences and fair processing of the reports has always been seen as one of the mainstays of aviation safety. When the threshold for reporting is low, a more accurate picture of the development needs in the operations can be obtained, and safety can be improved more effectively. A large number of reports can be regarded as a sign of a good safety culture. The Just Culture principles are followed in Finland when processing Air Safety Reports. For a more detailed description of how the reports are processed, see Chapter 2.5 of the **Finnish Aviation Safety Programme**.

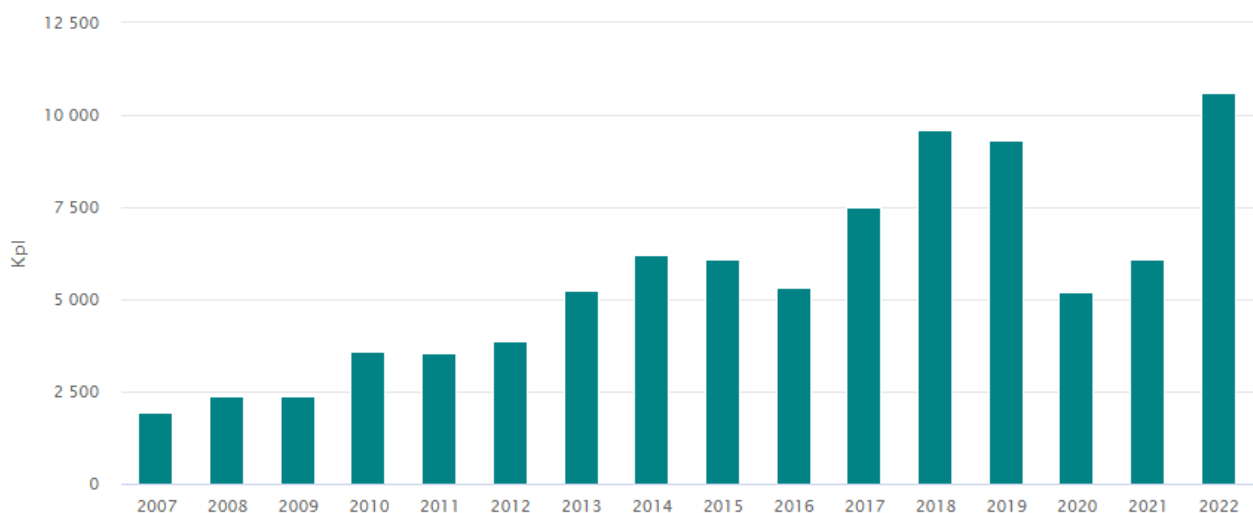
In 2022, approximately 10,600 Air Safety Reports were sent to Traficom. The number was the highest ever. The average for 2013–2021 was approx. 6,800 reports per year, and in 2019 before the coronavirus pandemic there were approx. 9,500 reports received.

The level of reporting activity can be estimated by making the number of reports proportional to the volume of aviation activity. At the moment, only the operation volumes at airports are available for last year, and even if those figures do not always provide a complete picture of all aviation activities, they can nevertheless be used to estimate the development of the situation on a general level. In fact, based on this assessment it can be stated that reporting activity has improved even during the coronavirus pandemic. Last year, approx. 3,800 reports per 100,000 operations at airports were received, while in 2019 the same figure was approx. 2,200 reports.

Based on information received from the European Union Aviation Safety Agency EASA, in 2021 Finland had the best level of reporting activity in all of Europe when the numbers of reports were made proportional to the number of IFR operations, i.e. flights carried out in accordance with the instrument flight rules (IFR operation numbers were the only available proportional data based on which the reporting activity of different countries can be indicatively compared).

At the same time, the overall aviation safety situation has remained on a good level. So it seems reasonable to state that the reporting activity of Finnish aviators and organisations has further developed into a positive direction in the past couple of years.

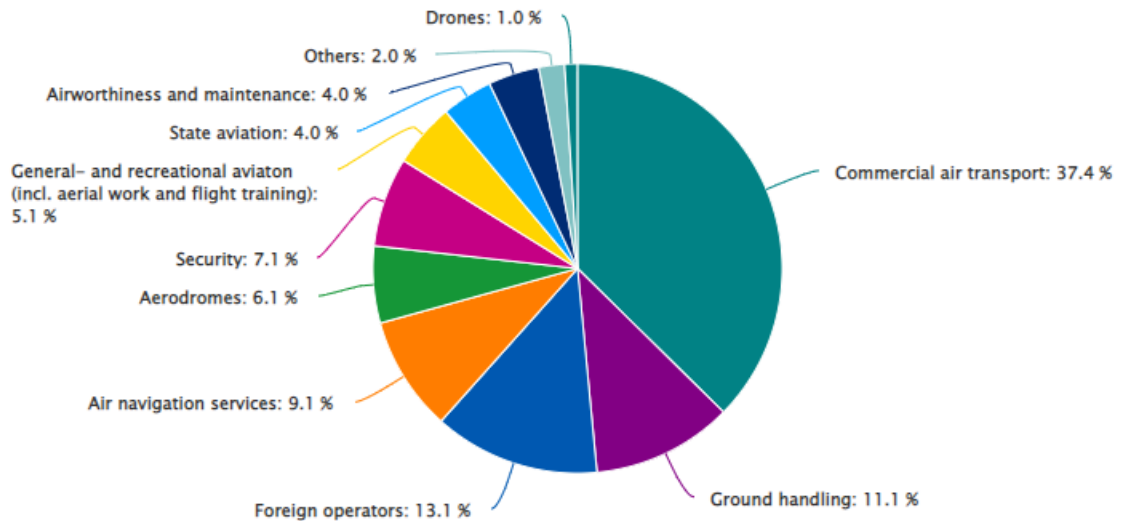
Flight safety reports



Cases by domain in 2022

The reports are classified on the basis of several different variables. The graph below shows the distribution of incidents in 2022 based on the aviation domain in which the reported incident occurred. Most of these reports concern commercial operations and are received from flight operations and different ground organisations.

Reports by aviation domain



6 Runway excursions (RE) 2022

In 2022, five runway excursions that occurred in Finland or involved Finnish aircraft were reported.

The number was clearly below the average for 2013–2021 (9.1) and also lower than the previous year.

None of the cases led to an accident, but two were classified as serious incidents. In previous years, runway excursions have typically led to 1–2 accidents each year.

