# IATA Annual Safety Report - 2024

## Executive Summary and Safety Overview

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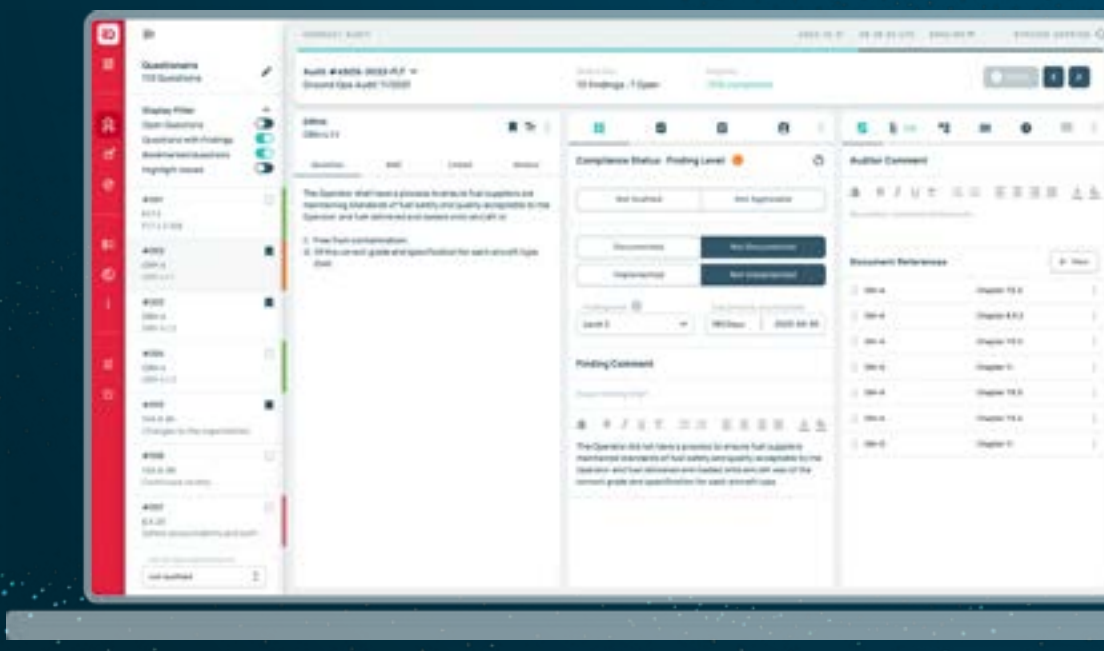

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CONDUCT AUDIT VIEW

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# Executive Summary

In 2024, the aviation industry successfully transported 5 billion passengers worldwide on over 40 million flights.

Commercial aviation remains one of the safest modes of public transport. This is evidenced by a long-term trend showing a significant reduction in accident rates, from 3.72 accidents per million sectors in 2005 to 1.13 accidents per million sectors in 2024. This reduction in the accident rate is down to industry's continuous commitment to safety which leverages improvements in areas such as safety management, technology, training and safety culture to drive down the risk of future accidents.

Although the number of accidents increased in 2024, it is important not to draw incorrect statistical conclusions from individual events, as aviation remains one of the safest modes of transport. To assess safety performance over time, the industry uses a five-year rolling accident average, which has shown a steady decline over the past two decades.

While high-profile events —such as the Jeju Air accident in South Korea and the Azerbaijan Airlines crash in Kazakhstan—have drawn global attention, they remain outliers in an industry where millions of passenger travel safely every day. These events reinforce the aviation sector's unwavering commitment to safety, with airlines continuously enhancing safety measures through innovation and rigorous oversight.

A critical factor in advancing aviation safety is the thorough, and timely, investigation of aircraft accidents, followed by the publication of final accident reports. These reports are essential for identifying the causes of accidents, enabling the industry to minimize or eliminate the risk of future occurrences. Failure to publish comprehensive and timely accident reports prevent operators, equipment manufacturers, regulators, infrastructure providers, and other stakeholders from accessing critical information that could make aviation even safer.

Although State obligations under the Chicago Convention and responsibilities in ICAO Annex 13 are clearly defined, many aircraft investigations remain incomplete and/or final reports are often not published in accordance with ICAO Annex 13 timelines. IATA continues to work closely with ICAO, States and other stakeholders to ensure compliance with Annex 13 obligations, ensuring this vital link in the safety chain is fully adhered to by the international community.

Major accidents in 2024:

- **January:** An Airbus 350-900 collided with a Japan Coast Guard aircraft in a runway damage, as classified by ACTF. While all passengers on the A350-900 escaped safely, five people on board the Japan Coast Guard aircraft lost their lives.
- **January:** A Boeing 737-9 MAX suffered a fuselage separation while climbing out from Portland's airport. All 177 passengers survived the emergency landing.
- **March:** A Dash 8-300 collided midair with Cessna 172M over Nairobi National Park, although all passengers on the Dash 8-300 aircraft escaped safely, there were two fatalities on board Cessna.
- **August**: The tragic loss of an ATR-72 in Brazil claimed the lives of 62 passengers and crew, due to a loss of control inflight before plunging to the ground.
- **May**: A Boeing 777-300 aircraft experienced a severe turbulence event, resulting in one fatality.

The IATA Accident Classification Task Force (ACTF) classified accidents according to IATA Accident Criteria, as presented within the appendix to this report. Some events fall outside these criteria, but are important nonetheless such as:

- **July**: A CRJ-200 crashed on take-off in Nepal, claimed18 lives due to Loss of Control.
- **Oct**: An IL-76 freighter accident in Sudan, claimed 5 lives.
- **Decembe**r: A ERJ-190 accident in Kazakhstan, claimed 38 lives.

The incidents in Kazakhstan and Sudan were deliberate attacks on aircraft, classified as such by ACTF. As primarily security-related events, they are typically excluded from IATA's Annual Safety Report. However, discussions with ACTF are ongoing to determine how best to account for such incidents in future reports.

These events highlight the risk factors associated with civilian flights operating to, from, or in the vicinity of conflict zones. These zones present significant risks to civilian traffic that need to be carefully managed through frequent reviews and updates to safety risk assessments.

**Summary of 2024 Safety Performance:**

A total of 46 accidents met the IATA classification criteria as determined by the ACTF, representing a 9% increase from 2023. Overall, there was one accident for every 881,541 flights.

In 2024, seven accidents were fatal, resulting in 244 onboard deaths and seven additional fatalities classified as 'other.' This marks a significant increase compared to 2023, which recorded 72 onboard fatalities.

The fatality risk rate per million sectors increased from 0.03 in 2023 to 0.06 in 2024. However, the long-term trend continues to show a significant decline, dropping from 0.69 in 2005 to 0.06 in 2024. This means that, on average, a person would have to fly, 49,246 years to experience one 100% fatal accident.

**Accident categories** in 2024, listed in order of the number of fatalities, with the number of accidents in brackets, were:

- Other End State[1] (4) with 182 On-Board fatalities, plus one fatality onboard where aircraft experienced minimal damage.
- Loss of Control – In-Flight (LOC-I) (1) with 62 On-Board fatalities
- Runway Damage (1) 5 Other fatalities
- Mid-Air Collision (1) 2 Other fatalities

The **accident categories** in 2024, listed by the frequency of non-fatal accidents, were:

- Tail Strike (12)
- Runway Excursion (10)
- Landing Gear (5)
- Ground Damage (3)
- Runway Damage (2)
- Off Runway Touchdown (Off or Partial) (2)
- Hard Landing (2)
- Other End State (2)
- In-flight Damage (1)

[1] **The Other End State is used where:**
- **Information available at the ACTF meeting was not enough to determine the accident end state. For example:**
  - **Aircraft is missing,**
  - **The investigation is still ongoing or report not available and the ACTF is unable to assign an end state classification**
- **The End State does not fit into other categories**

**Jet and turboprop hull loss accidents in 2024**

- The jet hull loss accident rate increased from 0.06 in 2023 to 0.14 in 2024, compared to the 5-year (2020-2024) rolling accident average rate of 0.15 accidents per million sectors.
- The turboprop hull loss accident rate rose from 0.83 per million sectors in 2023 to 1.12 accidents per million sectors, which is ahead of the 5-year (2020-2024) accident rolling average rate of 1.37 accidents per million sectors.

When considering accidents per **region of operator**:

- It is important to note that, due to limited data, the Commonwealth of Independent States (CIS) accident rate per million sectors was reported as zero in 2024.
- Two regions see an improvement when comparing with 2023:
  - Middle East and North Africa (MENA) operators' accident rate per million sectors decreased from 1.12 in 2023 to 1.08 in 2024. Fatality risk rate has remained zero since 2019.
  - North America (NAM) operators went from 1.53 in 2023 down to 1.20 in 2024. Fatality risk rate remained zero since 2020.
- Africa (AFI) had the highest accident rate with 9.54 accidents per million sectors in 2024. This increased from 8.36 per million sectors in 2023. Fatality risk remained at zero in 2024.
- The Latin America and Caribbean (LATAM/CAR) region had the second highest accident rate with 1.77 accidents per million sectors. The LATAM/CAR accident rate rose from 0.73 accident per million sectors in 2023 to 1.77 in 2024. Fatality risk rate also increased from 0.00 in 2023 to 0.35 in 2024.
- The Europe (EUR) region saw an increase in both the accident rate and fatality risk. The accident rate rose from 0.95 per million sectors in 2023 to 1.02 accidents per million sectors in 2024. Fatality risk rate went from 0.00 in 2023 to 0.03 in 2024.
- The North Asia (NASIA) region saw an increase in the accident rate. The accident rate rose from 0.00 accidents per million sectors in 2023 to 0.13 in 2024, ahead of the 5-year rolling accident average rate of 0.16. Fatality risk rate remained zero.
- The Asia Pacific (ASPAC) accident rate increased from 0.92 in 2023 to 1.04 per million sectors in 2024. The 1.04 accident rate remained below the 5-year accident average rate of 1.10.

Additionally, ACTF members classify the factors that led to the accidents, using the Threat and Error Management (TEM) framework. In analyzing **TEM**, the most common contributing factors to the 2024 accidents include undesired aircraft states, latent conditions, flight crew errors, environment and airline-related threats as well as the effectiveness of countermeasures, were:

- **Abrupt Aircraft Control** was a contributing factor in 26% of the 2024 accidents.
- Continued landing after **Unstable Approach** was cited in 26% of the accidents.
- **Manual Handling and Flight Control Errors** was a contributing factor in 39% of accidents in 2024.
- **Non-compliance to Standard Operating Procedures (SOP)** was cited in 35% of accidents.
- **Crew Response and Situational Awareness** was a contributing factor in 37% of the accidents.
- **Aircraft Malfunction** was a contributing factor in 22% of the accidents.
- **Adverse weather** was a contributing factor in 22% of the accidents with conditions relating to wind/ wind shear/ gusty wind and thunderstorms most cited.
- **Flight Operations:** (SOPs and Checking as well as Training) were cited in 28% of the accidents
- **Inadequate Safety Management System** was cited in 13% of accidents.
- **Aeroplane Flight Path Management, Manual Control** was cited in 37% of the accidents
- **Situation Awareness (SA) and Management of Information (MoI)** were contributing factors in 35% of accidents, followed by aircraft flight path management, and manual control.

Note: The percentages (%) shown for contributing factors are based on the number of accidents in each category. Since a single accident may involve multiple contributing factors, the total percentage may exceed 100%.

For more details and interactive content, please visit the IATA Annual Safety Report dashboard

IATA

# Safety Overview

61st Edition

# 1. IATA Safety Strategy

IATA remains committed to improving global aviation safety performance through the reduction of accidents. The three core pillars of its Safety Strategy are Safety Leadership, Safety Risk and Safety Connect.

## 1.1. Safety Leadership and Safety Culture

### Safety Leadership Charter

Aviation continually adapts to rapid technological advancements, increasing environmental challenges and a shifting political landscape. This dynamic ecosystem demands flexibility and accountability, where strong safety leadership, and an evolving safety culture, enable organizations to manage complex operations safely.

Recognizing its significance, the IATA Safety Leadership Charter has been established as an IATA priority. Since its launch in September 2023, 120 airline Chief Executives (CEOs) have signed the Charter, representing over 75% of global commercial airline traffic.

IATA strives for all industry CEOs to join the Safety Leadership Charter, demonstrating the airline industry's committed to furthering fostering a strong safety mindset within each organization, and driving industry-wide safety improvements through the IATA Safety Leadership Principles.

To facilitate the practical application of the Charter guiding principles, in 2024, IATA reviewed of the Risk-Based IOSA maturity criteria, to incorporate additional elements from the IATA Safety Leadership Charter Guiding Principles. This initiative will continue in 2025, strengthening the integration between these two key safety programs.

During the IATA World Safety and Operations Conference (WSOC) 2024, Safety Leadership was one of the central discussion themes, featured prominently on a panel of airline executives and highlighted throughout various conference tracks. The discussions emphasized the growing need for the aviation industry to place greater emphasis on the non-technical aspects of safety, such as safety culture, within all areas of an organization. Panelists underscored the importance of effectively identifying, sharing, and adopting best practices to enhance safety culture.

Following the Safety Leadership executive panel, signatory airlines shared their experiences and insights in embedding the guiding principles of the Charter into their organizations. Their presentations highlighted several key practices that help build a stronger safety culture:

- Actively involving third-party service providers in safety-related activities.
- Fostering cross-organizational and cross-operational collaboration to ensure the long-term success of change management processes.
- Encouraging leadership to visit critical airports and bases regularly for a two-way exchange of safety information.
- Integrating safety performance into leadership metrics and evaluations.

Finally, a dedicated WSOC workshop on Safety Leadership and Human Factors provided a platform for safety practitioners to engage in thought-provoking discussions. Led by industry experts, the workshop focused on the following topics: safety culture and leadership, fatigue management, human error, Safety II, and wellbeing.

Additionally, the IATA Safety Leadership program is supporting the drive for improved safety performance through regional initiatives, such as "Focus Africa", launched in 2023.

We invite you to explore the following material:

- Watch the "Addressing Aviation Safety Challenges and Solutions in Africa and the Middle East" webinar, including its opening chapter on "Safety Leadership as a resource for the Organizational Resilience", by registering here.

- Download “Making Aviation Safer: Your guide to aviation safety and leadership” through the IATA Knowledge Hub.
- Read industry reflections on Safety Leadership and Safety Culture from the IATA Safety Issue Review Meeting (SIRM), please visit the SIRM blog.

Looking forward, each year IATA will focus on two Safety Leadership Guiding Principles as chosen by IATA Safety Leadership Charter signatories. In 2025, the following Principles will be at the heart of IATA Safety Leadership activities:

Guiding Principle # 3 Guide the integration of safety into business strategies, processes, and performance measures.

Guiding Principle #5 Create an atmosphere of trust, where employees are encouraged and confident to report safety-related information.

## IATA Aviation Safety Culture Survey (I-ASC)

The IATA Aviation Safety Culture survey (I-ASC) was developed in 2016 by IATA in collaboration with Cranfield University and Ipsos. I-ASC helps aviation organizations assess their safety culture, identifying gaps, implement changes, and track progress. Using a standardized methodology and performance indicators, I-ASC delivers measurable, actionable, and comparable results, based on both quantitative and qualitative data, enabling internal and industry benchmarking.

In 2024, IATA enhanced I-ASC to be fully customizable, allowing organizations of all types and sizes to tailor it to their specific needs and budget.

