

SOUTH AFRICAN



Keeping you safe in the sky

25
YEARS

THE NATIONAL AVIATION CONFERENCE

18 – 19 April 2024



The State of Aviation Safety

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Executive: Accident and Incident Investigation Division (AIID)

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Introduction

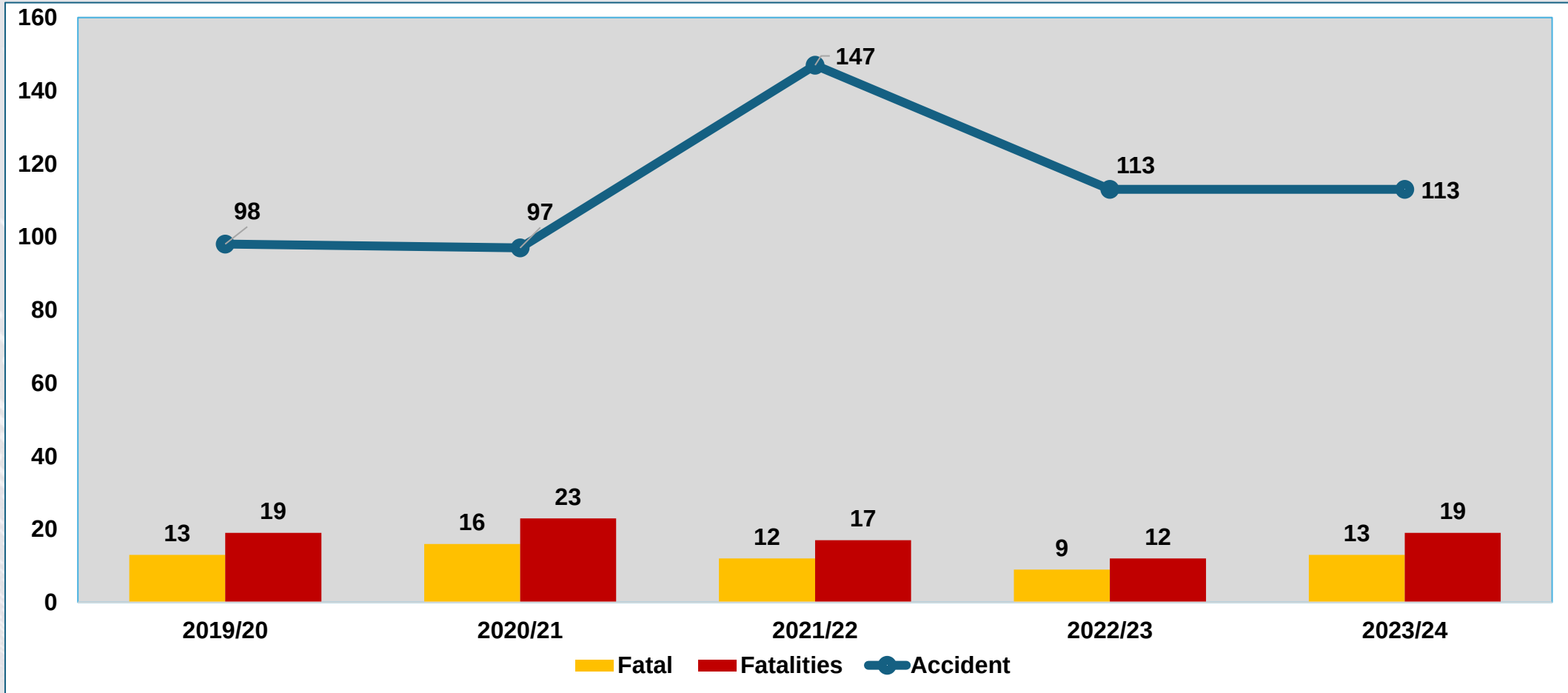
- The mandate of the Aviation Incident and Accident Investigation Division (AIID) in South Africa includes is pronounced by Annex 13:
 - Functionally AIID reports to the Minister of Transport, through the office of the Deputy Director General: Civil Aviation,
 - Administratively we report to SACAA,
 - Investigating aviation accidents and serious incidents to determine their causes with the ultimate goal of averting future occurrences.
 - Recording and analysing safety data to identify trends and potential hazards.
 - Managing the Confidential Aviation Hazards Reports (CAHRS) system to collect and address safety concerns.
 - Issuing and managing safety recommendations to prevent the recurrence of accidents and incidents.
 - Implementing advocacy initiatives in collaboration with the industry and the regulator to promote safety awareness and best practices in the aviation industry.

Recorded Manned Aviation Occurrences

Occurrence Category	2021/22	2022/23	2023/24	% Change	
Accidents	147	113	113	0%	✓
Serious Incidents	52	16	27	69%	✓
Incidents	2421	2804	3531	26%	✓
CAHRS	59	52	68	31%	✓
TOTAL	2679	2984	3739	25%	✓