Most of the runway excursions occurred in general aviation. The number of runway excursions in general aviation was slightly above the average for 2013–2021. Most of the runway excursions last year occurred in summer. Even in previous years, the incidents have typically occurred either on slippery runways in the winter or in the summer, usually due to a sudden change in the direction or force of the wind, or in crosswind conditions if the pilot cannot compensate enough for the effect of the crosswind (or a gust of wind).

Runway excursions most commonly occur during landing, and this was also the case in last year's incidents. In two cases, the incident occurred at Pori, and the rest occurred in Oulu, Nummela and Kärsämäki.

Types of incidents contributing to runway excursions

Incidents to be monitored that may contribute to runway excursions include e.g. hard landings or other **abnormal runway contact (ARC)**. Last year, 22 such cases were reported in Finland, which was slightly above the average for 2013–2021 (17.6).

The incidents mainly occurred during the summer months and most commonly in general and recreational aviation. Wind conditions were a contributing factor in most of these incidents. Furthermore, there were some incidents in general and recreational aviation where a landing took place with the landing gear up.

Other incident types causing a risk of a runway excursion include unstable approaches, malfunctions in landing gear and thrust reversers and take-offs interrupted at a high speed. Last year, the numbers for all such incidents were at the level of the long-term average or slightly below it.

Another indicator that is followed is **cases where insufficient information is provided about the condition of the runway** e.g. regarding contaminant or friction values of the runway. There were 21 such cases in Finland last year, which is clearly above the average for 2013–2021 (12.6).

The majority of cases occurred in Kittilä in December. In all cases, according to the crew of an aircraft or the values provided by the aircraft system, the runway was more slippery than officially reported. In cases such as these, the airport maintenance carries out a new measurement on the runway and changes the reported values as needed or takes up measures to improve the condition of the runway.

In the autumn, Traficom regularly publishes winter operations bulletins for both **foreign airlines flying to Finland (PDF)** and **general and recreational aviators**. The bulletins also contain plenty of useful information for reducing the risk of runway excursions. Both bulletins were also translated into English.

Another good resource that includes a number of recommendations is the **European Action Plan for the Prevention of Runway Excursions EAPPRE**

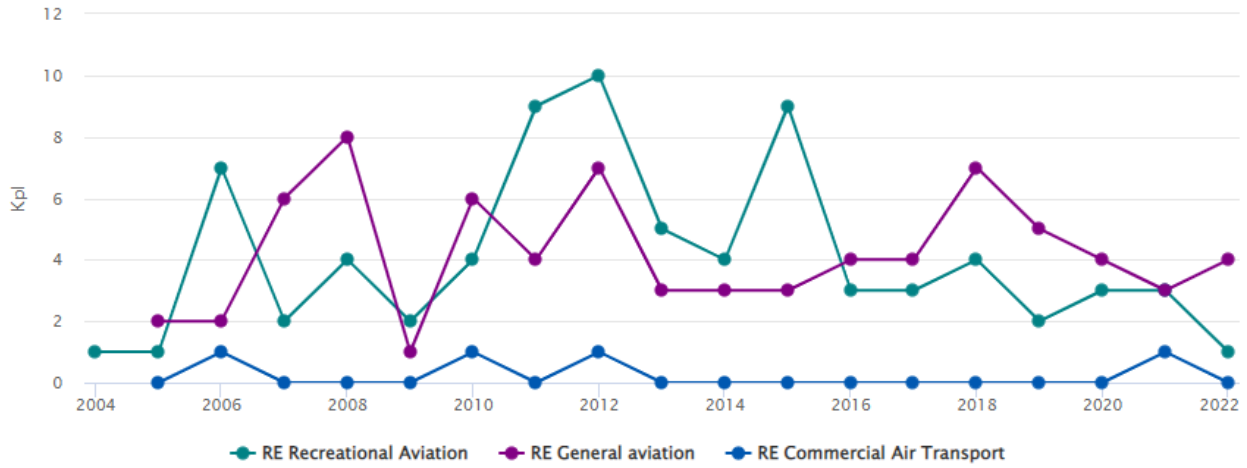
published by Eurocontrol already back in 2013.

Also see the Global Action Plan for the Prevention Runway Excursions GAPPRE

<https://www.skybrary.aero/articles/global-action-plan-prevention-runway-excursions-gappre> whose aim is to prevent runway excursions globally..

Runway excursion (RE) per aviation domain

Does not include drones, state aviation or foreign aircraft



7 Runway incursions (RI-VAP) 2022

In 2022 in Finland, there were reports of 54 runway incursions, meaning cases where an aircraft, vehicle or person is incorrectly present on the runway or its protected area. The number was below the average for 2013–2021 (60.3). However, when made proportional to the number of operations at airports, there were slightly more runway incursions than on average. Nevertheless, the growth trend seen in the past couple of years now turned into a decline.

Of the cases, one was classified as a serious incident. In the years 2013–2021, around two runway incursions on average have led to a serious incident. Runway incursions have not caused accidents in Finland.

In the serious incident of 2022, a skydiving aircraft was coming to land on an uncontrolled aerodrome in Immola, when a skydiver landed on the runway in front of the aircraft and the pilot had to perform a go-around to avoid hitting the skydiver. A runway incursion is defined as any situation where an aircraft, vehicle or person is present on the runway or its protected area, without clearance or otherwise incorrectly. An uncontrolled aerodrome has no air traffic control that would give aircraft clearance to enter the runway. Situations at uncontrolled aerodromes have also been classified as runway incursions when the conclusion is that another aircraft, vehicle or, as in this case, person has entered the runway in a significantly incorrect way.

Aircraft

There were 21 runway incursions by aircraft in Finland last year.

The number was clearly below the average for 2013–2021 (38.7) and also below the average when made proportional to the number of operations at airports. As in previous years, the runway incursions were most commonly caused by general aviation or military aviation. The number of runway incursions by general aviation and military aviation was nonetheless below the average.

Nearly all cases occurred at airports, and in most cases an aircraft took off or landed without appropriate clearance. The cases did not cause any significant serious incidents, however, as there usually was no other traffic present.

The decline in the overall number was impacted by the reduced runway incursions in commercial air transport and recreational aviation. Finnish commercial air transport caused only one runway incursion in Finland and three abroad. The numbers were at the same level as the long-term average.

Vehicles

In 2022, the number of runway incursions caused by ground vehicles at airports was 22. The number more than doubled from the previous year (8) and was also above the average for 2013–2021 (13.2).