Over the past year, IATA supported seven aviation organizations, including two airlines in Africa, in their journeys to assess safety culture and implement improvements through I-ASC.

Most recently, to help industry address some of the themes identified through I-ASC, IATA developed a Just Culture training course. This course emphasizes practical application and is conducted in a case study- and discussion-rich learning environment.

IATA encourages airlines to continuously enhance their safety resilience by using various industry tools to measure and improve their organizational safety culture in a systematic and comprehensive way.

# 1.2. Safety Risk

In 2024 we repositioned the Safety Issue Hub within IATA Connect, our aviation safety gateway, integrating it with Safety Connect and the IOSA airline registry on a single platform.

Following continued growth and evolution, the Hub now covers 95 safety issues across a wide range of operational and key risk areas. To support IATA members and the wider industry in risk assessment, generic Safety Risk Assessments (SRAs) with bow-tie models were published for Loss of Control in Flight (due to Environmental conditions), Runway Incursion, and Tail strike. Additionally, ‘Lite’ SRAs have been introduced for Space Weather and Take-off Performance Calculations, while the GNSS Interference assessment has been updated to reflect the changing landscape.

The Hub remains a key input for IOSA’s risk-based approach, with eight regional risk pictures, comprised of high-priority safety issues, made available to support the audit process. Safety issues that we assess as being more specific to certain regions can also be explored within the Safety Issue Hub.

We encourage the aviation community to contribute to the Hub by ‘sharing an issue’ when identifying emerging safety concerns that could impact the industry. As the IATA’s safety risks repository, the Hub plays a crucial role in prioritizing and delivering aviation safety improvement programs to reduce global accidents in aviation.

To share air safety reports or incident reports with IATA, rather than a safety issue, we encourage air operators to participate in IATA's Incident Data Exchange (IDX) Program.

### IATA Safety Issue Review Meeting (SIRM)

We held three successful Safety Issue Review Meetings (SRIM) in 2024. Our global SIRM took place in Belgium, complemented by two regional SIRMs in Rwanda and Senegal to support our Focus Africa initiative. The SIRM is open to safety professionals from airlines, manufacturers, ground service providers, and airports.

During the SIRMs attendees discussed various key safety issues and shared lessons learned from within their own operations and best practices. Safety conversations focussed on topics including runway safety, GNSS interference, safety leadership, and seasonable safety issues.

Blogs from the meetings with a summary of insights, risk mitigations, and actions are available on our SIRM page.

## 1.3. IATA Connect

The IATA Connect platform was launched during the IATA World Safety and Operations Conference in October 2024. Designed for airlines, regulators, auditors, and supporting organizations, this website and app facilitate all IOSA auditing activities, Safety Risk Identification and Management (via the Safety Issue Hub), and safety and operational-related discussions, questions, resources, and guidance (through Safety Connect). Through the site, airlines can access and share their audit reports with partners, report safety issues, accidents, and incidents, and seek guidance and information regarding best practices, changes in regulation, management of risk, and other challenges faced in safety management.

A key feature of IATA Connect is peer-to-peer discussions, allowing industry professionals to collaborate on shared safety challenges. Several discussion groups focus on specific safety disciplines such as Cabin, Flight, Ground, Cargo, IOSA, as well as regional interests. Within these groups, users can raise questions, post updates and news, and discuss topics and/or regional issues which are affecting their operation to identify the best solutions through working together.

IATA encourages all readers with an interest in Safety Management and Operations to join the IATA Connect resource as follows:

- Login to the IATA Customer Portal using a company-related email address, creating an account if one is not already active.
- Go to SERVICES > AVAILABLE SERVICES
- Identify **IATA Connect** in the available services list and ENABLE SERVICE

Once enabled, the service can be accessed directly at https://ic.iata.org, or through the IATA Connect APP which is available on both Android and iOS app stores, using the Customer Portal login credentials.

# 2. IATA Operational Safety Audit (IOSA) – Risk-Based Approach

In 2024, the IATA Operational Safety Audit (IOSA) Program rolled out its risk-based audits on a large scale and successfully conducted over 100 audits, meeting IATA's Board of Governors target. Risk-based IOSA (RBI) delivers greater safety insights through a data-driven approach to identifying the most critical IOSA Standards and Recommended Practices (ISARPs) to an operator's individual profile, and by performing a deeper assessment of these. The new approach includes new audit methods such as a maturity assessment of the operator's Safety Management System (SMS) and safety critical programs, process-based auditing, risk-based thinking etc.

IATA's risk-based audits have demonstrated that maturity assessments provide invaluable insights into the strengths and weaknesses of the operators' SMS and other safety-critical programs. In 2024, these assessments revealed that overall operators demonstrated mature safety risk management and safety promotion practices. Additionally, risk-based audits identified, on average, three times more non-conformities than conventional audits, thanks to a more targeted and effective audit methodology, as well as enhanced auditor training and qualification programs. The IOSA Program currently trains, maintains and oversees some 190 IOSA Auditors worldwide.

To address the industry's needs for collaboration and state-of-the-art information exchange in a secure environment, IATA launched the IATA Connect platform (as mentioned above). This platform creates a secure community of aviation safety, security, compliance and operations experts at airlines, regulatory agencies and auditors.

With an initial focus on the IATA Operational Safety Audit (IOSA), IATA Connect community members are able to access and use the platform to securely exchange safety documentation, share information, and collaborate to support further improvements in aviation safety. In addition to the IOSA Registry, IATA Connect also house a secure private documentation repository with analytical and benchmarking capabilities. Contents of the document repository include IOSA audit reports, standards and related information, guidance materials, airline profiles, industry alerts and news sources which can be accessed and shared. Currently, approximately 5,000 aviation safety professionals are members of the IATA Connect community, including representatives from all IOSA registered airlines and auditors.

To increase efficiency in regulatory oversight and to reduce redundant costs for regulators and for airlines, IATA collaborates with civil aviation authorities worldwide. Globally, over 40 civil aviation authorities use IOSA to complement their regulatory oversight. In 2024, IATA entered collaborations with the civil aviation authorities in Brazil, Canada, El Salvador, Iceland and Lithuania. The collaborations underline IOSA as the aviation industry's key operational safety standard and directly support the goal of global safety and efficient oversight.

The IOSA Registry has grown significantly in 2024: 46 new airlines across all regions have completed their initial IOSA audit bringing the total number of airlines on the registry to 446.

## 2.1. IATA Standard Safety Assessment (ISSA) Program

The IATA Standard Safety Assessment (ISSA) is a voluntary evaluation program, developed at the request of the industry, to extend the benefits of operational safety and efficiency that emanated from the IOSA Program to the operators of smaller aircraft that are not eligible for the IOSA program.

In 2024, IATA insourced the ISSA assessments and introduced key improvements, including an updated audit model and mandatory observations, among other enhancements.

Following a thorough gap analysis against the applicable ICAO Annexes, ISSA now incorporates all relevant requirements. As a result, the number of ISSA Standards and Recommended Practices nearly doubled to ensure full alignment with ICAO applicable requirements.

IATA also improved the audit model by extending the auditor days from 5 to 7 to improve the assessment depth and quality. In the new model, ISSA auditors now complete documentation assessments remotely over 3 auditor days, followed by a 4-day on-site visit to verify implementation.

To facilitate the transition and ensure widespread understanding, IATA conducted workshops addressing interested operators and authorities across various regions. Additionally, all RBI auditors eligible for the ISSA Program were trained thoroughly by IATA.

In the fourth quarter of 2024, IATA conducted two initial ISSA assessments using the revised model. Feedback collected from auditors and operators involved in the assessments, confirmed that the updated program is more robust, effective, and aligned with ICAO standards.

This year's developments represent a significant advancement in the effectiveness and efficiency of the ISSA program, reinforcing IATA's commitment to maintaining the highest safety and operational standards.

# 3. IATA World Safety and Operations Conference

IATA regularly organizes conferences, webinars, and events to enable airlines to discuss critical safety risks, issues, and concerns. The IATA World Safety and Operations Conference (WSOC) is a comprehensive event that addresses safety, operations, and infrastructure within the aviation industry. It brings together professionals from various sectors to discuss and share valuable insights.

Last year's event, the IATA WSOC 2024, hosted by Royal Air Maroc, was held in Marrakesh, Morocco, on 1-3 October, bringing together experts from around the globe to address topics within the following content tracks: Cabin Safety, Flight Operations, Safety and Risk Management, Emergency Response, and Aircraft Recovery. Under the theme "Embracing Innovation and Technology for Safe and Efficient Operations, WSOC 2024 brought together experts to address topics within the following four content tracks: Cabin Safety, Flight Operations, Safety and Risk Management, Emergency Response, and Aircraft Recovery. Discussions addressed vital areas such as the Risk-Based Operations Safety Audit, runway safety, accident investigation, AI-driven data analysis, and digital aircraft maintenance.

# 4. Accident Investigation Reports

Accident investigations are a fundamental component of aviation's overall risk management process, guiding the implementation of safety strategies across the industry. Regardless of the statistical trends in aviation accident data, one central fact remains: investigating aviation accidents is crucial. These investigations gather and analyze information, identify causes and contributing factors and formulate safety recommendations—all with a focus on prevention rather than assigning blame or liability.

Aligned with international standards, the provisions outlined in the International Civil Aviation Organization (ICAO) Annex 13 underscore the importance of timely and thorough investigations to enhance safety and prevent future occurrences. Annex 13 also outlines the process leading to the issuance of an accident investigation.

- **Preliminary Report** - within 30 days of the of the date of the accident or incident - containing established factual information and indicating the progress of the investigation.
- **Final Report** – as soon as possible (ASAP) or within 12 months of the date of the accident or incident – in the interest of accident prevention
- If the report cannot be made publicly available within 12 months, the State conducting the investigation shall make an **Interim Statement** publicly available on each anniversary of the occurrence, detailing the progress of the investigation and any safety issues raised.

Between 2018 and 2023, IATA accident data recorded 269 accidents, with only 57% resulting in a published investigation report. These reports are crucial for identifying contributing factors, implementing safety improvements, and preventing future accidents. However, 57% is unsatisfactory, as missing reports deprive the industry of valuable insights that could inform safety improvements and mitigate risks. To address this, IATA continues to urge States to comply with Annex 13 and actively advocates for the timely and complete issuance of accident investigation reports. This effort is reinforced by a five-point roadmap created to promote this initiative.

The objective of ICAO Annex 13 is to investigate accidents for the sole purpose of preventing similar occurrences. However, this can be compromised by the lack of issuance of investigation reports in a timely manner. Not issuing or delaying in the release of final reports hinder the industry's ability to promptly implement safety improvements based on the findings. IATA's advocacy for timely and complete reports aligns with the industry's commitment to continuous improvement and the proactive prevention of aviation accidents.

## 4.1 Accident Investigation Roadmap

The Safety Group (SG), in collaboration with IATA regional offices and industry partners (OEMs, IATA Accident Classification Task Force (ACTF), International Federation of Air Line Pilots' Associations (IFALPA), International Civil Aviation Organization (ICAO), and the Flight Safety Foundation (FSF)), has developed a comprehensive road map with coordinated efforts in five key areas to increase the number of accidents investigations reports:

- Continuous Improvements to the IATA Accident Reports Database
  - In collaboration with ICAO Accident Investigation Panel (AIGP), and IATA Regional Offices
- Enhanced Training for Accident Investigation Bodies and Investigators
  - Support regional training of accident investigators
  - Support enhances standard implementation by States
- Engagement with ICAO
  - Council
  - Global Aviation Safety Plan (GASP)
  - Annex 13 AIGP
  - High Level Conference
- Coordinated efforts with IATA and ICAO Regional Offices to ensure State compliance
  - Follow up on the status of accident investigations and lobby for their completion
- Media Campaign to Raise Industry Awareness
  - IATA Media Day
  - IATA Annual General Meeting (AGM)
  - IATA World Safety and Operations Conference (WSOC)
  - IATA Annual Safety Report (ASR)

## 4.2 Accident Investigation at the 2024 WOSC

The two dedicated accident investigation sessions at WOSC - "Accident Investigation, continuing the story" and "Innovation in Accident Investigations," delved into 2023 accident data, updated on the progress of IATA's work in driving improved accident reporting and its importance for the airline industry, including the creation of the five-point roadmap. The discussion also focused on how new methods could overcome current obstacles in accident investigations, such as enhancing training standards, ensuring States have enough resources, and others.

## 4.3 Accident Investigation Advocacy

### 2024 International Civil Aviation Organization - Fourteenth Air Navigation Conference (ICAO 14th ANC)

IATA, in collaboration with the International Business Aviation Council (IBAC) and the International Federation of Air Line Pilots' Associations (IFALPA), presented a Working Paper (WP) focused on enhancing accident investigations and the publication of accident investigation reports. This WP highlighted concerns over inconsistent State compliance with ICAO Annex 13 and detailed IATA's actions taken to support the investigation and publication of accident reports in accordance with Annex 13. This WP was further supported by interactions with the UK, Canada, the International Society of Air Safety Investigators (ISASI), and other stakeholders. As a result, the Conference acknowledged the risks posed to the global aviation system when safety lessons learned from investigations are not drawn. It also recognized the challenge and reiterated the urgency for State accident investigation authorities to investigate and report on accidents in a timely manner.

## ICAO Regional Events

At different ICAO Regional venues, IATA actively increased awareness of the need to provide timely accident investigation reports and urged States to comply with ICAO Annex 13 obligations. These efforts culminated in the successful development of joint position papers on Enhancing Accident Investigation Reports.

## ICAO General Assembly

IATA remains committed to ensuring the availability of more investigation reports. In collaboration with industry partners, IATA will submit a Working Paper at the 2025 ICAO General Assembly, emphasizing the importance of investigating all accidents and making investigation reports more accessible.

## 4.4 Safety Recommendations Arising from Accident Investigations

As part of the 5-point roadmap, IATA is committed to creating a repository for safety recommendations derived from accident investigations. Safety recommendations are issued by the accident investigation authorities with the intention of preventing accidents and incidents. The repository will become available in 2025 and will be updated regularly. This repository will be launched using a phased approach.

# 5. IATA Safety Training Portfolio

In 2024, IATA updated its safety training portfolio to provide a practical understanding of the systems and tools that organizations have or should have in place to manage safety risks and reduce the occurrence of incidents and accidents in aviation. The renovated training courses include the Accident / Incident Investigation training course and the basic and advanced SMS for Airlines training course.

# 6. Reduce Operational Risk

Throughout 2024, IATA demonstrated a dedicated commitment to fostering aviation safety through a comprehensive and collaborative approach. With a strategic focus on addressing key safety priorities, IATA has undertaken safety measures to mitigate operational risks and enhance overall safety within the aviation industry.

The collaborative engagement with industry stakeholders, including the IATA Operations Advisory Council (OAC), Safety Group (SG), Accident Classification Task Force (ACTF), Human Factors Task Force (HPTF), Cabin Operations Safety Task Force (COSTF), Flight Operations Group (FOG), member airlines, regulators, and technology providers, highlights the collective efforts to enhance safety measures throughout the industry.

The following points highlight some of the key safety initiatives addressed by IATA during 2024 and shed light on the activities undertaken to reduce operational risks and enhance the overall safety within the aviation sector.