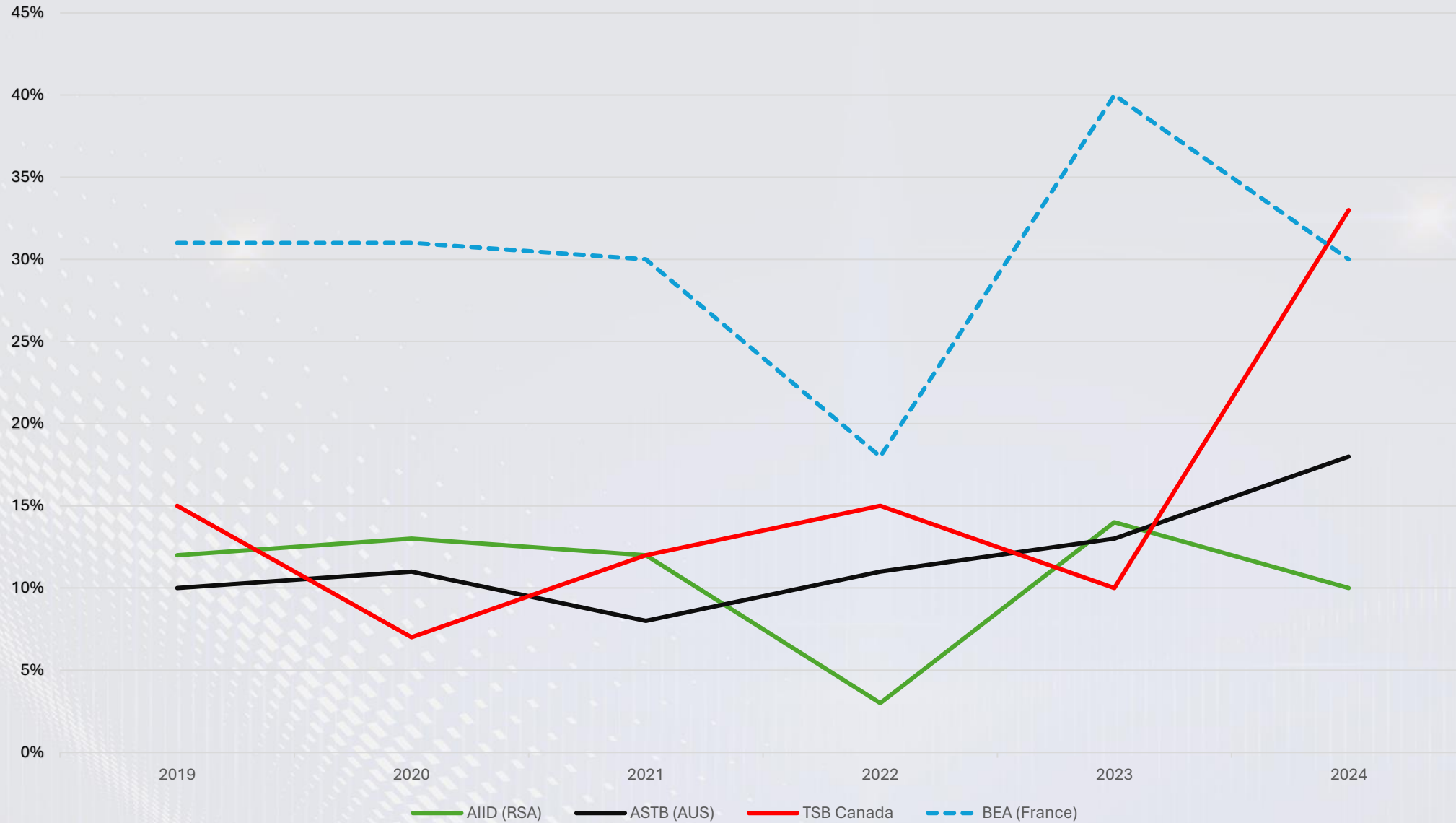
- In the 2023/24 FY, a total of 686,931 hours were flown, compared to 634,970 hours during the corresponding period in 2022/23 FY.
- Accidents demonstrate stability, with 113 occurrences recorded being classified as accidents in both the 2023/24 FY and the preceding 2022/23 FY.
- The increase in reported incidents and CAHRS reports suggests positive developments in reporting culture and proactive safety measures.

5-year Recorded Accidents, Fatal and Resulting Fatalities



- While fatal accidents varied over the years, there was a slight increase from 2022/23 FY to 2023/24 FY, indicating a concerning trend.
- The number of fatalities has been improving since 2021/23 and last FY we regressed by 4

