

# **SIRM 29**

IATA Safety Issue Review Meeting



**SIRM 29**

**Dubai**

**October 24-25, 2022**

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# Safety Issue Review Meeting #29



The **Safety Issue Review Meeting (SIRM)** is a biannual meeting, created in 2006 and managed by IATA Safety and member airlines through the IATA Safety Group. The meeting is open to safety professionals from airlines, manufacturers, ground service providers and airports, as well as to invited subject matter experts from academia, pilot associations and other relevant industry stakeholders. The SIRM is held under [Chatham House Rule](#), to create a protected, confidential environment for industry to discuss safety risks, hazards and lessons-learned from accidents and incidents, emerging concerns as well as results of safety studies. The output of the SIRM is the SIRM Bulletin, summarizing the topics and issues presented during the meeting. Information in the Bulletins is de-identified, unless otherwise authorized by the organization, and it is distributed to a wider aviation community.

**SIRM Bulletin** contents do not necessarily constitute the views of IATA or its Members. Any recommendations or suggested best practices are strictly those of the individuals, discussing topics and issues during the meeting and have not been developed in conjunction with IATA or its standard setting mechanisms.

# 1. The Risk Picture - IATA

## 1.1 Introduction

The October Safety Issue Review Meeting was held on the 24-25th October at the Marriot Hotel in Dubai. The forum was attended by around 70 delegates with a wide range of topics tabled for discussion, such as:

- Unstable Approaches
- Runway Safety
- Maintenance Issues
- EGPWS and close calls (database validity)
- Resilience and Recovery
- Wildlife
- Safety Culture

An executive summary (where provided) of each presentation is included in this bulletin, along with some of the key points that were discussed during the meeting.

The meeting was opened by Captain Mark Burtonwood who welcomed all those in attendance and provided framing for the meeting.

**A huge thank you goes to Emirates for supporting this event and to all those that participated, contributed, and attended.**



# 1. The Risk Picture - IATA

## 1.1 Introduction

IATA presented an update on the Global Safety Risk Framework, a risk repository which has been developed to support industry risk registers, hazards logs, and to supplement safety pictures.

Select all	CFIT	Search	Issue	SRA Hyperlink	Guidance Material IATA / Other Documents	Doc
Organizational Change			5G Interference: Civil Aviation Spectrum Interference		ANAC - Operational Safety Alert - 5G operation in Brazil FAA 5G Resources IATA 5G Resources	
ATM Infrastructure	LOC		Aircraft damage during ground handling		IFALPA - Maintaining Safe Operations with Radar Altimeter Interference from 5G IATA Ground Operations Manual (IGOM) UK Ground Handling Operations Safety Team	
Cabin Safety	MAC		Aircraft Loading Error		CAA-Ground Handling Operations Safety Team - Aircraft loading subgroup IATA Cargo Handling Manual (ICHM)	
Cargo Operations			Aircraft system/component failures		Additional information to be added	
Ground Operations	OTH		Aircraft Tailstrike		Global Action Plan for the Prevention of Runway Excursions CAST Safety Enhancements: SE231, SE233, SE235	
Quality			Approaching or landing on the incorrect runway (misalignment) leading to ...		EASAAI Trustworthiness Roadmap	
Maintenance	RE		Artificial Intelligence Trustworthiness		Additional information to be added	
Regulatory	SYS		Aviation Infrastructure		IATA - Carbon Brake Catalytic Oxidation Safety Risk Assessment	
Flight Operations	Unsafe Env		Carbon Brake Catalytic Oxidation		IATA - 2021 Lithium Battery Guidance Document	
Training			Carriage of High Energy Storage Devices (Lithium Batteries)		IATA - Carriage of Lithium Batteries	
			Cyber attack comprising flight safety		IATA Aviation Cyber Security	
			De-icing operations		Additional information to be added	
			Disruptive/Unruly Passengers		Skybrary - Unruly Passengers	
			EGPWS Software & Terrain Database out of date		IATA & Honeywell - Performance assessment of pilot response to Enhanced Ground Proximity Warning System (EGPWS)	
			Engine ingestion of sand used for taxiway de-icing		Additional information to be added	
			Extended minimum crew operations (eMCO) and single pilot operations (...)			

As well as a safety issues log, the framework provides links to safety material such as Safety Risk Assessments, guidance material, reports, data, and links to other relevant pages.

