

GTE/24 WP/05

Vertical Safety Monitoring Report

Mexico Area Airspace

CALENDAR YEAR 2023

Presented to: GTE/24

By: NAARMO

Date: 5 – 9 August 2024

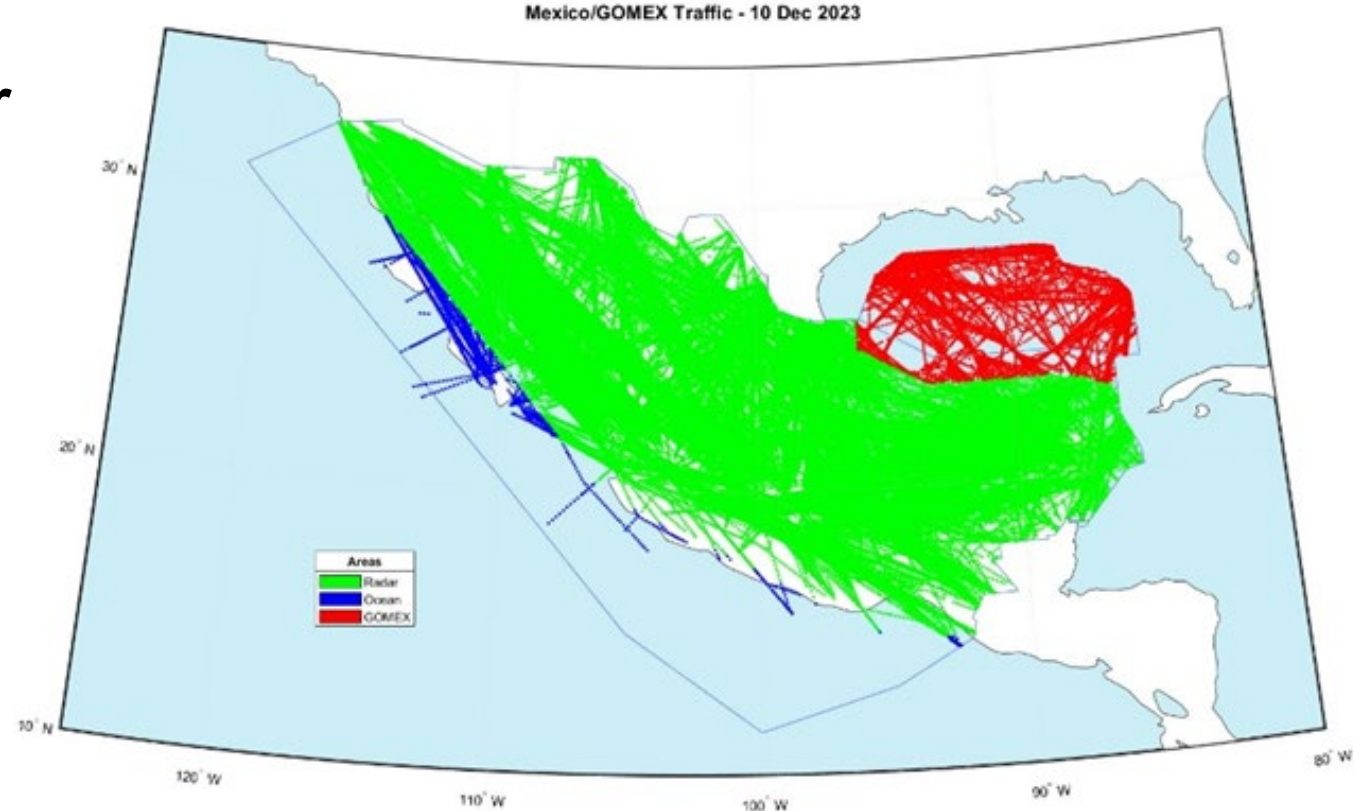


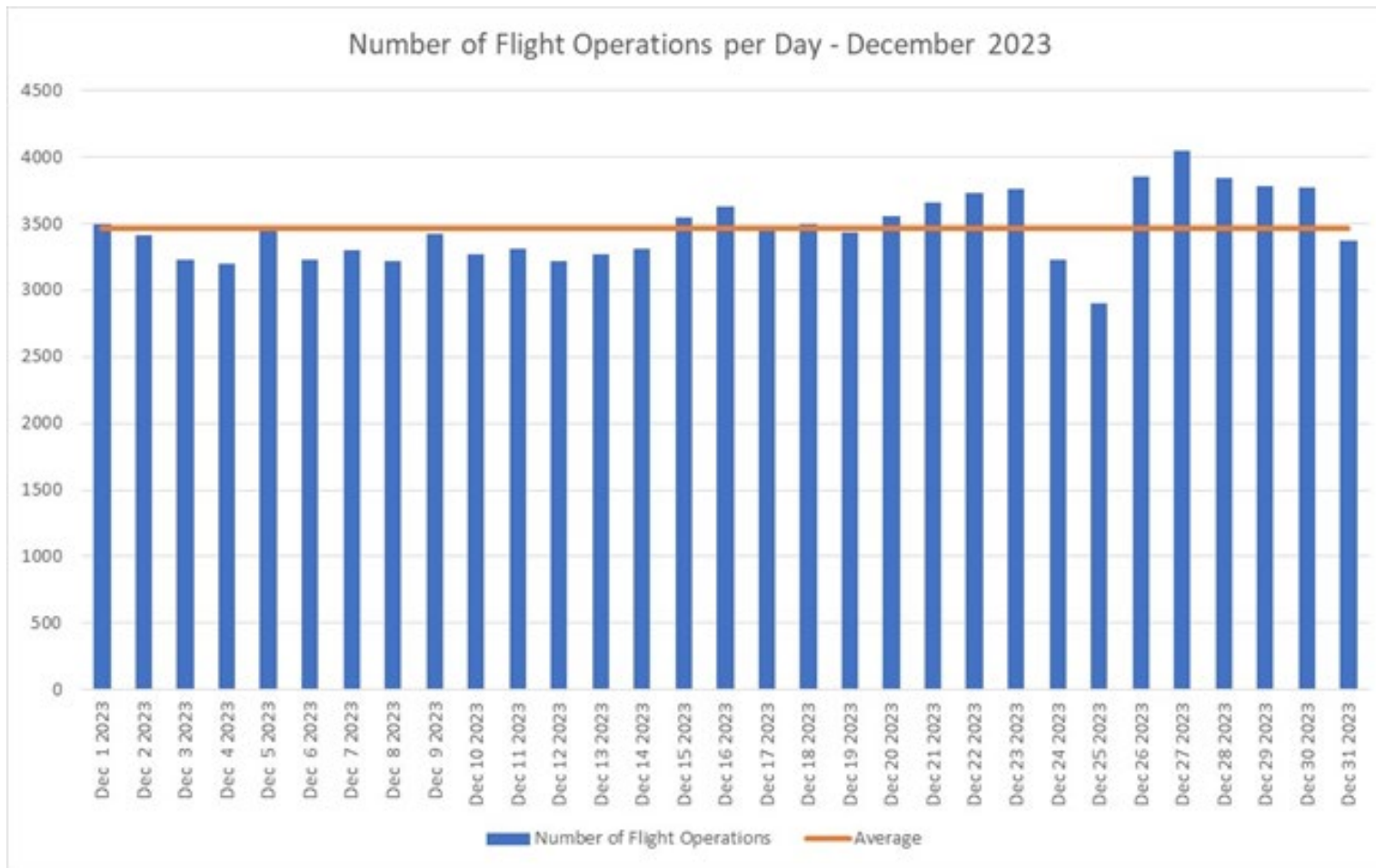
**Federal Aviation
Administration**



Mexico Airspace

- **Figure displays TMFS data for 10 December Dec 2023**
 - Colors indicate “traffic flows”
 - Characteristics of each traffic flow are maintained
 - flying hours,
 - traffic density, etc
- **Four Area Control Centers (ACCS)**
- **Separate GOMEX into 2 parts**
 - USA portion = Mexico-USA Corridor
 - Mexico portion = GOMEX