Fatal Accident Rates

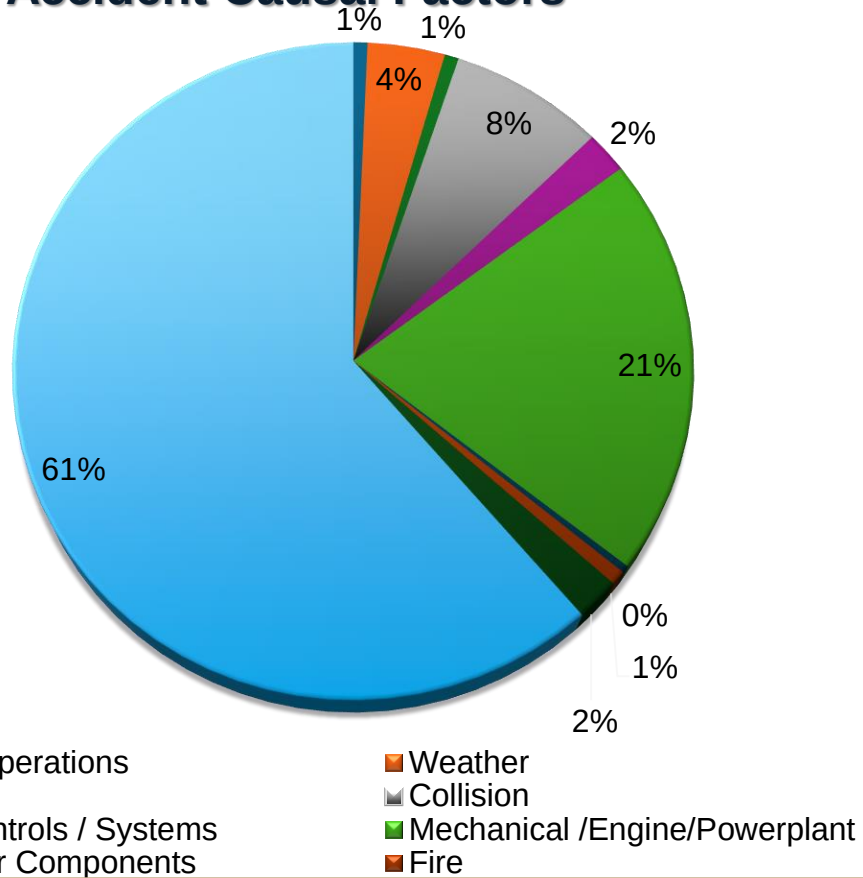


Accidents Per Operations Category

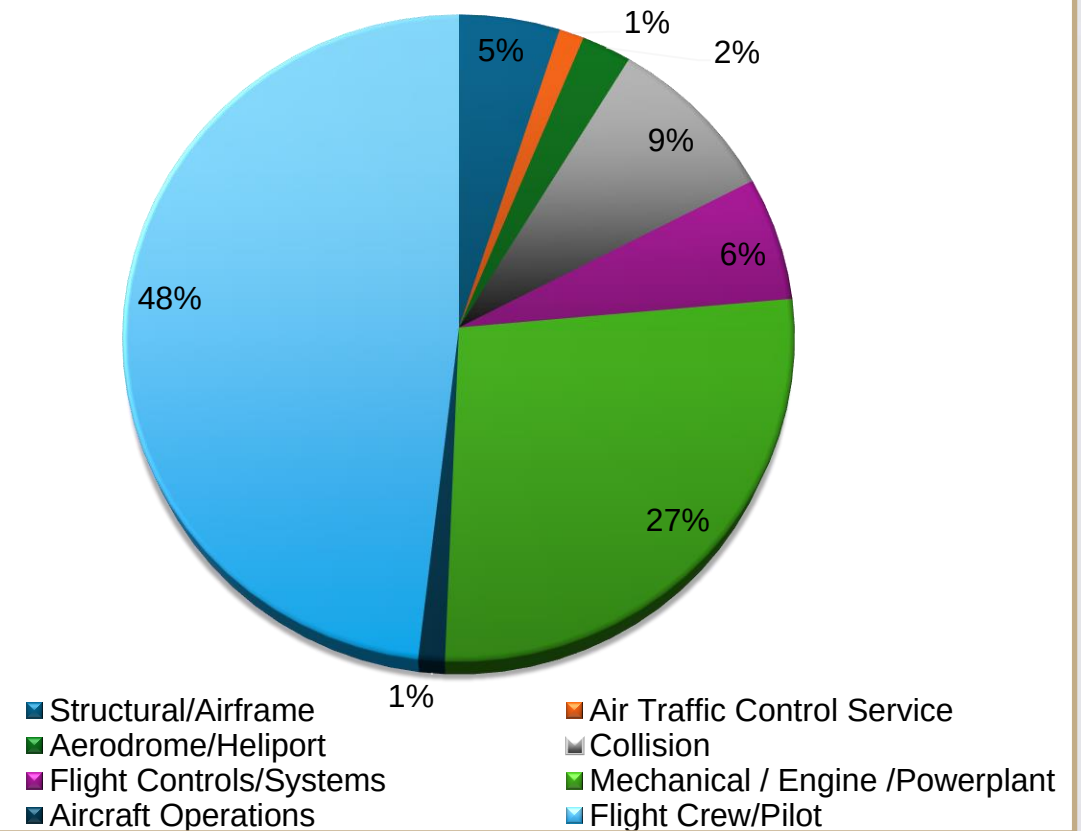
Operations Category	2021/22	2022/23	2023/24
Agricultural Operations	11	8	10
Air Ambulance Operations	0	0	0
Air Transport Operations: Carriage on aeroplanes of more than 19 passengers	2	0	0
Air Transport Operations: Small Aeroplanes	1	2	3
Aviation Training Organisations	37	38	29
Commercial Helicopter Operations	1	0	2
Commercial Operation of Non-Type Certificated Aircraft	2	0	0
General Aviation and Operating Flight Rules	39	28	27
General Maintenance Rules	2	0	0
Helicopter Aerial Work and Other Operations	1	0	0
Operation of Non-type-Certified Aircraft	51	36	40
Parachute Operations	0	1	2
Grand Total	147	113	113



Accident Causal Factors

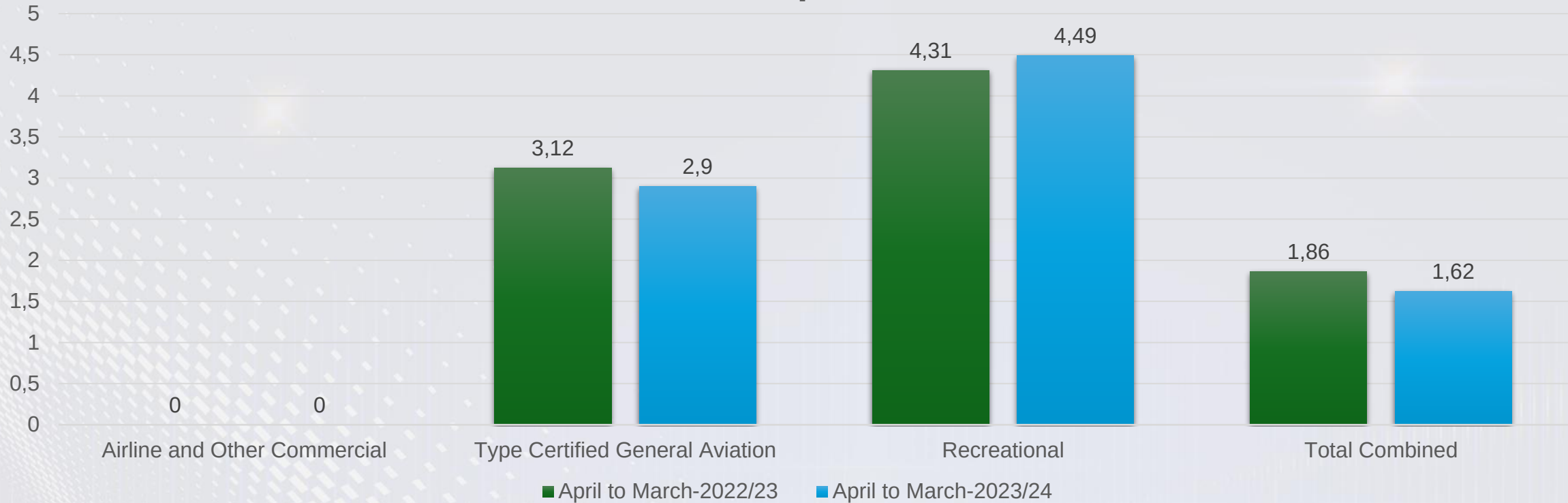


Serious Incident Causal Factors



South African Accident Rate

Accident rate April to March 2022/22 FY compared to April to March 2022/23 FY per 10 000hrs flown



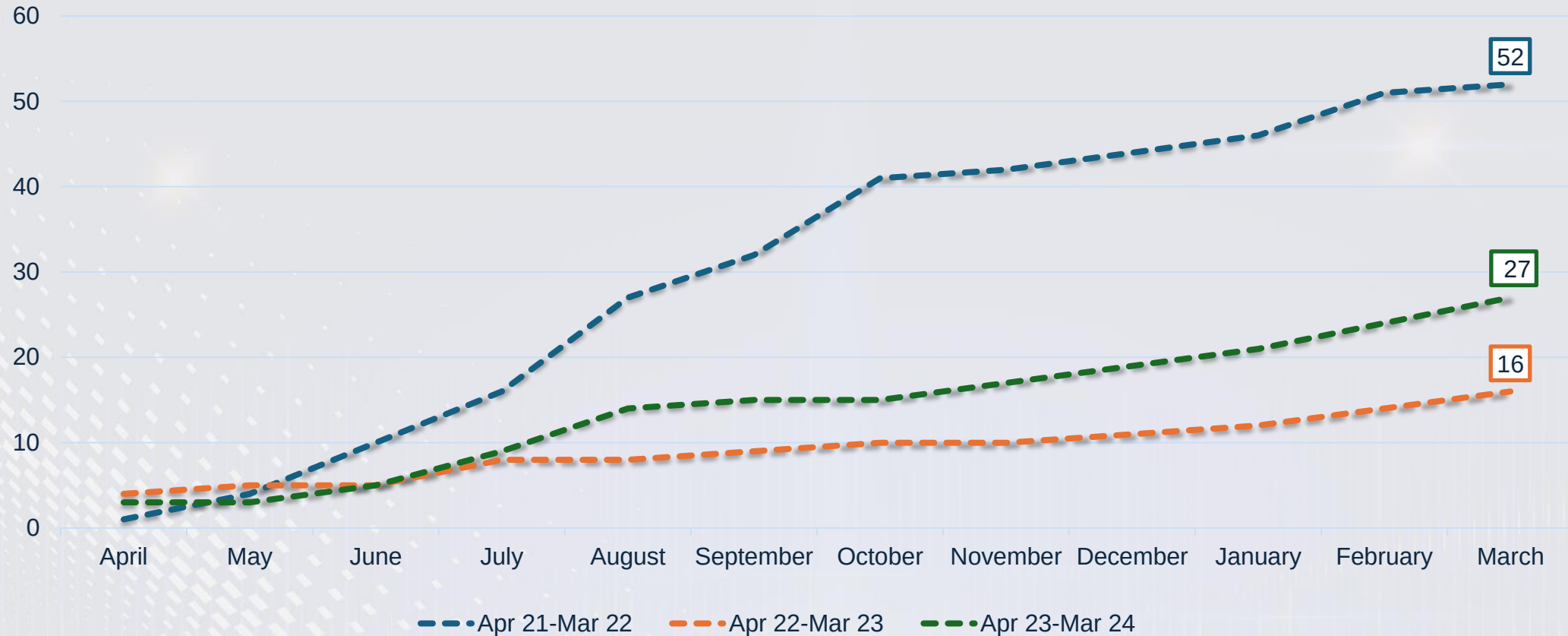
Estimated Hrs flown for the Period April to March 2022/23 FY