The Framework has three distinct components: **Identify, Assess, Act**. It is designed to consider safety issues at both a global and regional level. It must be recognized that risk priority may not be the same from one region to the next and the tool will aim to reflect that.

The framework will be truly brought to life with industry input. The SIRM members were encouraged to use, contribute, and support this platform through the "Share an Issue" function (below).



The update concluded with a brief overview of the safety issues which are being discussed in IATA safety forums, which included:

### 1.2 Topical Safety Issues

- Tail strikes
- 5G (USA)
- Aviation resilience (system risk)
- GNSS Interference (spoofing & jamming)
- Undeclared Li Batteries/DG
- Performance Calculations

### 1.3 Topical High-Risk Category

- Runway Excursion

The Framework can be found on [IATA's website](#)

## 2. Safety Issue Review Meeting (#29) Summary

### 2.1 Ground Operations

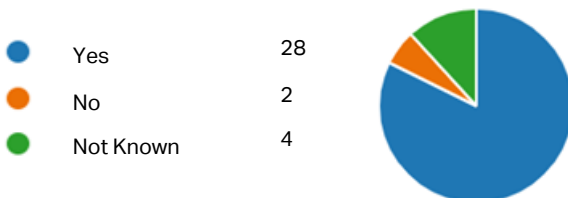
The SIRM opened with two presentations which provided insights into ground & maintenance-related issues, The first presentation centered on an incident involving a collision between an aircraft taxiing to a cargo dispersal and a parked Dolly truck. The second presentation discussed an issue with an incorrect quantity of biocide treatment in fuel, which resulted in an engine stalling in-flight. Although both incidents were significantly different in consequence and nature, it was interesting to identify that the contributory causes were very similar. Since the pandemic and during the recovery phase, the Ground Operations domain has struggled in most areas of the world to replace the staff that had been lost. As identified in the opening two presentations, these challenges have led to the degrading of safety performance in:

- Training & Retention (high turnover rate)
- Process and Procedures not being followed due to inexperience, or deficiency in the training.
- The key skills and behaviors of individuals being recruited have changed from pre-pandemic levels, which can create different challenges for organizations in both the training and competency of new recruits. Coupled with the loss of experienced staff, this can create a challenging work environment for line staff and managers.
- Ambiguity in published rules and regulations
- Increased likelihood of ground collision
- Increased risk of ground handling/operation error



The SIRM participants were invited to complete a short survey on the changes to risk exposure of ground handling, as an example, a couple of questions and responses are included below.

1. Has your organization's exposure to ground handling or ground operations safety risk increased since the COVID pandemic?



The ground handling survey identified areas where there was a concern, these were:

- Damage to aircraft and vehicles
- Pushback errors
- Loading issues (including DG)
- Staff turnover

The wordcloud below shows the volume (by size) and the key words used in describing the types of issues related to ground operations.



The survey, presentations and post audits questions and answers, highlighted the growing risk within the Ground Operations environment, a topic that should be discussed within every organization to consider whether the risk to them is as low as reasonably practicable (ALARP).

## 2.2 Aircraft – In the Air

The “in the air” topics and presentations discussed a wide range of safety issues, including:

- GPS outages
- Drones operating at high altitude
- Loss of Control in-flight (aircraft upset)
- Smoke and Fumes
- EGPWS close calls

Worldwide GPS outages were discussed with a presentation which was supported by data and highlighted the extent of reported and known GPS outages<sup>1</sup>, these outages pose a significant challenge for the industry, GPS is key to the effectiveness of several systems and is a key control to mitigate issues such as CFIT. Issues arising from GPS jamming:

- Navigational issues (including cross track, map errors, runway disagree alerts)
- EGPWS effectiveness
- Distraction (e.g.: alerts, HUD miscue)
- High risk category to consider and manage – CFIT.

As a broader discussion with the SIRM identified, reporting for GPS outages had decreased, even though the issues have persisted (normalization and lack of action). **Industry is encouraged to continue to report all issues of GPS outages to the appropriate authorities**, it is only with the awareness and understanding to the extent of the issue that action can be taken. The impacts of GPS outages were discussed by the forum with attention turning to the possible impact on the effectiveness and accuracy of EGPWS. The impact of degraded EGPWS degradations was further highlighted during two presentations which considered similar CFIT events, both incidents involved databases which could have been considered as out of date.

