

# 33<sup>rd</sup> Meeting of the Informal South Pacific Air Traffic Services Coordinating Group (ISPACG/33)

## Monitoring Agency Activities in South Pacific Airspace

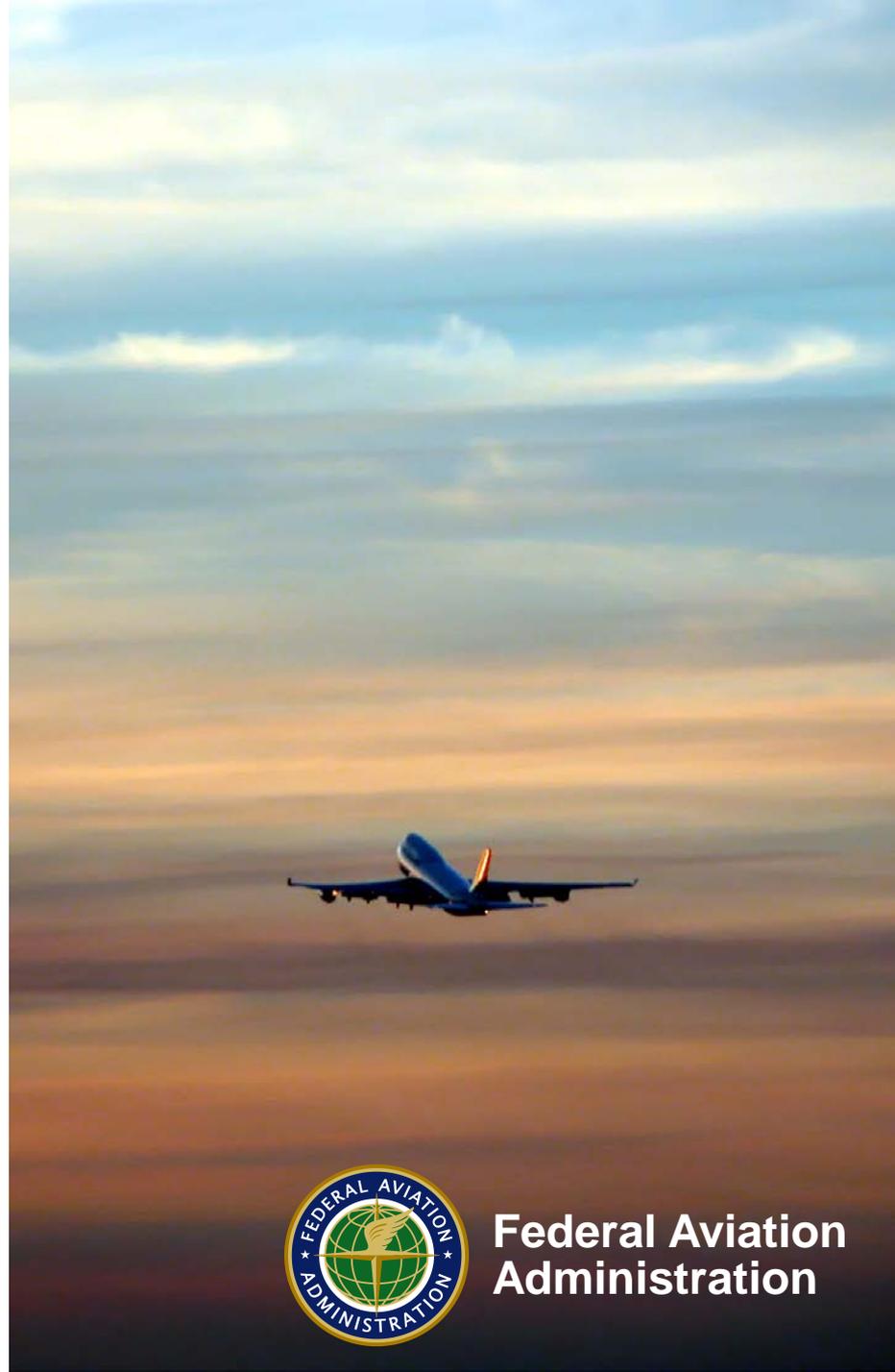
Prepared by: PARMO

Date: 18 – 22 March

2019



**Federal Aviation  
Administration**



# Overview

- **Pacific Approvals Registry and Monitoring Organization (PARMO)**
- **PARMO responsibilities related to States**
- **PARMO responsibilities related to airspace**
- **Annual report to RASMAG/23**
- **Latest news and updates**
- **Reminders**



# Pacific Approvals Registry and Monitoring Organization (PARMO)

- **Regional Monitoring Agency (RMA)**

- Established by APANPIRG to support RVSM implementation and continued safe-use of the RVSM in Pacific Airspace
- [https://www.faa.gov/air\\_traffic/separation\\_standards/parmo/](https://www.faa.gov/air_traffic/separation_standards/parmo/)

- **Enroute Monitoring Agency (EMA)**

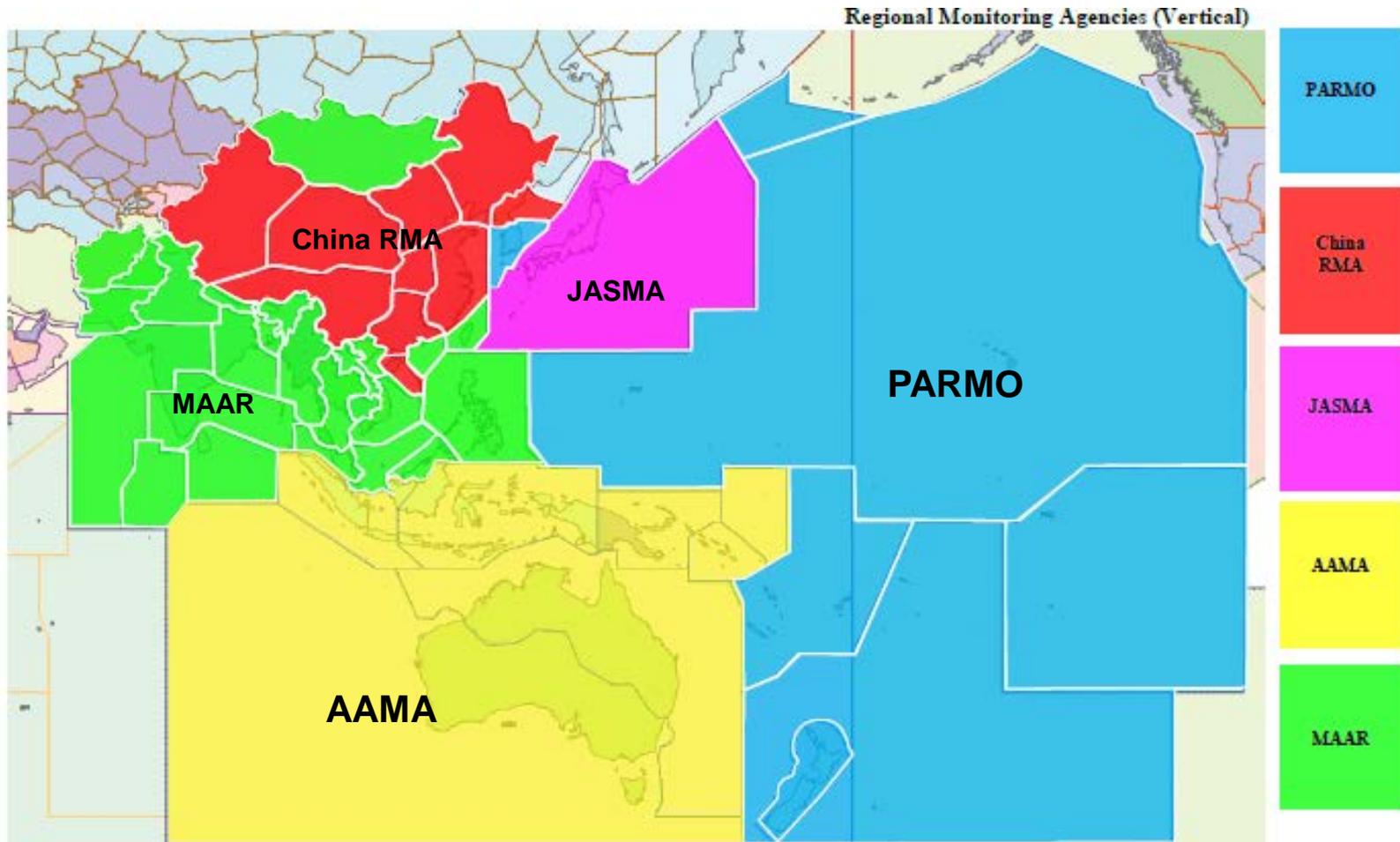
- Supports the continued safe-use of reduced horizontal separation minima (30-NM and 50-NM longitudinal, and 30-NM lateral separation minima)