- Airline and Other Commercial = 307 090
- Type Certified General Aviation = 215 440
- Recreational = 112 440

Estimated Hrs flown for the Period April to March 2023/24 FY

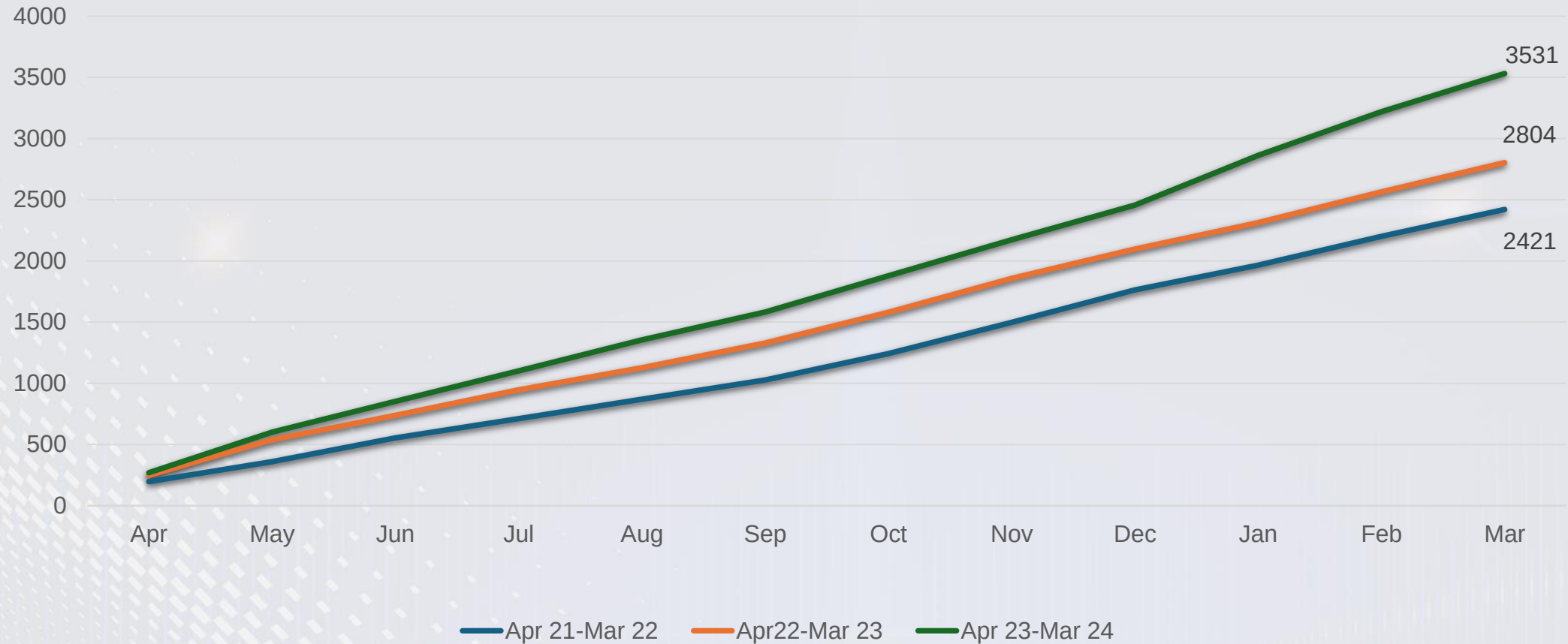
- Airline and Other Commercial = 369 067
- Type Certified General Aviation = 212 263
- Recreational = 105 601

