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saercosafety

S a f e t y N e w s l e t t e r

Aircraft deviation from ATC clearance

Safety in aviation is an absolute priority for SAERCO, and this newsletter will address a critical issue: aircraft deviation from ATC clearance.

When pilots do not follow these directives, significant risks are generated that can compromise the safety of air operations, from the possibility of collisions to the disruption of air traffic flow. Understanding and respecting ATC instructions is necessary to ensure a safe and efficient flight environment. Join us in this analysis and learn about the measures that can be taken to strengthen the safety culture.

Deviation from ATC clearance can lead to various dangerous situations that we will analyse below. The hazards described are only some examples of the multiple scenarios that could occur, underscoring the critical importance of strictly adhering to ATC instructions. Air safety depends on precise communication and coordination between pilots and controllers. Ignoring these directives not only endangers the involved aircraft but also all others sharing the airspace.

Risk of mid-air collisions:

Deviation from ATC clearance can lead to a reduction or total loss of separation between aircraft, increasing the risk of mid-air collisions. Controllers manage the altitudes and timings of aircraft to ensure a safe separation is maintained. Any deviation can lead to dangerous situations where aircraft are on conflicting paths.

Confusion and congestion:

Failure to adhere to ATC instructions can cause confusion and disorganization in the airspace, especially in high-density traffic areas. This can lead to unexpected congestion, forcing ATC to make quick and complex adjustments to avoid incidents, thereby increasing stress and the possibility of errors.

Interruption of maneuvers:

During critical phases of flight, such as takeoff and approach, precise ATC instructions are essential to maintain safety. Any deviation can interrupt these maneuvers, creating dangerous situations for both the involved aircraft and other aircraft in the area.

Increased workload and stress for ATC:

Deviation from instructions forces ATC to take immediate corrective measures, increasing their workload and stress levels. This can negatively affect the efficiency and effectiveness of air traffic management, compromising the overall safety of the airspace.

Aircraft deviation from ATC clearance

Through the implementation of various actions, the risk of deviations from ATC clearance can be significantly reduced, ensuring a safe and efficient flight environment for everyone.

It is essential that both pilots and controllers receive rigorous and continuous training. The training should include simulations of critical situations where adherence to ATC instructions is vital for safety.

The implementation of advanced communication and monitoring systems can help reduce errors.

Establish programs that encourage pilots and controllers to report incidents and errors without fear of reprisal. This approach allows for the identification and addressing of systemic issues before they result in accidents.

Promoting a safety culture where open communication and strict adherence to ATC guidelines are fundamental values is crucial. Airlines, training schools, and ANSPs (Air Navigation Service Providers) should promote practices that prioritize safety over operational efficiency.

Developing and maintaining clear and detailed Standard Operating Procedures that specify actions to be taken in cases of uncertainty or emergency is crucial. These procedures should be reviewed and updated regularly.

Conduct regular assessments of operations to ensure adherence to ATC instructions and maintenance of safety standards. This should include reviews of communication procedures and adherence to regulations.

Previously, it has been mentioned how aircraft deviation from ATC clearance can affect controllers. Managing fatigue in air traffic controllers is crucial for ensuring aviation safety. Throughout this bulletin, we will also address this topic. We will start by mentioning three main components in fatigue management:

Analysis

- Risk assessment → Identifying factors contributing to fatigue, such as work schedules, night shifts, workload, and environmental factors.
- Data collection → Using questionnaires and interviews to measure fatigue levels among controllers.
- Studies → Understanding the impact of fatigue on performance and operational safety.

Prevention

- Shift design → Implementing work schedules that minimize fatigue, ensuring adequate rest periods between shifts.
- Work environment → Improving workplace conditions such as lighting, noise, and ergonomics to reduce fatigue.

Management

- Policies and procedures → Establishing clear standards for fatigue management, including limits on work hours and protocols for reporting fatigue.
- Monitoring and review → Continuously monitoring fatigue levels and adjusting policies and practices as necessary to maintain safety.

Human factors: EASA Study and SAERCO actions

Regulation (EU) 2017/373 is a European regulation that establishes common requirements for the provision of air navigation services and air traffic management, as well as requirements for service providers. Its primary objective is to ensure a high level of safety.