- **The Australian Airspace Monitoring Agency (AAMA) is also an RMA and EMA for South Pacific Airspace**

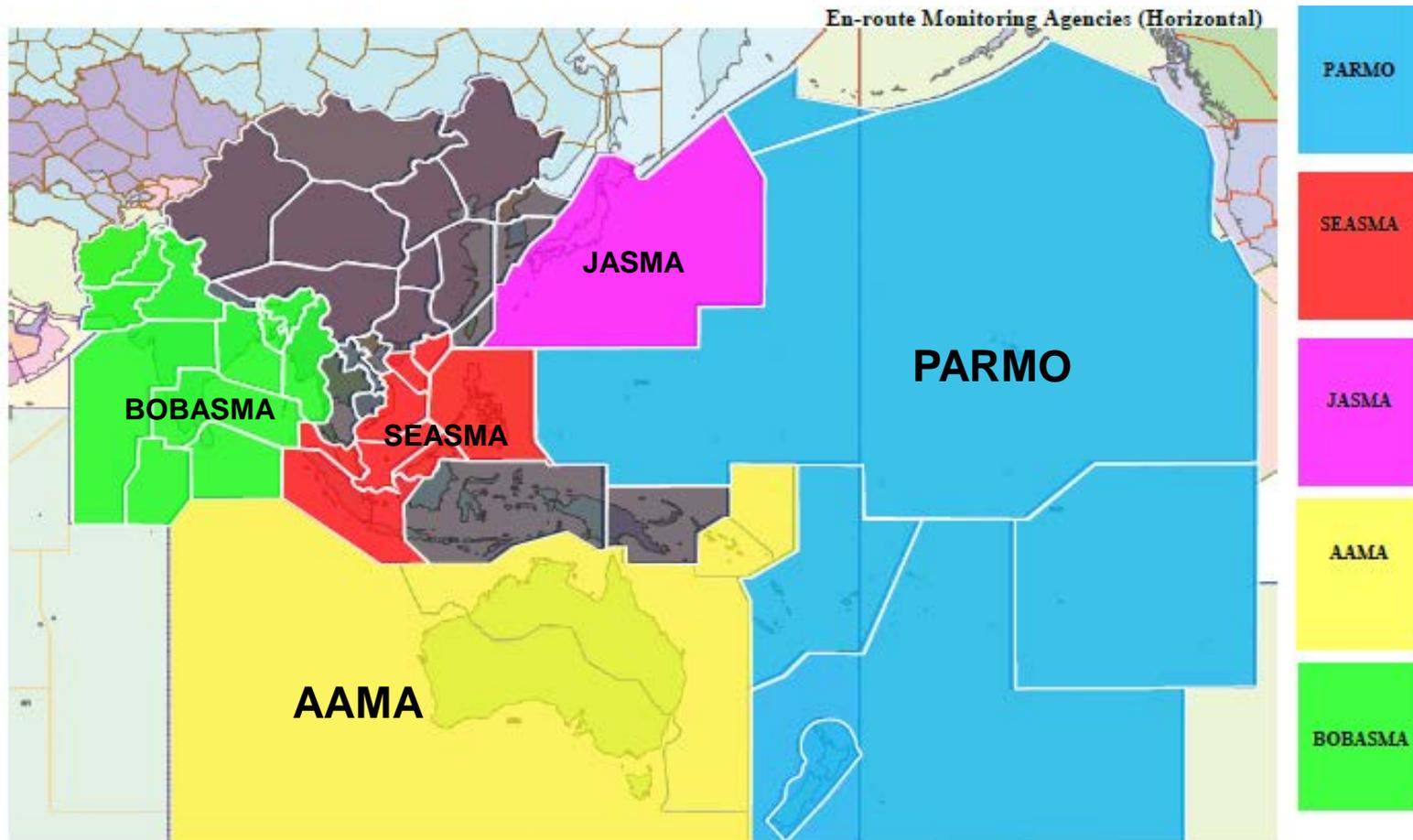
- **The European (EUR) RMA is the designated RMA for French Polynesia (State), the PARMO is the designated RMA for Tahiti FIR**



# RMAAs for the ICAO APAC Region



# EMAs for the ICAO APAC Region



# PARMO – Designated States & FIRs

## State

- Cook Islands
- Federated States of Micronesia
- Fiji
- Kiribati
- Marshall Islands
- New Zealand
- Palau
- Republic of Korea
- Samoa
- Tonga

## Airspace

- Auckland FIR
- Nadi FIR
- Oakland FIR
- Tahiti FIR

\* The North American Approvals Registry and Monitoring Organization (NAARMO) is the designated RMA for the following States: Canada, Mexico & U.S.