Serious Incidents



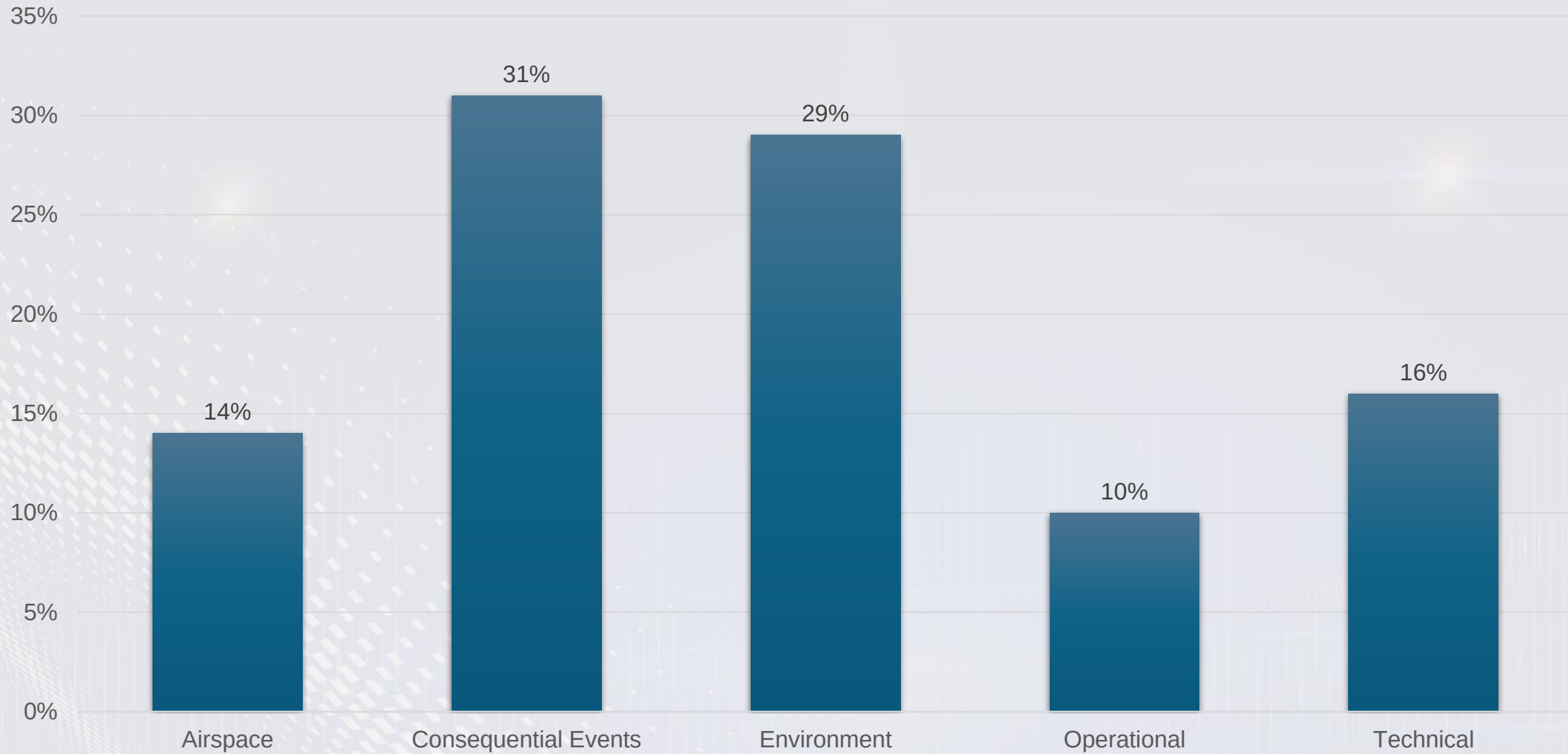
- In 2023/24 FY, a total of twenty-seven (27) Serious Incidents were recorded, reflecting a 69% increase compared to the same period in the 2022/23 fiscal year.

Aircraft Incidents Statistics

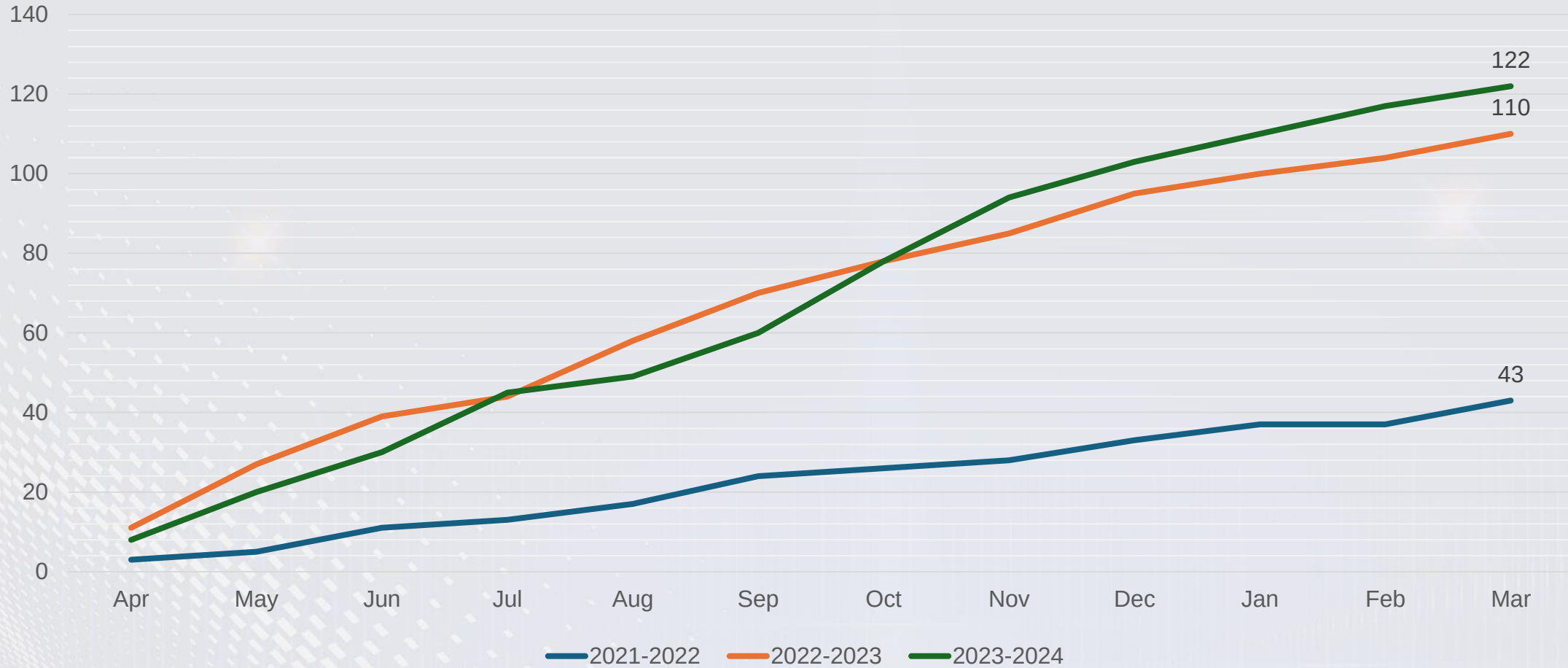


- The comparison of reported incidents between 2021/22, 2022/23 and 2023/24 respectively shows that for the current FY increased by 26% when compared to the previous FY.