This regulation also sets requirements for Human Factors management. Since its publication, SAERCO as an ANSP has been working on and developing various programs and tools to meet these regulations and ensure safety and efficiency.

On the other hand, AESA is the national authority responsible for overseeing and regulating aviation safety in Spain. They implement and supervise compliance with the mentioned European regulation, including aspects related to Human Factors.

Regarding training, SAERCO convenes its employees to various courses covering topics such as fatigue management, stress management, effective communication, and decision-making.

Also, continuous improvement is promoted by encouraging and facilitating workers to report instances of fatigue or stress and analyzing such data. Through the implementation of programs and policies related to "Critical Incident Stress" and "Fatigue & Stress", we continue to work towards advancing improvements in all aspects related to the well-being and motivation of our valued personnel, which is fundamental for SAERCO.

In summary, effective Human Factors management aims primarily to

ensure the safety and efficiency of air traffic while promoting employee well-being, complying with regulations, and fostering a safety culture.

SAERCO's commitment to this goal is ongoing, and to achieve it, we are actively participating in and implementing various activities and projects at both national and European levels.

As a notable example, in the specific case of fatigue, SAERCO has directly collaborated with EASA on the study "Analysis, Prevention, and Management of Fatigue in ATCOs," which outlines the main contributing factors and future recommendations.

These aspects, among others, were analysed and discussed during the "Sharing Day on ATC Human Factors" at AESA, which involved various national ANSPs on April 25, 2024.



EASA
European Union Aviation Safety Agency

Webinar: Final Study Results

Analysis, Prevention and Management of Air Traffic Controller Fatigue

Thursday 29th February 2024

Delivered in cooperation with our consortium

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Stakeholder Overview & Snapshot of EU ATC

Stakeholder involvement in the study

Participated in measurements/data collection:

- AirNav Ire → DSNA → MUAC
- ANS CZ → ISAVIA → Skyguide

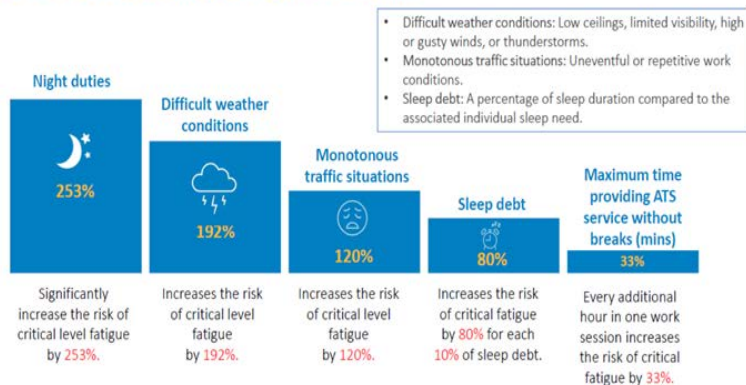
Other ATSPs involved:

- Aircraft Industries → HungaroControl → Romatsa
- Austro Control → LET → Saerco
- DFS → LFV → SDATS
- EANS → LGS → Slovenia Control
- ENAIRE → LVNL
- ENAV → PANSa



ATCO Fatigue Prevalence, Causes & Effects

Top 5 contributing fatigue factors



ATCO Fatigue Management in the Future

Recommendations

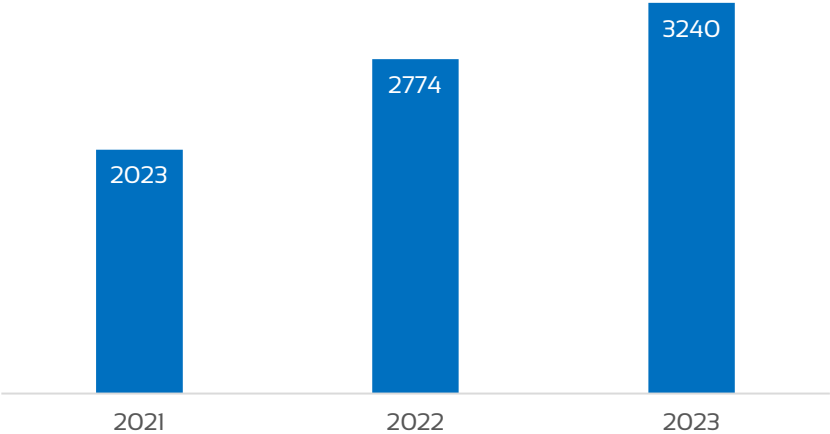
The study recommendations are organised in accordance with the four principal components of Fatigue Risk Management Systems (FRMS), per ICAO Standards and Recommended Practices.



