# GNSS interference – Mitigations from the Flight Deck

ICAO EUR/NAT & MID Workshop on GNSS RFI

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# Timeline of GNSS Interference Management

**Lessons and Milestones** 

#### Initial encounter

GPS primary lost being reported on Wizz Air's Middle-East routes due to GPS jamming

2021

### **Further escalation**

GPS interference spreading to Eastern Mediterranean region Map shifts

2023

### **Beyond the systems**

Low reporting rate
Misuse of GPS interference procedure
Recovery tracking gap

2025



2022

Nuisance EGPWS warnings on Middle-East routes

**Early consequences** 

2024

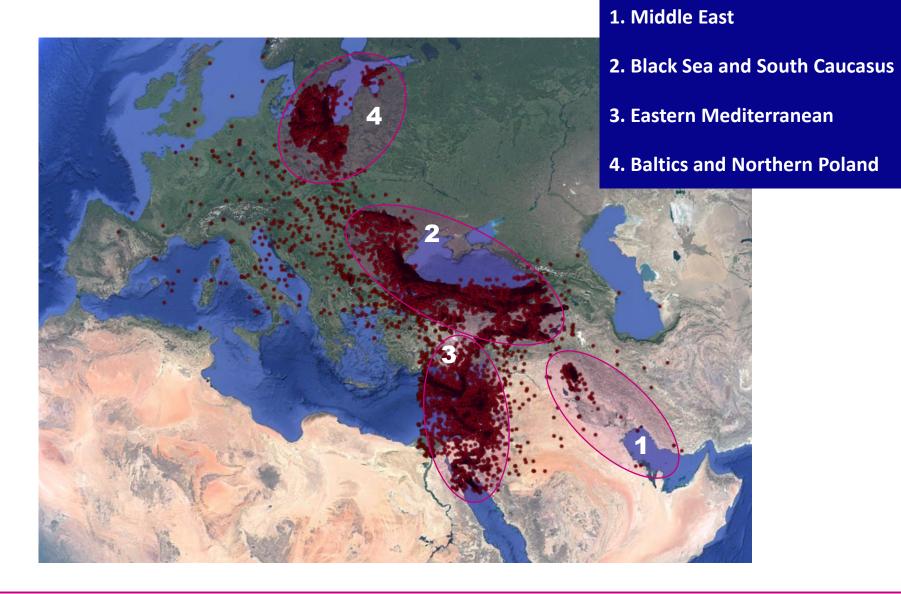
FCOM update and NTC Periodic FDM report

First level of mitigations





# Most affected areas Wizz Air network

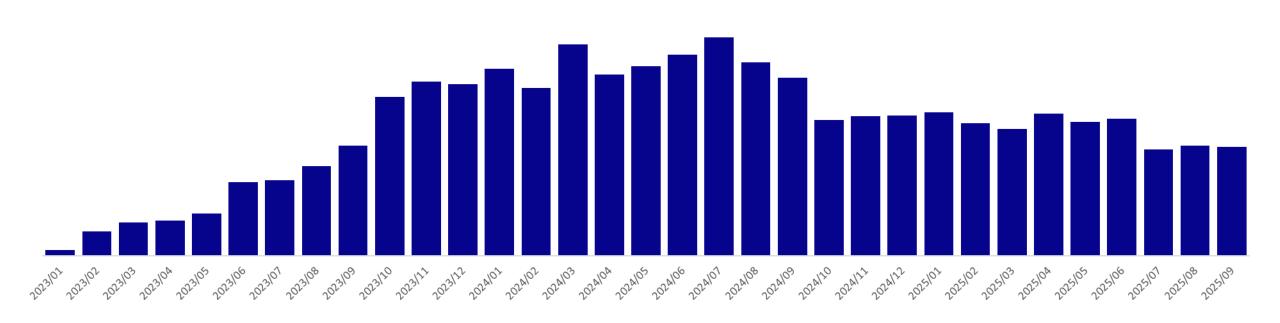






# Affected aircraft systems experienced by Wizz Air

#### Rate of GPS interference



- EGPWS: nuisance "PULL UP" warnings → CFIT
- Map shifts → CFIT
- Wind direction and speed indication: Inconsistent information about wind speed and direction → CFIT
- ROW/ROP: nuisance "RWY too short (if wet)" alerts → RE

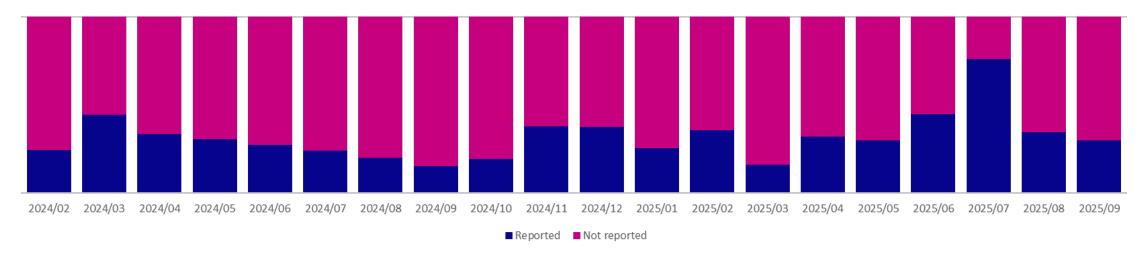




## Low reporting rate of GNSS interference cases

# Stems from routine exposure. "It's normal now."

### **GPS** interference reporting rate



### Why is it a problem?

Loss of situational awareness
Underreporting limits the available sources of information, making more difficult to identify contributing factors and assess risk.

### Information sources

Audits
FDM event monitoring
Air Safety Reports (ASRs)





# Further operational issues

# Misuse of GPS interference procedure

### Why is it a problem?

Flight crew applies GPS interference procedure deliberately, based on assumptions even when not applicable to their current route or airport.

### **Additional risk**

Switching off the EGPWS terrain alerting system without prior assessment of the airport, especially the terrain can increase the risk of CFIT

### **Information sources**

Audits
FDM event monitoring
Air Safety Reports (ASRs)

### **Lack of recovery procedure**

### Why is it a problem?

Difficult evaluation of a certain area, once the GPS interference is no longer in place. Unnecessary degradation of GPWS enhanced function

### **Information sources**

FDM parameter monitoring





# **Mitigation strategies**

### Communication

- Aircraft manufacturer harmonized information
- Pilot community clear procedures, consultation sessions
- Safety Objective

### Information for flight crew community must be centralized and simplified

### **Tools & information sources**

- FCOM
- LIDO GPS interference layer
- FDM event monitoring
- Airport assessments
- Reporting culture





### **Outlook for the future**

- Monitoring the situation
- Training flight crew
- Maintaining awareness

**Further actions?** 

Regulators Manufacturers operators

Aircraft

**Industry collaboration** 







Thank you for your attention!