December 2023 traffic levels were slightly higher compared to December 2022



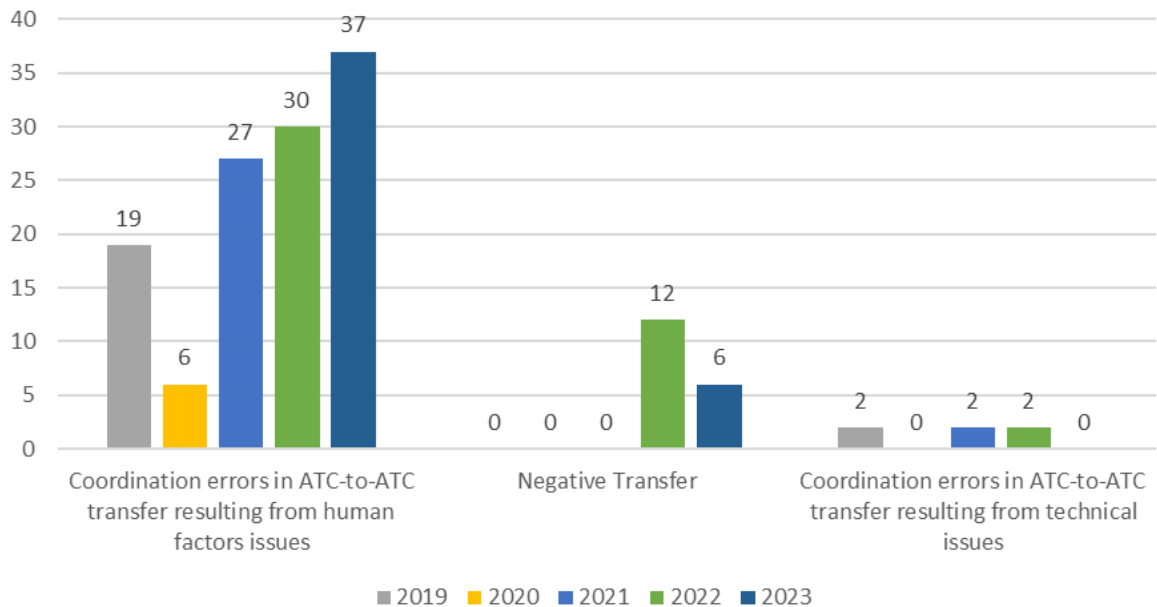
Reported LHDs by Category - 2023

LHD Code	LHD Category Description	Number of LHD	Duration (min)	Number of FLs Crossed
A	Flight crew failing to climb/descend as cleared	3	2	2
B	Flight crew climb/descend w/o clearance	3	0.5	3
C	flight plan vs ATC clearance	2	0	8
D	ATC system loop error	1	0	1
E1	Coordination error in ATC-to-ATC transfer of control as a result of human factors	37	27	2
E2	Negative coordination in the ATC-to-ATC transfer of control responsibility	6	5	0
F	Coordination error in ATC -to-ATC transfer of control as a result of technical issues	0	0	0
G	Aircraft contingency event	4	0	21
TOTALS		56	34.5	37