## 6.1 Loss of Control In-flight (LOC-I)

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| **Safety Issue Hub** | **SI-136 Aircraft upset / unusual attitude due to pilot handling (manual flying skills) and/or turbulence** |

Loss of Control In-flight (LOC-I) refers to the loss of aircraft control while inflight. Over the past decade, more than 40 percent of fatal accidents in commercial aviation have been attributed to this issue. The likelihood of this event can be reduced through improved skills in prevention, recognition, and recovery, making this a targeted issue for safety improvement by IATA.

In 2024, IATA conducted a study with industry partners to review LOC-I accident data and industry materials. This study led to the successful publication of the "Loss of Control In-flight – Environmental Conditions" Safety Risk Assessment (LOC-I SRA). Although, the group examined LOC-I factors associated with the environmental conditions, systemic and human performance as well as aircraft technical, this SRA focused on the environmental conditions as well as systemic and human performance. Please refer to the Recommendations for Accident Prevention.

## 6.2 Controlled Flight into Terrain (CFIT)

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| **Safety Issue Hub** | SI-45 EGPWS Software & Terrain Database out of date |

Controlled Flight into Terrain (CFIT) refers to the In-flight collision with terrain, water, or obstacle without indication of loss of control. Over the past 10 years, over 16 percent of commercial aviation fatal accidents occurred and continues to be one of the top focus areas of IATA. Enhanced ground proximity warning systems / Terrain Avoidance and Warning Systems (EGPWS/TAWS) and other ground collision avoidance systems, such as Runway Awareness and Advisory System RAAS (Runway Overrun Prevention System [ROPS] / Runway Overrun Awareness and Alerting System [ROAAS]) are capable technological solutions.

The fitment and use of EGPWS have been demonstrated to be an effective barrier to preventing CFIT accidents, however, its effectiveness depends on having an up-to-date and valid terrain and obstacle database. As identified in the SRA, while EGPWS/TAWS suppliers regularly issue database updates, not all holders of Air Operators Certificates (AOC) implement these updates in a timely manner. To address this concern, a collaborative effort between IATA and various EGPWS/TAWS suppliers resulted in the publication of the "Enhance Access to EGPWS/TAWS Database Information" guide. This guide provides operators with essential information on how to access the latest EGPWS/TAWS Terrain Database (TDB), including instructions and resources on where and how to obtain the latest TDB updates from various EGPWS/TAWS Suppliers.

Additional recommendations to minimize the likelihood of CFIT accidents are outlined in the CFIT section of the Recommendations of Accident Prevention document.

## 6.3 Runway Safety

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| **Safety Issue Hub** | SI-66: Aircraft Tailstrike<br>SI-122 Runway Incursion<br>SI-160 Runway Excursion<br>SI-55 Unstable Approaches |

In adherence to our steadfast commitment to aviation safety, supporting the industry in implementing proactive measures to reduce operational occurrences such as Runway Excursions, Runway Incursions, Hard Landing, Tail strike, and Off Runway Touchdown, remains a top priority.

This commitment is demonstrated through various initiatives aimed at addressing and mitigating the risks associated with runway safety. The collective efforts of the aviation industry, are highlighted in:

- The focused actions on the Global Action Plan for the Prevention of Runway Excursions (GAPPRE).
- The focused actions on the Global Action Plan for the Prevention of Runway Incursions (GAPPRI).
- To support the industry in implementing GAPPRI recommendations IATA has made a gap analysis tool available.
- The development of a Tail strikes SRA and a Runway Incursions SRA to assist IATA members in evaluating the effectiveness of their safety controls and identifying the need for additional mitigation actions. These risk assessments have led to significant recommendations, including an update to the Tail strike section in the "Recommendations for Accident Prevention in Aviation" guide —an important resource developed by ACTF members.

- The insightful Runway Safety session at the WSOC explored global runway safety challenges and how the industry can leverage technology to mitigate risks for airlines and passengers.

## 6.4 Unstable Approaches

In 2024, IATA established a group, comprising member airlines and industry partners, to define and categorize high-risk unstable approaches, with the aim of implementing the classification in the Flight Data eXchange (FDX) program for its users. Various Safety Performance Indicators (SPIs) were considered, including the Egregious Unstable Approaches SPI option. In 2025, IATA will continue assessing the appropriate SPIs for high-risk unstable approaches.

**For more details and interactive content, please visit IATA Annual Safety Report dashboard**

## 6.5 Traffic Collision Avoidance System Resolution Advisory Measurement Enhancement

Through IATA's continuous commitment to enhancing aviation safety, a particular focus has been placed on improving the effectiveness of Traffic Collision Avoidance System Resolution Advisory (TCAS RA) as a risk mitigation measure. In collaboration with EUROCONTROL, British Airways, Cathay Pacific, Japan Airlines, and the SG, IATA has successfully completed the preliminary integration of the TCAS RA Method B into IATA FDX program. The objective is to assess pilot responses to TCAS RA events, contributing to industry-wide efforts to enhance overall safety by reducing the risk of mid-air collisions.

# 7. Human Factors

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| **Safety Issue Hub** | SI-93 Fatigue<br>SI-87 Wellbeing |

Human factors play a role in aviation safety, making it an important focus for the industry. From the ICAO's definitions (DOC 10151), Human Performance (HP) refers to how people perform their tasks, representing the human contribution to system performance. Human Factors (HF) are concerned with the application of what we know about human beings, their abilities, characteristics, and limitations, to the design of equipment they use, environments in which they function, and jobs they perform.

Human Factors is an interdisciplinary field covering ergonomics, workplace safety, human error, product design, human capability, and human-technology interaction. Integrating knowledge from these different scientific disciplines enhances workplace safety and performance by reducing errors and improving decision-making, behaviour, and task execution. Since human error is the largest contributing factor in accidents, it is essential for the aviation industry to dedicate significant attention to addressing Human Factors challenges.

Traditionally, Human Performance efforts have focused on accidents and incidents investigations, air safety reports, mandatory safety reports, Crew Resource Management (CRM) training and cockpits design, each managed by different departments within an organization. While this approach has been effective, a more integrated program-level management strategy is necessary. Since all aspects of Human Performance are interconnected, they must be managed holistically to ensure a resilient and positive impact on aviation safety.

In 2025, IATA's Human Factors strategy will concentrate on establishing guidelines and best practices to help airlines implement and enhance Human Factors Programs. These programs will be integrated into their Safety Management Systems (SMS) with a systemic approach.

The IATA Human Factors Task Force (HFTF) is a multidisciplinary group of experts in Human Factors and Fatigue Management from airlines worldwide. They focus on creating tools and guidelines for Human Factors best practices in the industry as knowledge and experience evolve. Additionally, they work together on applying fatigue science and interpreting regulations related to fatigue risk management and flight/duty time limitations.

## 7.1 Fatigue Management

Fatigue is now acknowledged as a hazard that can impact various types of human performance and can contribute to aviation accidents and incidents. In 24/7 operations, fatigue is inevitable, as the human brain and body function optimally with adequate sleep at night. Since fatigue cannot be eliminated, it must be effectively managed.

Fatigue management refers to the methods by which Operators and operational personnel address the safety implications of fatigue.

To support operators in implementing fatigue management strategies, the IATA HFTF has developed the following documents which can be found in the dedicated Fatigue Risk Management webpage here:

- Common Protocol for Minimum Data Collection Variables in Aviation Ops
- Fatigue SPIs: A Key Component of Proactive Fatigue Hazard Identification
- IATA FRMS White Paper
- IATA FRMS Condensed Version of CASA Document on Biomathematical Models
- IATA FMTF White Paper on Uses and Limitations of Biomathematical Fatigue Models

The Fatigue Management Guide for Airline Operations marks the collaboration between IATA, ICAO and IFALPA to jointly lead the industry in the ongoing development of fatigue management, using the most current science. It presents the common approach of pilots, regulators, and operators to the complex issue of fatigue.

## 7.2 Human Factors and Fatigue Management Training

Among the extensive range of IATA training courses, there are two that specifically address Human Factors and Fatigue Management topics. The training courses listed below have been recently updated to incorporate the latest knowledge and practical approaches for airlines.

### Human Factors in Aviation

This course covers the principles of Human Factors and provides the necessary knowledge to foster and promote a positive safety culture within an organization. Topics include the four core disciplines of Human Factors, key models used to explain them, the influence of culture, and the role of human error.

### Fatigue Risk Management System (FRMS)

Actions to reduce fatigue-related accidents remain a critical item requiring attention. So, the Fatigue Risk Management System approach represents an opportunity for operators to use scientific knowledge to manage fatigue risk with the possibility of increasing operational flexibility. The FRMS training emphasizes the safety benefits of implementing an FRMS, such as increased crew member alertness, better work-life balance amongst crews, and a reduction in absenteeism attributed to fatigue. In addition to this, an FRMS may facilitate increased productivity and rostering flexibility.

## 7.3 Human Factors at 2024 WOSC

The Safety Track agenda featured an insightful session on Human Factors, with experts discussing the integration of Human Factors with technology. The speakers shared their valuable perspectives on cockpit automation, artificial intelligence, and change management, emphasizing the critical role of Human Factors.

Additionally, on the day before the WSOC, the Safety Leadership and Human Factors Workshop provided an incredible opportunity to engage with leading experts on crucial topics such as Fatigue Management, Safety Culture, Human Error, Safety Leadership, and Wellbeing.

# 8. Training and Licensing

IATA advocates for the implementation of Competency-Based Training and Assessment (CBTA) programs as a more effective and efficient way to develop a competent workforce than the traditional task- or hours-based training and checking. As such, IATA delivers CBTA awareness sessions and workshops for States and industry, to illustrate the value of CBTA in regard to safety enhancement and training efficiency.

IATA also supports global CBTA implementation by actively participating in the ICAO Personnel Training and Licensing Panel to update, standardize, and create new ICAO CBTA provisions (e.g., CBTA route into Annex 1).

Since October 2023, the IATA CBTA Library contains, among other guides, the first CBTA implementation guide for pilot and instructor training available in the industry, supporting the consistent application of CBTA across all modules and roles in a pilot's entire career.

Furthermore, to support a harmonized CBTA implementation, under the Global CBTA Centre of Excellence, IATA is developing standardization programs for the Civil Aviation Safety Inspectors (CASIs) responsible for the approval and oversight of CBTA programs, as well as for CBTA course developers for pilot and other aviation disciplines training. Additionally, in 2025, IATA will be evaluating an accreditation program for training organizations delivering CBTA programs. The objective of this accreditation program is to assess the quality and the compliance to international standards, as well as industry best practices, of the pilot and instructor training programs delivered by training organizations engaged in CBTA. The program will help enhance safety through global harmonization and standardization.

IATA provides further CBTA implementation support to the industry, i.e., operators, training organizations and civil aviation authorities, through its CBTA Consulting Services.

# 9. Cabin Safety

## 9.1 Cabin End State

The Cabin Safety section of the interactive IATA Annual Safety Report contains the End State classifications for aircraft accidents. When reviewing the dashboards, it should be noted that not all accidents will have a cabin classification for a Cabin End State, for example, cargo flights without cabin crew, or flights without passengers. Additionally, while some accidents within the database might be rejected as they do not meet the IATA criteria of an accident, they may have had an impact in the cabin for cabin crew and have been classified with a Cabin End State.

These classifications focus on three main categories:

- How much time the cabin crew had to prepare for the emergency;
- The corresponding level of preparation they were able to perform within the cabin;
- The type of evacuation carried out – land, water, abnormal disembarkation or normal operations.

During 2024, the database has been amended to include incident reports. While these do not always meet the criteria to be classified as an accident, they may still have some relevance or importance to Cabin Operations

and Safety. As a result, we have added some new classifications and used them within reports raised from 2024 onwards:

- Turbulence - Cabin Crew Injury
- Turbulence - Passenger Injury

In common with all previous years, almost all accidents which resulted in evacuation, these occurred with minimal warning and cabin crew had no additional time available to carry out any more preparation than they would during a normal landing.

This highlights the utmost importance of SOPs for cabin secure checks prior to take-off and landing being thoroughly and consistently applied, as this is usually the only opportunity to prepare passengers for a potential evacuation. It also highlights that passengers need to pay attention to the safety briefing on every flight, even if they have seen and heard it before, and that they need to know that taking baggage and personal belongings with them is most likely going to slow their own and others' evacuation of the aircraft.

When it comes to educating passengers on the importance of paying attention, and the differences in equipment and procedures on the aircraft they are traveling on, success relies on their willingness to be informed, their perceived needs, and a balance of providing the information in a way which encourages them to comply but does not frighten them.

To assist in efforts to educate travelers, IATA has provided some generic resources on our website as well as a passenger safety information card providing infographics to highlight some key cabin safety messages.

## 9.2 Cabin Safety Incidents

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| **Safety Issue Hub** | SI-99: Carriage of Portable Electronic Devices (PED) in the cabin |

A number of serious incidents occurred throughout 2024 which did not meet the IATA criteria to be classified as an accident, but had a significant impact on cabin operations and, although managed by cabin crew, they remain relevant to the annual review. IATA Cabin Safety reviews these incidents regularly and discusses these with airlines to produce relevant guidance and to steer our safety-related activities.

Many airlines report cabin safety-related incidents directly to IATA using the Incident Data Exchange (IDX) Program, and from here dashboards and Safety Performance Indicators highlight areas of potential concern. Other publicly available sources are used to highlight other incidents which have occurred. By analyzing information from all available sources, fire and smoke incidents caused by batteries within portable electronic devices have been identified as frequent occurrences. However, it is worth noting that these occurrences are effectively managed by cabin crew.

Some key Cabin Operations and Safety issues which were reviewed by IATA during 2024 were:

- Best practices for normal carriage and emergency evacuation of animals carried in the cabin, i.e. Pets (PETC), Emotional Support Animals (ESAN), and Service Animals (SVAN).
- Best practices for evacuation of passengers with disabilities.
- Portable Electronic Devices powered by lithium batteries, and the concern of potential of cabin fire when such devices overheat or enter thermal runaway. Specific areas reviewed included cabin crew training methods, passenger awareness of risk, regulations and restrictions, safety procedures and efficacy of fire containment devices.

Following a review of these topics and discussion with airlines, additional guidance was included in the IATA Cabin Operations and Safety Best Practices Guide.

## 9.3 Cabin Safety Activities

IATA's activities to support airlines include risk assessment, training, publication of guidance materials, and setting global standards for cabin safety.

The Cabin Operations Safety Best Practices Guide is a comprehensive guidance document covering all aspects of Cabin Safety Management. Edition 10 published in December 2024, includes new guidance material for lithium battery firefighting. As well as providing information and guidance to address existing risks, it is also published to help airlines determine best practices to assist them in complying with the IOSA standards which are a prerequisite for their continued IATA membership.

The IOSA Standards Manual section 5 includes the global cabin safety standards required for IATA membership and is updated annually by IATA's Cabin Operations Safety Task Force, a team of cabin safety specialists from airlines who work closely with IATA to guide our activities each year.

Following the launch of the IATA Connect resource, the Cabin Group has established itself as the most direct communication channel between airlines, IATA, and selected Strategic Partners to discuss issues and challenges and to support the effective implementation of safety management systems within the cabin. IATA encourages all airlines to ensure that their Cabin Safety Management team are registered to join this valuable resource and therefore participate in the global discussions on Cabin Safety issues.

IATA facilitates regular conferences, webinars, and events to ensure airlines come together to discuss important safety risks, issues, and concerns. During the IATA WSOC safety experts discussed issues within the following four content tracks:

- Cabin Safety;
- Flight Operations;
- Safety and Risk Management;
- Emergency Response and Aircraft Recovery.

