

GTE/19 NI/14

Vertical Safety Monitoring Report

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

CALENDAR YEAR 2018

Presented to: GTE/19

By: NAARMO

Date: 18 - 22 Nov 2019



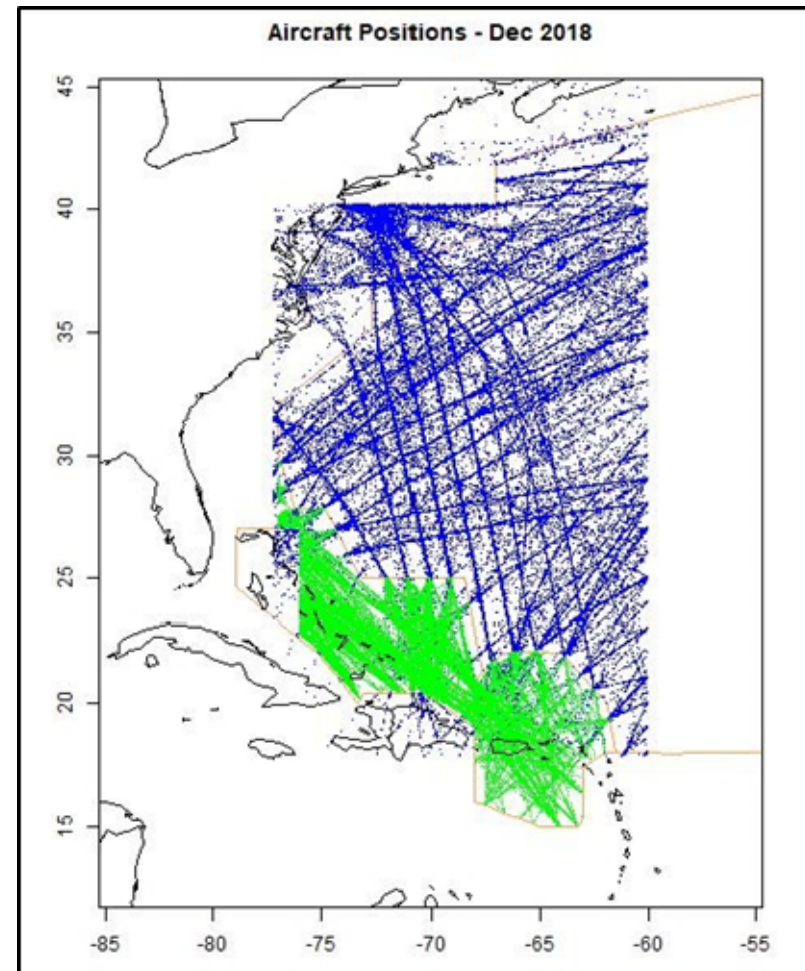
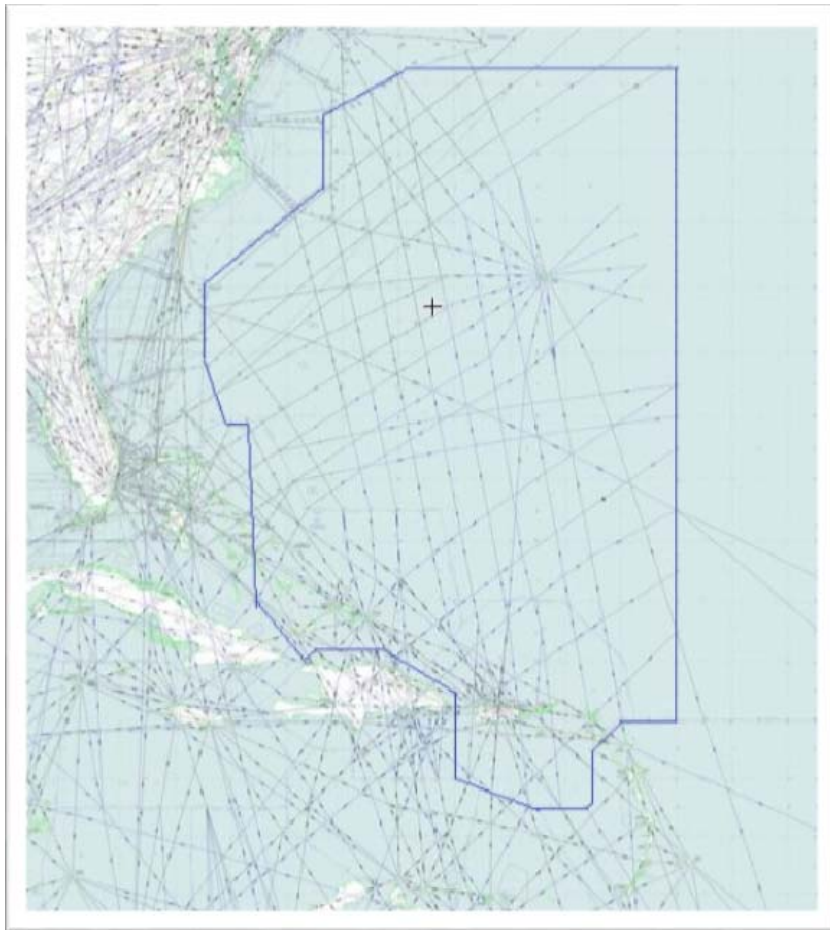
**Federal Aviation
Administration** 1