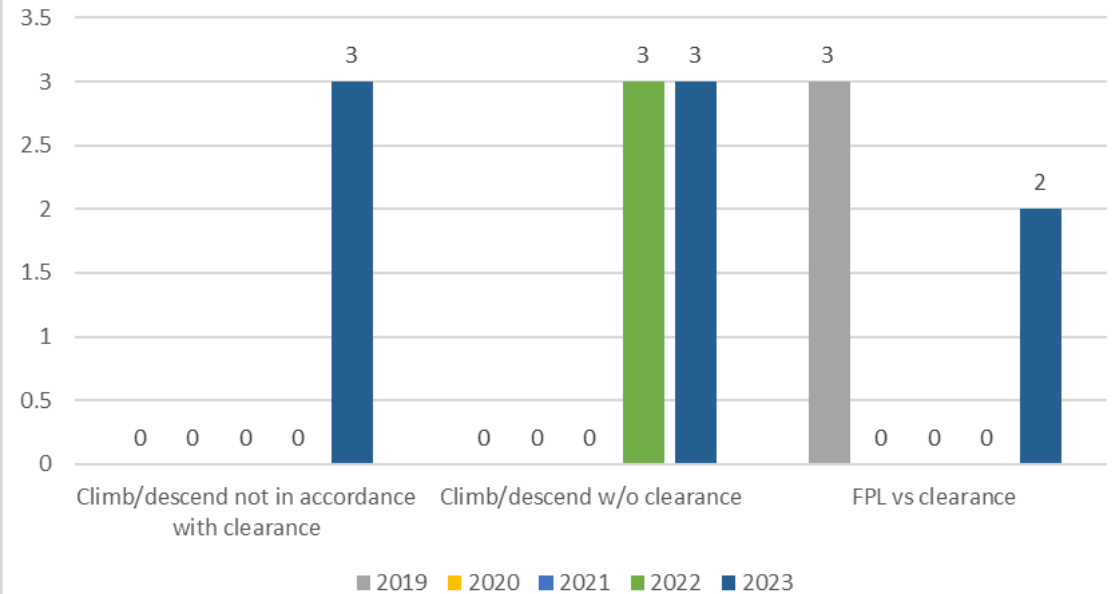


Reported LHDs

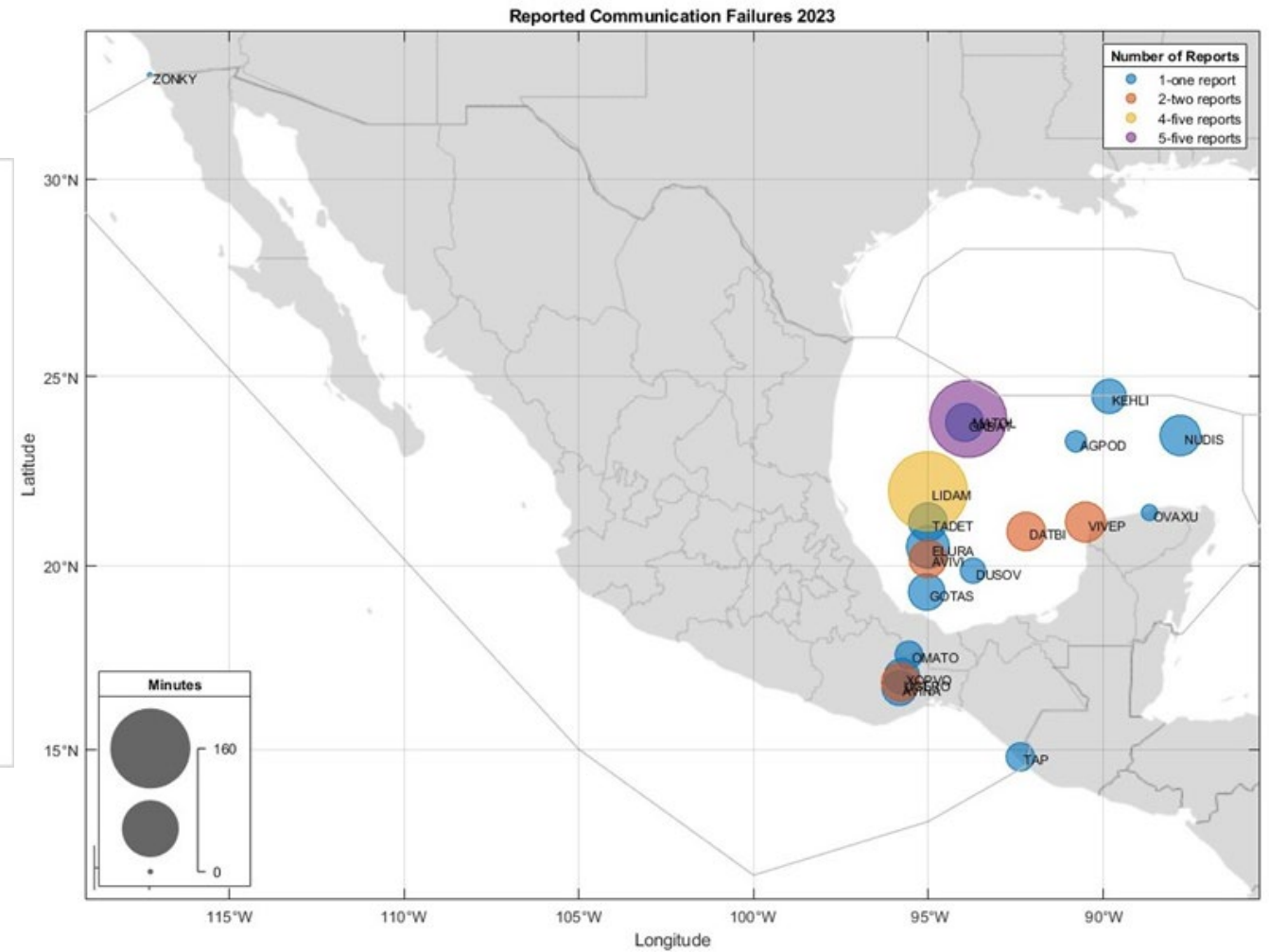