Bringing together delegates from four related, yet different disciplines was a great opportunity to raise awareness of the similarities, the differences, and the cross divisional issues faced by all. Cabin Safety is an integral part of Flight Operations, Safety and Risk Management and Emergency Response, and while it is necessary to maintain a separate platform to discuss cabin safety issues, the impact on others must also be considered and discussed openly.

# 10. Dangerous Goods

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| **Safety Issue Hub** | **SI-41** Carriage of Miss or undeclared High Energy Storage Devices (Lithium Li Batteries) as cargo |

The list of dangerous goods and a number of guidance publications were adjusted in preparation for the adoption of sodium-ion batteries with organic electrolytes, into the global transport framework from 1 January 2025. Changes also included the creation of new entries for vehicles powered by different battery types, in response to a progressive move away from traditional carbon-based fossil fuels.

IATA has been active in a review of ICAO Annex 18 (Dangerous Goods) and the implementation of measures that will introduce greater safety in the cargo supply chain and an increased focus on those parties who offer, or cause to offer, dangerous goods for transport in air cargo.

# 11.IATA Turbulence Aware (ITA)

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| **Safety Issue Hub** | SI-98: Turbulence Encounters |

Turbulence Aware is a real-time repository which enables access to worldwide objective turbulence data collected from multiple airlines around the globe providing airline pilots, dispatchers, and operations center personnel with real-time, very detailed turbulence information. Turbulence Aware data improves airline safety performance by decreasing turbulence-related injuries, optimizing fuel burn, and gaining additional operational efficiencies through more accurate flight planning based on improved forecast, real-time turbulence, wind, and temperature data.

IATA has seen a 35% increase in data within its Turbulence Aware program in 2024 having received more than 51 million reports from over 2,700 participating aircraft. Given the increasing interest in this risk management safety initiative, further growth is forecast for 2025. Since 2020, Turbulence Aware has enhanced the safe travel experience of over 1.2 billion passengers.

# 12. Emergency Response Planning (ERP)

Much like in 2023, the direction and advancement of Emergency Response Planning (ERP) and Family Assistance matters in 2024 was overseen by IATA's Emergency Response Planning Task Force (ERPTF), which reports to the IATA Safety Group (SG).

Throughout the year, progress was made on the stated work plan, which culminated in the annual ERP Forum 2024, on 30 September 2024 in Marrakech, Morocco. The ERP Forum convened over 60 global airline representatives for a one-day event dedicated to advancing emergency response preparedness. Through case studies, workshops, and collaborative discussions, the forum aimed to refine industry practices, align with regulatory requirements and foster organizational resilience in handling aviation crises.

**Key highlights included:**

- Lessons learned from airline ERP activations - case studies from member airlines detailed recent ERP activations, sharing critical insights into family assistance programs and crisis management strategies. These sessions provided actionable takeaways for enhancing industry readiness.
- IATA Family Assistance research update - IATA presented ongoing research on family assistance readiness, including plans to develop new guidance materials, training programs, and organizational assessments.
- Proposed IOSA standards enhancements – proposed updates to the IOSA Standards Manual (ISM) were shared, focusing on modernizing emergency response standards over a multi-year improvement plan. Feedback gathered from attendees will influence upcoming revisions aimed at optimizing airline ERP frameworks.
- ERP Managers contact database - IATA introduced a new online contact database for ERP managers, replacing outdated systems and encouraging airlines to participate. This resource aims to improve collaboration and information-sharing among emergency response professionals.
- The ERP Forum consisted of several workshops:
  - ICAO Annex 9 Compliance - highlighted the need for centralized, accessible data to support family assistance planning and emergency response alignment with global regulations.
  - Succession planning - explored the critical role of ERP managers, emphasizing leadership development, cross-functional collaboration, and the necessity of organizational resilience.
  - Modernizing Go Kits and Relief Flights - focused on updating technical and logistical resources to ensure effective crisis response, with plans to develop universal guidance based on workshop outcomes.

The ERP Forum 2024 underscored the importance of comprehensive preparation and continuous improvement in emergency response capabilities. By fostering collaboration, advancing research, and aligning with international standards, the forum empowered airlines to strengthen their crisis management frameworks and maintain trust in aviation safety. The insights and initiatives shared will drive industry progress toward a more resilient future. More information can be accessed here.

# 13. Ground Operations Safety

## 13.1 IATA Safety Audit for Ground Operations (ISAGO)

IATA Safety Audit for Ground Operations (ISAGO) is the industry program for the global oversight of ground handling service providers (GHSPs). There are 226 GHSPs in the ISAGO Registry providing services at 401 accredited stations at 239 airports worldwide. As of 31st Dec 2024, 267 audits were completed, and 370 audits are expected in the year 2025.

Currently, 169 airlines (145 in FEB 24) have access to the ISAGO audit reports repository, which contains over 500 reports. Asia is the fastest-growing region, with 15 new airline members. ISAGO Airlines utilize these audit reports to enhance their risk-based oversight programs for outsourced ground operations services.

Data collected from 29 ISAGO airline groups (out of 71 ISAGO airline groups) show how the airlines benefit from the access to the ISAGO reports and what actions they take:

- Cancelled their own audit for 545 stations (446 in JUN24)
- Reduced oversight cost for 218 stations (110 in JUN24)
- Reduced training cost at 170 stations (118 in JUN24)
- Reduced # of auditor-days for 350 stations (335 in JUN24)
- Used ISAGO reports during their procurement process for 359 stations (271 in JUN24)
- Used data from the reports to complement their own SMS for 541 stations (396 in JUN24)

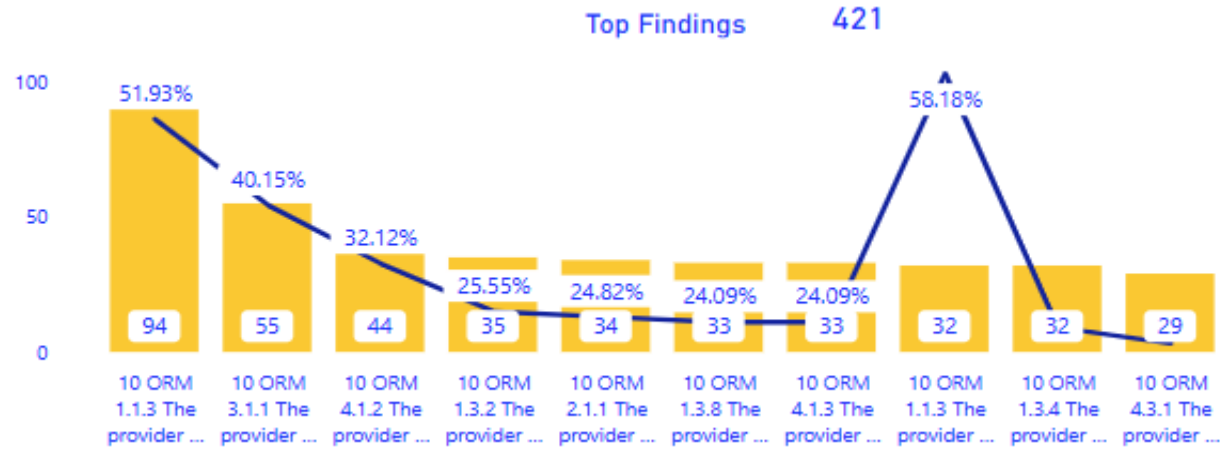
ISAGO audit model is being revamped to meet the industry requests for enhancements, driving even more standardization, adoption of industry requirements for ground operations, and safety risk reduction. Read more about the changes at www.iata.org/isago.

# 13.2Top ISAGO findings for 2024

Data range 01 Jan- 31 Dec 2024

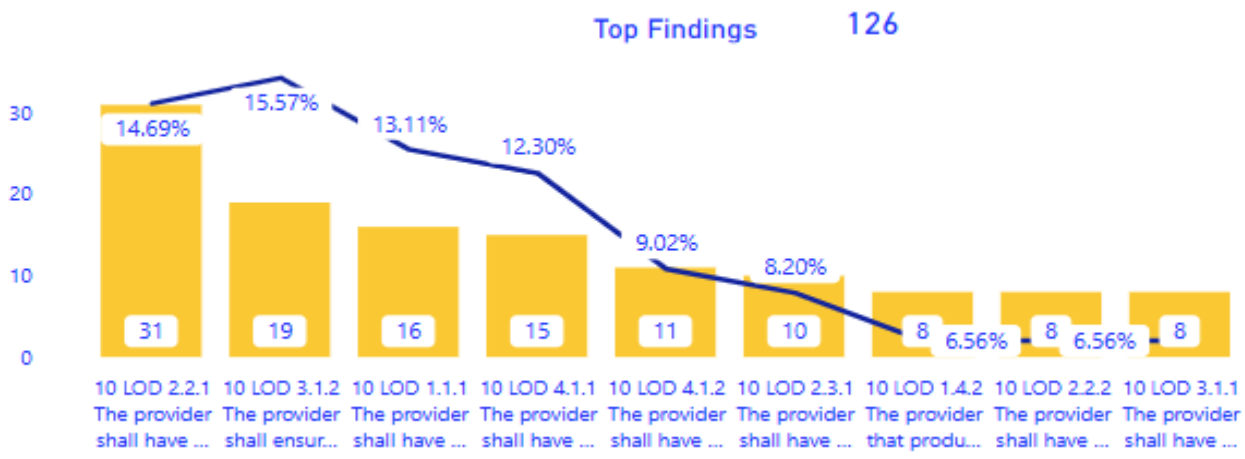
Top issues for ORM are being reported from SMS, documentation control, training, Ground Service Equipment (GSE) maintenance and addressing QMS issues, see below graph:

**Organisation and Management (ORM)**



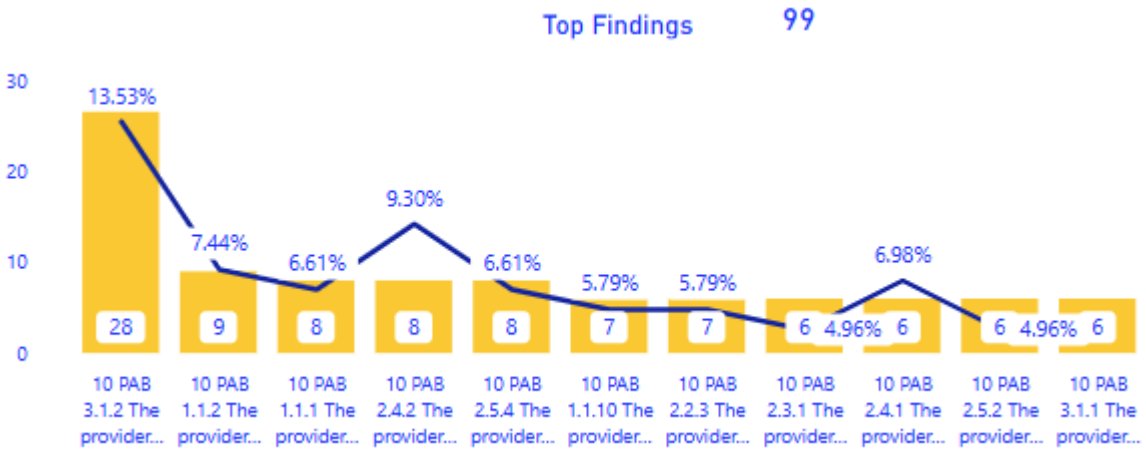

**Findings** – SMS, operational documents control, GSE maintenance program, training management and records and addressing QMS issues

**Load Control (LOD)**



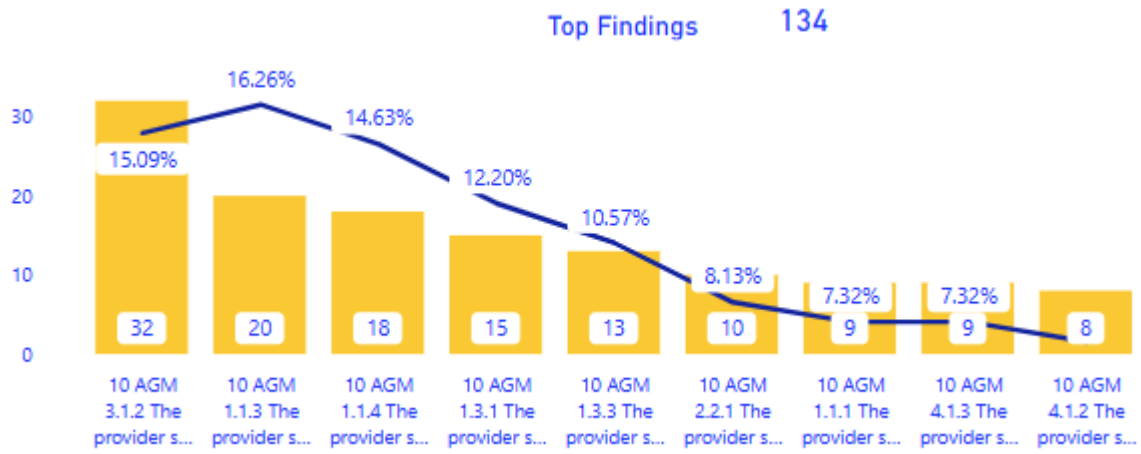

**Findings**- procedures for manual, documents accessibility, job-specific training, weight & balance, load control communication, valid manual load documentation used

**Passenger and Baggage (PAB)**



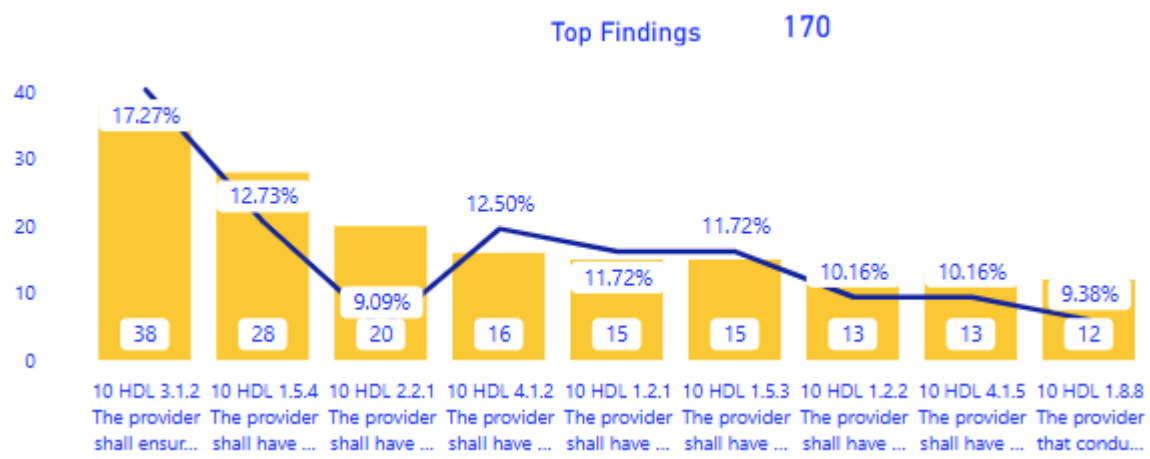

**Findings**-Operational documents accessibility, boarding pass issuance, handling of battery-operated mobility aids, training program, transfer of information and data to load control.

**Aircraft Ground Movement (AGM)**




**Findings**- Operational documents accessibility, clear engine danger area, walkaround inspection, prior to aircraft arrival ramp is clear and free of FOD, GSE compatible for aircraft type/weather, job specific training, airside driving license/airside training, aircraft Inspection for each arrival.

