

GTE/23 WP/10

Vertical Safety Monitoring

Report

**Miami Oceanic, New York West, and San Juan
FIRs**

CALENDAR YEAR 2022

Presented to: GTE/23

By: NAARMO

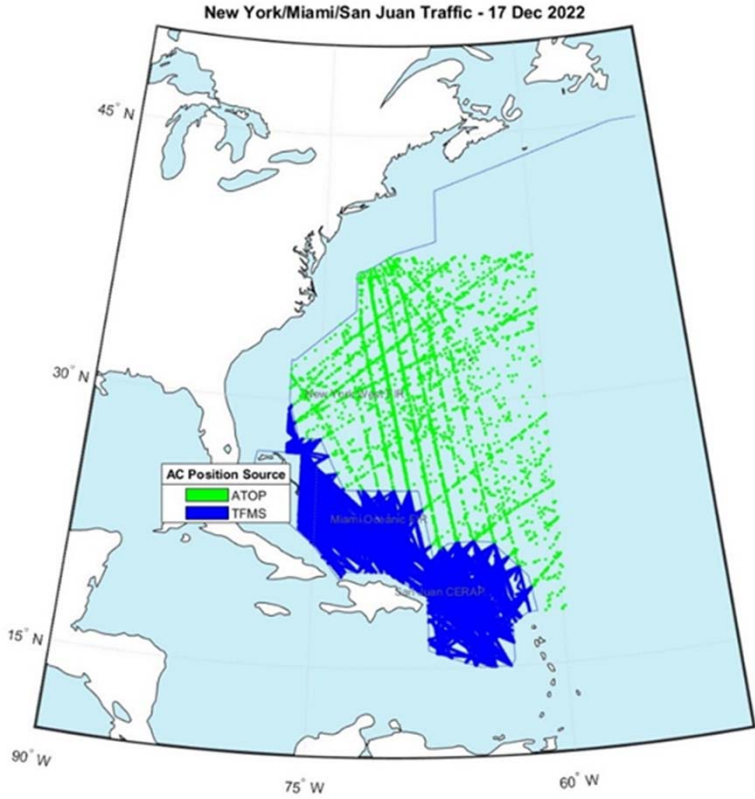
Date: 11-16 September 2023



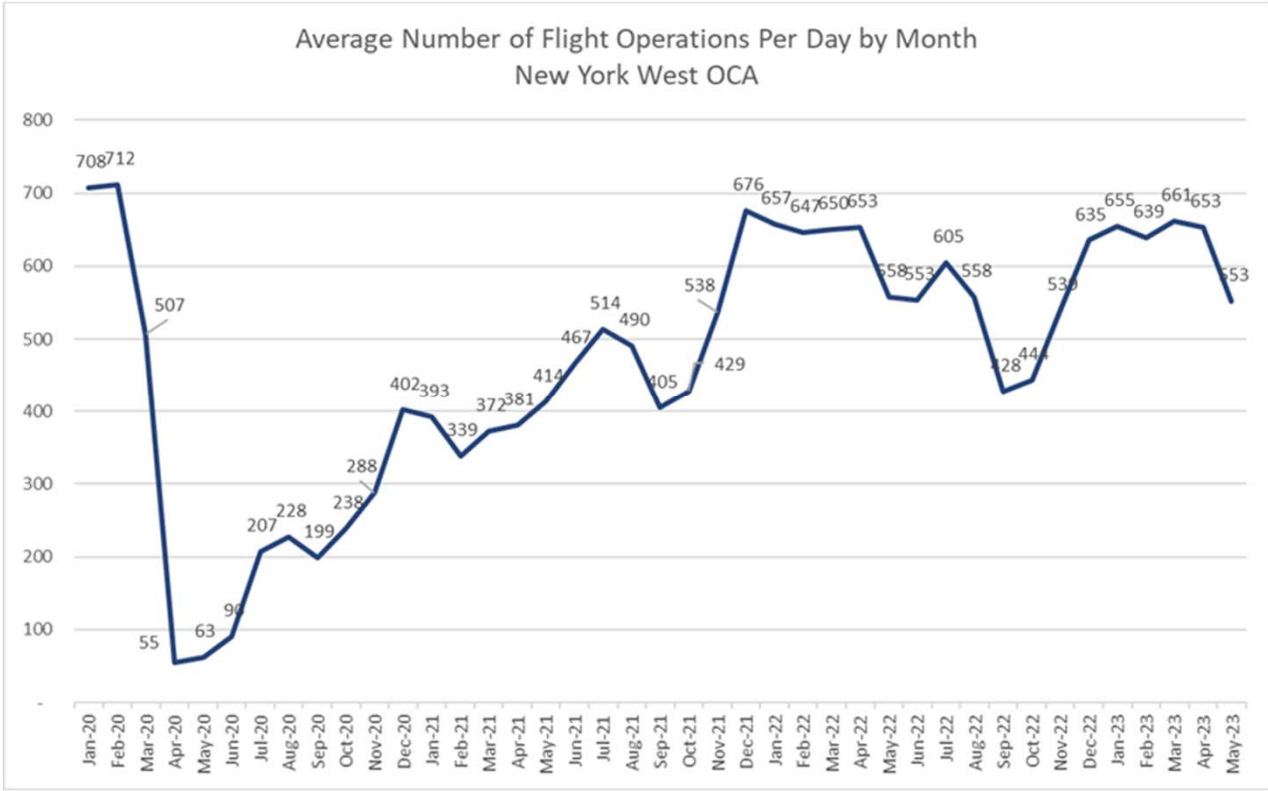
**Federal Aviation
Administration**



Miami Oceanic, New York West, Oceanic, and San Juan FIRs



Average Number of Flight Operations per Day by Month: Jan 2020 – May 2023

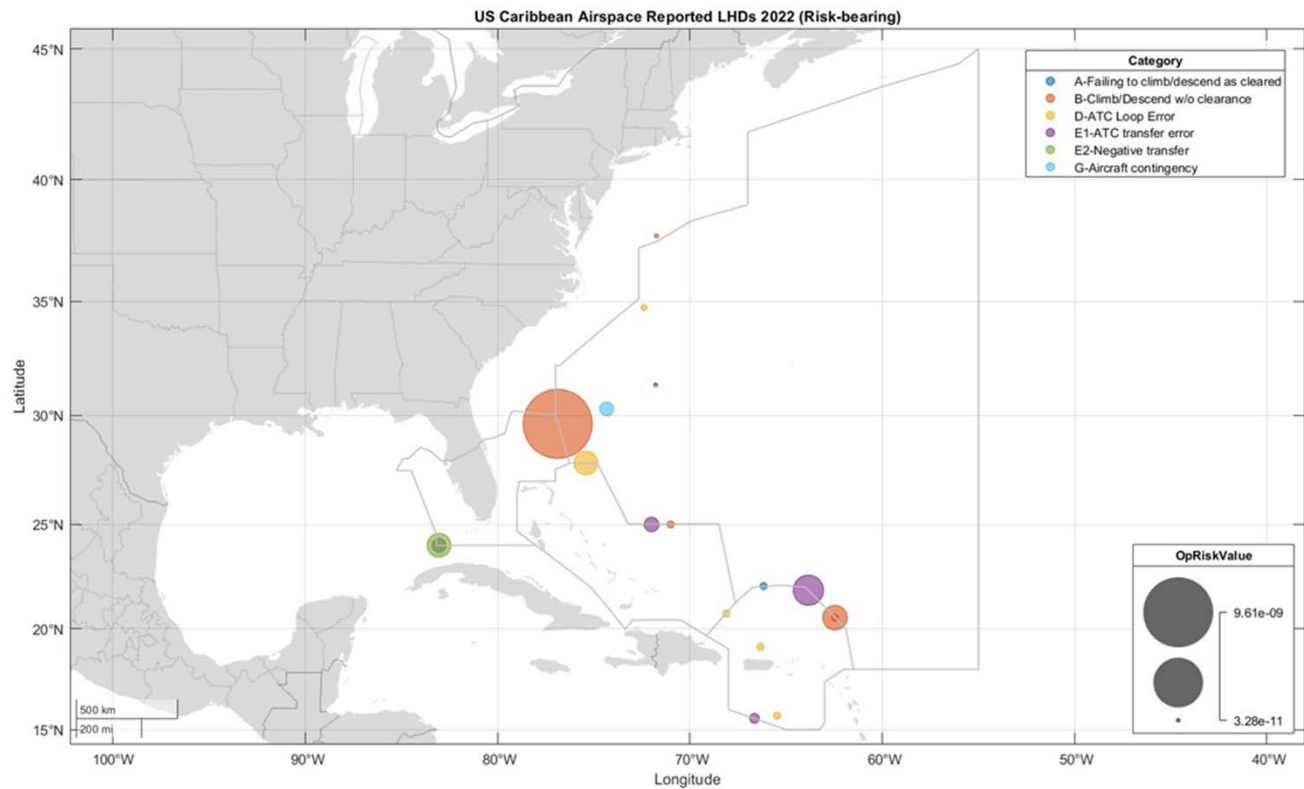


Reported LHDs by Category - 2022

LHD Category Code	LHD Category Description	Number of LHD	Duration at Incorrect FL (minutes)	Number of Incorrect FLs Crossed
A	Flight crew failing to climb / descend the aircraft as cleared	3	0	2