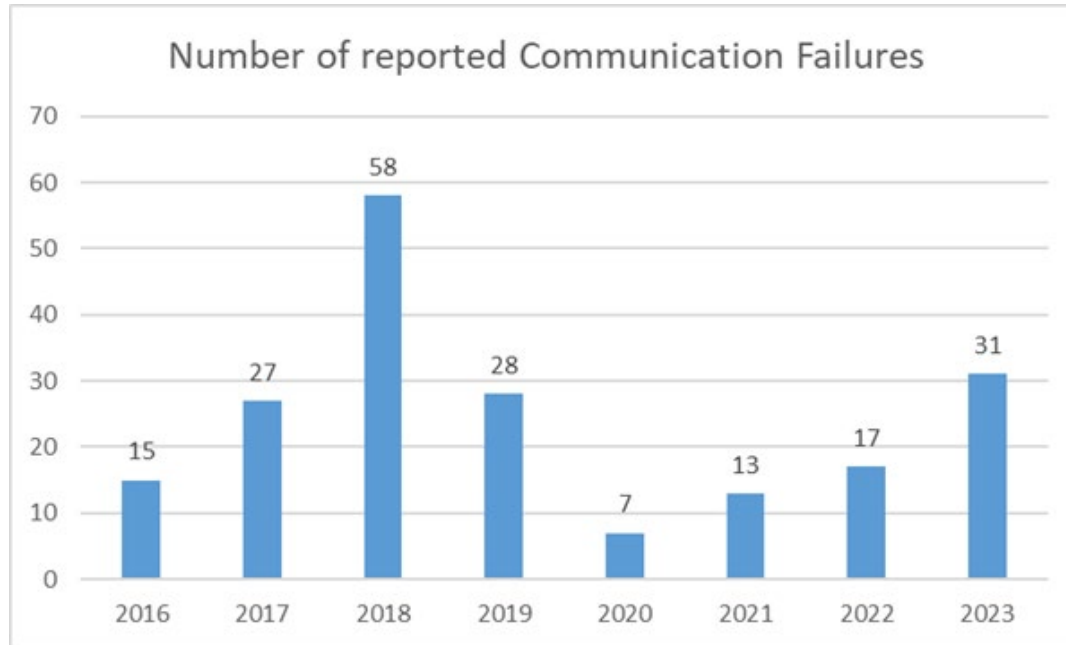
Number of Reported LHDs
ATC Related Categories