**Aircraft Handling and Loading (HDL)**




**Findings** - Operational documents accessibility, GSE maintenance program, water quality standards, lavatory services procedures/handling, operational procedures, job-specific training, driving speed, airside driving training and license, potable water servicing operations

## 13.3 Root causes and mitigation of ISAGO findings

The root causes of all the ISAGO findings are grouped into three categories:

- **Documentation:** Procedures not defined, procedures not clear, unclear standards, inadequate internal oversight.
- **Training:** Training program missing job specific and other mandatory training missing, training content elements missing.
- **Oversight:** Inadequate supervision, inadequate communication

## 13.4 Ground Damage Reduction Initiatives

Following the release of the IATA Ground Damage Report, the industry requested IATA to design a program aimed at reducing ground damage specifically caused by Ground Support Equipment (GSE). Consequently, the IATA Enhanced GSE Recognition Program was launched.

This program encourages Ground Handling Service Providers (GHSPs) to adopt GSE equipped with anti-collision systems to mitigate the risk of ground damage. Successful recognition requires GHSPs to achieve a specified level of ground risk reduction caused by GSE in their operations at designated stations.

Although participation is voluntary, the program has been exceptionally well-received by the industry. Since its launch in May 2024, there have been 66 applications from 14 GHSPs, with 26 applications from 6 GHSPs being successful.

The program is set to expand to all ISAGO GHSPs in 2025, reaching a broader audience of approximately 300 stations. IATA plans to publish a detailed analysis of ground damage reduction by the end of 2025.

Autonomous GSE, viewed as a means to reduce ground damage and alleviate staff from tedious driving tasks, has shown positive trial results globally. Industry stakeholders have developed guidelines for these GSE to set expectations and ensure safe and efficient operations. However, as this is an emerging technology, rapid changes are expected. Hence, building on last year's guidelines for autonomous GSE, the industry has developed multiple use case scenarios and improved guidelines based on ongoing trials.

Next on the agenda is solidifying collaboration with industry bodies to ensure these guidelines reflect regulatory perspectives, ultimately facilitating easier integration.

## 13.5 Injury Prevention Program

Building on the injury data available in IDX, industry stakeholders are continuously monitoring the industry trends, recent injuries, and fatalities - identifying potential hazards and enhancing the AHM and IGOM procedures. Considering various engine ingestion accidents which resulted in fatalities, the industry SMEs reviewed and updated the procedures related to Aircraft Engine Danger areas in IGOM Ed14 to ensure safe ground operations during aircraft turnaround. Additionally, other operational procedures such as working around ULD loader, passenger boarding bridge, step ladders, elevating equipment, non-motorized and motorized equipment were also reviewed and updated in IGOM to ensure safe work practices. IGOM Ed14 is expected in June 2025.

## 13.6 Safety Issue Hub – Ground Operations Risks

A number of safety issues have been added to the IATA Safety Issue Hub related to ground operations. For each safety issue there is associated guidance documentation to support the understanding and mitigation of these safety issues. The following ground operations risks were added or updated with additional guidance in safety hub in 2024:

- SI-130 Aircraft damage caused by GSE – lack of well-maintained GSE, training gaps, and non-adherence to GSE operating procedures led to aircraft damage, especially access doors. All such damages resulted in injuries, fatalities, and the airlines losing time and revenue.
- SI-164 Reduced situational awareness from wearing earbuds/headphones underneath ear defenders – the practice of wearing earbuds (for music or communication purposes) underneath ear defenders can compromise the effectiveness of the ear defenders and significantly reduce the user's ability to hear important ambient sounds such as aircraft approaching, vehicle movements, warning alarms.
- SI-70 Aircraft De-Anti/Icing operation – additional guidance material added
- SI-40 Carriage of miss or undeclared high energy storage devices (Lithium Batteries) as cargo – the carriage of mis or undeclared lithium batteries in the aircraft hold with the potential to result in an aircraft fire. Additional guidance was added such as IATA small vehicle powered by lithium batteries, FAA SAFO shipments of battery-powered devices and flammable materials, FAA cargo hazards, risks and mitigations, CAST hazardous materials fires – prevention and mitigation.
- SI-132 Running engines (engine ingestion/blast) – additional guidance was added. There is a particular risk of serious injuries, disability or fatality, and aircraft damage, in areas affected by aircraft engine ingestion, blast, and propellers. Engine ingestion/blast risk can be mitigated by following the safe procedures defined in IGOM and training requirements in AHM1110.

IATA continues to review the safety issues through IDX events and updates the Safety Issue hub.

## 13.7 Safety Incident Taxonomy and IGOM Mapping

As a result of IDX data analysis in various ground operations categories, IATA has mapped the current IATA Safety Incident Taxonomy (ISIT) with the relevant IGOM provisions. Mapping of IDX events with the specific IGOM operational procedures will enable the industry and IDX users to better identify the safety operational issues and will enable to drive more accurate enhancements to industry requirements driven by data and safety events. IDX mapping with IGOM provisions is available to the IDX participants in the industry overview dashboard which can be accessed via the IATA Customer Portal and by choosing the GADM application. In 2024, the following are the top operational procedural areas in IGOM where incidents are reported the most by the industry:

| | |
|---|---|
| Passenger Handling<br>• Passenger departure<br>• Special categories of passengers<br>• Passenger disruptions<br>• Passenger security | Baggage Handling<br>• Departure baggage handling<br>• Disruption<br>• Safe baggage handling<br>• Mishandled baggage |
| Aircraft Safety and Servicing<br>• Ramp safety in aircraft handling<br>• Aircraft cleaning and disinfection<br>• Adverse weather<br>• Safety during fueling and defueling | Aircraft Turnaround<br>• Aircraft loading and unloading<br>• Aircraft towing<br>• Aircraft arrival and departure<br>• Aircraft access doors |
| Load Control<br>• Weight and balance calculation<br>• Last minute changes<br>• Information exchange | |

## 13.8Safety Increase through Standardization

The industry ground operations experts and SMEs continue to develop and enhance industry best practices for ground operations to make them safer, simpler, and more efficient while also driving ongoing harmonization and standardization. All changes are reflected in AHM Ed45 (Airport Handling Manual) and IGOM Ed14 (IATA Ground Operations Manual). An essential part of AHM is the GOXML toolkit, delivering digital messages and bringing the industry closer to digitalization of ground ops processes. Revitalized high-level ISAGO checklists (mirroring AHM and IGOM requirements) can now be found in the AHM toolbox and will be used for ISAGO audits towards the beginning of 2025.

In 2023-24, 201 airlines and 165 GHSPs joined the OPS portal and 119 members have published the gap analysis with IGOM Ed13 requirements and 103 members gaps are in draft stage.

The Ground Operations WG and IATA are reviewing the variations and implementing enhancements to IGOM provisions with the aim of reducing variations globally and driving the harmonization of ground operations procedures. The OPS portal is also being expanded to include AHM chapter 11 (training), chapter 6 (safety management system + organization & management), and some items from chapter 9 (GSE management) and expected to be launched in 2025.

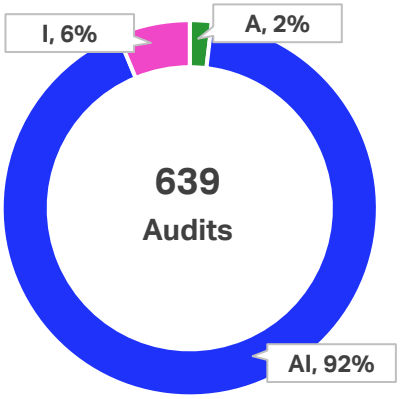
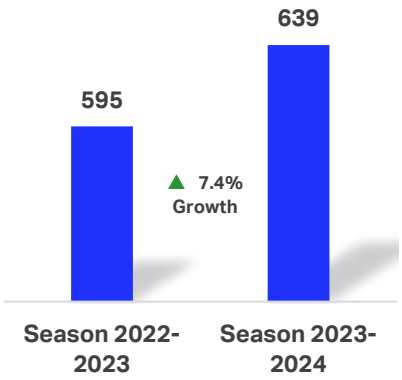
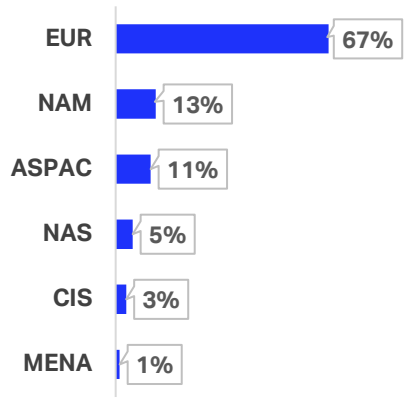
## 13.9DAQCP Program Output – winter season 2023-2024

The IATA De-Icing/Anti-Icing Quality Control Pool (DAQCP), established in 1997, plays a pivotal role in ensuring the safety of winter operations worldwide. Comprising over 160 member airlines and supported by a robust network of 190 qualified auditors, DAQCP facilitates the sharing of audits and best practices to enhance safety in challenging conditions. During the 2023-2024 winter season, the program demonstrated its ongoing commitment to safety through an up-to-date audit scope and targeted risk mitigation strategies by member airlines.

## DAQCP Audits

In the 2023-2024 winter season, DAQCP conducted a total of 639 audits, representing a 7.4% increase compared to the previous season. These audits, strategically performed at airports prone to aircraft ground icing, reflect DAQCP's proactive approach to identifying and addressing safety risks to support its members and the wider aviation community.

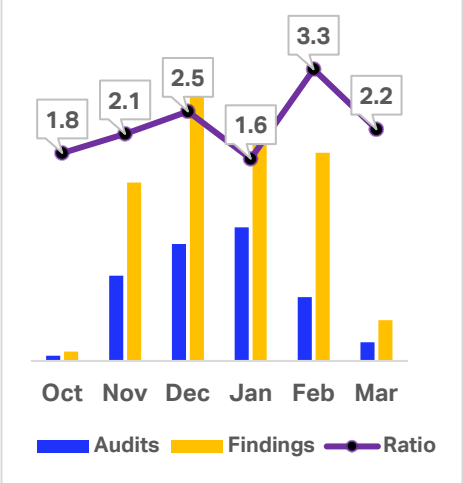
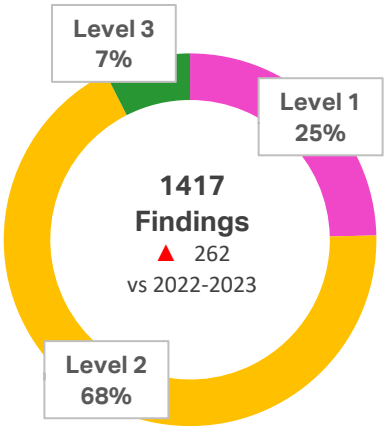
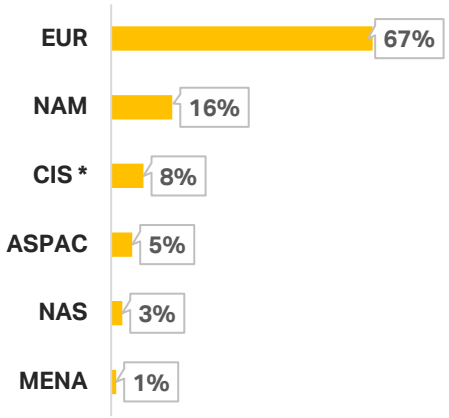
The following graphs illustrate the breakdown of audits by type, along with a comparison to the previous season. The program operates within a defined seasonal window, commencing in October and concluding in March except for Several isolated North European and Australasian airports.

| Audits Breakdown - Types | Comparison of Audit Seasons | Audits Geography |
|---|---|---|
|  |  |  |
| A – Aircraft Ground De-Icing / Anti-Icing<br>I – Post De-Icing / Anti-Icing Check | DAQCP auditing Season commences in October and ends in March | * No DAQCP Audits performed in the Russian Federation |

## DAQCP Findings

This season's audits resulted in 1,417 findings, a 13.2% increase from the 2022-2023 season. The findings, categorized by severity levels, provide a clear picture of the challenges faced across audited regions.

The graph detailing findings per audit and their severity levels demonstrates the program's ability to identify and classify risks effectively. While the total number of findings grew, the program achieved a 3.7% reduction in risk per finding, underscoring the effectiveness of targeted risk management strategies by the member airlines and their contracted service providers.

| Findings per Audit | Findings Levels Breakdown | Findings Geography |
|---|---|---|
|  |  |  |
| An average of 2.2 findings per audit - 13.2 % growth compared to season 22-23 | DAQCP operates 3 levels of findings with L1 being the most severe | * No DAQCP audits performed in the Russian Federation |



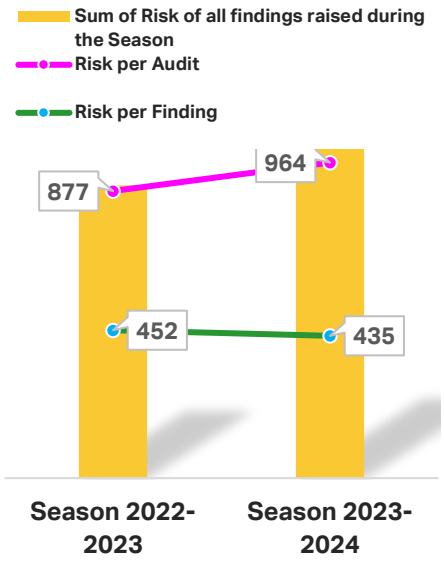
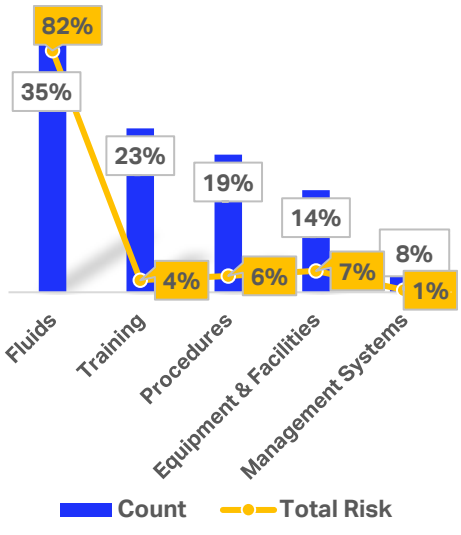
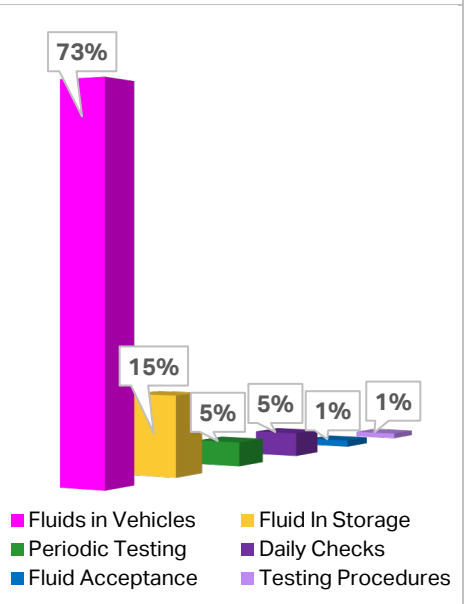