# AAMA – Designated States & FIRs

## State

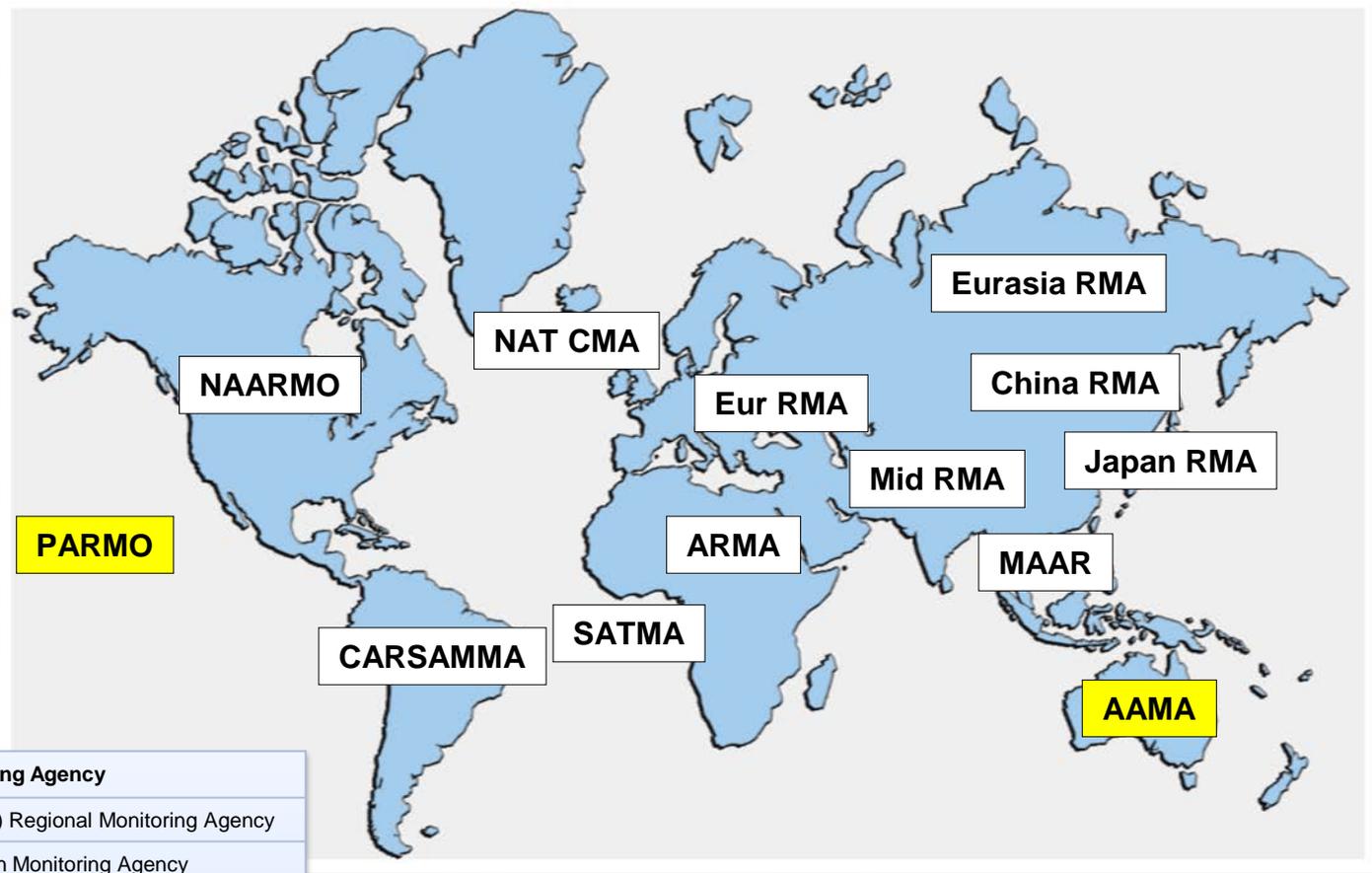
- Australia
- Indonesia
- Nauru
- Papua New Guinea
- Solomon Islands
- Vanuatu

## Airspace

- Brisbane FIR
- Honiara FIR
- Jakarta FIR
- Melbourne FIR
- Nauru FIR
- Port Moresby FIR
- Ujung Pandang FIR



# ICAO Endorsed Regional Monitoring Agencies



<b>AAMA</b>	<b>Australian Airspace Monitoring Agency</b>
ARMA	African and Indian Ocean (AFI) Regional Monitoring Agency
CARSAMMA	Caribbean and South American Monitoring Agency
China RMA	China Regional Monitoring Agency
EurAsia RMA	Regional Monitoring Agency Eurasia
Eur RMA	European Regional Monitoring Agency
Japan RMA	Japan Regional Monitoring Agency
MAAR	Monitoring Agency for Asia Region
Mid RMA	Middle East Regional Monitoring Agency
NAARMO	North American Approvals Registry and Monitoring Org
NAT CMA	North Atlantic Central Monitoring Agency
<b>PARMO</b>	<b>Pacific Approvals Registry and Monitoring Organization</b>
SATMA	South Atlantic Monitoring Agency



# PARMO Responsibilities for States

- **RVSM & PBCS Approval/Authorization database**
- **Monitor aircraft ASE performance**
- **Audit operator RVSM flight plan filing**
- **Provide annual safety monitoring report**



# PARMO Responsibilities for Airspace

- **Collect reports of lateral, longitudinal and vertical events**
- **Collect annual one-month traffic sample data (TSD)**
- **Use above data to estimate collision risk model parameters**
- **Provide annual safety monitoring report**



# Annual Reports Provided to RASMAG/23

- **All the Asia Pacific RMAs and EMAs provide Safety monitoring reports to the Regional Airspace Safety Monitoring Advisory Group (RASMAG)**
- **RASMAG meetings are held annually at the ICAO Asia and Pacific (APAC) Office In Bangkok, Thailand**
- **Reports include**
  - Summary of received TSD and de-identified reported height deviations, lateral deviations and longitudinal errors
  - Annual RVSM audit results using TSD and RVSM approvals database
  - Assessment of outstanding long-term height monitoring (operators who have not fulfilled the ongoing RVSM monitoring requirements in Annex 6)
  - Annual estimates of collision risk (vertical, lateral and longitudinal)



# Traffic Sample Data (TSD)



# Traffic Sample Data (TSD)

- **States (or ANSPs) must provide RMAs with a one month TSD (December of every calendar year)**
- **Minimum data required:**
- [https://www.faa.gov/air\\_traffic/separation\\_standards/parmo/parmo\\_documentation/docs/DataCollectionTemplate\\_May2015.xls](https://www.faa.gov/air_traffic/separation_standards/parmo/parmo_documentation/docs/DataCollectionTemplate_May2015.xls)



# Traffic Sample Data (TSD)

- **One record for each flight operation, or if simpler, multiple lines per flight operation are acceptable (e.g. one record for each reported aircraft position)**
- **All fields are necessary unless indicated otherwise**

Data Field	Description/Example
Date	Corresponding to either first aircraft position or current aircraft position [08122016]
Callsign	Aircraft Identification [UAL876]
Aircraft Type	ICAO Aircraft Type Code [B772]
Aircraft Registration Number	[N792UA]
Field “W” in Item 10 of Flight plan?	It is OK to indicate Yes or No, or simply include contents of Item 10
Origin Airport	[KSFO]



# TSD (continued)

Data Field	Description/Example
Destination airport	<i>[PHNL]</i>
Entry fix or first position into RVSM airspace	<i>[3536N 12556W]</i>
Time at entry fix or first position	<i>[2234]</i>
Flight level at entry fix or first position	<i>[FL300]</i>
Exit fix or last position in RVSM airspace	<i>[2326N 15146W]</i>
Time at exit fix or last position	<i>[0158]</i>
Flight level at exit fix or last position	<i>[FL330]</i>
Additional position, time and flight level data if available	Optional



# TSD Concerns

- **Tahiti**

- Listed on the ICAO ATM/AIM/SAR Deficiencies List (Updated 05 July 2018)
- French Polynesia, non-provision of safety related data, failure to submit the 2016 & 2017 TSD

- **Auckland**

- FL information?