Number of Reported LHDs
Air Crew Related Categories



Reported Communication Failures



LHD Reports

- **Significant LHD reports**

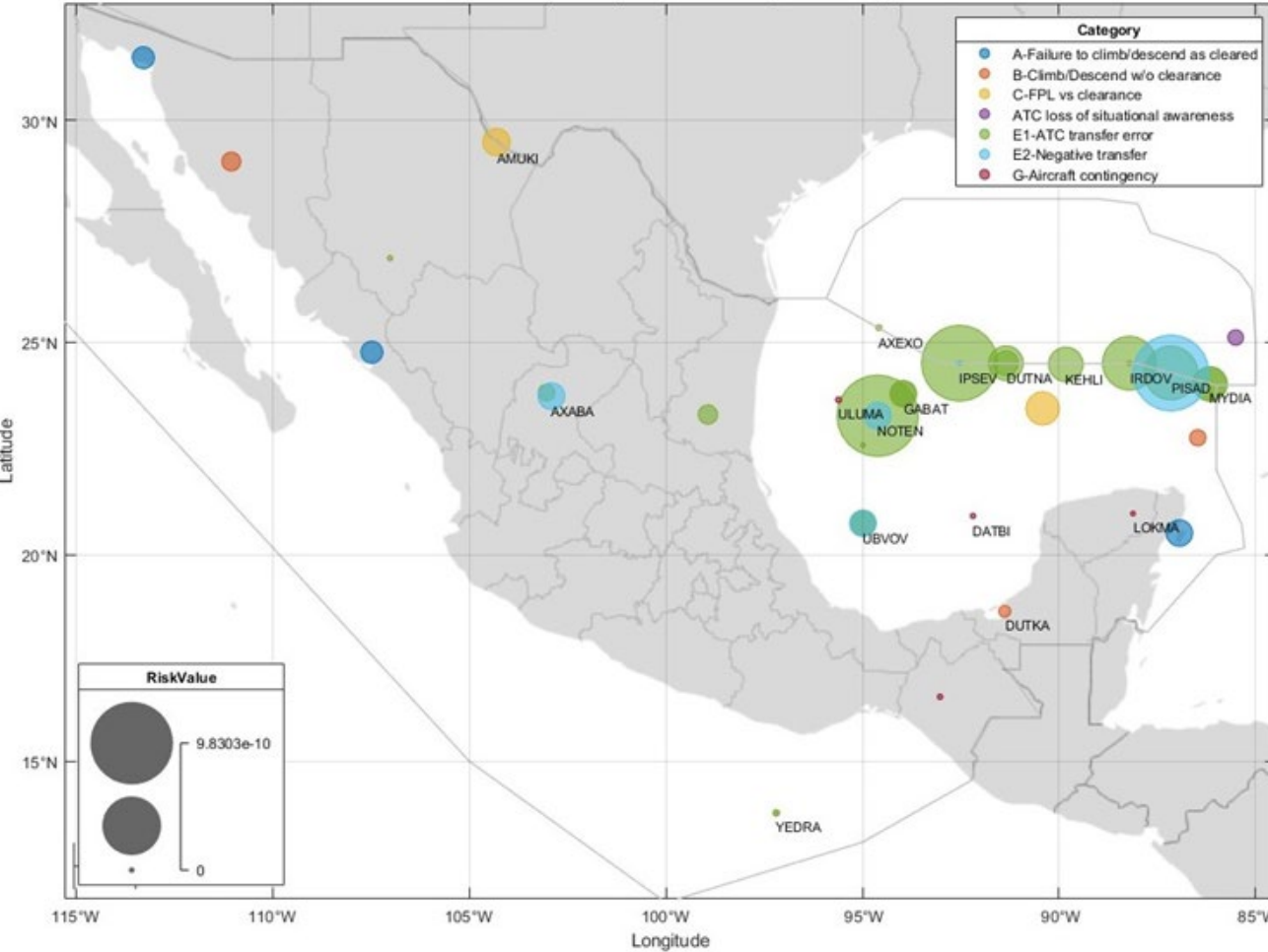
- 36 reported LHDs within Mexico radar surveillance areas

- Many category E reports at NOTEN, boundary fix between MMID & MMTY ACCs
- As a result, MMID & MMTY ACCs amended LOA
- Zero repeat occurrences at NOTEN since new LOA

