



Approach and Landing Misalignment



Following an incorrect surface misalignment event in 2017,¹ the Aviation Safety Information Analysis and Sharing (ASIAS) team performed a National Airspace System (NAS)-wide analysis of incorrect surface events. The Commercial Aviation Safety Team (CAST) subsequently performed a risk analysis which resulted in chartering the Approach and Landing Misalignment (ALM) Joint Safety Analysis and Implementation Team (JSAIT)² to investigate approach and landing misalignments, leading to the adoption of four safety enhancements (SE).

The ALM JSAIT leveraged data from July 2015 through October 2017. The ALM JSAIT concluded that misalignment events occur as—

- Wrong runway approaches/landings,
- Taxiway approaches/landings, or
- Wrong airport approaches/landings.

The ALM JSAIT identified specific findings from the dataset. The top findings for each category of contributing factors are—

- Pilot Error (Flight Management Computer (FMC) programming error, Failure to monitor/cross-check, and Pilot deviation),
- Pilot Human Factors (Expectation bias, Task saturation, and Distraction),

- Controller Error (Readback/hearback, Incorrect clearance),
- Weather (Natural lighting, Clouds/low visibility, and High head/tailwinds), and
- Airport Layout (Airport lighting issue, Visual similarity to another surface, and Visual similarity to nearby airport).

Then and Now (Data Trends)

Since the original study's dataset review, the ALM JSAIT performed a gap analysis of more recent mandatory reports from November 2017 through February 2019 and did not identify any discernible change in misalignment event rates. Although misalignment events are rare, the risk of a catastrophic outcome is likely if an approach continues to land on an occupied airport surface.

CAST encourages operators and air traffic control (ATC) to conduct risk assessments on the risk of an ALM event and consider implementing recommended aircraft/ATC technologies or procedures.

CAST Safety Enhancements

- SE 231: Approach and Landing Misalignment – Aircraft-Based Technologies
- SE 232: Approach and Landing Misalignment – Ground-Based Technologies
- SE 233: Approach and Landing Misalignment – Air Carrier Procedures and Training
- SE 234: Approach and Landing Misalignment – Air Traffic Control Policies and Procedures

¹ [A320 / B789 / A343, San Francisco CA USA, 2017](#)

² [General Distribution ALM JSAIT Final Report.pdf \(cast-safety.org\)](#)