IATA’s Generic Safety Risk Assessments on EGPWS databases and GPS outages can be found by following the links below:

- [EGPWS Database Validity](#)
- [GNSS \(GPS\) Interference](#)

When it comes to discussing in-flight risk, loss of control (LOC-I or aircraft upset), is one which we will always be cognizant of and treat with the utmost attention. The threat of LOC-I was highlighted with an open and honest presentation discussing an incident which occurred during a post maintenance positioning flight, 2 aileron cables were reattached in the incorrect location which caused the reversal of control inputs. This resulted in a near fatal incident and highlighted the following key points:

- Design issue can lead to human error
- Experience of the crew enabled an accurate assessment of the issue and allowed the correction to inputs to be able to recover the aircraft (very demanding, high pressure)
- Excellent example of the importance of CRM
- Highlights the importance of an effective QA system within the maintenance organization (could and should this error have been spotted)
- Interpretation and understanding of maintenance manuals
- Highlights the importance of post maintenance checks – what does your organization have in place?

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<sup>1</sup> GPS outages also includes GPS jamming, interference, and spoofing

The threat posed by pitot tube blockages was highlighted in this session and included a presentation which discussed the impact of wildlife nesting within pitot tubes and how likely this was to produce erroneous speed indications (in the example used a nest was constructed in around 2 hours). **Thought:** The discussion highlighted that OEM guidance may not always be enough to protect an aircraft from contamination/infestation (e.g., OEM specifies use of covers if the aircraft is parked for more than 72 hours) and thought could be given by operators into conducting risk assessments of the issue based on geographical location.

## 2.3 Runway Safety

The runway safety session was opened with a fascinating case study of how the execution of a go-around procedure resulted in a runway impact/excursion. This was an example of an accident in a complex system environment and how numerous safety factors met in a twist of fate and resulted in the unimaginable. In this case the changing factors included a tail wind to a head wind, coupled with a crew whose mental model was not completely aligned with the situation. With many additional factors the scenario resulted in a failed go-around attempt, a loss of aircraft energy and then a runway impact/excursion. The key points to take away:

- Reduced or compromised situational awareness and incomplete/inaccurate mental models can lead to the execution of incorrect decisions
- Task distraction – ATC transmissions at untimely points in the approach can lead to a break in thought and a distraction from the task, consider how to protect your crews from distractions
- The go-around procedure is a safety control which if not carried out correctly can quickly become an uncontrolled hazard. (Training, experience, and effective procedures are all key for the execution)
- Building on this scenario, the next session described the aftermath of the runway impact, and explored the activities of the cabin crew in the subsequent emergency evacuation. A scene of smoke, fire, and compromised slide deployments all served to cause confusion and resulted in a varied range of passengers' behaviors, which included passengers trying to disembark with luggage and their precious possessions.

### Key take aways:

- We don't always know the motivations of a passenger and the attachment with their luggage, empathy was discussed for consideration into cabin training and processes
- Slides may not always perform as anticipated, be prepared to adapt to the situation and overcome the challenges. Considering procedures to meet every eventuality is unrealistic, the key is to provide cabin crew with the necessary tools and training to make good decisions
- Effective training is key, never stop learning!
- A second survey was offered to the participants and asked them to consider the threats associated with runway safety. 84% identified that Runway Excursion was one of their organization's top threats. The key threats identified in a runway excursion incident were:
  - Unstable approaches
  - Long Landing
  - Performance calculation error