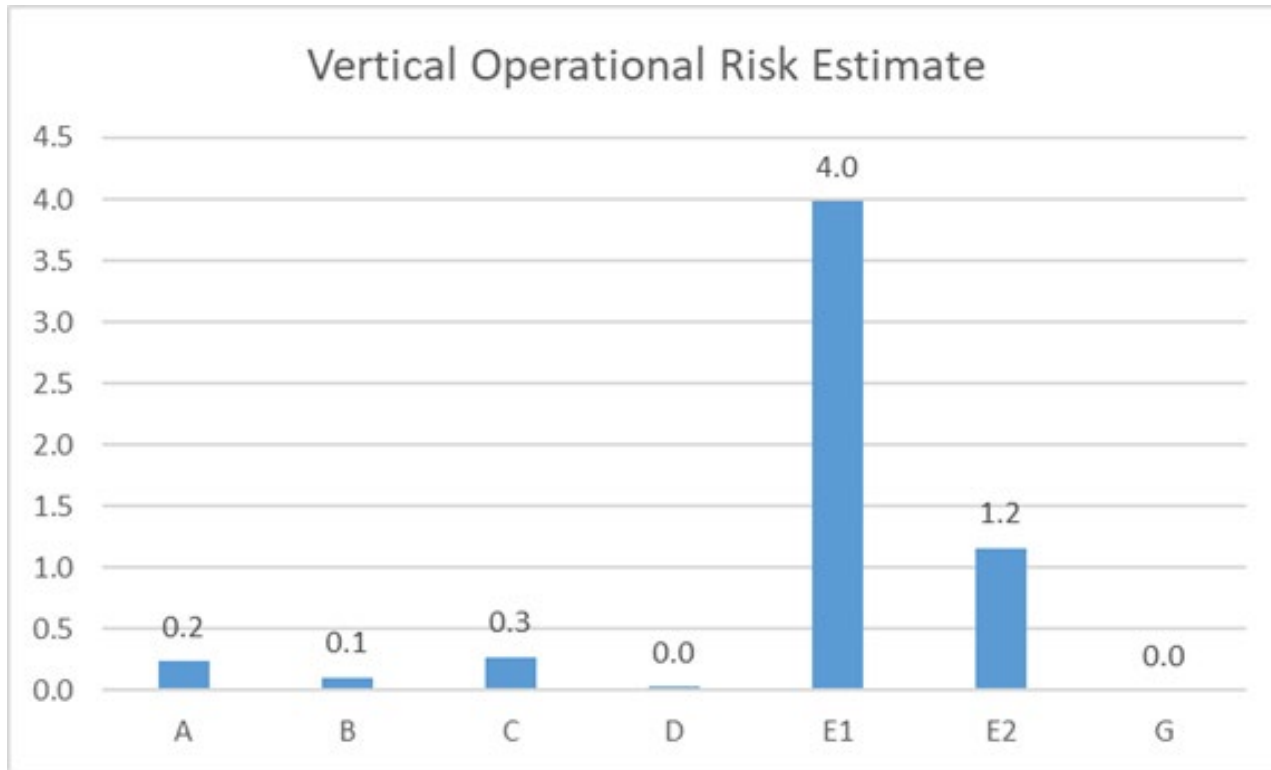
- 18 reported LHDs in GOMEX/GOMEX-USA

- 10 LHDs affect Mexico side of GOMEX
 - 7 category E1 [4min]
 - 2 category E2 [2 min]
 - 1 category C [2 FLs]
- 8 LHDs affect USA side of GOMEX
 - 5 category E1 [4.5 min]
 - 2 category E2 [0 min]
 - 1 category D [1 FL]

Mexico Airspace Reported LHDs 2023 (Risk-bearing)



LHD Categories



- **Category with largest contribution**

- **Category E1**

- More than half [2.12] is between ZHU and MMID
- Short duration occurrences
- ZHU indicates ADS-B provides surveillance near boundary
- Many occurrences that are prevented with available surveillance and not reported

