

SAFETY IN AIR TRAFFIC MANAGEMENT

Safety and the role of air navigation service providers

Aviation is an extraordinarily safe way to travel; measured by the distance passengers are carried it is the safest of all modes of transport. The primary goal of the air traffic management (ATM) system – and the air navigation service providers (ANSPs) responsible for operating ATM services – is to minimise the number of accidents: especially collisions between aircraft or aircraft striking obstacles on the ground. ANSPs are committed to improving their safety performance while handling more flights every year.

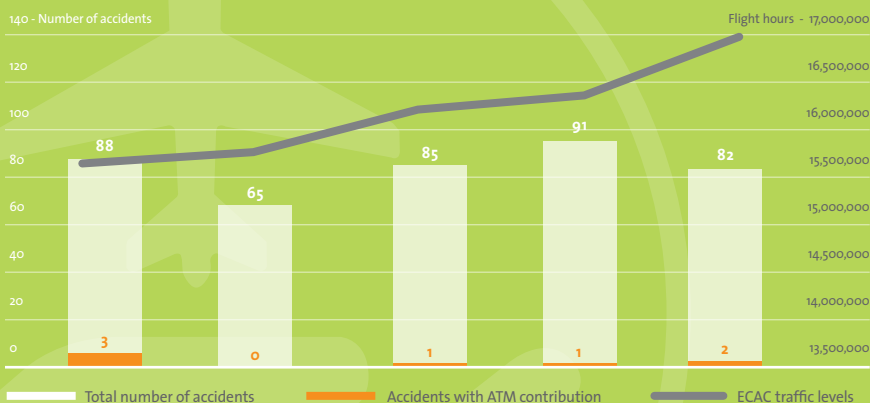
Europe's ATM system is meeting its safety targets

Despite the ATM system already performing to a very high degree of safety, zero serious accidents is our goal. To come within reach of this goal we need to understand better why accidents happen. That means finding new ways to analyse incidents where safety margins have been breached – such as aircraft flying too close to each other or accessing a runway which is in operational use – but no accident has happened. By proactively assessing existing or emerging new risks we can implement corrective actions and then improve equipment, training, safety management systems, data sharing and reporting mechanisms. Using sophisticated analysis tools, including big data gathering, we can now see trends emerging and develop appropriate information campaigns to stop incidents becoming accidents.

How is Europe's ATM system performing?

In general, the number of aircraft is increasing every year but the number of serious accidents is decreasing. In 2016, the latest year for which there are complete records¹, there were two ATM-related accidents, both ground collisions. The aircraft involved suffered structural damage but there were no fatalities.

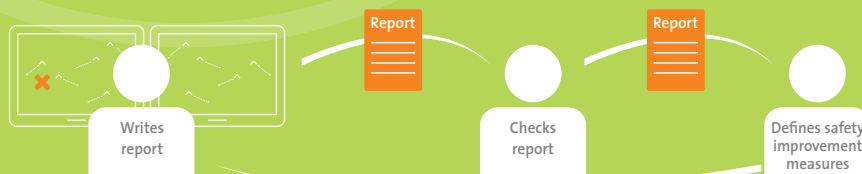
Accidents in Europe with ATM contribution and traffic levels (aircraft above 2250kg MTOW)



How safe is the aviation system overall?

2017 was the safest year in commercial aviation history. According to the International Air Transport Association (IATA) 4.1 billion travellers flew safely on 41.8 million flights. There were no fatalities involving commercial jet aircraft. A heightened focus on safety management is the main reason for the steady decline in accidents over the past decade.

Confidential reporting systems serve the continuous improvement of safety



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Where are the main safety areas of concern for ANSPs?

Managing increasing numbers of aircraft on airport runways and taxiways is a particular concern. Controlled flight into terrain (CFIT) is another major issue; it occurs when an airworthy aircraft under the complete control of the pilot is inadvertently flown into terrain, water, or an obstacle. Most CFIT accidents occur in the approach and landing phase of flight. Small manned aircraft and drones flying into airspace authorised only for high-performance airliners is another issue; aircraft flying routes and altitudes different from those authorised by controllers; the sudden appearance of military aircraft in civil airspace and equipment failures are further ATM safety challenges. ANSPs measure the safety performance of their operations in all these areas.

What can be done to mitigate these challenges?

Sharing information among all stakeholders – at local, national and global levels and across industry sectors – is a crucial element to improving safety performance. Setting target levels of safety and developing procedures and mechanisms to meet these targets (such as reducing the number of risk-bearing runway incursions by 20% over three years) is another important enabler. For example, FABEC has set safety targets for 2019 and has re-ordered its safety management systems, made it easier for operational staff to report concerns and improved the way it measures risk in reported incidents to meet these targets. In addition, new safety performance indicators have been introduced, such as the use of automated reporting tools.

What are the emerging safety risks for ANSPs?

Airports and airspace will become increasingly congested over the next few years – because of environmental constraints it will not be possible merely to build extra runways, terminals and taxiways to manage the growing number of aircraft and passengers. So new tools and procedures will be needed to safely optimise the capacity that does exist in the air transport system. In other words, fit more aircraft into airspace and airports while reducing the risk of collision. Drones will need to be safely integrated into the airspace and kept away from disrupting airport operations. New ways will also be needed to ensure vital safety information can be kept secure from cyber-attacks and not be made available for uses other than aviation safety.

Horizontal and vertical protection zone
(between 29,000-41,000 feet)

Horizontal separation

- ③ 5 NM is a common in radar-controlled en-route airspace
- ④ 10 NM may be used, especially at long range or in regions of less reliable radar coverage

Vertical separation

- ① Minimum vertical distance between aircraft – 2,000 feet
- ② Where Reduced Vertical Separation Minima (RVSM) is applied, vertical separation distance can be reduced to 1,000 feet – if both aircraft are equipped with more modern altimeter and autopilot systems