# PARMO RVSM Audit Results Provided to RASMAG/23

- Compare 'W' provided in Item 10 of FPL against RVSM approvals database
- Listing below are results with number of observations > 2
- State Authorities have been informed

RMA	State of Op /Registry	Aircraft Registration	AC Type	Dec 2017 Ops Count	TSD
PARMO	Korea	HL8093	BCS3	1	ZAN
PARMO	New Zealand	ZKZNJ	B789	1	NFFF
PARMO	New Zealand	ZKZNL	B789	1	NFFF

- PARMO also reviews RVSM approvals and date of the last ASE monitoring from all sources. State CAAs are contacted when necessary.



# Management of Non-RVSM Aircraft

- **RVSM Audits performed by PARMO and other Asia Pacific RMAs and presented to RASMAG/22 led to *Conclusion APANPIRG/28/12: Management of Non-RVSM Aircraft***
  - ICAO Bangkok Office issued a survey to all Asia Pacific States (due date was 31 December 2017)
  - Survey was meant to ensure States have policies to exclude aircraft known to be Non-RVSM from application of 1,000 ft vertical separation
- **RASMAG/23 noted a dramatic reduction of non-RVSM airframes detected in 2018. This result could be attributed to the effort of all RMAs, and Conclusion APANPIRG/28/12 Management of Non-RVSM Aircraft.**