B	Flight crew climbing /descending without ATC clearance	9	67	17
C	Incorrect operation of airborne equipment	1	0	0
D	ATC system loop error; (e.g., ATC issues incorrect clearance or flight crew misunderstands clearance message)	7	3.5	3
E1	Coordination errors (wrong FL, time, route) in the ATC-unit-to-ATC-unit transfer of control responsibility as a result of human factors issues	9	17.5	0
E2	Negative Coordination in the ATC-unit-to-ATC-unit transfer of control responsibility as a result of human factors issues	1	3	0
G	Aircraft contingency event leading to sudden inability to maintain assigned flight level	1	0	12
I	Turbulence or other weather related causes – contributes towards technical risk	1	0	0
J	TCAS resolution advisory; flight crew correctly following the resolution advisory	1	0	0
M	Other	1	0	0
TOTAL		34	91	34



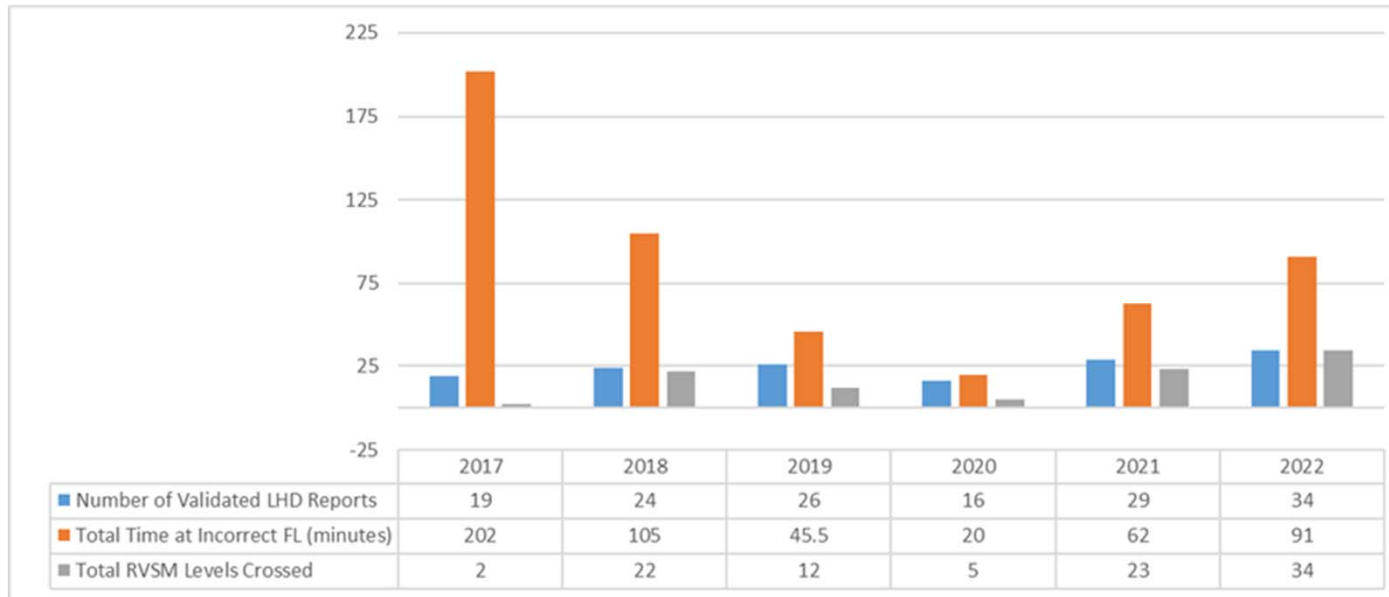
Reported LHDs



- **67 min LHD, Category B**
- **13 min LHD, Category E1**
- **12 FLs crossed w/o clearance**
 - Broken windshield, area of poor VHF coverage, Category B
- **3 min LHD, Category D**
- **3 min LHD, Category E2**



LHD Trends



Communication Failures

- **Largest contribution to risk in 2022 was a long duration LHD in oceanic airspace**
 - IGA aircraft did not have required HF radio. During the flight, the aircraft climbed without clearance.
 - The incorrect FL was discovered by ATC when aircraft entered radar. Total flying time within oceanic airspace was 67 min. LHD category B with secondary category of “communication failure”.