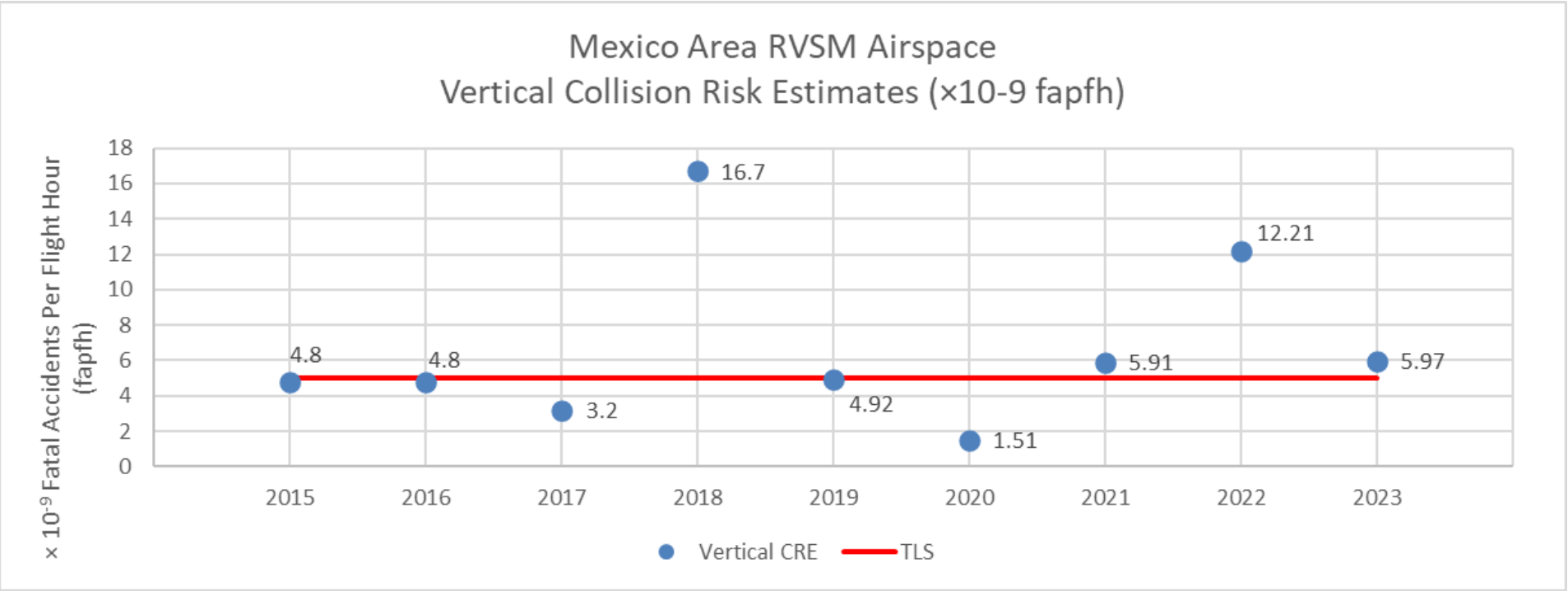


Summary by Airspace

Area	2023 Flying hours	Proportion of Traffic	Reported LHD duration (min)	Number of FLs crossed w/o clearance	Vertical Risk Estimate
GOMEX	341,585	20.70%	6	2	2.77
Offshore/Oceanic	13,783	0.84%	4.3	0	0.01
Mexico Domestic	1,145,951	69.44%	19.7	34	2.36
Mexico-USA Corridor	148,975	9.03%	4.5	1	0.83
TOTAL	1,650,294	100%	34.5	37	5.97



Vertical Risk Estimate Trend



Calendar Year	Vertical CRE
2015	4.8
2016	4.8
2017	3.2
2018	16.7
2019	4.92
2020	1.51
2021	5.91
2022	12.21
2023	5.97



Summary

- **The estimated vertical risk estimate for 2023 decreased from previous year**
 - 2023 Vertical Risk Estimate for Mexico Airspace is 5.14×10^{-9} fapfh
- **This decrease is directly related to the increase in the time spent at unexpected flight levels**
- **NAARMO to schedule regular teleconferences with Mexico to review reported LHDs**