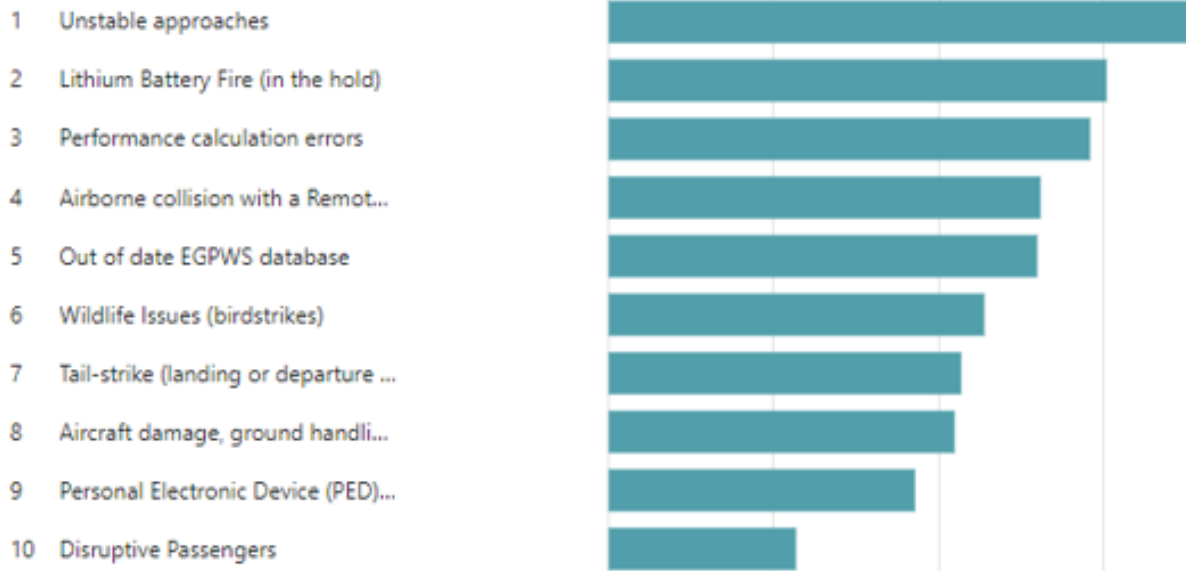
With high profile runway excursion events in the last 12 months we would like to redraw attention to the Global Aviation Plan for the Prevention of Runway Excursions (GAPPRE) – a link to this document is provided here: [GAPPRE](#)



## 2.4 Top 10 Safety Issues



The SIRM participants were invited to rank a set of safety issues, which the results can be seen below, while there is no right or wrong answers to this, it is worth ensuring that these are captured on your own organizations hazard and risk logs, managed, mitigated and reviewed.



Of those that responded, 32% indicated that unstable approaches were still their main safety threat, while 27% indicated that fire in the hold still presented a significant risk.

## 2.5 Safety Topics

As we all know, safety management is a complex system which, if effective, provides assurance, safety improvement and drives improved operational performance. A discussion focusing on "*operational learning*", highlighted nicely that through a simple conversation/interview valuable data and insight can be gathered to understand why things seemingly go well, this echoed some of the concepts that [Safety II](#) builds on. This was complimented with a discussion on "*making safety personal*" which highlighted how an organization was going the extra mile to ensure that safety conversations were more than those held routinely; and that all meetings start with a "*safety moment*".

The session was concluded with an overview of the work conducted by the IATA Accident Classification Task Force (ACTF) and an overview of the implementation work being conducted in the Asia Pacific region to reduce the likelihood of CFIT. For more information, you can access the implementation plan at: [IATA CFIT DIP](#)

## 3. Executive Summaries

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On the following pages, you find the summaries of the presentations as provided by the organizations. Some have been edited to de-identify.

## Cargo Event

The Presentation is about an event in which an aircraft collided with a Dorry truck while entering JFK cargo building 77 in January 2022.

Dark and insufficient airport lighting, illegal parking of vehicles and cargo on taxiways, insufficient management of airport safety facilities, and pilot fatigue are the effects of complex contributing factors.

Airport authorities, ground operators, and the airline are working together to solve problems and come up with measures to prevent recurrence.

Through this case study, we would like to reveal the unknown field situation around us.

We hope that this information will help the safe operation of IATA member airlines.

## Maintenance & LOC-I

Following a maintenance C-Check an Embraer 190 was released for a positioning flight. Immediately after take-off in adverse meteorological conditions (cloudy and rainy), the crew noticed the aircraft not responding adequately to the pilot roll inputs. As a result, the crew declared an emergency. The crew was struggling to control the aircraft while trying to diagnose the cause for the abnormal aircraft behavior. The aircraft encountered many severe G loads up to 4-5G while flight crew was trying to regain the proper attitude of the aircraft. After nearly two hours of flight and after two unsuccessful landing attempts, the crew finally managed to land at Beja airport (Portugal) leded to military Air base by two F16 fighters. Investigation concluded that the incorrect installation of the aircraft's flight control cables system during heavy maintenance activities, resulted in the aircraft's aileron system reversal operation and consequent loss of control during flight, this was identified as the cause of the accident.

## Fuel Contamination

During scheduled maintenance, an A321 underwent a biocide treatment on its fuel system, using Kathon biocide, to treat microbial contamination.

Following the maintenance, there were abnormalities with the operation of both engines across four flights; during the incident flight, one engine stalled and the other one experienced a stall.