Incident Event Types

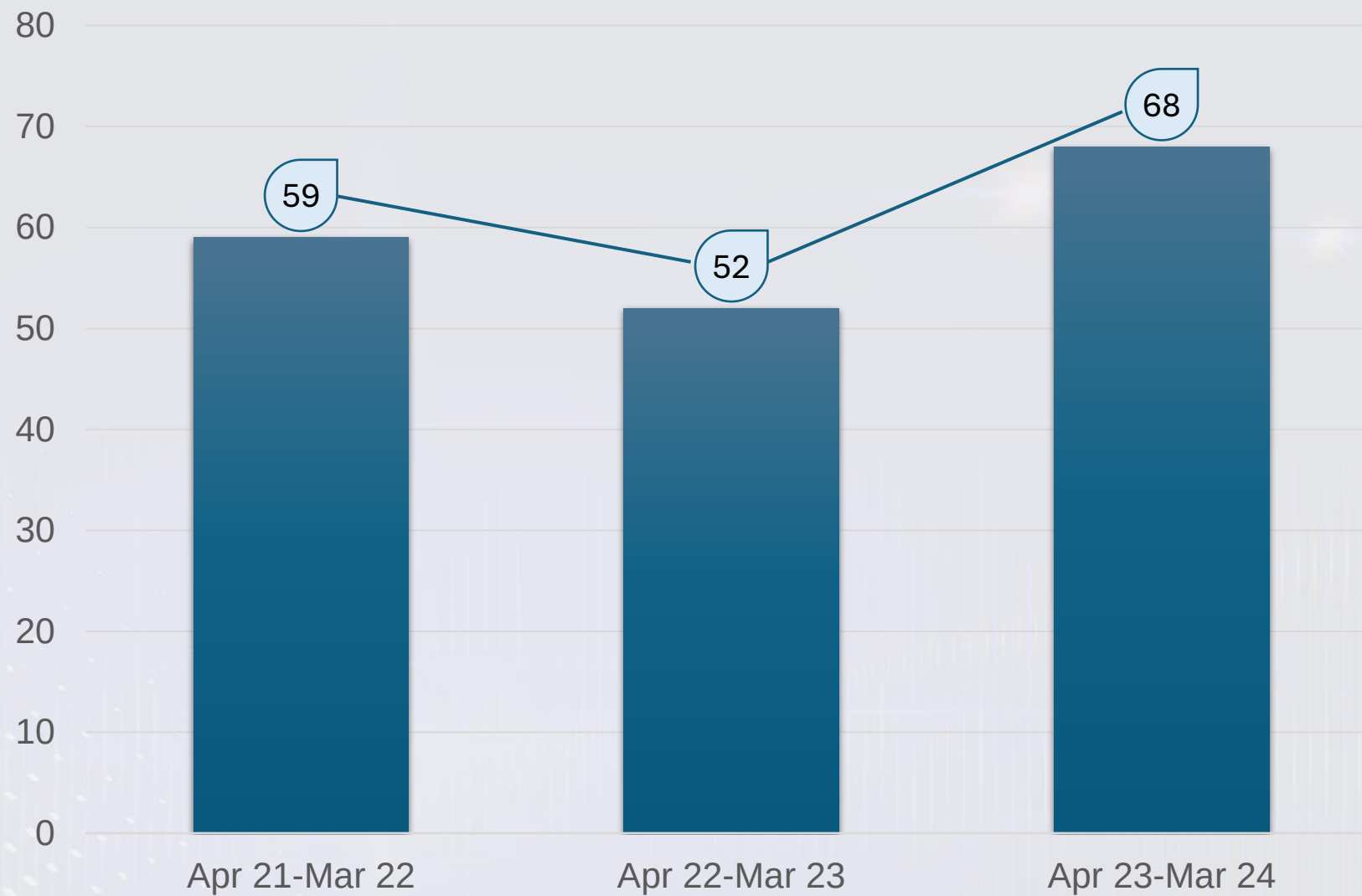


Aircraft Proximity Trends

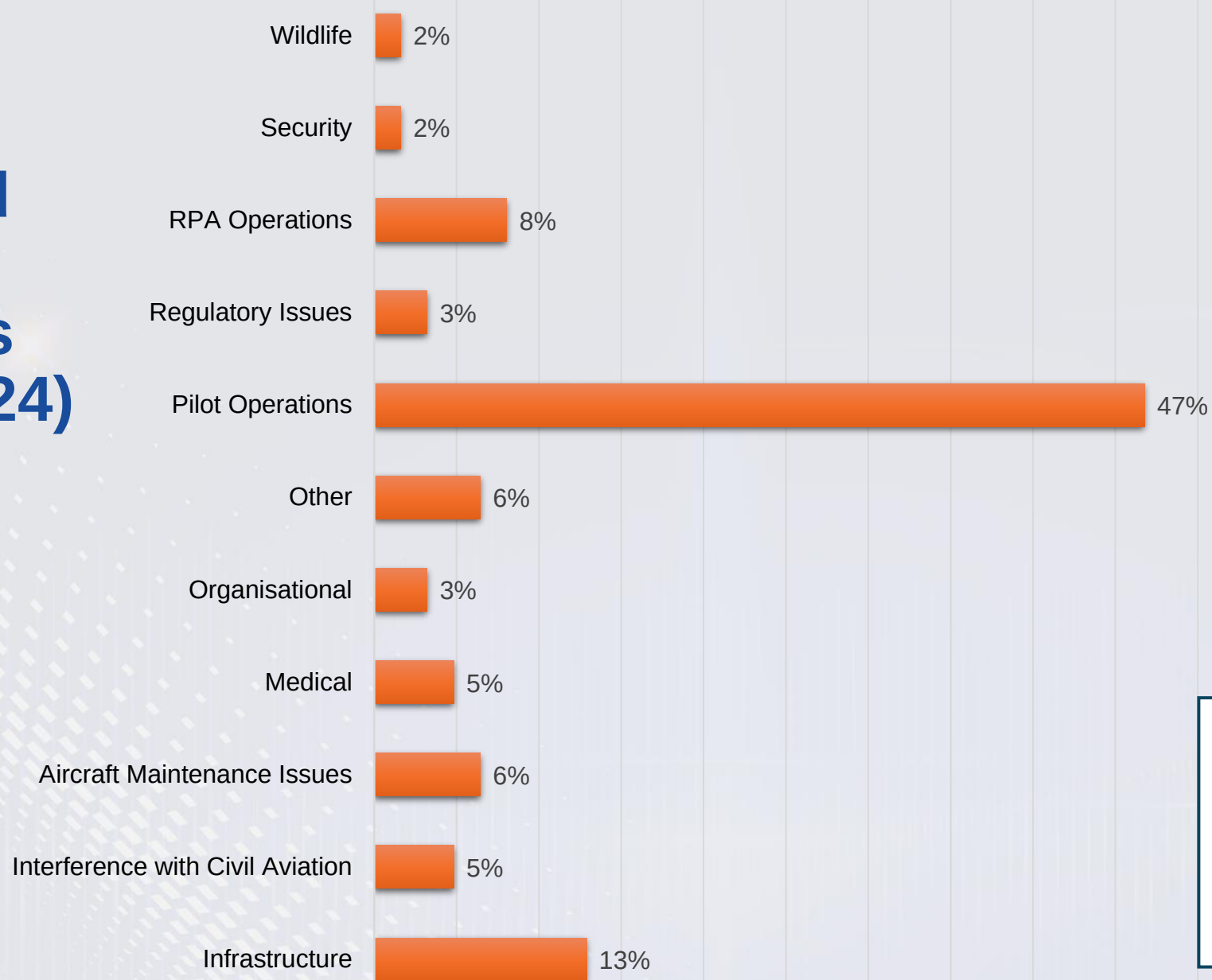


- Airprox events increased by 11% this financial year compared to the last financial year.
- The increase has prompted the SACAA through AIID safety recommendations for the establishment of an Airprox Committee.