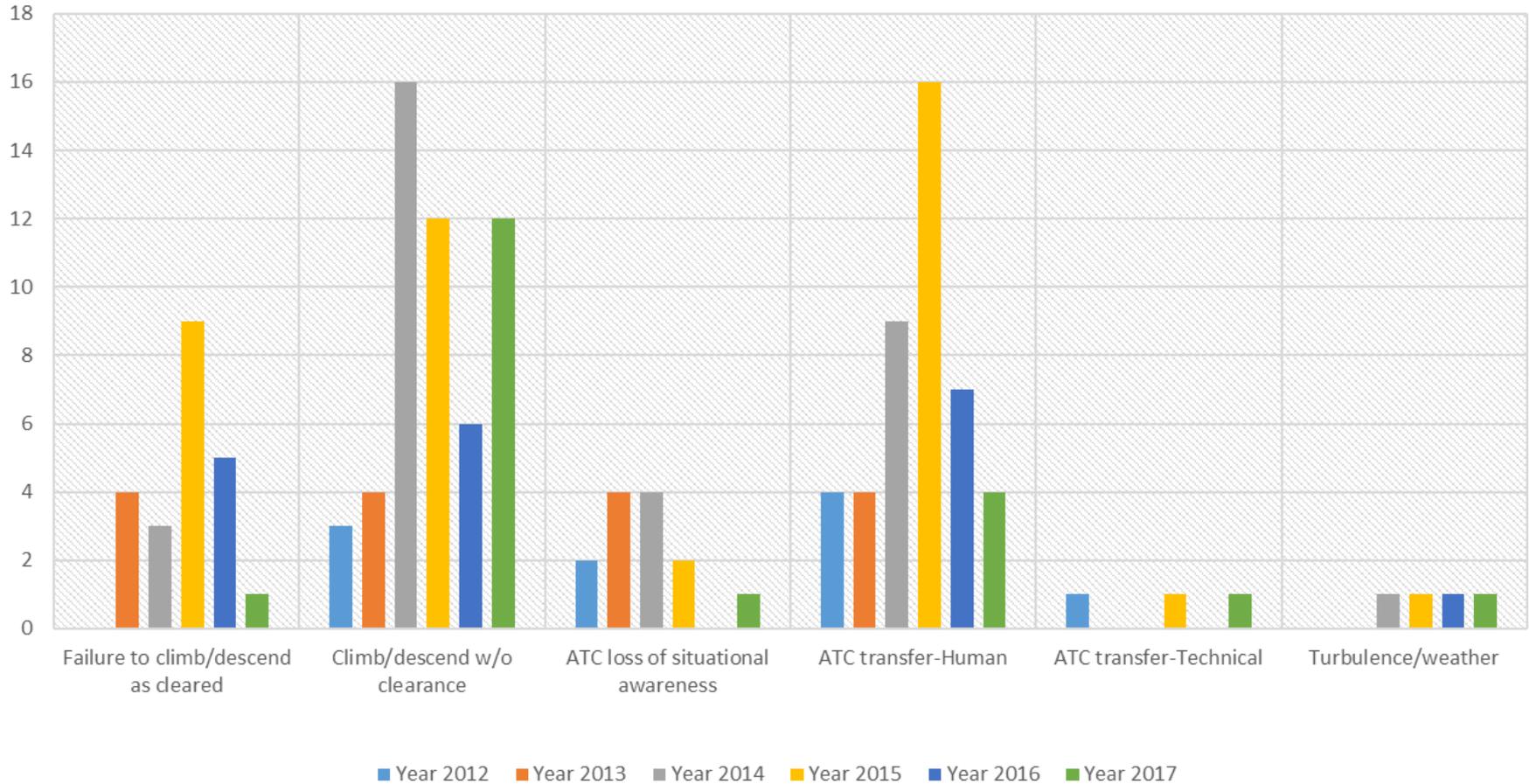


# Event Report Summary

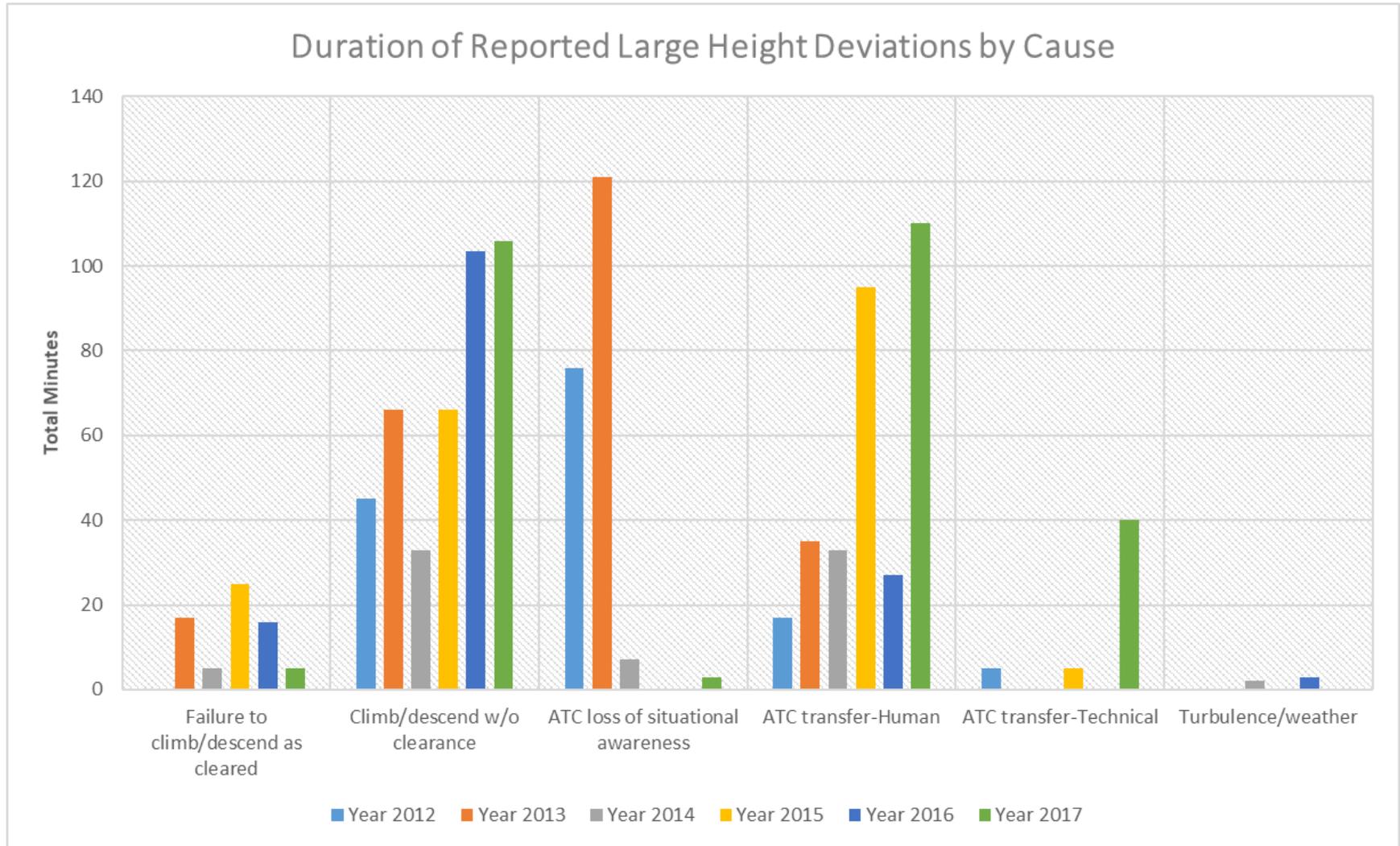


# PARMO Summary of Large Height Deviations

Count of Top Reported Large Height Deviations by Cause

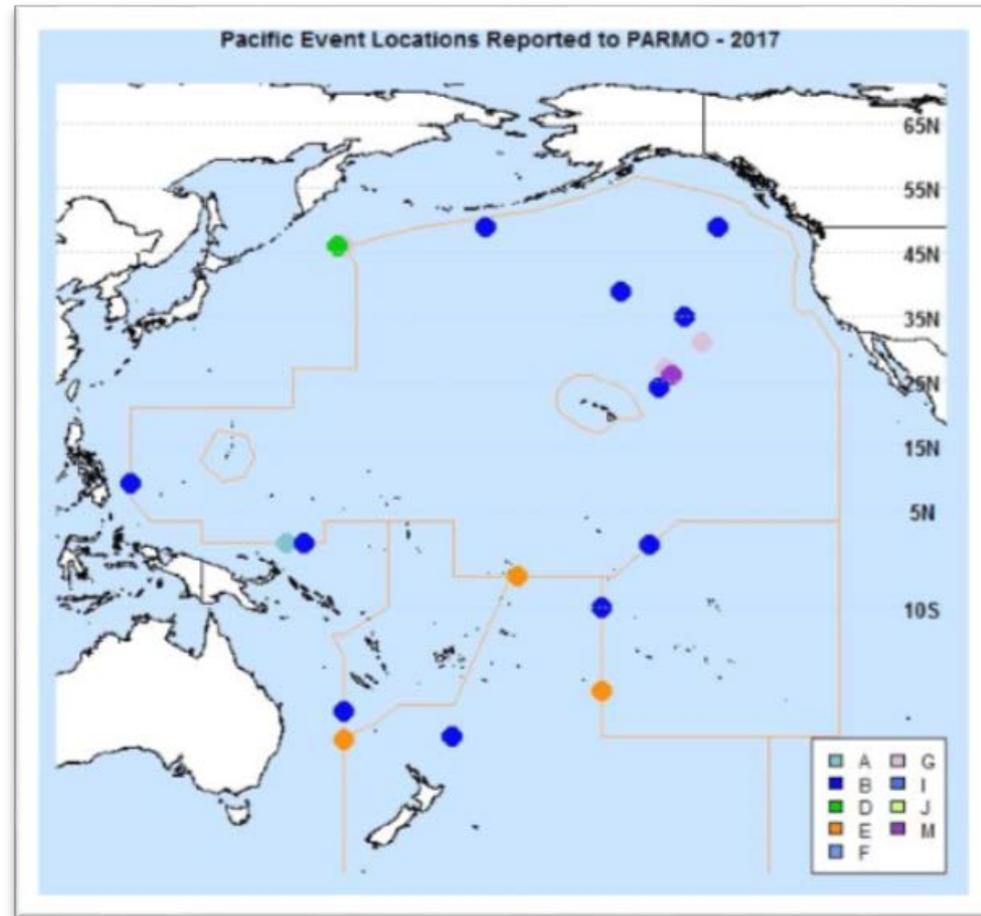


# PARMO Summary of Large Height Deviations

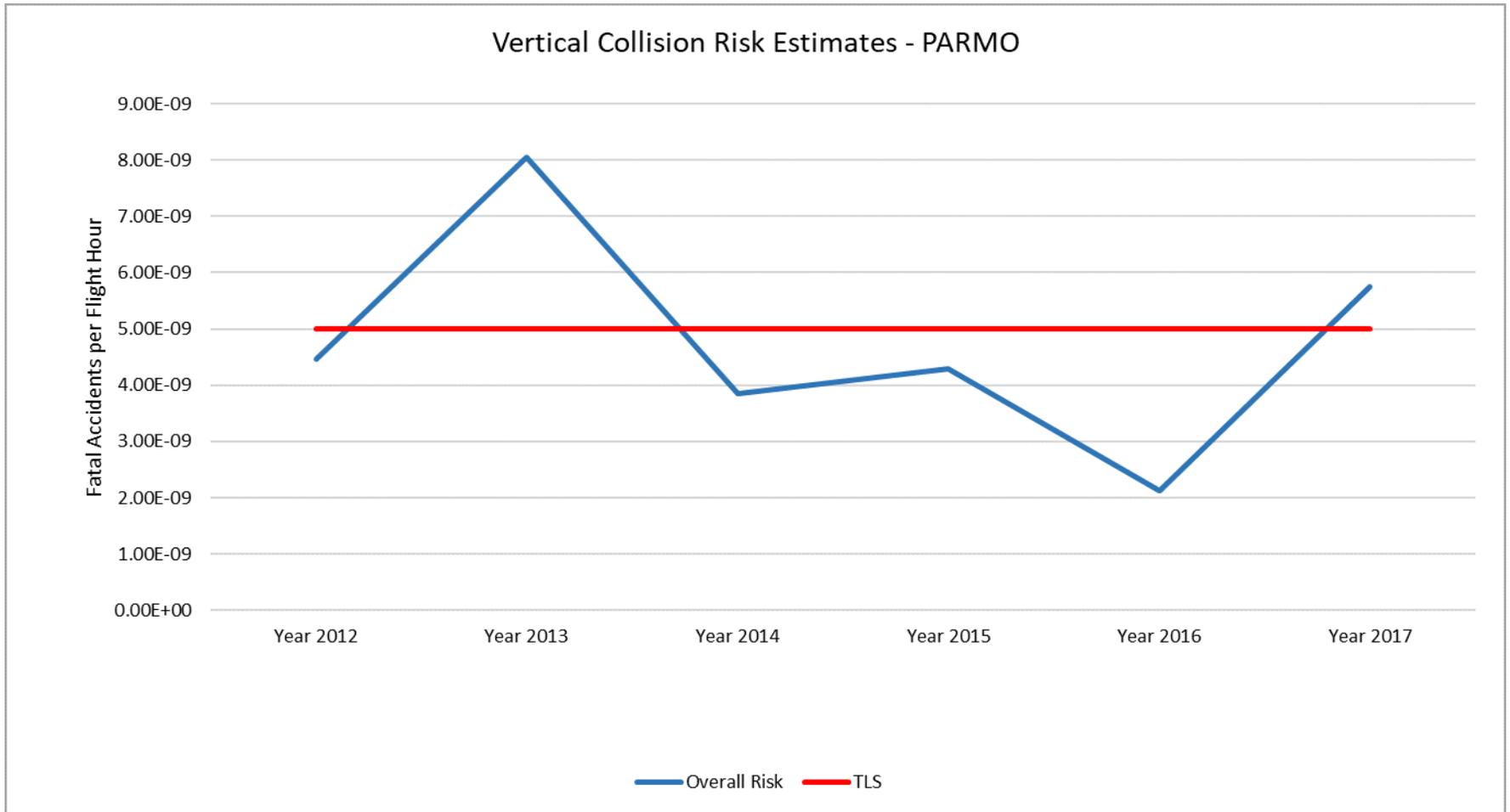


# Vertical Safety Reports to RASMAG/23

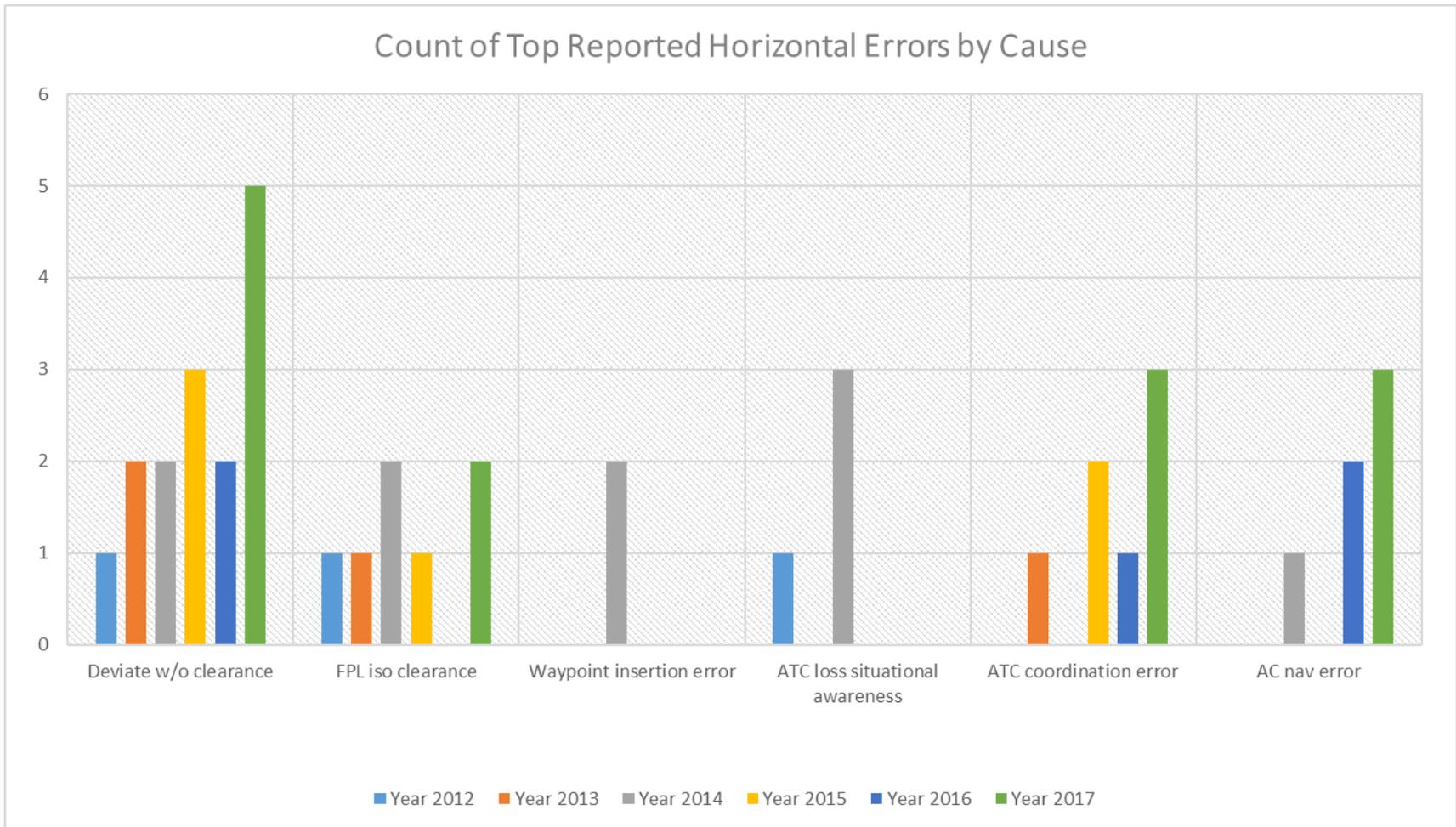
- Risk estimation considers location of reported events & surrounding traffic densities
- In 2017, the Australia/New Zealand/Japan traffic flow had the largest total LHD duration compared to the rest of Pacific airspace
  - 76 minutes of time spent at incorrect flight level (Total Pacific = 271 mins)
  - All events involved aircraft operating in RVSM airspace without ATC clearance