When made proportional to the number of operations at airports, the number was also clearly higher than the average for 2013–2021.

In other words, the positive downward trend of the previous years in the number of runway incursions caused by ground vehicles turned into an incline last year. The increase was caused by several runway incursions that occurred in January and December, mostly in the airports of Northern Finland. The most runway incursions last year occurred at Helsinki Airport and Rovaniemi.

A typical runway incursion caused by a vehicle occurred in winter, as the maintenance crew needed to clear the runway and, for one reason or another, forgot to request appropriate clearance. In some cases, one vehicle was already brushing the runway and another joined it without appropriate runway clearance. In some

cases at regional airports, the cut ATC opening hours contributed to the drivers' loss of related situational awareness, meaning that they forgot to request runway clearance.

In addition to airports, there were two runway incursions at uncontrolled aerodromes in Nummela and Lahti-Vesivehmaa. This number was at the same level as the long-term average.

Individuals

In 2022, individuals caused four runway incursions. The average for 2013–2021 is 16.3. The situation has indeed been improving in the past few years.

These cases typically occurred at uncontrolled aerodromes where the boundaries of the area are difficult to monitor. Last year, cases occurred at the Nummela and Immola aerodromes and at Kuopio Airport. The case in Immola was also classified as a serious incident and described in more detail above.

In order to prevent such incidents, the aerodrome operator's tools include placing warning signs in critical locations in the aerodrome and providing information e.g. in local papers. Physical protection (e.g. gates or fences) may also be used as possible.

ATC

In 2022, ATC contributed to four runway incursions.

The number was slightly below the average for 2013–2021 (4.8) and at the same level as the average in relation to the number of operations at airports. The incidents did not cause significant risk.

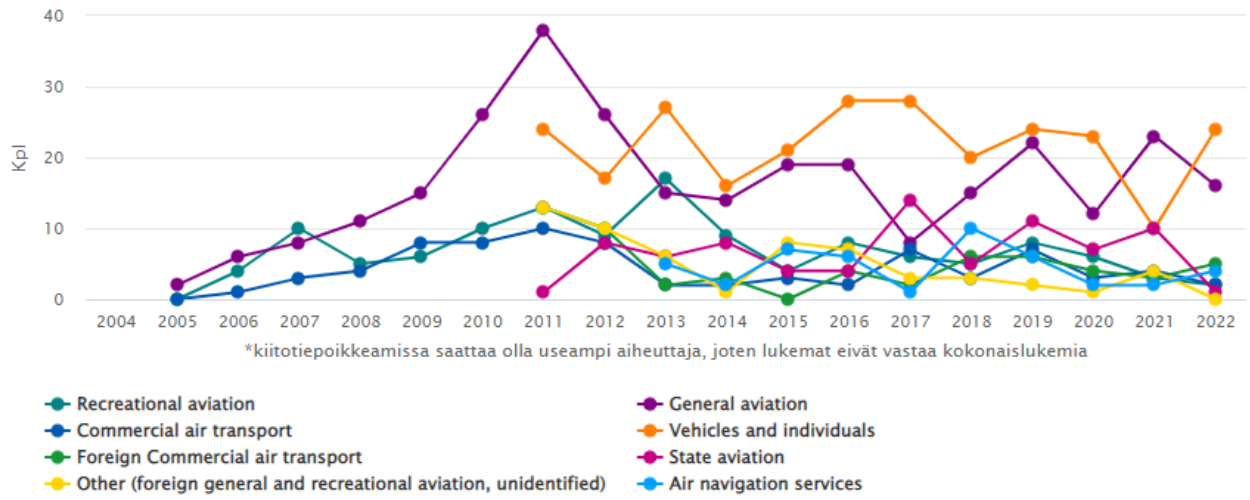
In recent years, runway incursions with ATC contribution have been fairly rare. All runway incursions in 2022 occurred during the second quarter.

Traficom's work to reduce runway incursions

Traficom has published a number of safety bulletins concerning runway incursions over the years. In 2013, [an information letter \(PDF\) \(in Finnish\)](#) was sent to all aviation licence holders, and in November 2018 [a safety bulletin \(in Finnish\)](#) was published, which reminded the operators about typical cases of runway incursions. [A safety bulletin \(in Finnish\)](#) published in October 2019 discussed the events of summer 2019, including runway incursions. [A safety bulletin \(in Finnish\)](#) that handled themes such as runway incursions was also published in June 2020. The bulletins still contain useful tips for avoiding runway incursions.

The European Plan for Prevention of Runway Incursions EAPPRI was updated by the European aviation organisations in late 2017. EAPPRI contains numerous recommendations, and all parties should thus go through this document and attempt to implement its recommendations as far as possible. Traficom conducted a survey on the status of implementing the recommendations in Finland in September 2018. According to the answers, about 80% of the EAPPRI recommendations had been implemented or are going to be implemented..

Runway incursions (RI) by aviation domain



8 Collisions and near misses in the air (MAC/Airprox) 2022

In 2022, 61 near misses in the air that occurred in Finland or involved Finnish aircraft abroad were reported. The number was slightly above the average for 2013–2021 (53.3).

If we only examine the incidents that occurred in Finland, however, the number (27) was clearly below average (42.3). In turn, the number of incidents abroad (34) was more than double the average (16.4).

The number of near misses has been declining in Finland in recent years, whereas the situation abroad has developed negatively, last year in particular. The clearest reason for the increase abroad was the growing number of incidents caused by drones.

Of the near misses during 2022, seven were classified as serious incidents. In five cases the other party was a drone.

Four of these cases occurred in Finland and three abroad. The numbers were more or less on the level of the average for recent years.

Commercial air transport

Finnish commercial air transport was a party to 39 near misses in total during the past year. The number was more than double the average for 2013–2021 (15.1). 15 of these cases occurred in Finland and 24 abroad. Both in Finland and abroad, the numbers were clearly above the long-term averages.

Five of the cases were classified as serious incidents. The number was slightly higher than the average for recent years. Two of these incidents occurred at Helsinki Airport (a drone as the other party in both) and three abroad (a drone as the other party in two cases, foreign general aviation in one).

The growing number of near misses in recent years is largely explained by the increased drone activity, abroad in particular.

General and recreational aviation

General and recreational aviation was involved in six near misses in Finland last year. The number was clearly below the average for 2013–2021 (16.2). Two of the cases were classified as serious incidents. One was a near miss between two ultralight aircraft in Nummela, the other was a drone flying near an ultralight aircraft in Jyväskylä.