MOR: Mandatory Report
VOR: Voluntary Report

Safety Reporting ATS SAERCO 2023		
MOR/VOR	Average time to report	Average time to MOR/VOR
3240	1:53:13	33:10:38

ATS reporting evolution 2021-2023



“Achieving a reporting system where proactivity is the norm is not easy, it requires the effort and commitment of the entire organization, especially the operational personnel”

Thanks to the continuous improvement of its reporting tools and the active participation of its employees, SAERCO has consistently exceeded the number of notifications year after year. The average notification times also show compliance with the strict deadlines required by AESA.

It is noteworthy that the number of notifications has increased over the years, primarily due to the constant growth in operations. This clearly reflects SAERCO's evolution in terms of notification culture and record-keeping, allowing for the documentation of many more events.

This sustained increase not only indicates growth in the number of managed operations but also demonstrates an improvement in the operational staff's awareness and commitment to the importance of incident reporting. Furthermore, this positive change underscores the organization's efforts to maintain high safety standards by fostering a proactive culture where every incident is documented and analysed.

Comparing with previous years reveals a clear trend toward greater transparency and efficiency in event management, significantly contributing to continuous improvement in internal processes and operational safety.

It is noteworthy that despite the increase in the number of notifications compared to 2021 and 2022, the average notification times have decreased. This highlights the effectiveness of SAERCO's notification system as a critical tool for enhancing safety across all units.

Air Accidents/Incidents due to aircraft deviation from ATC clearance

In the history of aviation, there have been numerous accidents where the cause was found to be aircraft deviating from controller clearance. Additionally, another critically important cause has been the involvement of Human Factors in accidents. Both have been topics discussed throughout this newsletter. Here are two significant accidents:

Avianca Flight 410 Accident - 1980

Avianca Flight 410, a Boeing 727-21, took off in VMC from Camilo Daza International Airport in Cúcuta. On board was a guest pilot traveling as a passenger, with whom the captain was discussing personal matters. The first officer and flight engineer were responsible for the takeoff.

Subsequently, the captain did not monitor the flight but continued to engage in irrelevant conversation with the passenger pilot. Cúcuta Airport is surrounded by mountains, which presents significant challenges. During the climb phase, the first officer made a left turn that alarmed both the guest pilot and the captain. This ultimately led to a collision with El Espartillo hill, approximately 13 km from the airport.

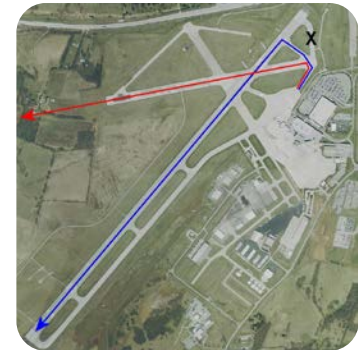
The investigation determined that the primary cause was the captain diverting attention from the operation and failing to provide adequate and continuous supervision of the first officer's actions.

Comair Flight 5191 Accident - 2006

A Comair Bombardier CRJ100 crashed shortly after takeoff from Blue Grass Airport in Lexington, Kentucky. The aircraft attempted to take off from a runway that was too short to allow for a safe departure.

The crew did not follow ATC instructions that assigned them Runway 22 for takeoff; instead, they attempted to depart from Runway 26.

- Desired route via Runway 22
- Actual route via Runway 26
- X Taxiway closed



In conclusion, these two accidents illustrate how non-compliance with ATC instructions and human factors involvement can result in aviation tragedies. This risk underscores the need for precise and effective communication between pilots and controllers, as well as the importance of ongoing training and strict adherence to safety protocols. Addressing these issues is essential to ensure safety in air operations and prevent future accidents.

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