Totals CAHRS in the past three financial years

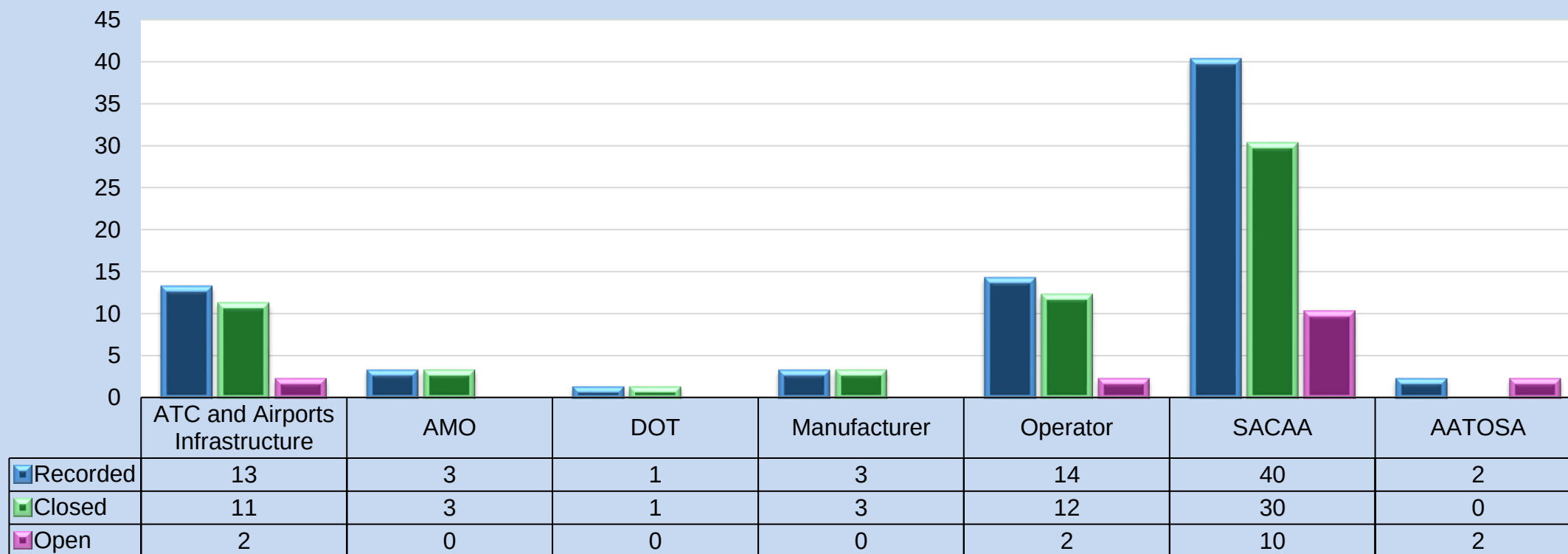


Reported safety concerns (2023/2024)



Safety Recommendations

Number of Safety Recommendations Recorded and Status



- Regulatory improvements and oversight are well-established tools for reducing accidents worldwide; therefore, most safety recommendations are issued to the State of Operator, such as SACAA.
- A total of 76 safety recommendations have been issued: 60 have been implemented and closed, 16 are WIP.
- 79% of the overall safety recommendations issued by AIID have been addressed and closed.

Aircraft Incident Follow-up Trends

- ☐ **Airspace-related events**
 - Aircraft Air proximity
 - Laser infringements
 - Drone infringements
- ☐ **Aircraft technical events**
 - Engine failures/Malfunction
 - Aircraft Pressurisation
- ☐ **Avoidable accidents**
 - VFR into IFR
 - Fuel exhaustion
 - Checklist failures and overlooking little details.

Case Study 1

Probable Cause

The aircraft was operated with insufficient fuel on-board which led to an in-flight engine stoppage of both engines due to fuel exhaustion, resulting in the loss of control and a crash.



Contributory Factors

Inadequate flight planning and pre-flight check.
Lack of verification by the instructor
Deviated from the submitted flight plan.