Based on this information, the situation of this indicator significantly improved last year. In other words, the declining trend in the number of these cases that started in the previous years also continued in 2022.

The safety bulletin (such as **this one from the summer of 2020** (in Finnish)) has identified the most typical causes of near misses and considered measures to avoid them, one of the most important of which is maintaining situational awareness: *“The building blocks of situational awareness include trusting the others to also follow the common rules, listening to the radio frequency of the aerodrome and talking on it, and naturally also keeping your eyes open and observing the air-space.”*

Finnish general or recreational aviation was involved in six near misses abroad last year. This number was above the average for 2013–2021. All cases occurred in Spain during training flights.

Drones

In 2022, drones caused seven near misses in Finland. The number was below the average for 2015–2021.

The other parties of the near misses included commercial air transport, recreational aviation and military aviation. In some cases it was reported that a drone had been flown at a considerable altitude. Of the incidents, three were classified as serious incidents. In these cases, a drone was flown clearly too close to the runway at the wrong altitude. Most cases occurred in the vicinity of Helsinki Airport.

Drones caused 14 near misses to Finnish aircraft abroad during the past year. The number was approx. double the long-term average. Of the incidents, two were classified as serious incidents.

The overall number of near misses caused by drones in Finland has been declining in recent years, but this decline turned into a slight increase in the past year. The number of cases abroad grew even more considerably. There is no particular 'hot spot' for these cases, as they occur quite evenly across Europe. Most cases were clearly the result of intentional actions, including flying a drone e.g. very close to an airport or at a considerable altitude.

ATC

The number of separation minima infringements with ATC contribution (not including wake turbulence separation minima infringements or separation minima infringements between an aircraft and airspace) in Finland last year was 16. The number was slightly below the average for 2013–2021 (17.3). In relation to airport operations, however, the number was slightly above the average.

Most cases occurred in the Helsinki Airport airspace. In one of the incidents, the separation minima infringement was evaluated to be significant.

Types of incidents contributing to near misses

In addition to the **airspace infringements described in more detail in their own section, (in Finnish)** other incidents to be monitored that may contribute to near misses include clearance altitude violations, lateral deviations from the route, transponder malfunctions and incorrect reactions to a TCAS order.

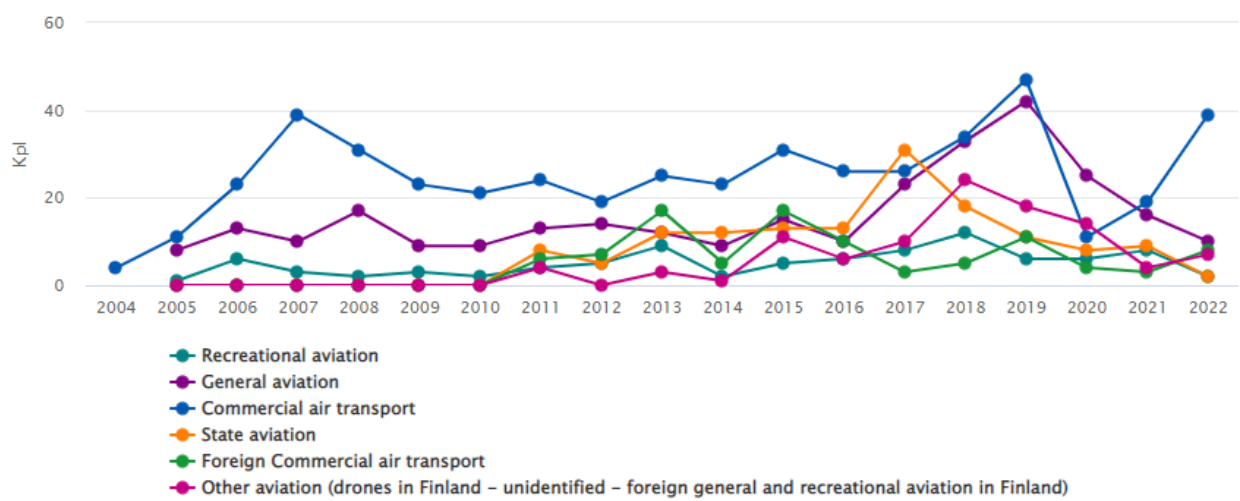
Clearance altitude violations were reported 59 times in the past year, which is clearly above the average for 2013–2021 (43.3). Most violations were reported in military aviation (31). These most commonly occurred in an airspace with high military activity, i.e. at Rovaniemi, Jyväskylä or Tampere-Pirkkala. If the military aviation cases are left out, the overall number in civil aviation (28) was at the level of the average for 2013–2021 (27.1).

In many of the clearance altitude violations last year, a contributing factor was an inadvertent error in the cockpit. For example, pilots may have forgot that they do not have appropriate clearance from ATC or failed to determine the clearance up or down. In some cases, the aircraft altimeter had a wrong pressure setting leading to a clearance altitude violation.

Lateral deviations from the route were reported frequently in the third quarter of the past year, but towards the end of the year the amount declined (53), ending up fairly close to the long-term average (46.1). These cases occurred in commercial air transport in particular. The variety of cases included e.g. flying the wrong standard instrument departure (SID), not joining the localiser during approach as cleared or selecting the wrong waypoint in the aircraft system.

Transponder malfunctions or incorrect operation, such as setting the wrong transponder code, were reported more than average in 2022. These cases occurred most commonly in general aviation. The cases often involved flying in a Transponder Mandatory Zone without using a transponder

Participants in mid-air collision or near misses (MAC/Airprox) by aviation domain



8.1 Airspace infringements 2022

In 2022, there were 159 airspace infringements reported in Finland, which is above the average for 2013–2021 (149). In relation to the number of operations at airports, the situation was also slightly above the average.

Controlled airspace

Infringements of controlled airspace were reported 110 times in the past year. The number was at the same level as the average for 2013–2021, but clearly above the past few years. In June–August 2022, the level of airspace infringements was clearly higher than in the past few years. These were most commonly caused by general aviation and occurred in the airspace of Helsinki Airport.

Typical reasons for airspace infringements include navigation errors causing a flight to enter the terminal control area either from below or from one side.

Prohibited areas

Airspace infringements can occur with prohibited areas (which have been set up e.g. around nuclear plants).

