

Low Altitude Safety Events

INFO ONLY – ANALYSIS ONGOING

Key Findings

Because of recent incidents of low altitude alerts, the U.S. Aviation Safety Team (USAST) has requested information on the associated risks.

Reporting of low altitude alerts, altitude deviations on approach, and Ground Proximity Warning System (GPWS) events are increasing across the National Airspace System (NAS) from pilots and controllers, potentially because of increased awareness of CFIT risk and an increase in operations since the novel coronavirus (COVID-19) pandemic. Initial data indicate rates are slightly increased from pre-pandemic levels. Air traffic controllers'¹ safety alerts may be increasing; however, data coverage is limited, necessitating further analysis.

NOTE: This analysis is ongoing; numbers are subject to change.

Risk Areas:[†] Low Altitude (LALT), Controlled Flight Into Terrain (CFIT), Loss of Control-Inflight (LOC-I)

Phases of Flight: Departure, Approach, Go Around, Landing

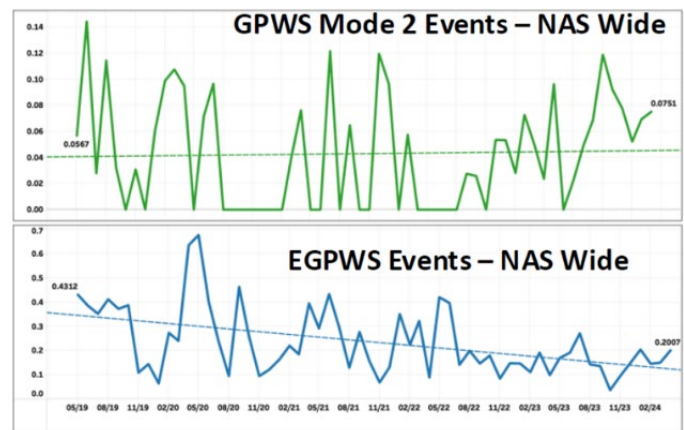
Likelihood:[‡] Unknown

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For more information, please contact asias@mitre.org.

Data Observations

- There is a slight increase in the GPWS Mode 2 Terrain alerting trend during the approach and landing phase of flight from May 2019–April 2024 (0.0751 per 10,000 flights).
- ASIAS observes a potential 50 percent reduction in the Enhanced GPWS (EGPWS) alert trend across the NAS during the approach and landing phase of flight from May 2019–April 2024 (0.2007 per 10,000 flights).



Continued Discussion

A review of recent event signatures has identified precursor risk areas analogous to those examined by the Approach and Landing Misalignment (ALM) Joint Safety Analysis and Implementation Team (JSAIT).² Specifically, these include flightcrew distraction and procedural non-compliance as well as non-compliance with approach crossing restrictions; additionally, these events included low visibility, because of either night operations or inclement weather. Further investigation is required to quantify the risk factors' likelihood and frequency of these risk factors within the NAS.

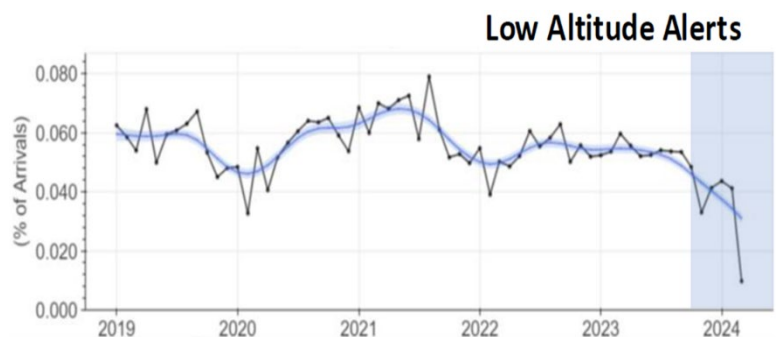


Chart above, rate of Low Altitude Alert transmission from controller to aircraft operator
Voice data coverage current limited by facility coverage since November 2023 (see shaded region)

[†]See Commercial Aviation Safety Team (CAST)/International Civil Aviation Organization (ICAO) Common Taxonomy Team (CICCT) Aviation Occurrence Categories, May 2021 (4.8)

[‡]See FAA Order 804 0.4 C, September 2023

¹See FAA Order 7110.65BB § 2–1–6a

²ALM JSAIT, CAST, December 2021