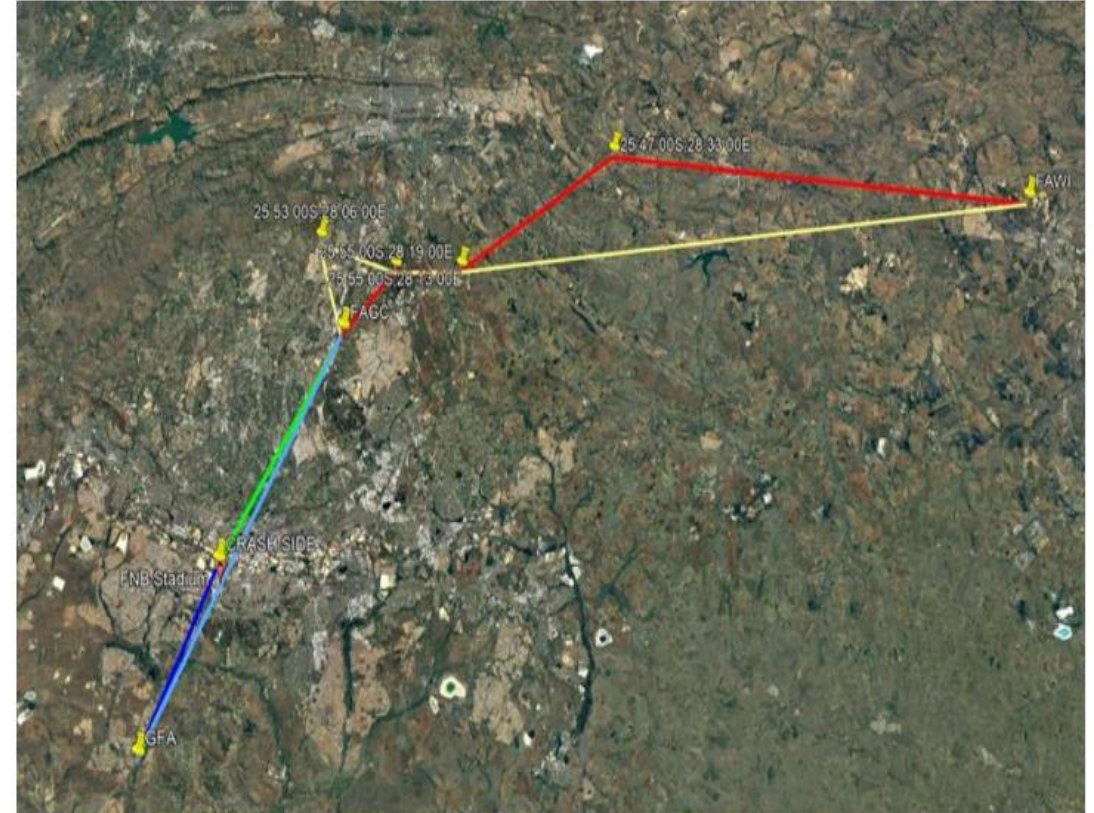


Figure 1: The red line indicates the filed flight path (departure path), the yellow line indicates the filed return path, the green line indicates the actual path flown from FAGC to the crash site, the dark blue line indicates the remaining path from the crash site to the GFA, and the light blue line indicates the direct route from FAGC to the GFA. (Source: Google Earth)

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Contributory Factors

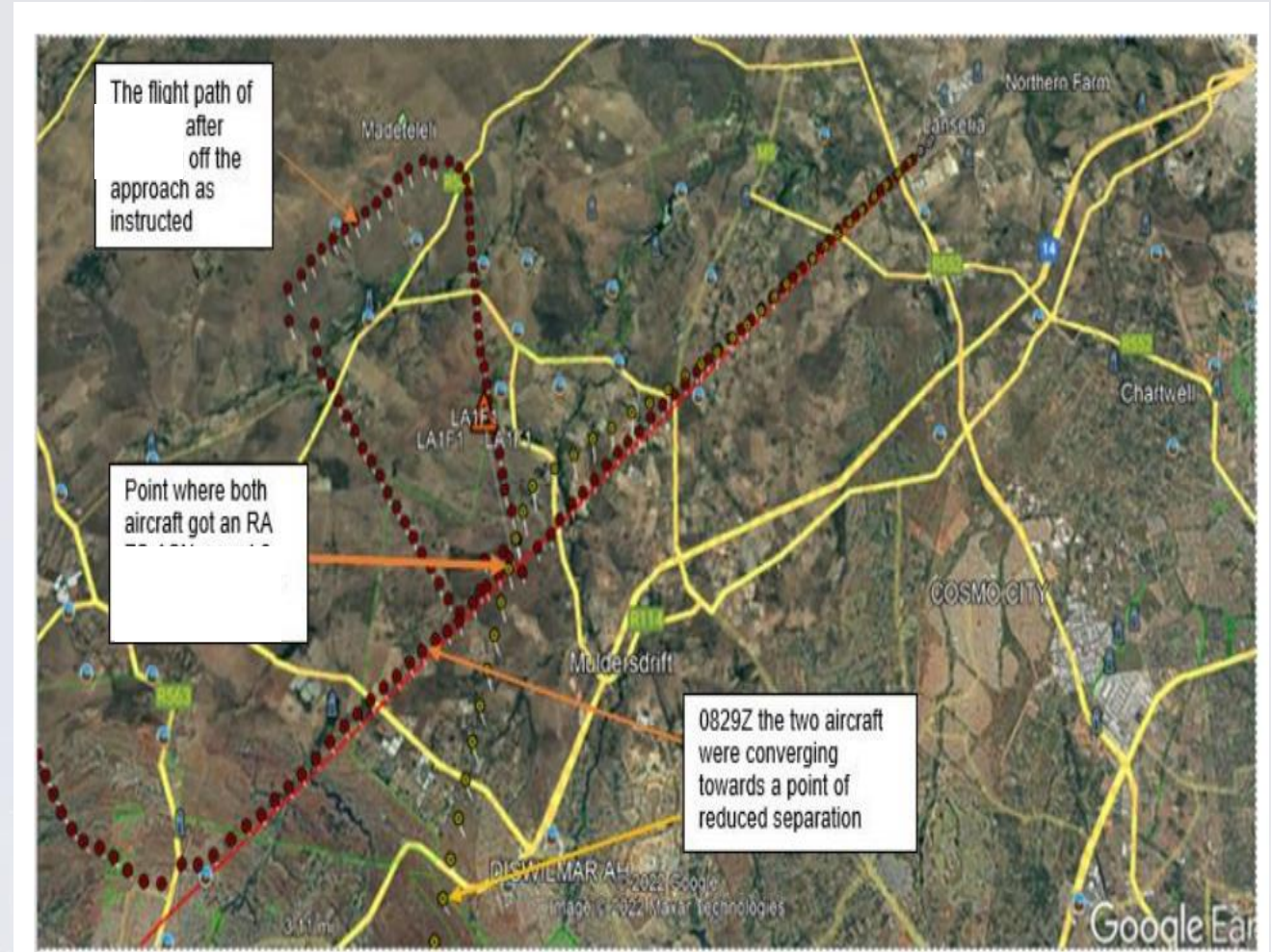
Poor situational awareness: late conflict detection.

Instruction given to (DC3) was late and provided without a reason and/or traffic information.

The ATC cleared B738 for visual approach as requested and instructed them what to do next.

The ATCO did not pick up that the pilot did not read back all given instructions.

The frequency was busy, there were 12 aircraft under the ATC's jurisdiction at the time of the incident



Summary of key points

- By embracing the above principles and utilizing advancements like home flight simulators, aviation professionals can enhance their skills and ensure they are fully equipped to navigate the skies safely and responsibly.
- While take-off accidents occur less frequently, they are 20 times more likely to be of fatality.
- Stall/spin incidents present the highest fatality rate among accidents, with a noteworthy occurrence during the take-off and climb phase, surpassing that of descent and approach.
- Fuel mismanagement persists as a prevalent issue among general aviation pilots, ranking as part of the second leading common cause of pilot-related accidents.
- An intriguing observation is that over half of pilots involved in weather-related accidents held Commercial or ATP holders, suggesting that weather hazards affect pilots regardless of aircraft performance or pilot experience level.
- In general aviation, landing mishaps account for the majority of accidents, typically resulting in damaged aircraft and increased insurance costs across the industry

The image features a series of concentric circles. The outermost circles are a deep blue, while the inner circles transition through lighter shades of blue to a central green circle. The text "That's all Folks!" is written in a white, elegant script font, positioned diagonally across the center of the image, overlapping the green circle and the surrounding blue rings.

That's all Folks!