Background

- **North American Approvals Registry and Monitoring Organization (NAARMO)**
 - RMA Services provided by the U.S. Federal Aviation Administration
 - Located at the WJH Technical Center in Atlantic City, New Jersey



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



RVSM Audit

- **December 2018 TSD for the New York West FIR was compared with the collective RVSM approvals database**
 - Eight operator-aircraft pairs from four States and three RMAs that indicated RVSM approval in the filed flight plan for which an RVSM approval could not be found. (19 aircraft operations)
 - Details are provided in the paper
 - Relevant RMAs/States have been notified



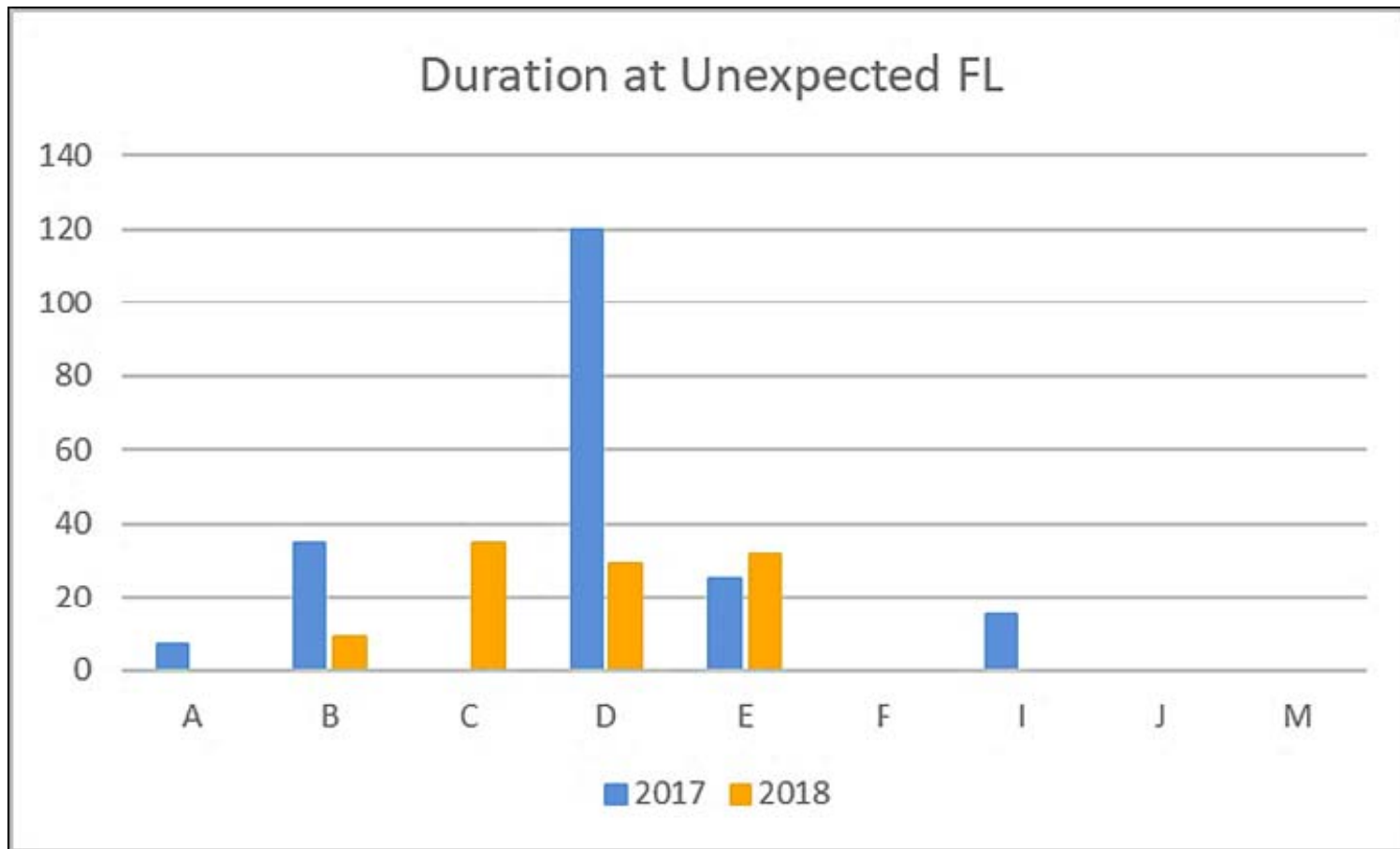
Risk-Bearing LHDs by Month

Month	Count	Duration at Unexpected FL (mins)	Number of Unexpected FLs Crossed
Jan-18	3	8	13
Feb-18	1	4	0
Mar-18	2	0	0
Apr-18	2	18	0
May-18	2	2	1
Jun-18	2	6	0
Jul-18	3	17	1
Aug-18	3	39	0
Sep-18	1	0	7
Oct-18	3	11	0
Nov-18	1	0	0
Dec-18	1	0	0
TOTAL	24	105.0	22



LHD Category Code	LHD Category Description	Number of LHD	Duration at Unexpected FL (minutes)	Number of Unexpected FLs Crossed
B	Flight crew climbing /descending without ATC clearance	8	9	22
C	Incorrect operation of airborne equipment	1	35	0
D	ATC system loop error; (e.g., ATC issues incorrect clearance or flight crew misunderstands clearance message)	2	29	0
E	Coordination errors in the ATC-unit-to-ATC-unit transfer of control responsibility as a result of human factors issues	7	32	0
F	Coordination errors in the ATC-to-ATC transfer of control responsibility as a result of equipment outage or technical issues	1	0	0
H	Airborne equipment failure leading to unintentional or undetected change of flight level	0	0	0
I	Turbulence or other weather related causes	1	0	0
M	Other – did not adhere to Wx contingency procedure	4	0	0
	TOTAL	24	105	22