# PARMO Summary of Vertical Collision Risk Estimates

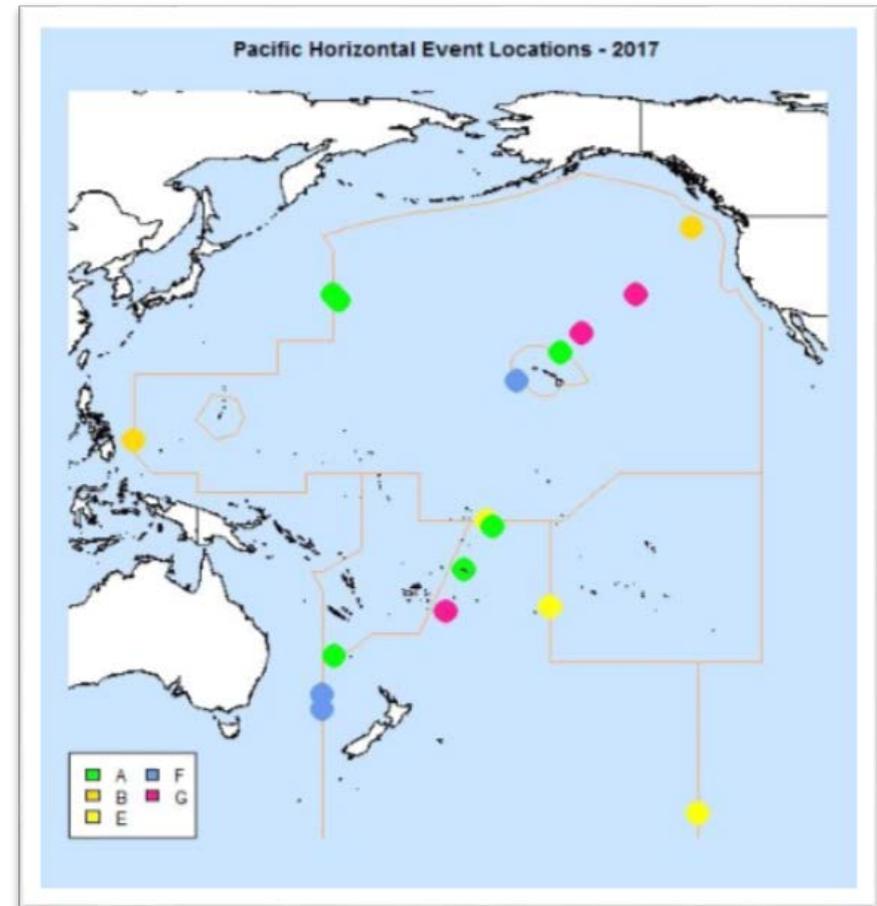


# PARMO Summary of Horizontal Error Reports

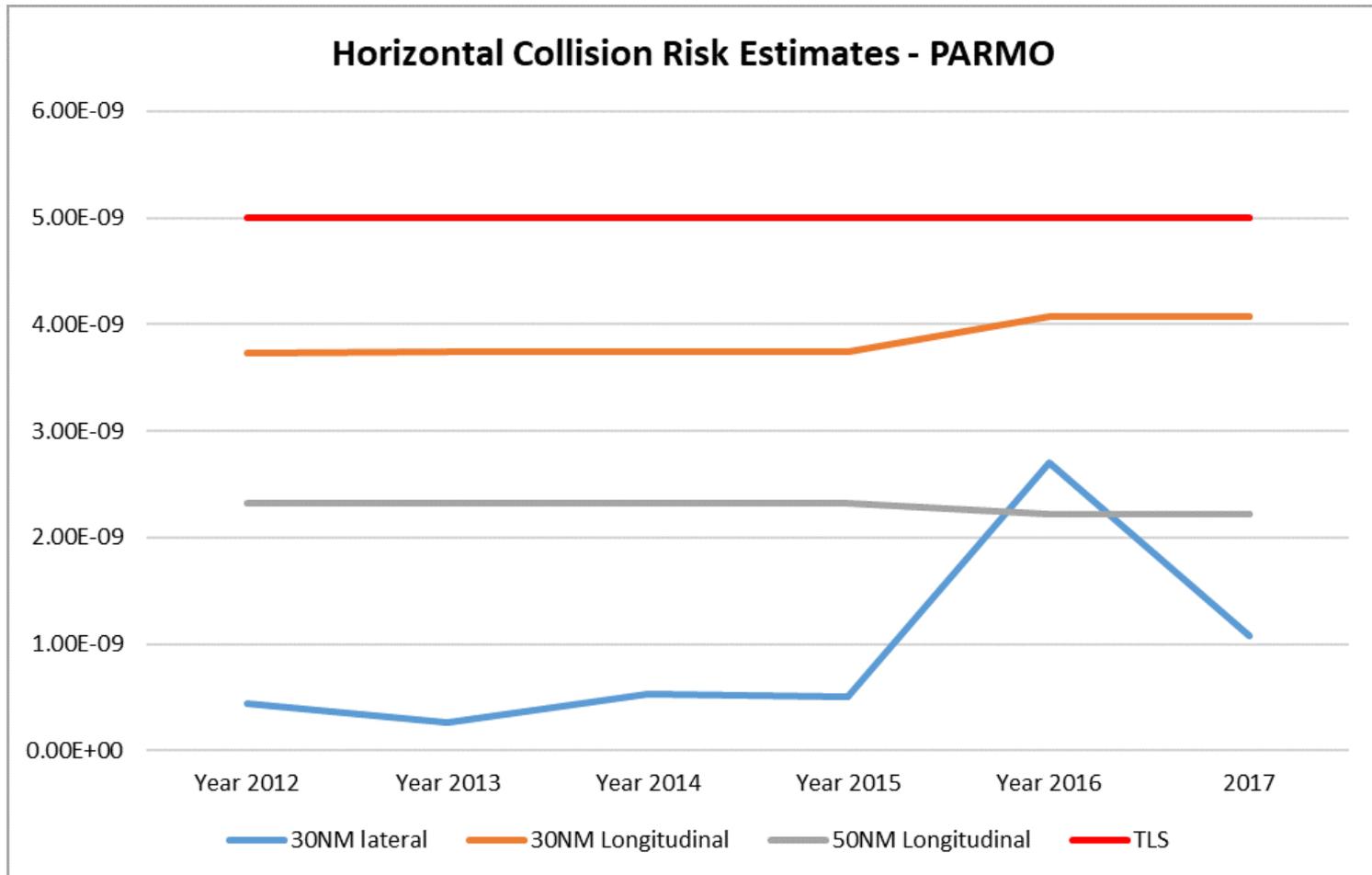


# Horizontal Safety Reports to RASMAG/23

- **Largest number of errors relate to flight crews deviating for weather w/o clearance, not adhering to clearance or w/o following weather contingency procedures**
  - Observed deviation magnitude (ADS-C reports) were > than permitted by clearance
  - Deviating in the wrong direction (e.g. left of track instead of right of track)
  - Categories 'A' and 'G'



# PARMO Summary of Horizontal Collision Risk Estimates



# Examples of Reported Events



Microsoft Word  
Document

LKH7422

26 Dec 2017



Microsoft Word  
Document

DIJHO

14 Oct 2017



# Safety Monitoring Report Summary

- **Majority of reported errors involve air crew maneuvering (climb/descend/deviate laterally) w/o ATC clearance**
  - AAMA and PARMO plan to work with IATA
- **Vertical and horizontal collision risk estimates**
  - Estimates are reflective of the operational error reports received
  - It is important that ANSPs/Airspace users provide PARMO with reports of events involving deviations from that which was cleared/planned



# State Assessment of Airspace Risk

- **Decision RASMAG/22-11**

- States are urged to provide RASMAG a summary of identified airspace risk occurrences as analyzed by the State, and any mitigations introduced
- Objective is to ensure a feedback mechanism between the RMA, State and RASMAG is in place to provide a greater understanding of regional airspace risk and actions being taken by the States
- Interpretation: States are invited to attend RASMAG and provide a presentation/paper discussing procedures/ATC tools/automation changes/etc implemented in their airspace to improve safety



# Important Updates

- **Collection of PBCS approval information**
  - In addition to RVSM approval information, PARMO will collect and maintain RCP240 & RSP180 State authorization/approval within existing RVSM approval database
- **Submit TSD to PARMO if not done so already**
- **Updated event report form**
  - Allows for vertical, lateral & longitudinal events to be reported using the same form



# Important Updates (continued)

- **Event report form**

- Just culture reminder: The purpose in collecting this information is NOT to assign blame or liability. The objective is always to help in the understanding of what faltered.
- The information gathered can be used to design and implement procedures which can prevent any recurrence of circumstances leading to previously investigated incidents.
- This culture is supported by ***ICAO Annex 13 – Aircraft Accident and Incident Investigation***



# Action for the Meeting

- **South Pacific States should provide RCP240 and RSP180 authorization/approval information to PARMO (or their designated EMA/RMA)**
- **Ensure that the ANSPs**
  - provide monthly vertical, lateral, and longitudinal incident reports to the PARMO
  - provide the December traffic sample data (TSD) to the PARMO, the TSD should include the aircraft callsign, registration mark, filed item 10 information, and aircraft position data including Flight Level (FL). See PARMO website for template or email [parmo@faa.gov](mailto:parmo@faa.gov).