## 13.10 Significant Safety Hazards and Levels of Risk

To quantify and assess risks associated with findings, DAQCP employs the ARMS Operational Risk Assessment Methodology. This approach enables systematic evaluation of hazards and ensures a comprehensive understanding of their impact. Further details can be viewed at: [https://www.easa.europa.eu/en/document-library/general-publications/arms-methodology-operational-risk-assessment-presentation](https://www.easa.europa.eu/en/document-library/general-publications/arms-methodology-operational-risk-assessment-presentation)

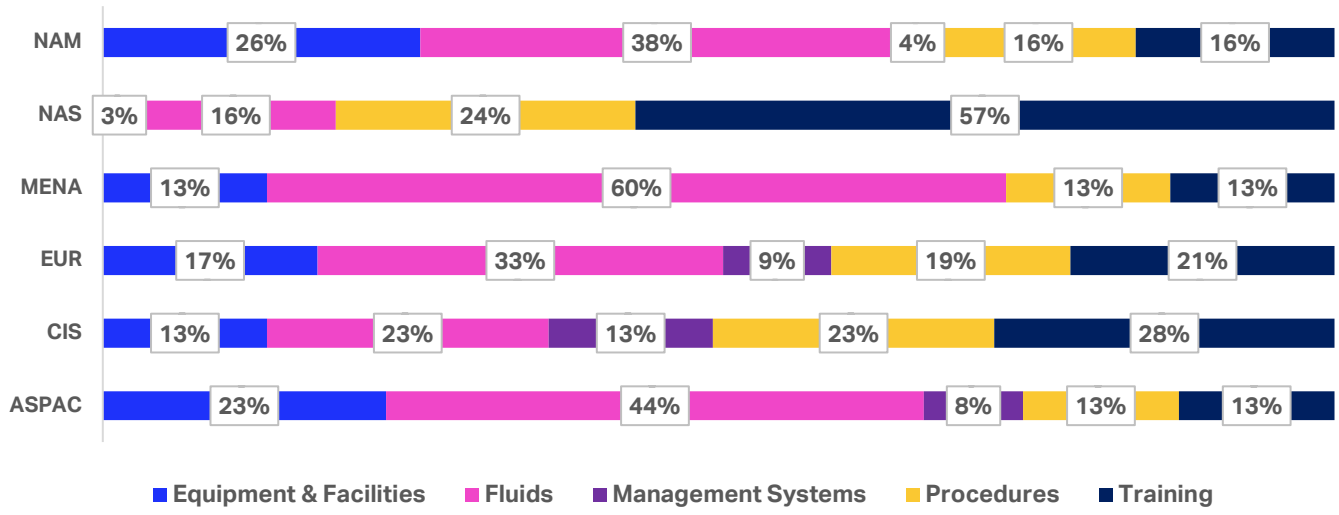
DAQCP classifies all identified hazards into three tiers. The following graphs provide a summary of overall seasonal risk levels, as well as the distribution of hazards based on their frequency and severity. Emphasis should be placed on fluid-related hazards, which represent the most significant safety risk identified by the Program.

| Seasonal Risk Levels | Significant Hazards (Tier 1) | Fluids related Hazards (Tier 2) |
|---|---|---|
|  |  |  |
| Despite the growth of risk per audit, risk per finding decreased by 3.7% ▼ | Values presented in percentage of the Grand Total for both parameters. | *No DAQCP audits performed in the Russian Federation |

## 13.11 Regional Performance

The regional breakdown of findings reveals critical trends and highlights opportunities for improvement. It is worth noting that although fluids related hazards represent the most frequent group of hazards overall, the graph showcasing regional specifics emphasizes the disparity in hazards across regions. Recommendations include reinforcing the implementation of fluids handling and storage requirements, ensuring adherence to fluids quality checks, and maintaining equipment and facilities in accordance with industry standards and manufacturer requirements.

**Regional Hazards Breakdown**




Data presented at Tier 1 Level

## 13.12 Summary

The 2023-2024 winter season marked another year of impactful contributions by DAQCP. The program's efforts to expand audit coverage, identify critical hazards, and reduce risk per finding align with its continuous commitment to reducing risks to aircraft operations during winter conditions. The data presented, coupled with insights from regional performance, highlights areas requiring attention of all involved parties.

Looking forward, DAQCP aims to broaden its audit scope and refine auditor training programs to further enhance risk assessment methodologies. These initiatives will ensure the program continues to lead in ensuring the safety of winter operations globally.

# 14. IATA Fuel Quality Pool (IFQP)

The IATA Fuel Quality Pool (IFQP) is a program that allows airlines to share fuel inspection reports from locations worldwide. With a network of more than 2,000 airports, IFQP provides consistency in fuel quality and safety while also reducing costs for airlines and fuel suppliers. All IFQP activities fully comply with regulatory requirements concerning airlines' provision of quality control and management oversight of airport fuelling services.

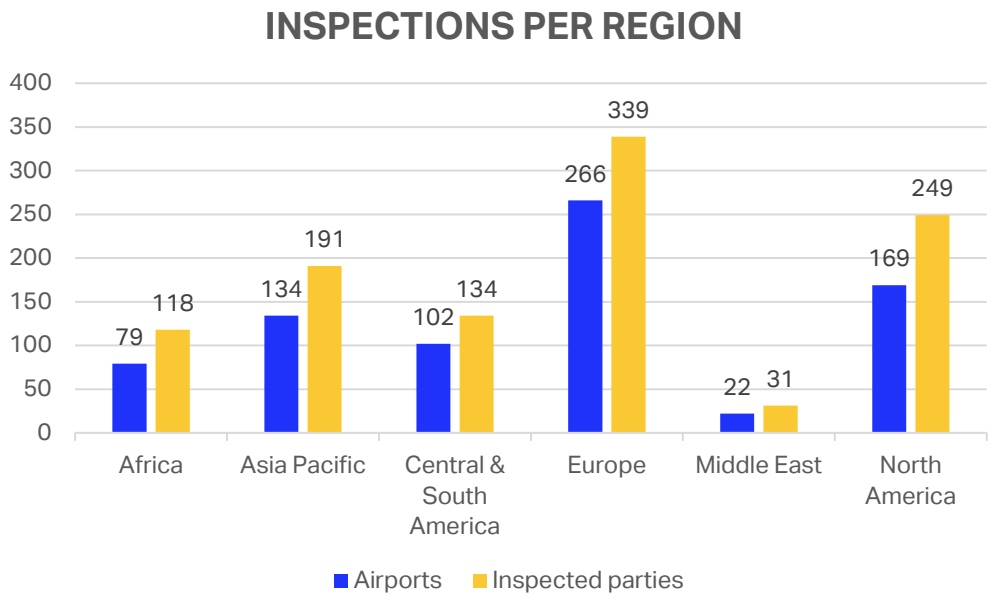
The pool covers over 14,000 aircraft which accounts for about 50% of the worldwide commercial active fleet, 2,101 airports and 2,548 inspected parties.

The IFQP welcomed 23 new member airlines last year, reaching a significant milestone of 200 members. The pool has grown from 7 members in 1998 to a total of 206 in 2024, out of which 173 are active members, 15 are associated members, and 18 are passive members.

## 14.1 IFQP Inspections

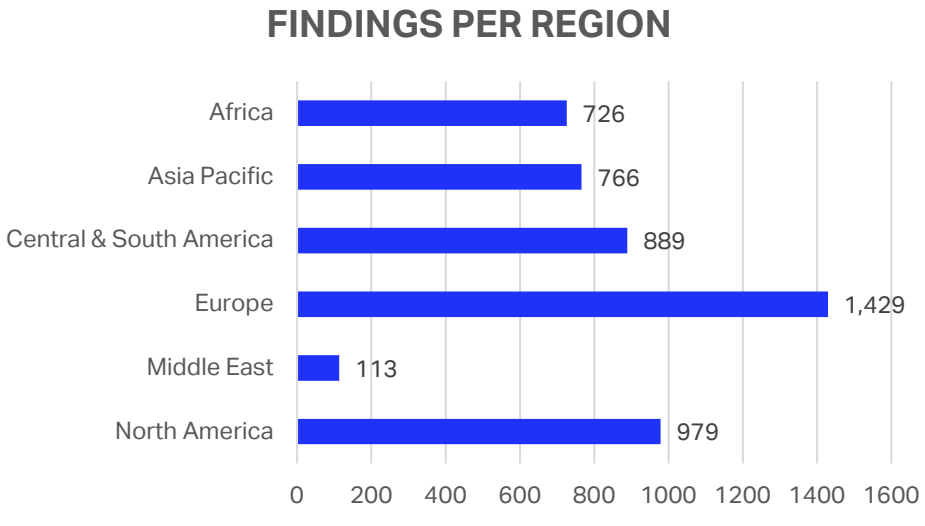
Comprised of 196 qualified inspectors from different regions—with 69 more candidates undergoing the qualification process—IFQP performed a total of 1,062 inspections in 2024.

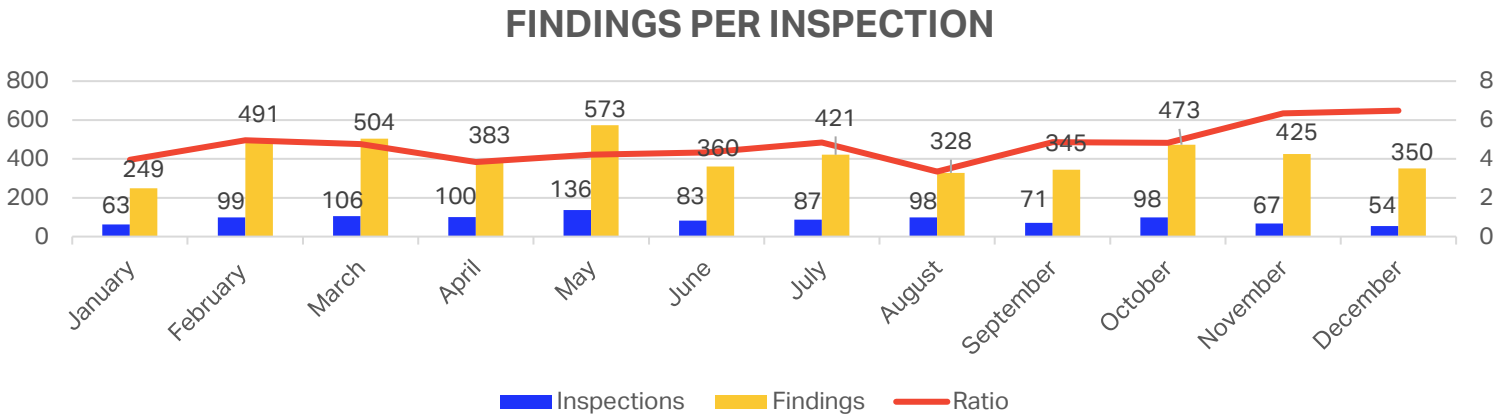
The following graph illustrates the total number of inspected airports and inspected parties performed by region.




## 14.2 IFQP Findings

From the 1,062 inspections performed in 2024, there was a total of 4,902 findings, which averaged to 4.7 findings per inspection. The two graphs below illustrate the findings per region and findings per inspection per month.



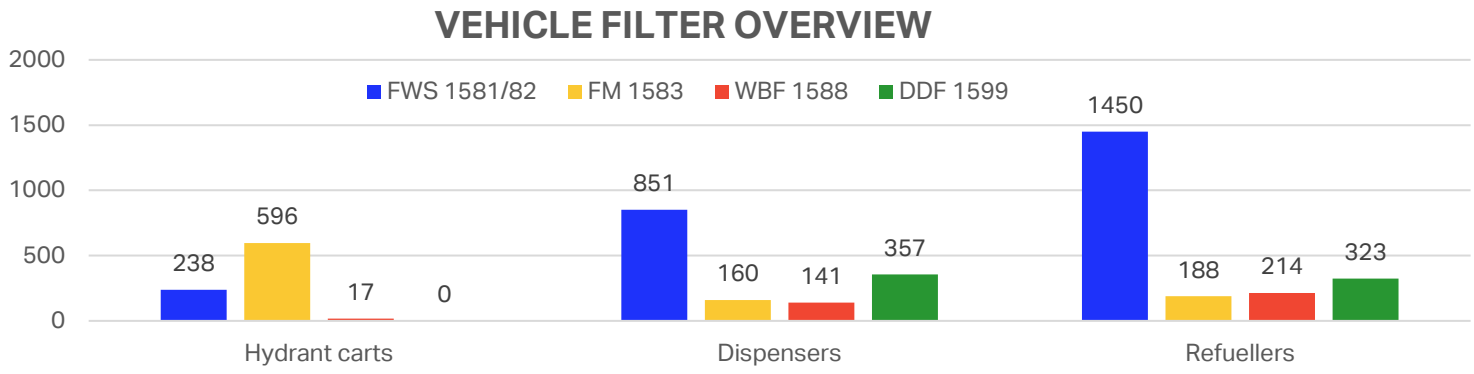


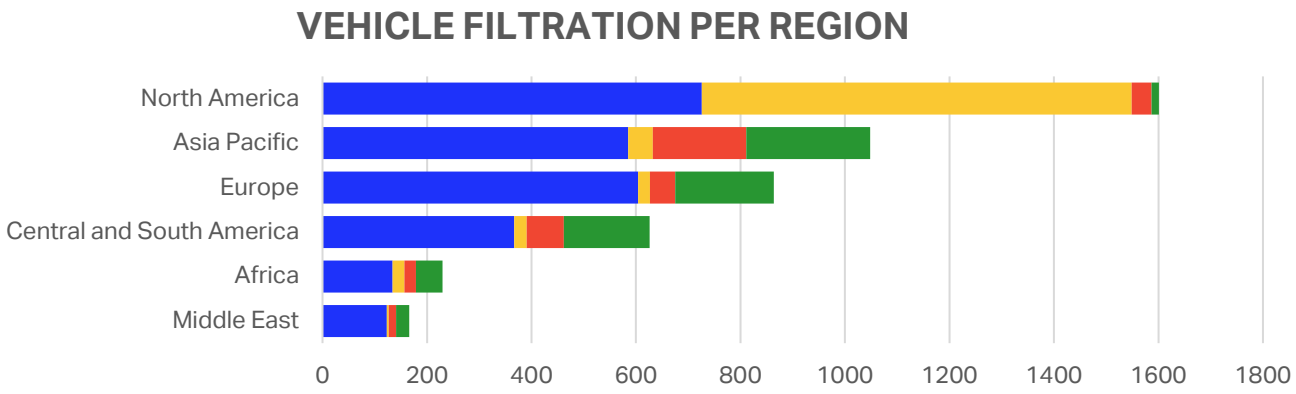

## 14.3 Intoplane Fueling Filtration

The IATA Super Absorbent Polymer (SAP) Special Interest Group investigated reports of SAP migration from Filter Monitors (FM). SAP is the absorbent material inside filter monitors used to filter dirt and water from fuel; however, SAP is considered a contaminant if released downstream of the filter. On November 14, 2017, the SAP Special Interest Group published a position statement which concludes, "It is the position of the Special Interest Group that filter monitors shall be phased out of all aviation fuel handling systems."

In December 2017 over 90% of aircraft refueling were conducted using FM, there was no commercially viable, approved drop-in alternative to filter monitors. There are still ongoing efforts by filter manufacturers and the Energy Institute (EI) to develop new filtration and/or sensor technology without SAP. However, any new technologies must provide the same or better protection from dirt and water. While FM are being phased out, A4A and JIG have taken steps to reduce the risk of SAP migration from filter monitors, by publishing mitigation measures in A4A Bulletin 2017.2 and JIG Bulletin 105. Through work done across the industry and fueling operations since 2018 to date, these steps have proven to reduce the risk of SAP migration.