Last year, prohibited areas in Finland were flown into five times without appropriate clearance. The number was slightly above the long-term average. The most typical location last year was P15 Hanhikivi.

Restricted areas

Airspace infringements can occur with restricted airspace (set up to protect aviation from dangerous activities, such as shooting or blasting).

Restricted areas were flown into 20 times in 2022. The number was on the level of the average for 2013–2021. The most common locations were R113 Huovinrinne and R53 Utö.

Apart from controlled airspace or prohibited and restricted areas, unauthorised flights occurred in military exercise areas.

Airspace infringement monitoring and further information

Airspace infringements into controlled airspace increase the likelihood of a collision between aircraft. At the same time, unauthorised flying into a restricted area where shooting, blasting or other activities dangerous to aviation take place is an obvious risk to an individual aircraft. The purpose of prohibited areas is to protect nationally important targets, such as government buildings and nuclear plants.

In addition to restricted and prohibited areas, danger areas (D) can be published for situations where busy aviation activity, unmanned aviation beyond visual line-of-sight or other operations dangerous to aviation take place and need to be communicated due to aviation safety. However, a danger area can be flown into without a separate clearance at the pilot-in-command's discretion, meaning that they do not restrict the use of airspace as the restricted and prohibited areas do. In such cases, it is nevertheless preferable to discover the nature of the activity and how to contact the body that has reserved the area before flying into it.

Prohibited areas are continuously active. Other airspaces are activated as necessary (e.g. controlled airspace is activated when an airport has aviation activity, and a restricted airspace is activated when the dangerous activities begin). The restricted and prohibited areas can be temporary or permanent.

A more detailed situation review of airspace infringements with information about preventing them was included in the **safety bulletin published in April 2022** (in Finnish).

9 Loss of control in flight (LOC-I) 2022

In 2022, 31 cases of loss of control in flight were reported. The number was clearly above the average for 2013–2021 (17.7). The majority (27) of cases occurred in drone activities.

In manned aviation, there were three losses of control, which was less than half of the average for 2013–2021 (7.8). The cases were distributed equally between the domains of general aviation, recreational aviation and commercial air transport. Of the incidents in manned aviation, two were classified as serious incidents. The number was on the level of the average for 2013–2021. However, none of the incidents in manned aviation were classified as accidents, whereas typically in 2013–2021, losses of control have led to around five accidents each year.

In commercial air transport, LOC-I cases are rare. The one incident last year involved a momentary loss of control in helicopter operations which did not have an impact on aviation safety.

In general and recreational aviation, there were two LOC-I situations, one in general and one in recreational aviation. The numbers were only approx. one third of the average for 2013–2021. Both situations were classified as serious incidents. In the general aviation case, the fuel supply of an experimental aircraft malfunctioned, resulting in the aircraft stalling to the ground from a low height. In the recreational aviation case, the engine of a general aviation aircraft towing a glider malfunctioned, and due to a full water ballast load, the towed glider descended at high vertical speed on the runway and was damaged. The towing aircraft was able to land on the remaining section of the runway without damage.

It must be noted that SIA investigations are still underway for some cases, such as the accident in Tikkakoski in April. If the investigation finds that it was a LOC-I situation, the event type will be specified. In any case, the number of LOC-I situations in manned aviation has been declining slowly for a long time.

In other words, the majority of last year's LOC-I situations were reported in **drone activities**, a total of 27 cases, i.e. more than the previous year (19) and approx. double the average for 2016–2021 (13.7). Contributing factors included technical malfunctions, user errors as well as weather factors. Increased reporting activity has also contributed to the increase in the number of incidents.

Types of incidents that contribute to LOC-I situations

In addition to the cases described below involving laser interference, bird strikes or fire and smoke, other types of incidents to be monitored that may contribute to the loss of control in flight include being under or over the aircraft's speed limit, incidents due to a wake vortex, deficiencies in deicing and anti-icing, faults in the control system and different kinds of deviations in the loading of the aircraft, such as the placement of the load contrary to the loading instructions or errors in the attachment of the load or the weight calculations.

Last year saw a clear increase in the number of reports concerning **deficiencies in deicing and anti-icing**. The reports involved issues such as different kinds of deficiencies in spreading the deicing agent/antifreeze, or using the wrong type of mix or other deviation during the deicing procedure. Ice accumulating on the surfaces of the aircraft may have a significant impact on its flying characteristics, and in the worst case, it may lead to loss of control of the aircraft. Worrying cases

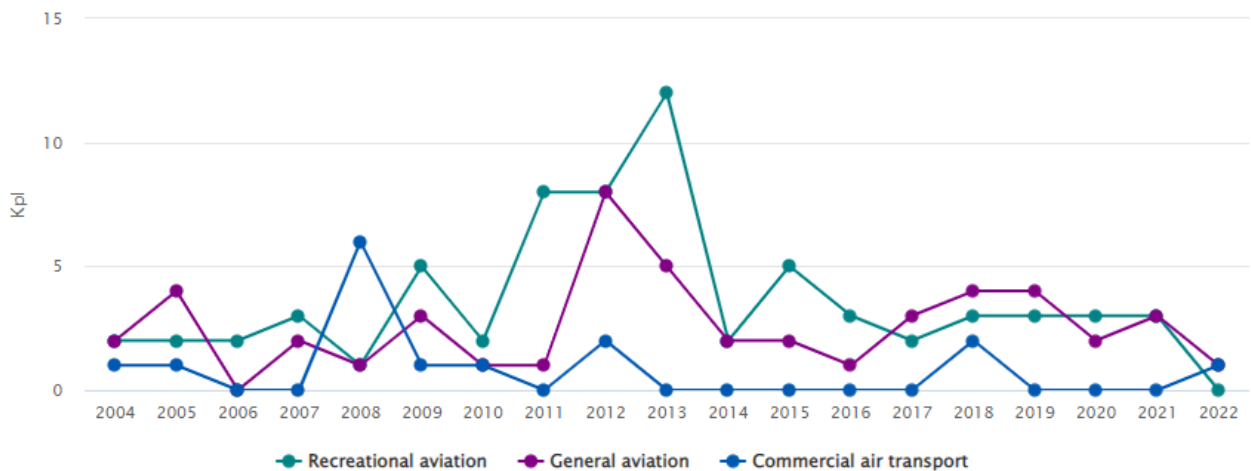
included some reports on foreign aircraft where the crew was preparing for take-off even though the wings were clearly covered in snow. However, a deicing treatment was performed after being recommended by the ground handling company. In October 2022, Traficom published safety bulletins discussing winter operations in particular, including the effects of ice. [Here \(PDF\)](#) you can find a bulletin targeted at foreign airlines and [here](#) is a bulletin for general and recreational aviators.