# Questions?

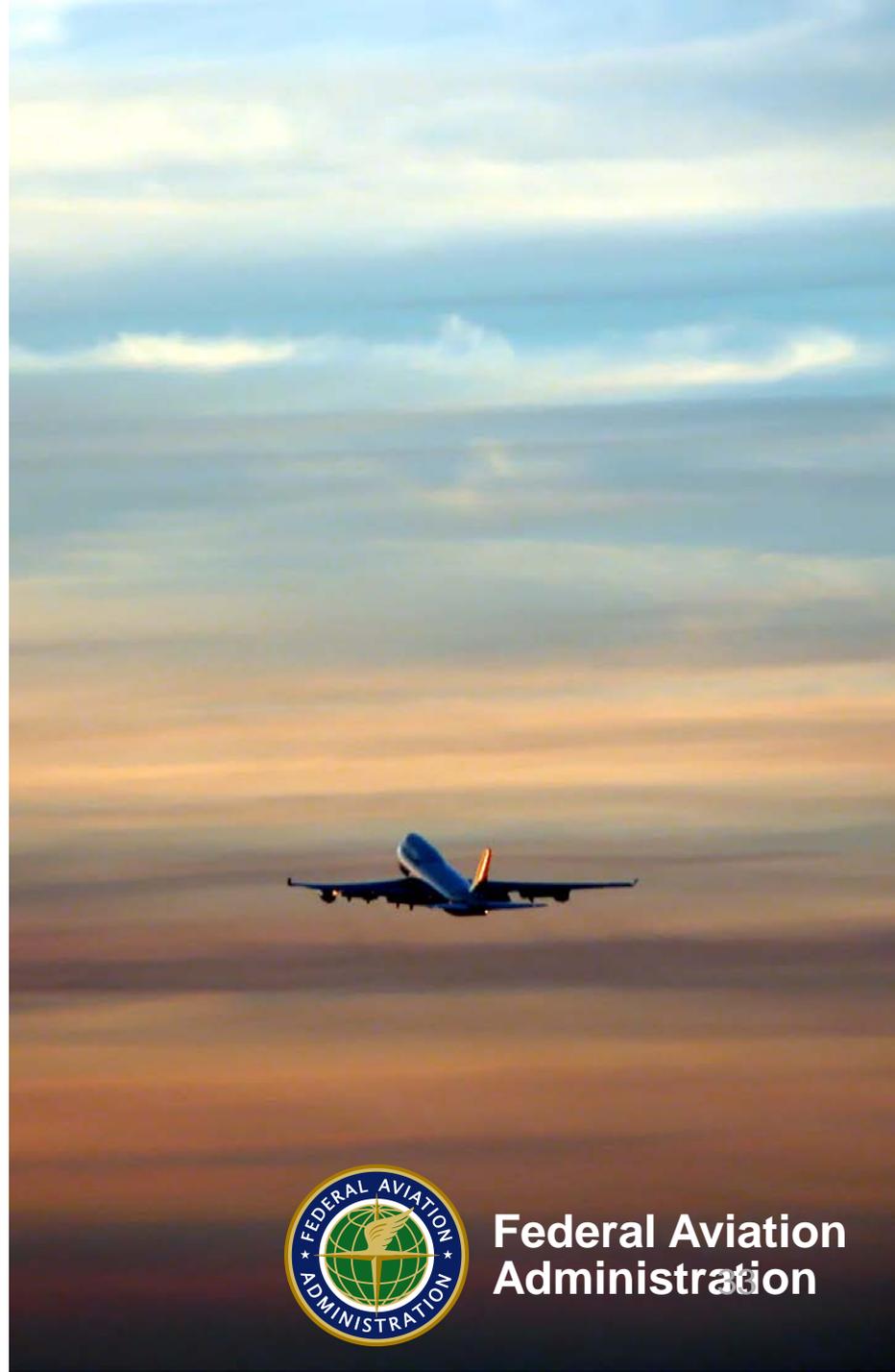
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# Backup Slides



LHD Category Code	LHD Category Description	No of LHD Occurrences	LHD Duration (Min)	No. of Flight Levels Transitioned Without Clearance
A	Flight crew failing to climb/descend the aircraft as cleared;	0	5	0
B	Flight crew climbing /descending without ATC clearance;	12	106	9
C	Incorrect operation or interpretation of airborne equipment (e.g. incorrect operation of fully functional FMS, incorrect transcription of ATC clearance or re-clearance, flight plan followed rather than ATC clearance, original clearance followed instead of re-clearance etc.)	0	0	0
D	ATC system loop error; (e.g. ATC issues incorrect clearance or flight crew misunderstands clearance message);	1	3	3
E	Coordination errors in the ATC-unit-to-ATC-unit transfer of control responsibility as a result of human factors issues (e.g. late or non-existent coordination, incorrect time estimate/actual, flight level, ATS route etc not in accordance with agreed parameters);	4	110	0
F	Coordination errors in the ATC-to-ATC transfer of control responsibility as a result of equipment outage or technical issues;	1	40	0
G	Aircraft contingency event leading to sudden inability to maintain assigned flight level (e.g. pressurization failure, engine failure);	3	3	12
H	Airborne equipment failure leading to unintentional or undetected change of flight level (e.g. altimetry errors)	0	0	0
I	Turbulence or other weather related causes	1	0	0
J	TCAS resolution advisory; flight crew correctly following the resolution advisory	0	0	0
K	TCAS resolution advisory; flight crew incorrectly following the resolution advisory	0	0	0
L	An aircraft being provided with RVSM separation is not RVSM approved (e.g. flight plan indicating RVSM approval but aircraft not approved, ATC misinterpretation of flight plan);	0	0	0
M	Other	1	4	0
	Totals	24	271	24



Code	Deviation Description	No.
A	Flight crew deviates without ATC Clearance	5
B	Flight crew incorrect operation or interpretation of airborne equipment	2
C	Flight crew waypoint insertion error, due to correct entry of incorrect position or incorrect entry of correct position	0
D	ATC system loop error	0
E	Coordination errors in the ATC-unit-to-ATC-unit transfer of control responsibility	3
F	Navigation errors, including equipment failure of which notification was not received by ATC or notified too late for action	3
G	Turbulence or other weather related causes	5
H	An aircraft without PBN approval	0
I	Other	0
	Total	18