As per IFQP inspections conducted in 2024, the graphs below indicate the reduction in the use of FM since December 2018.






| | Middle East | Africa | Central and South America | Europe | Asia Pacific | North America |
|---|---|---|---|---|---|---|
| Filter Water Seperator EI1581/82 | 123 | 134 | 367 | 604 | 585 | 726 |
| Filter Monitor (former EI1583) | 4 | 23 | 24 | 23 | 47 | 823 |
| Water Barrier Filtration EI 1588 | 14 | 22 | 71 | 48 | 179 | 38 |
| Dirt Deffense Filtration EI1599 | 25 | 51 | 164 | 189 | 237 | 14 |

## 14.4 Summary

The IFQP has proven to be a vital program for ensuring consistent fuel quality and safety across a global network of over 2,000 airports. By allowing airlines to share fuel inspection reports, IFQP not only enhances safety but also reduces costs for both airlines and fuel suppliers.

The ongoing phase-out of Filter Monitors (FM) due to the risk of SAP migration, as recommended by the IATA Super Absorbent Polymer (SAP) Special Interest Group, reflects the industry's proactive approach to safety and innovation. Efforts to develop new filtration technologies without SAP are ongoing, with mitigation measures already reducing the risk of SAP migration since 2018.

The IFQP's growth from 7 members to 206 highlights its expanding influence and importance, and continues to strategically target growth in different regions of the globe.

# 15. Global Aviation Data Management (GADM)

GADM the most authoritative and comprehensive collection of global aviation operational data in the world. GADM's data comes from several sources, including the Incident Data Exchange (IDX) and the Flight Data eXchange (FDX) programs and Aircraft Maintenance Cost Data eXchange (MCX). The IDX, FDX, and MCX programs had a total membership of 295 and 217 and 43 members respectively at the close of 2024 and they continue to grow both in terms of membership and data coverage. GAMD's unique global footprint positions it as the largest data exchange program, committed to providing critical safety, security, and operational data insights to support its members' operations.

In 2024, GADM rolled out the TCAS Method B methodology in the FDX program. This methodology not only looks at the occurrence of a TCAS RA event but also evaluates the pilot's response to the TCAS RA event. Using this methodology, FDX members can see the level of pilot compliance to TCAS RA instructions ranging from a weak, opposite, excessive, no response or normal response.

Additionally, GADM produced several analytics on different safety and operational topics throughout the year including two detailed studies on Global Turbulence Encounters and Global Navigation Satellite Systems (GNSS) Signal Interference. These studies provide the industry with current insights on existing and emerging

areas of concern enabling data-driven decision making and further enhancement of the safety and operational efficiencies of our industry.

## 15.1 Global Turbulence Encounters

Recent studies have shown that turbulence events are on the increase, posing a serious risk of injuries to persons onboard aircraft as well as potential damage to aircraft. This study investigated turbulence in aviation, using data from three sources, two of which are unique to IATA and included:

- 5,667 reported events covering 96 operators in the IDX Program.
- 245,985 recorded events, covering up to 183 operators in the FDX Program.
- 67 publicly available serious incident/incident events.

## 15.2 GNSS Signal Interference

| | |
|---|---|
| **Safety Issue Hub** | SI-43: GNSS Interference |

GNSS signal interference is an ongoing area of safety concern. The study provided evidence of the different types of GNSS signal interference encountered during the period, with examples of reports of jamming, spoofing, clock shifts, EGPWS activations, and aircraft-recorded data examples. This study was developed from three data sources, including:

- 36,253 reported events, covering 101 operators in the IDX Program;
- 998,073 recorded events covering 153 operators in the FDX Program;
- 434 GPS Signal Interference NOTAMs issued during the study period.

All forms of GNSS signal interference increased dramatically between 2023 and 2024, albeit decreasing slightly towards the end of the period. This may be due to operators using mitigations such as inhibiting the enhanced functions of the GPWS system.

The study also identified three main geographic areas and how the prevalence of GNSS Signal Interference varied in these areas over the period, and the affected aircraft types and families.

In line with the increase in the prevalence of GNSS Signal Interference events, the number of NOTAMs issued and active both increased, along with an increase in the number of longer-duration NOTAMs being issued. There was a lack of consensus in the text and detail of NOTAMs relating to GNSS signal interference, but the common areas of GNSS signal interference were mostly covered by NOTAMs.

These studies were produced exclusively for IATA and GADM participants and can be accessed via the IATA customer portal. In case you are not able to access them please reach out to gadm@iata.org for a copy.

# 16. Advocacy for Approved Aviation Infrastructure

IATA works with its member airlines and aviation industry stakeholders such as the International Civil Aviation Organization (ICAO), the Civil Air Navigation Services Organisation (CANSO), State regulators, and Air Navigation Service Providers (ANSPs) to achieve cost-effective Air Traffic Management (ATM) system which simultaneously deliver required levels of safety, efficiency, and reduction of $CO_2$ emissions.

## 16.1 Rocket Launches and Space transport Operations

Space operation has introduced several critical challenges for Air Traffic Management (ATM). The pace of rocket launches has markedly increased resulting in significant disruptions of ATM in some airspace segments. Unmanned High-altitude Platform Stations (HAPS) have also increased in number and duration of flight resulting in a need for civil aviation to account for their presence during flight planning and day of operations tactical intervention.

As the launch and in some cases recovery of rockets and HAPS increases, combined with the high uncertainty of debris' trajectories during re-entry, the amount of airspace that needs to be protected also increases, in some cases extending to thousands of square miles of oceanic and remote airspace and, depending on the flight profile, hundreds of miles of continental or near continental airways. The creation of Temporary Flight Restrictions (TFRs) and the issuance of NOTAMs are the instruments used by ANSPs to establish and subsequently remove these airspace reservations, ensuring that stakeholders, including airlines, are informed and can plan accordingly.

Global growth projections for air traffic and space transport operations are constrained by the lack of effective information sharing, limited coordination, and inefficient airspace allocation processes, all of which must be addressed to ensure equitable access for all airspace users.

The lack of globally harmonized procedures leads to ineffective measures against impacts on the ATM system and calls for enhanced globally applicable guidance to facilitate the management of transport space/near-space operations through controlled airspace. This involves defining global standards around the safety performance requirements for space vehicles. IATA led work in an ICAO panel to address this issue, and will continue to support the work for developing a global guidance material under the leadership of the ICAO secretariat.

## 16.2 Global Navigation Satellite Systems (GNSS) Radio Frequency Interference (RFI)

| | |
|---|---|
| **Safety Issue Hub** | SI-43: GNSS Interference |

GNSS provides primary position and timing information for most airline-operated aircraft. This information is a key input to several on-board safety systems, such as Terrain Avoidance and Warning System (TAWS). Additionally, GNSS information is a vital reference for other aircraft services such as Controller Pilot Data Link Communications (CPDLC), Performance-based Navigation (PBN), and Automatic Dependent Surveillance-Broadcast and Contract (ADS-B / ADS-C). Ensuring the effective protection of GNSS signals and timely mitigation of harmful radio frequency interference (RFI) is necessary for maximizing flight safety.

IATA, in cooperation with other industry associations including the International Federation of Air Traffic Controllers' Associations (IFATCA), the International Federation of Airline Pilots Associations (IFALPA), the International Business Aviation Council (IBAC), the International Coordinating Council of Aerospace Industries Associations (ICCAIA), and the International Federation of Air Traffic Safety Electronics Associations (IFATSEA) continues to prioritize the mitigation of GNSS RFI at the highest level, including the presentation of working and information papers at the 14th ICAO Air Navigation Conference.

Additionally, the issue of harmful interference to GNSS has been brought to the attention of the International Telecommunication Union (ITU), the United Nations' specialized agency for information and communication technologies, and the leading global authority on radio spectrum protection.

IATA has developed and published a GNSS RFI Safety Risk Assessment (SRA), available here. Stakeholder engagement and collaboration continue to be essential to ensure the effective implementation of the referenced safety measures. IATA welcomes airline and industry feedback on the SRA.

## 16.3 Protection of Aircraft Radar Altimeters from Interference

Radar altimeters (RADALT), operating in the 4.2-4.4 GHz band, are the only sensors on board civil aircraft that provide a direct measurement of the clearance height of the aircraft above the surface beneath the aircraft keel. RADALT is also used by several other aircraft systems, particularly when aircraft are operating at and below 2,500 feet above surface. The deployment of 5G telecommunications base stations has been identified as a safety-critical issue due to potential RFI with RADALT. Additional information about potential interference and IATA actions, as well as resources, can be found on the IATA page: Aviation and 5G.

# 17. Regional Insight

## 17.1 Asia-Pacific Region (ASPAC)

IATA remained actively engaged with ICAO ASPAC RASG (Regional Aviation Safety Group) and APRAST (Asia Pacific Regional Aviation Safety Team), advocating for airlines' interests in the region's Safety Agenda. The ICAO Asia-Pacific Safety Report 2024 identified the three most common accident categories in the region over the past five years (2019 to 2023):

- Turbulence
- Abnormal Runway Contact (ARC)
- Runway Excursion

IATA worked closely with regional regulators, reinforcing its commitment to sharing safety best practices and improving safety oversight. The recognition of IATA Safety Audit programs by the Indian DGCA in the NASP (National Aviation Safety Plan 2024-28) encouraging airlines and GSPs to pursue IOSA and ISAGO, reflects the success of these collaborations in strengthening regional safety frameworks.

In 2024, industry engagement across the Asia-Pacific region led to increased participation in IATA safety programs. Seven new airlines joined the IOSA registry, while the GADM program grew with ten new IDX participants and four in the FDX program. The ISAGO registry also expanded with twenty new stations accreditation entries, reinforcing the region's commitment to operational safety and data-driven risk management.

IATA's Airline safety leadership program continues to grow. Nine more regional airlines signed the IATA Safety Leadership Charter in 2024, bringing the total to 21 signatories from the region. This demonstrates a strong industry commitment to proactive safety management and leadership principles.

Large portions of the Asia-Pacific region face the challenge of balancing air traffic growth with capacity while maintaining/enhancing high safety standards. In 2024, IATA pursued Performance-Based Communication and Surveillance (PBCS) implementation in oceanic airspace and supported the ICAO APAC PBN workshop. Significant progress has been made in applying PBCS-based reduced longitudinal separation minima, reflecting regional collaboration to enhance operational efficiency and safety.

The Asia-Pacific region frequently faces extensive airspace closures due to ballistic launches and space re-entry operations. As a member of the ICAO Asia-Pacific task force, IATA played a key role in developing guidance materials for states involved in or impacted by these activities, ensuring that airline interests were safeguarded.

## 17.2 The Americas Region (Latin America & the Caribbean [LATAM/CAR] and North America [NAM])

In 2024, operators in the Americas region continued to contribute to the IATA Global Aviation Data Management (GADM) Programs: Incident Data Exchange and Flight Data Exchange (IDX and FDX). The IATA safety team continued to work with the US Commercial Aviation Safety Team (CAST) to share safety trends between FDX and the Aviation Safety Analysis and Sharing System (ASIAS).

- In the dissemination action plan with the IATA GADM team, program highlights were provided to operators with an in-depth discussion on the IDX program. That allowed three airlines to sign the agreement to join IDX, increasing GADM coverage in the region.

Throughout the year, the IATA Americas safety team continued to work with the Regional Aviation Safety Group-Pan America (RASG-PA) and its Pan American Regional Aviation Safety Team (PA-RAST). Both FDX and ASIAS share aggregate, de-identified regional information with PA-RAST to perform data-driven safety analysis at a regional level and focus hemispheric safety initiatives on risk.

- IATA actively participated in the 62nd, 63th, 64th, and 65th meetings of the PA-RAST, where relevant data was shared that allowed identifying possible risks and implementing an action plan aimed at mitigating High-Risk Categories (LOC-I, MID, RE, RI, and CFIT), incorrect altimeter setting problems among others.
- In addition, IATA briefed the group on Turbulence Aware and the need to address data sparsity, particularly in the Latin America and Caribbean region related to turbulence. In order to further the work done by RASG-PA in developing a Turbulence Toolkit, the PA-RAST agreed to explore how Turbulence Aware could be of benefit in the region and formed a turbulence project team which IATA is a part of, to develop and implement a mechanism that will support in mitigating turbulence and Adverse Weather.
- The North American, Central American and Caribbean (NACC) including the South American (SAM) region GREPECAS Scrutiny Group (GTE) and PA-RAST Mid-Air Collision (MAC) Joint Collaboration group, implemented the annual action plan in fostering cooperation, information exchange, sharing of experiences and best practices among States and industry stakeholders. and identified deliverables aimed at addressing upper airspace risk in the region which include the development and publication of a safety bulletin amongst other milestones.
- In collaboration with the FAA - ASIAS representative, and ICAO Regional officers on safety and ANS, meetings were held to develop strategies aimed at furthering the RASG-PA/GREPECAS Joint Coordination Group work on Large Height Deviation (LHDs) and TCAS-RAs in the region. These meetings addressed the FAA's ASIAS data hotspot prioritization and IATA GADM/FDX hot spot prioritization in the Americas region FIRs. This enabled the identification of hot spots in the region captured by both safety data programs in the region's upper airspace, working with the region's ANS safety group (GTE) to develop mechanisms to mitigate safety risk for hotspots identified through LHD reporting and TCAS-RA's.
- Collaborative Safety Teams (CSTs) remain drivers to reduce risk in key States and IATA actively supports these in the Region, promoting the creation of CST that would allow action plans to be implemented collaboratively with Civil Aviation Authorities and stakeholders. This collaborative action plan allowed IATA to participate in meetings with manufacturers (Boeing, Arbus), accident investigation authorities, Operators and Aeronautical Authorities that allowed States to identify safety priorities.

The GREPECAS Scrutiny Working Group (GTE) held its 24th Annual meeting to analyze and assess the region's target level of safety in coordination with the Americas Regional Monitoring Agency's (CARSAMMA and NAARMO), and progress the Joint Collaborative Group work of the GTE/PA-RAST aimed at strengthening the coordination of reported occurrences for the purpose of safety risk mitigation in the North American, Central NACC and SAM region.

- IATA and the FAA presented TCAS-RA hotspot information as part of the exchange of information from the GADM/FDX program and the ASIAS system, which showed TCAS-RA events captured in the upper airspace for the periods under review (2021 -2023). ICAO highlighted some of the continued LHD waypoint hotspots also and the need for safety assessment and action plans to be provided by the FIR's involved.
- In South America, IATA, in coordination with the CAA's and Colombian stakeholders, implemented the action plan to reduce the occurrence of TCAS-RA in the upper airspace, which allows reducing the rate of events in the Barranquilla and Bogotá FIR.

The team promoted and highlighted the IATA Safety Issue Hub at every regional engagement, included below are some of the regional event's summary.

- The 5th Annual Aviation Safety Campaign & Workshop with a focus on Collaborating for Effective Disaster Response and Preparedness took place at the IATA Americas regional office. The campaign is part of a

continuous effort to raise safety awareness on improving disaster response and preparation in the region in support of humanitarian activities in aviation which in 2019, IATA signed an MoU with World Food Program (WFP) to support their aviation outreach and activities. The campaign addressed several crisis/ contingency aspects, from airport emergency plans, crisis management collaboration, climate change and adaptation, resilience and recovery, coordination for humanitarian assistance, making the event relevant to the different aviation stakeholders and crisis/contingency management related initiatives.