Last year, the number of reported **types of incidents related to loading** was above the average.

The increase in numbers is at least partly due to the increase in traffic volumes. It should also be noted that deficiencies such as poorly secured load are often observed only at the destination (typically at Helsinki Airport) when the aircraft is being unloaded. In other words, the actual mistake may have been made at the departure airport, usually abroad.

Loss of control in air per aviation domain

Does not include drones, state aviation or foreign aircraft



9.1 Laser interference 2022

In 2022, there were 52 cases of laser interference reported, of which 32 occurred in Finland and 20 abroad. The overall number was clearly above the average for 2013–2021 (43.4).

The number of cases abroad was slightly above the average (17.6). Likewise, cases of interference reported in Finland were higher than average (27.2). The number of laser interference cases in Finland began to grow in 2021. The growth continued in 2022, and the numbers were nearly double compared to the previous year.

Based on the statistics on 2013–2022, laser interference occurred the most often in August, September and October. January, March and December were the next most active months. Of weekdays, Friday was clearly the most common day of occurrence, and typically laser interference happens at 19:00-20:00 or 21:00-22:00. More than half of the incidents reported in Finland occurred in the vicinity of Helsinki Airport.

Interference typically occurred when an aircraft was making an approach. This is a critical phase of a flight, meaning that its interference is extremely harmful for the

safe performance of the flight. Luckily, none of the incidents last year had any serious consequences.

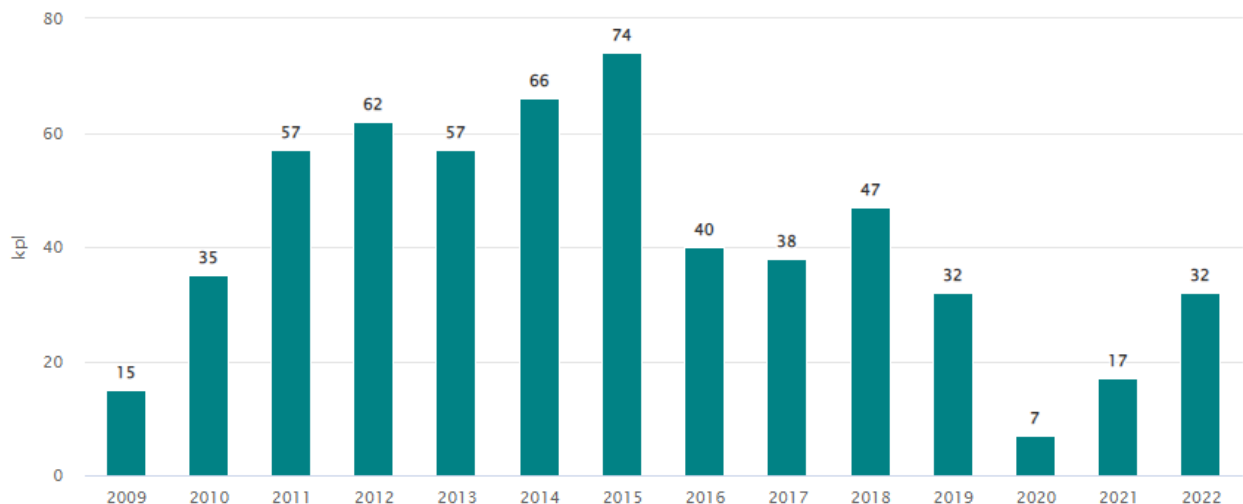
In 2013–2022, no laser interference case led to an accident, but one case was classified as a serious incident. In the case that occurred in Rovaniemi on New Year’s Day in 2017, a laser was pointed at the pilot of a medical helicopter, and the pilot lost the ability to see for a moment. The incident resulted in a trial, in which the District Court of Lapland sentenced the man who pointed a powerful laser light at the medical helicopter to a fine. In its judgment, the Court found the man guilty of causing a serious traffic hazard and that his interference had caused a danger to aviation safety.

Therefore, it should be kept in mind that laser interference is a crime. Pointing a laser beam at the crew of an aircraft is punishable in itself, even if it did not cause any actual damage or real danger to the aircraft, its crew or the passengers. Traficom has filed a police report on the interference case in Hyvinkää in September 2022.

In March 2021, FinnHEMS, the Finnish Defence Forces, the Finnish Border Guard, Finnish Pilots’ Association (FPA), Radiation and Nuclear Safety Authority (STUK) and Traficom started the **campaign “Laser ei ole lelu” (A laser is not a toy) (in Finnish)**, which brings attention to the serious consequences of laser interference to air traffic.

In September 2019, Traficom published a **safety bulletin on laser interference (in Finnish)** reminding of the dangers of laser interference and instructing pilots on how to act in the case of laser interference. The bulletin also described the first criminal conviction for laser interference.

Laser interferences in Finland



9.2 Bird strikes 2022

It is estimated that bird strikes incur costs of around one billion euros globally each year, e.g. as repair costs and delays. As new species of bird are moving further up north and aircraft are becoming quieter and faster, the likelihood of bird strikes is also expected to grow in the future. The reporting activity on bird strikes has also improved in recent years.

In 2022, there were 305 reported cases of bird strikes, of which 183 occurred in Finland. Both the overall number and the cases in Finland were very close to the average for 2013–2021. The number of bird strikes returned to the levels we experienced before the coronavirus pandemic. In Finland, bird strikes typically occurred at Helsinki Airport and caused no significant incidents.

Based on statistics on 2013–2022, most bird strikes occurred in June–August. A bird strike typically takes place in the morning between 7:00 and 8:00. In approximately half of the cases, a bird strike occurred in connection with approach or landing. It was usually a small-sized bird that hit the aircraft. The exact species was rarely reported, but a clear majority of reports involve various swallows and martins, followed by different gulls.

In relation to the number of operations at airports, the number of bird strikes in Finland last year was slightly above the average for 2013–2021.

9.3 Fires and smoke detection on aircraft 2022

One of the indicators pertaining to aircraft loss of control that is monitored by Traficom is fires or smoke detection on aircraft. A fire on an aircraft is a situation which may quickly lead to the loss of control and destruction of the aircraft.