The crew established that the engines were more stable at low thrust settings and the thrust available at those settings was sufficient to maintain a safe flightpath.

They continued the approach and the aircraft landed uneventfully.

The [AAIB UK final report](#) has been published.

## GPS Outages & Drones

The EVAIR feedback is divided in three parts: General statistics covering the ATM related occurrences reported by our stakeholders, during the last five years (mainly 2017-2021), and the associated contributory factors. A detailed insight provided on two of the most frequently reported ATM related occurrences in the current international political context: GPS outages and RPAS/drones encounters. The presented statistics on GPS outages cover flights operated within the last five years in the European airspace and neighbouring areas: Middle East, North Africa, North Atlantic and former Soviet Union. A geographical presentation of these trends is also included. With respect to the RPAS/drone events, apart from overall statistics, two recent cases of military drones encounter over high seas are presented to raise the awareness of the community on the risk posed on the safety of civilian flights. Finally, the EVAIR feedback provides information about the ACAS RA review meeting, the associated processes and the best use of the available data and expertise.

## EGPWS Database Validity

Following the UPS A300 crash on approach to BHM in August 2013, the NTSB made recommendations regarding EGPWS software issues. The presenting airline recognized that it is an important and necessary safety priority to ensure their aircrafts have the latest software installed. It was considered by them too high of a risk for them not to act and ensure timely upgrades to the EGPWS software. A valuable case study providing insight and validation of the important role of EGPWS in the prevention of CFIT.

## Smoke in the Cockpit

During descend phase approach to Hong Kong while passing FL160, both pilots in the cockpit felt strong smell of burning rubber or wire burning followed by thick smoke coming from the pedestal in the cockpit.

May Day was declared immediately which was immediately attended by the approach control at the time of the call.

The "approach and landing" was performed with no problems and just after landing the May Day call was downgrade to Pan Pan.

The purpose of this presentation is to share all the effective barriers in place at the time of the event as well as the learning lessons from the Operational Learning Review (OLR).

## Making Safety Personal

Recently, a North American operator presented on the importance of making safety personal. The operator discussed the fact that over 50% of pilots and operational employees within their organization had been hired after their last fatal accident occurred. During several safety presentations, the operator stated they began to hear comments that seemed to downplay events:

- "It's just a one-off event"
- "The rate is very small, what else can we do"
- "That wouldn't happen to us"

This operator held an SMS conference inviting internal personnel, the regulator, and associations. The keynote presentation was shared by the Honourable Robert Sumwalt, former Chairman of the United States National Transportation Safety Board where Mr. Sumwalt mentioned that he worked at an operator that had 5 significant aircraft accidents during his tenure and he observed a marked change over the years in the perspective from pilots and managers alike about safety. Through this insight, the operator decided to find a way to make safety more personal for the members of the safety assurance team within Flight Operations through using a safety moment at the start of every meeting that included an industry event/accident.

After introducing these events, there was a noticeable change in discussions of current events within and after the meetings, and multiple members stated they were less like to think "it's just a one-off event" and gained a greater appreciation for the investigation, data collection, and analysis process.

Moving forward, the operator plans to expand the use of these types of safety moments to other safety meetings and identifying better ways to incorporate industry accidents/incidents into event analysis.

## 4. Final Say

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Thank you to all those that attended and participated in the SIRM #29, we hope that you all managed to take away learning points from the session to use and consider within the context of your own operations. We encourage you all to build on the networks you made during the 2 days and continue the safety conversations that you were having. Once more, a huge thank you to the Emirates team for their support during the event and to Capt Mark Burtonwood for providing the opening remarks and setting the scene for the forum.

SIRM #30 will be held towards the end of March, and we look forward to hearing more about how the industry is addressing real time safety issues. If you would like to volunteer a presentation or build on a presentation that was delivered in Dubai, please reach out to us. In terms of a theme for March, we would be interested in the following safety topics:

- The challenges of the growing need/demand for automation and the related threat to safety
- Runway safety and near-misses
- Ground handling issues
- Managing safety in a complex aviation environment (how do you deliver the requirements of an SMS?)
- GPS outages – continuing the discussion (how big a safety risk?)

See you in March 2023, but until then, do not stop talking safety!

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**SIRM 30 will take place on March 20 – 21, 2023 at the IATA office in Montreal, Canada.**

[Register here](#)