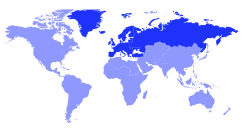
- The ALTA Aviation Safety, Operations and Training Summit was held in Lima, Peru where IATA moderated a panel with aircraft manufacturers focused on safety, provided an FDX metrics presentation to the closed-door ALTA safety committee meeting, and a presentation about the IATA annual safety report during the plenary session.

Accident investigations have identified that a positive safety culture is a critical factor in the prevention of accidents and incidents. It is also recognized that enabling a strong organizational safety culture requires continual application of all employees at every level, but especially commitment from top executives, as leadership thoughts and actions cascade down the organization and impact the actions of all employees.

- In the region during 2024, 25 airlines agreed to be included in the IATA Safety Leadership by signing the charter where they commit to the continuous evolution of safety culture within their organizations. Thus, around 62% of the total airlines operating in the region signed the letter that makes them members of the IATA safety leadership.
- With the aim of mitigating possible MAC, IATA together with the North Atlantic Scrutiny Group (NAT SG) members, met for the 31st meeting of the NAT SG at the Nav-Canada facility in Gander, Newfoundland, Canada to analyse events in the High-Level Airspace (HLA) in relation to the Safety Key Performance Indicators (KPIs) and associated targets for the NAT region.
- The NAT SG scrutinizes LHD, Lateral Deviations, Preventions, and Longitudinal loss of separation events for the period under review (January – June 2024) of events occurring in NAT HLA of the Oceanic Control Areas (OCA's) of Shanwick, Santa Maria, Reykjavik, New York East, Gander and Bodo in addition to determining the contributing factors of the events.
- The work of the SG contributes to the North Atlantic Systems Planning Group (NAT SPG) vision which aims to achieve the highest level of safety performance and meet regional safety objectives in line with national and international standards, the Global Aviation Safety Plan (GASP), and the Global Air Navigation Plan (GANP). Operators were encouraged to respond to the Air Navigation Service Providers' (ANSP) request for information on deviations. This request aims to enhance the overall system, not to impose punitive measures.

Furthermore, the Americas region actively promoted the adoption and recognition of IATA's safety audit programs (IOSA, the IATA Standard Safety Assessment (ISSA), and ISAGO) with airlines and States adopting plans to integrate the use of the programs and ICAO recommending the programs in the Regional Safety Plans for both the SAM and NACC regions.

## 17.3 Europe Region (EUR) and Commonwealth of Independent States (CIS)



The IATA European Regional Team continues to support the regional activities of ICAO EUR/NAT office. IATA occupies a Co-Chair position at the ICAO Europe / North Atlantic European Region Aviation System Planning Group (EUR/NAT EASPG) Regional Expert Safety Group (EASPG RESG) and is actively engaged in the work of EASPG. IATA regularly contributes to the update of the European Regional Aviation Safety Plan (EUR RASP) and review of the EUR RASP Implementation Survey. In 2024, the team submitted three working/information papers to RESG on the timeliness of accident investigation reports publication, tail strike events, and IATA Safety Leadership initiative.

In 2024, IATA supported the following ICAO EUR/NAT safety awareness events:

- Webinar on risks associated with carriage of lithium batteries in the cargo compartment held on 06 March;
- Runway Safety Webinar on 28-29 May;
- Serious Incidents Investigations Webinar on 11 June;
- Upset Prevention and Recovery Training (UPRT) Workshop in Astana, Kazakhstan on 24-28 June; and
- Safety Culture Workshop in Samarkand, Uzbekistan on 15-17 October.

Additionally, the European regional team participated and contributed to various safety forums within the EUR Region: EUROCONTROL SAFOPS, EASA SAFE 360° — Safety in Aviation Forum for Europe 2024, EASA safety Commercial Aviation and ATM Collaborative Group (CAT.CAG, ATM.CAG), Flight Safety Foundation Safety Forum 2024, Leonardo SMS workshop, EASA Safety Week 2024, and organized IATA Ground Operations Workshop in Baku, Azerbaijan hosted by Interstate Aviation Council and IATA Regional seminar on Safety and Sustainability in Astana, Kazakhstan hosted by the Aviation Administration of Kazakhstan.

The IATA European regional safety team has actively represented IATA members at numerous European Authority for Aviation Safety (EASA) WGs and Task Forces (TFs). IATA continues to provide regular comments and feedback during EASA rulemaking activities, representing airline views. Some of the topics where IATA is actively providing consultations include EASA Ground Handling Regulation, training requirements for flight operations officers and flight dispatchers, extended minimum crew operations (eMCO), and enhanced implementation of FDM programs.

The GADM network in the European Region has grown by 24 new members (15 joining IDX and 9 joining FDX). The use of IATA GADM analyses is proving to be instrumental in the day-to-day safety management of participating airlines in this region. Additionally, IATA uses insights from GADM analyses in regional industry groups to drive discussions on ongoing and emerging risks. Another source of such information is IATA Safety Issue Hub. The European team encourages regional stakeholders to report risks for review by IATA subject matter experts and governance groups.

25 new airlines in the European Region joined the IOSA Registry in 2024 and 13 airlines joined the ISAGO Program. The team continued the work with the European National Aviation Authorities for the use of industry programs to complement safety oversight with the signature of a Safety memorandum of understanding (MoU) with the Civil Aviation Administration of Lithuania. Risk-Based IOSA was presented at the EASA OPS TEB in June 2024.

IATA continued the regional implementation of the IATA Safety Leadership initiative with 15 more airlines in Europe signing the IATA Safety Leadership Charter, making up for 29 signatory airlines in total within the Region. A specific ceremony in the IATA Wings of Change 2024 event was dedicated to handing over of the Charters signed within the year.

## 17.4 Africa & The Middle East (Middle East and North Africa [MENA] and Africa [AFI])

The Region continues face challenges due to disruptions to aviation caused by geopolitical tensions. During the course of the year, IATA/ICAO established a series of Contingency Coordination Teams (CCTs) to ensure continuity of operations with robust contingency plans and routes established. Regional Contingency Coordination activities remain a priority for the region.

Large Height Deviations (LHD) events continue to persist in AFI & MENA regions. Inconsistent LHD reporting from several member states, particularly those with high traffic volumes, undermines the confidence in Safety Monitoring Report (SMR) results. Meanwhile, a significant increase in LHD reports at the eastern boundaries of Muscat FIR in the Arabian Sea raises concerns requiring immediate attention. However, the operational risk

remains relatively low, supported by the implementation of Space-Based ADS-B in the neighbouring Mumbai FIR, which enhances surveillance capabilities.

IATA regional team continues to work closely with the two Regional Monitoring Agencies (RMA's) for Africa and the Middle East regions and support them by providing aggregate data of TCAS RAs above FLP 290 for use in the assessment of the operational risk.

Substantial progress has been made in MENA in building the technical capacity required for the use of ADS-B data analysis for aircraft altimetry system height monitoring. It is expected to declare this capability by MID RMA in the 1st quarter of 2025.

GNSS, interference has remained significant in the MID Region. All forms of GPS signal interference and spoofing have increased dramatically between Jan 2023 and Sept 2024. The MENA region has recorded the highest number of GPS incident reports with FDX rate of 138% compared to FDX world average of 39.38%.

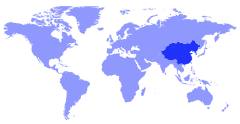
The team continues to be a significant contributor to the ICAO Regional Aviation Safety Groups Africa (RASG–AFI) and the Middle East (RASG–MID), ensuring a solid presence to drive the interests of IATA's airline members operating within the region.

IATA together with ICAO Regional offices successfully led Runway Safety Go Missions to establish Runway Safety Teams (RSTs) at the following International Airports:

- Nairobi/Kenya - Desktop
- Maputo /Mozambique
- Eswatini
- Mogadishu/Somalia

In 2024, the Collaborative Aviation Safety Improvement Program (CASIP),under IATA's Focus Africa Initiative, further evolved with the launch of two workstreams, namely the Operational Safety Stream (Ops Safety) and the Training, Capacity Building & Monitoring Stream (TCBM). The former which is comprised of airline advisors and partners focuses mainly on outcomes of the Safety Issue Review Meeting for Africa (SIRM-Africa) while the latter which is comprised of partners addresses training concerns identified in the region by both the main CASIP body and the Operations Safety. Two SIRM sessions were held in 2024: the first in Dakar Senegal from April 24-25, and the second in Kigali, Rwanda from December 04-05. The scope of activity for the workstreams drawn from therein resolved to focus on addressing challenges in Runway Safety, Wildlife Hazard Management, RFFS Shortcomings, and Safety Culture and Leadership as the top priority items.

## 17.5North Asia Region (NASIA)



The IATA NASIA regional safety team continues to implement the IATA Safety Strategy and its core pillars, which are Safety Leadership, Safety Risk, and Safety Connect in the region. The following are the main achievements highlighted in 2024:

By the end of 2024, six airlines from the region had signed the Safety Leadership Charter, representing a commitment by their executives to the continuous evolution of safety culture within their organizations. Two of these airlines have shared their perspectives and examples to highlight their unique safety cultures through the IATA Safety Talks.

The team's commitment to advancing safety in the region continues to highlight the growing attention and advocacy surrounding the IATA Safety Issue Hub. Recent discussions with member airlines, ANSPs, airports, and Civil Aviation Authorities (CAAs) revealed that an increasing number of stakeholders are recognizing and prioritizing the importance of the IATA Safety Issue Hub. According to statistics, more than 50% of the access to the IATA Safety Issue Hub comes from the NASIA region. It is worth noting that a growing number of safety issues have been actively added to the hub by feedback from regional stakeholders, demonstrating a proactive commitment to identifying and addressing potential challenges.

In July 2024, an in-person meeting was held at the IATA Beijing office to discuss regional high-risk categories and issues. More than 30 participants from NASIA member airlines, Boeing, and Airbus attended this meeting. The issues within the IATA Safety Issue Hub were reviewed, and feedback was shared with IATA headquarters. During the discussion, some high-risk categories were highlighted, such as human fatigue, tail strike, and runway excursion. Following the meeting, IATA NASIA supported the IATA Global Survey for Human Fatigue and began translating the global accident reports of tail strike and runway excursion accidents from the past 10 years, focusing on these high-risk categories.

As of December 2024, all NASIA member airlines have started to use the new IATA Connect platform and interact with the global stakeholders. The current users exceed 240 and continue to grow.

The new IATA Connect encourages a more effective communication channel for safety-related information exchange between airlines and IATA. Through this platform, the participants can easily access the Safety Issue Hub as well as The Risk-based IOSA (RBI).

In 2024, the regional office organized an RBI Workshop for Mongolia and an IOSA & ISAGO Workshop for North Asia. The first workshop was held in Ulaanbaatar on May 20 and attended by 50 colleagues from all five Mongolian operators. The second workshop was held in Beijing on June 26-27 and attended by about 130 airline representatives from the region.

On November 19, the MoU between the CAA of Mongolia and IATA for Collaboration in Aviation Safety was renewed and signed by the DGCA and IATA SVP OSS at the IATA Beijing Office 30th Anniversary Ceremony in Beijing.

To highlight the importance of the Accident Investigation Report, IATA submitted a Working Paper to the ICAO Asia and Pacific (APAC) Accident Investigation Group (AIG) 12th meeting, in collaboration with the Flight Safety Foundation (FSF) and the International Federation of Air Line Pilots' Associations (IFALPA). The paper received positive feedback, and the meeting agreed to elevate this issue to higher-level meetings, such as the DGCA, to ask for attention from ICAO APAC States. Another focus is identifying root causes in these reports to support airlines' SMS and Safety Risk Mitigation. Starting in Q4 2024, IATA worked with the Civil Aviation University of China (CAUC) to translate and analyze runway excursion and tail strike reports from the past 10 years. The analysis will be shared with both North Asia and global airlines.

From July to August 2024, IATA and the Air Traffic Management Bureau (ATMB) of CAAC conducted a survey among international and domestic airlines to collect feedback on air traffic services during the thunderstorm season. By August 30, a total of 465 valid responses were collected, and a survey report was developed by IATA and shared with CAAC, ATMB, and the airline community.

Following the survey report's suggestions, IATA's North Asia office organized the 2024 ATMB-IATA Workshop in Beijing on November 14-15. The workshop was attended by 43 participants from 28 international airlines and 40 ATCOs from ATMB. Discussions included operations during thunderstorms, aircraft emergency response and ATC communications, flexible use of airspace, runway safety and ground operations, operational efficiency, and technologies. Many issues were recorded for further evaluation and follow-up actions.

To support airlines' safety and operations amid current national airspace disruptions, IATA North Asia collaborated closely with local stakeholders to enhance the airspace structure. One Air Traffic Control transit point, LINSO, located between China and Myanmar, was added to the flexible use scope along with other waypoints. This addition will significantly facilitate airline operations between Europe, the Middle East, China, Hong Kong, Macao, and the Asia-Pacific region.

With the recovery of traffic between the EU and East Asia and the rapid growth in Central Asia, the Urumqi Flight Information Region (ZWUQ FIR) has become one of the busiest air corridors in Eurasia. Urumqi Airport plans to open its second and third runways in April 2025. However, due to geopolitical conflicts and other airspace user activities, airlines face operational challenges in this corridor, including route closures, airspace capacity, efficiency, flexibility, and enroute alternate options in high terrain areas.

In response, the IATA NASIA office and airlines collaborated on a new route proposal across the ZWUQ FIR and ZMUB FIR (Mongolia). This proposal aims to increase the capacity and efficiency of Western China's airspace, reduce $CO_2$ emissions, and leverage the planned Free Route Airspace (FRA) implementation in neighboring countries like Mongolia and Kazakhstan. In December, IATA NASIA organized a technical visit to the authorities in Urumqi, with participation from airlines, to discuss this proposal. Following the visit, IATA developed a plan for 2025 to facilitate the implementation of the optimized route structure and increased flexible entry/exit points in Western China's airspace.

The North Asia Cargo Safety and Operations Working Group Meetings were held in September and November 2024. Members from airlines, airports, freight forwarders, shippers, e-commerce giants, and lithium battery manufacturers attended the meeting and discussed challenges and solutions for dangerous goods transportation, including lithium batteries in e-commerce shipments, CBTA for DG, e-cigarettes, 3C certification, and UN38.3 reports. Regulatory updates were also delivered by regulators.

The Ground Operations Workshop for North Asia, supported by the IATA central Ground Operations team, was held in August 2024 and attended by 50 representatives from local airlines and GHSPs. The IATA Ground Damage Report was introduced, analyzed, and provided to the audience. A gap analysis of international and domestic ground operation standards was explained and discussed.

In 2024, 3 safety related projects were designed and implemented in the region through a joint effort by the IATA NASIA team and the global team, which are:

1. **North Asia Data Center-Integration with IDX**

Focusing on the cross-border data exchange of GADM data and promoting participation from the region in GADM

2. **Dangerous Goods Trust Community**

Aiming to establish a trust community where airlines and airports operating in China can rate and analyze the dangerous goods transportation performance of local shippers and forwarders, thereby increasing awareness of dangerous goods compliance within the local cargo community.

3. **IOSA Documentation Translation**

The project aims to translate the IOSA Standards Manual (ISM) into Chinese and provide a regulatory cross-reference list between CAAC and IOSA standards for airlines in North Asia. This initiative addresses language barriers in accessing and understanding the ISARPs, and reduces costs and resources associated with translation and duplicated audits by the airlines.