In 2022, there were eight smoke detections reported, which is slightly less than the average for 2013–2021.

In most cases, there was merely smoke detection in the cockpit or cabin, but no actual fire. To ensure safety, many such cases lead to the flight being interrupted and landing at the closest suitable aerodrome.

In one of the cases in the first quarter of last year, a passenger had smoked in the toilet of the aircraft and set a rubbish bin on fire. The fire was put out quickly, however. Such cases resulting from smoking in the toilet facilities have luckily been extremely rare in recent years. Indeed, smoking aboard aircraft is strictly prohibited due to the risk of fire.

In January 2022, SIA published its **investigation** into a smoke detection on a passenger aircraft in October 2021. The SIA investigation stated that investigations by the aircraft's maintenance organisation revealed the cause of the smoke smell to be an internal engine oil leak.

10 Controlled flight into terrain or similar near misses (CFIT/near-CFIT) 2022

In 2022, there were 10 reported CFIT or near-CFIT type incidents, meaning incidents in which an aircraft, under pilot control, is flown into the ground or an obstacle or there was a near-miss situation. The number was slightly above the average for 2013–2021 (8.6).

One of the cases was classified as an accident and two as serious incidents. These numbers remained in line with the previous years. In the accident, the landing gear of a general aviation aircraft hit the ground at take-off and came off. The damage was considered so significant that the case was classified as an accident even though the pilot was able to land the aircraft at another airport without personal injury.

The other CFIT incidents involved e.g. drone collisions with obstacles, separation minima infringements to obstacles and a GPWS warning becoming active.

Types of incidents contributing to CFIT situations

Incidents to be monitored that may contribute to CFIT situations include a wrong altimeter pressure setting, insufficient information on obstacles and errors and deficiencies in aeronautical charts. Furthermore, we monitor reports of warnings from the aircraft ground proximity warning system (GPWS).

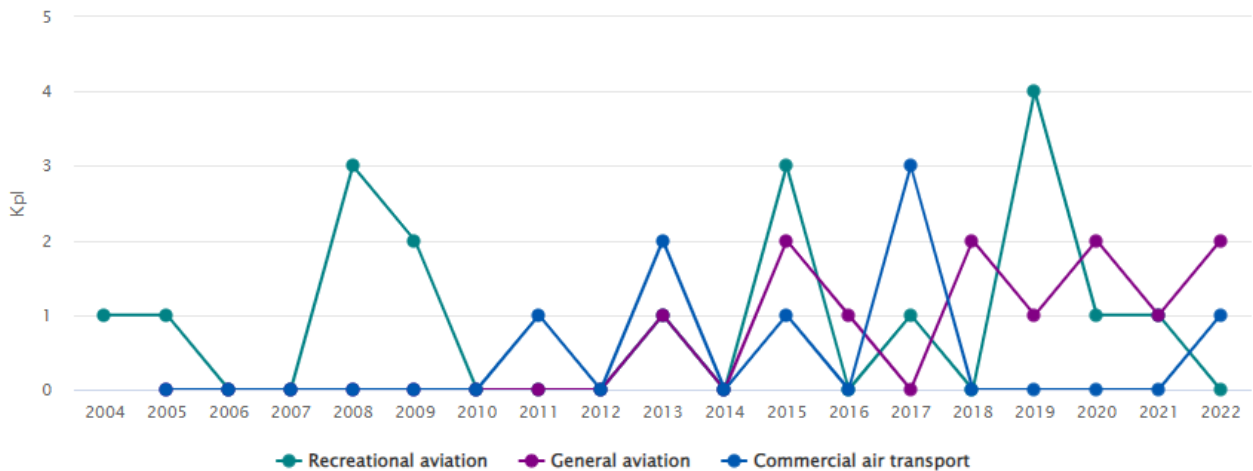
The amounts of other incident types last year were more or less on the level of the long-term average.

Reports of insufficient information on obstacles (34) were above the average (19.3).

The majority were reports of missing aircraft warning lights in tall masts, but we also received several reports of crane jibs being lifted too high near an airport without appropriate clearance. [Traficom’s website](#) provides more information on flight obstacles and applying for related permits. In early 2023, Traficom sent a letter to municipal building control authorities requesting them to remind builders to check whether they require a flight obstacle permit for the object being built and the cranes required to build it.

CFIT/near-CFIT per aviation domain

Does not include drones, state aviation or foreign aircraft



11 Collisions while taxiing to or from a runway (GCOL) 2022

In 2022, six GCOL cases were reported, meaning situations where a collision occurred while an aircraft was taxiing or air-taxiing. In previous years, only individual cases of this type have typically occurred, meaning that this number doubled the situation compared to the long-term average (2.6).

Two cases occurred in commercial air transport. In one, the passenger boarding bridge was not moved aside during the towing of an airliner and it hit the aircraft. In the other, the propeller of a small corporate aircraft hit a lamp post at the edge of the apron. The other cases involved general or recreational aviation aircraft hitting obstacles while taxiing.

Types of incidents contributing to GCOL situations

Incidents to be monitored that may contribute to GCOL situations include aircraft pushback or taxiing disruptions, deficient ramp monitoring, damage incurred during ground handling and foreign object debris at the manoeuvring area and ramp. We also monitor reports on the poor condition of the ramp and taxiways.

Of the above-mentioned types of incidents, last year saw an increase compared to the long-term average in cases related to deficient ramp monitoring, aircraft pushback or taxiing disruptions and reports on the condition of the ramp and taxiways.

Deficient ramp monitoring involves cases where passengers were able to move outside the determined areas or without necessary supervision. Here the risks include injuries to passengers, although we have luckily been able to avoid such situations. The cases typically occurred at Helsinki Airport. Such cases were reported 54 times in Finland last year. The number was approximately double the average for 2013–2021. The growing traffic volume after the pandemic has likely contributed to the increase in cases.