2018 vs 2017 Comparison

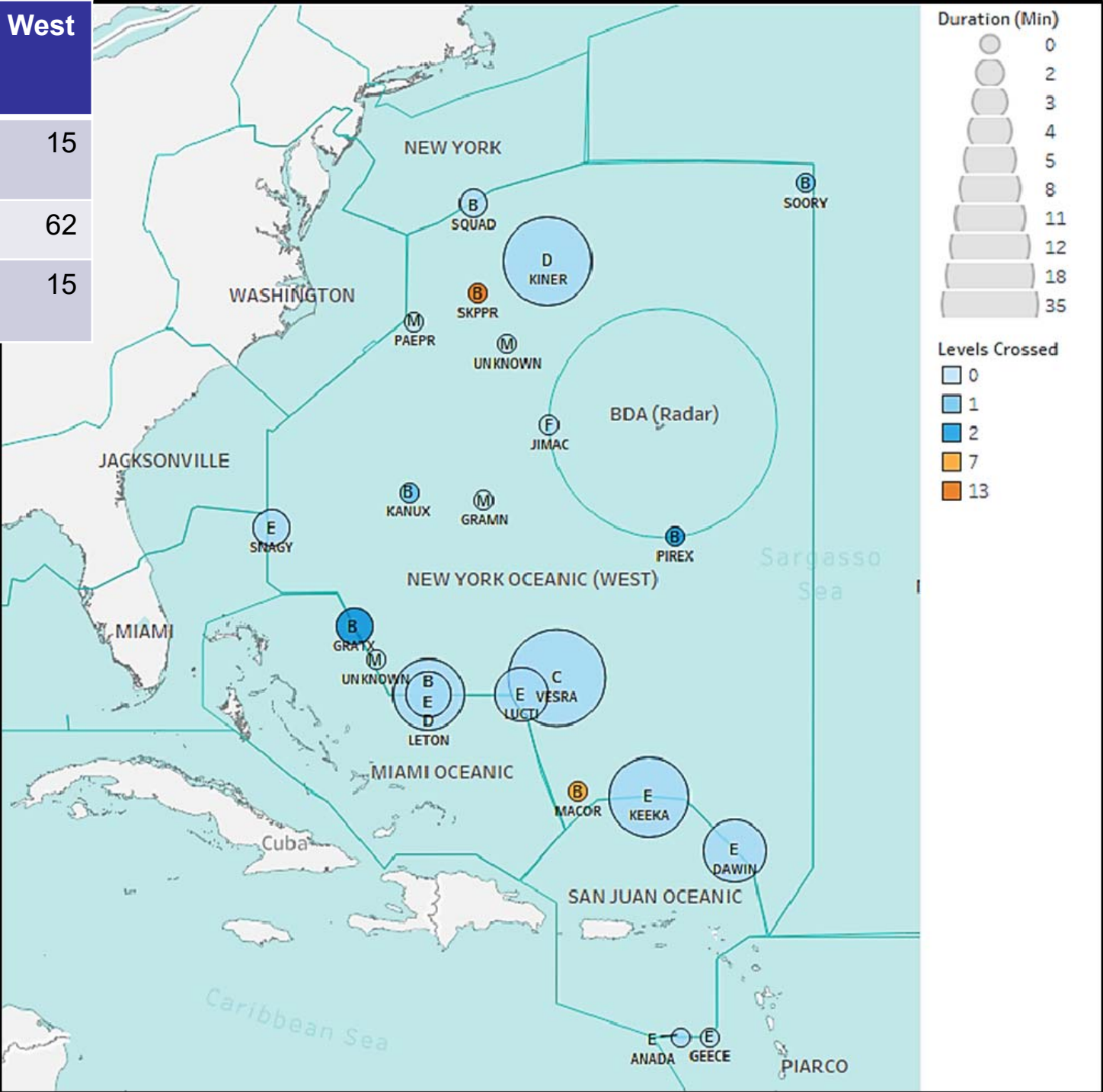


Mitigation Resulting from LHDs

- **Change to automated alerts**
 - Applies to ADS-C altitude range change (ARC) event contracts
 - Previous default altitude range was +/- 200 ft of cleared FL
 - However, ATC automation does not alert when reported altitude is within 200 ft of FL
 - New default altitude range is +/- 212 ft of cleared FL
 - Change provides better alerting for ATC



	Miami/ San Juan	NY West
LHD Count	9	15
Mins	43	62
FLs Crossed	7	15



2018 Vertical Risk Estimates

Airspace	Annual Flying Hours	Technical	Operational	Overall
New York West	305,207	0.03	27.04	27.07
Miami Oceanic and San Juan	293,571	0.04	21.00	21.04
Total		0.07	48.04	48.11

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



Summary

- **Estimated vertical risk estimate for 2018 is lower than the estimate for 2017**
 - 2016 vertical risk estimate was 219.2×10^{-9} fapfh
 - 2017 vertical risk estimate was 87.5×10^{-9} fapfh
 - Due to lower duration associated with reported LHDs