Airspace	Number of Communication Failure Reports - 2022
Miami Oceanic/San Juan FIRs	29
New York West FIR	11
Total	40

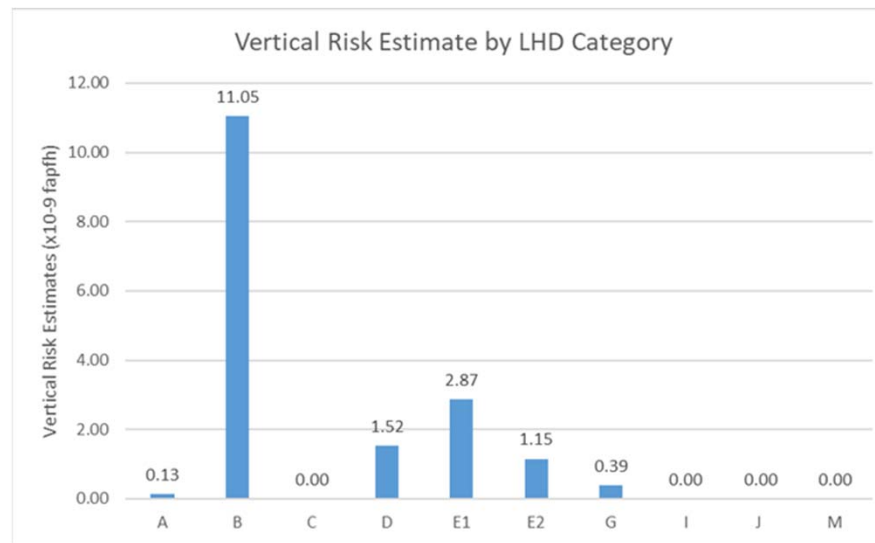


Reported LHDs for Vertical Operational Risk

Operational Risk LHDs Only; Calendar Year 2022



Airspace	Number of LHD	Duration at unexpected FL (min)	Number of unexpected FLs crossed
Miami Oceanic/San Juan FIRs	20	7.5	17
New York West FIR	14	83.5	17
Total	34	91	34



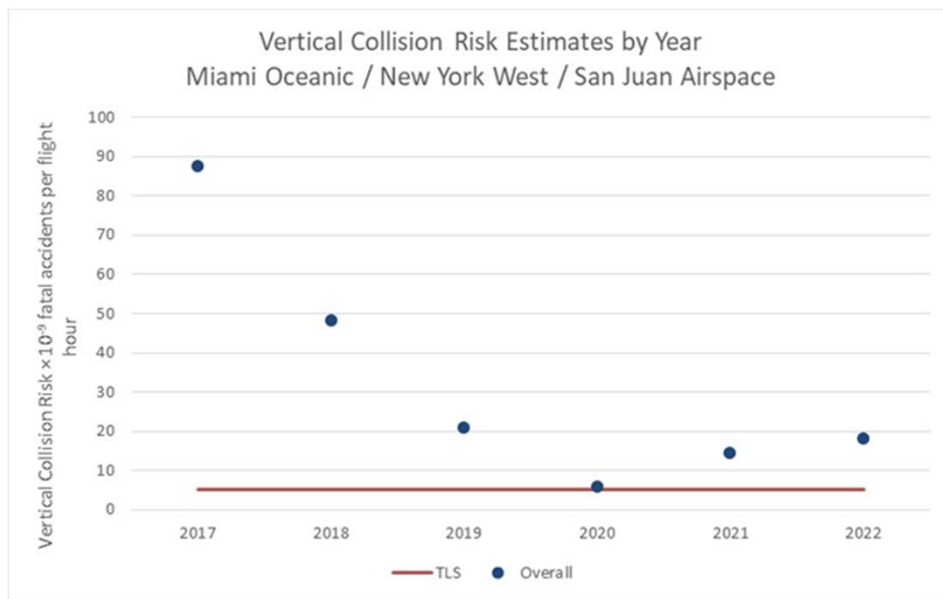
2022 Vertical Risk Estimates

Airspace	Technical	Operational	Overall
New York West	0.03	12.53	12.56
Miami Oceanic and San Juan	0.04	5.39	5.43
Total	0.07	17.92	17.99

**Risk estimates are $\times 10^{-9}$ fapfh*



Vertical Risk Estimate Trend



Year	Technical Risk	Operational Risk	Overall Vertical Risk	TLS
2017	0.05	87.44	87.50	5
2018	0.07	48.04	48.11	5
2019	0.07	20.67	20.75	5
2020	0.07	5.61	5.68	5
2021	0.08	14.28	14.36	5
2022	0.07	17.92	17.99	5



Summary

- **The estimated vertical risk estimate for 2022 increased from previous year**
- **This increase is directly related to the increase in the time spent at unexpected flight levels**
- **2022 estimated risk is comparable to the risk estimates from calendar year 2019 (pre-COVID)**