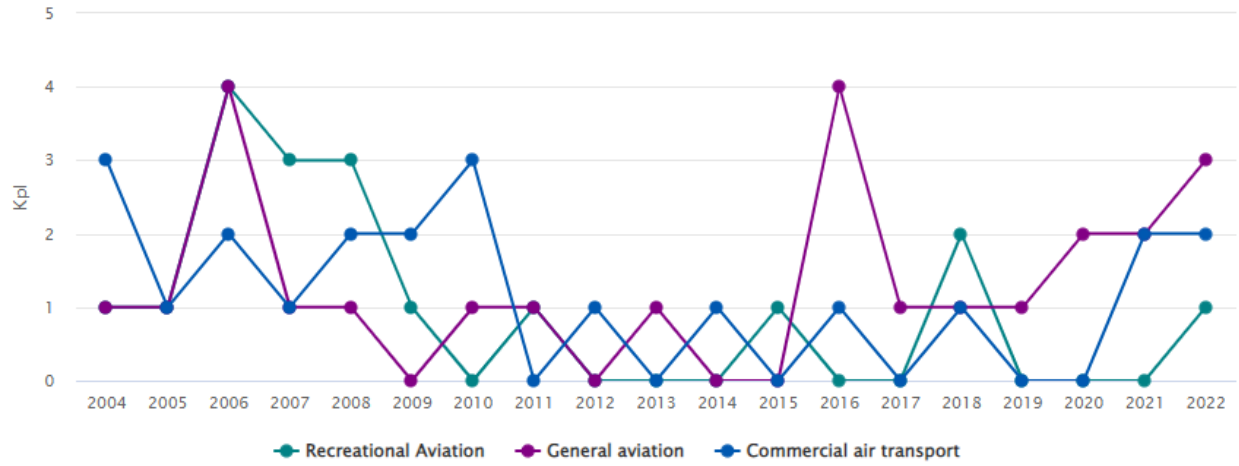
Aircraft pushback or taxiing disruptions also mainly occurred at Helsinki Airport. The number grew clearly from the previous two pandemic years and ended up above the long-term average. The growing traffic volume has also contributed to the increase in these cases. Typically, a bus or other vehicle drove behind the aircraft and the pushback had to be interrupted. These situations may contribute to a collision.

Reports on the condition of the ramp and taxiways were nearly always made during the winter months. These cases also typically occurred at Helsinki Airport. The number was approximately triple compared to the average for 2013–2021. The reports usually stated that the ramp or stand of the airport is slippery. Another common topic was the slipperiness of taxiways. Slippery ramps naturally hinder the movement of aircraft and increase the risk of collision. Slippery paths for passengers may also increase the risk of slipping. At the start of the year, Traficom made note of the large number of reports on

slippery conditions and requested Helsinki Airport to clarify the factors leading to the reports and planned corrective measures.

Ground collisions (GCOL) per aviation domain

Does not include state aviation or foreign aircraft



12 Definitions

ACAS (Airborne Collision Avoidance System) refers to a system which warns pilots of the threat of collision and which meets the requirements for ACAS II systems set out in Appendix 10, Volume IV Chapter 4 (version 7) of the Convention on International Civil Aviation. This system relies on information exchanges between aircraft transponders, based on which pilots are given advisories and alerts of the presence of other aircraft nearby. A system that meets the ACAS II requirements is known as a TCAS (Traffic Collision Avoidance System). The system issues either Traffic Advisories (TA) or Resolution Advisories (RA).

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

a) a person is fatally or seriously injured as a result of

- being in the aircraft, or
- direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or,
- direct exposure to jet blast,

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

b) the aircraft sustains damage or structural failure which adversely affects the structural strength, performance or flight characteristics of the aircraft, and would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to a single engine, (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windcreens, the aircraft skin (such as small dents or puncture holes) or minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike, (including holes in the radome);

or

c) the aircraft is missing or is completely inaccessible.

A serious injury means an injury which is sustained by a person in an accident and which involves one of the following:

- a) hospitalisation for more than 48 hours, commencing within 7 days from the date the injury was received;
- b) a fracture of any bone (except simple fractures of fingers, toes, or nose);

- c) lacerations which cause severe haemorrhage, nerve, muscle or tendon damage;
- d) injury to any internal organ;
- e) second or third degree burns, or any burns affecting more than 5% of the body surface;
- f) verified exposure to infectious substances or harmful radiation.

A CFIT/near CFIT situation (Controlled flight into or towards terrain, CFIT) is a situation where an airworthy aircraft under the complete control of the pilot is inadvertently flown (or nearly flown) into terrain, water or an obstacle.

Commercial air transport refers to using aircraft for transporting passengers, cargo or mail against payment or other compensation.

European Aviation Safety Agency (EASA) is an agency of the European Union established in 2002 by Regulation (EC) No 216/2008 of the European parliament and the Council in order to ensure a high and uniform level of safety in civil aviation, by the implementation of common safety rules and measures.

Foreign commercial air transport means the transport of passengers, cargo or mail against payment or other compensation using other than a Finnish aircraft, or under an operating licence not issued in Finland.

General aviation refers to all other domains of aviation apart from commercial air transport and aerial work. NB. In this publication, general aviation and aerial work are dealt with as a single category. Recreational aviation is also handled as a separate category.

A ground collision while taxiing to or from a runway in use (Ground collision, GCOL) is a situation where an aircraft comes into contact with another aircraft, a vehicle, a person, an animal, a structure, a building or any other obstacle while moving under its own power in any part of the airport other than the active runway, excluding power pushback.

The International Civil Aviation Organisation (ICAO) is a civil aviation organisation operating under the auspices of the United Nations.

Loss of control in flight (LOC-I) means a situation where the pilot loses control of an airborne aircraft, resulting in a significant deviation from the aircraft's intended flight path. The loss of control may be total or momentary and caused by such factors as human error, mechanical faults or external factors.

A mid-air collision (MAC) and a near miss/AIRPROX is a situation where airborne aircraft come into contact with one another or in which the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised.

Recreational aviation refers to the operation of a glider, motor glider, ultra-light aircraft, autogyro and hot-air balloon, hang gliding and paragliding, as well as parachuting. NB. If a hot air balloon is used to transport passengers against a fee, this constitutes commercial air transport. This publication does not deal with hang gliding, paragliding or parachuting.

Runway excursion (RE) refers to uncontrolled exit by an aircraft from a runway during take-off or landing. This may be unintentional or intentional, for instance as the result of an evasive manoeuvre.

Runway incursion (RI-VAP) is any situation where an aircraft, vehicle or person is present on the runway or its protected area, without clearance or otherwise incorrectly. This includes low approaches executed without clearance or otherwise incorrectly.

A serious incident means an incident involving circumstances indicating that there was a high probability of an accident and is associated with the operation of an aircraft, which in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time it comes to rest at the end of the flight and the primary propulsion system is shut down. A list of examples of serious incidents is set out in the Annex to [Regulation 996/2010 \(EU\)](#).

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