

# AIR NAVIGATION SERVICES SAFETY UNIT

*The Department of Air Traffic Services and Air Navigation Services Safety*



**TTCAA**  
Safer Skies

14-Nov-17

Presented by: Ian R Gomez  
Unit Chief ANS Safety

# The Director General shall

establish a State safety programme to achieve an acceptable level of safety in the civil aviation;

establish an acceptable level of safety to be achieved in the provision of ATS; and



# TTCAA Exclusively Provides Air Navigation Services

aerodrome  
control  
services at  
international  
aerodromes

approach  
control  
services

area control  
services

flight  
information  
services

air navigation  
facilities

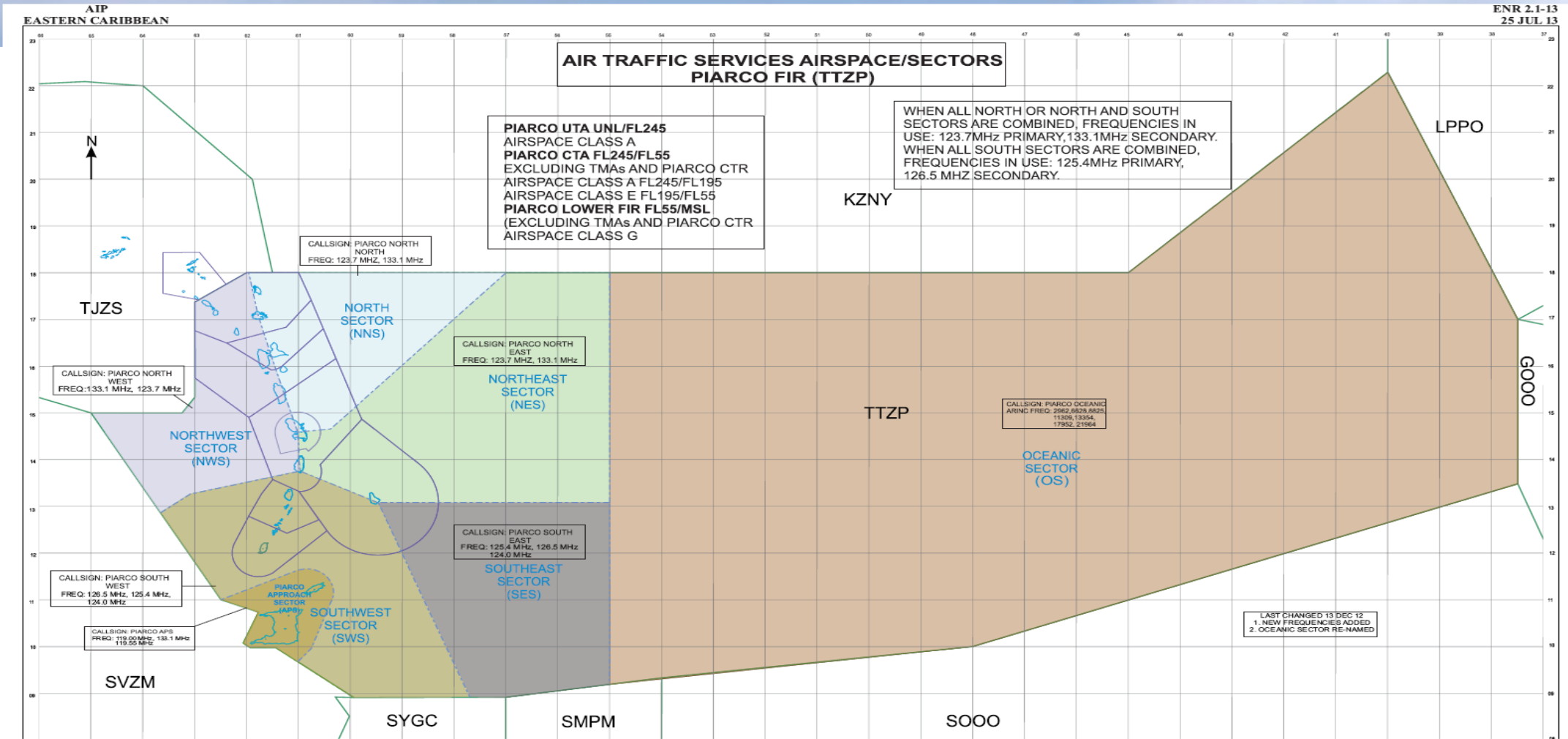
aeronautical  
information  
services



**ANSP**  
Air Navigation  
Service Provider

14-Nov-17

# PIARCO FIR/CTA/UTA

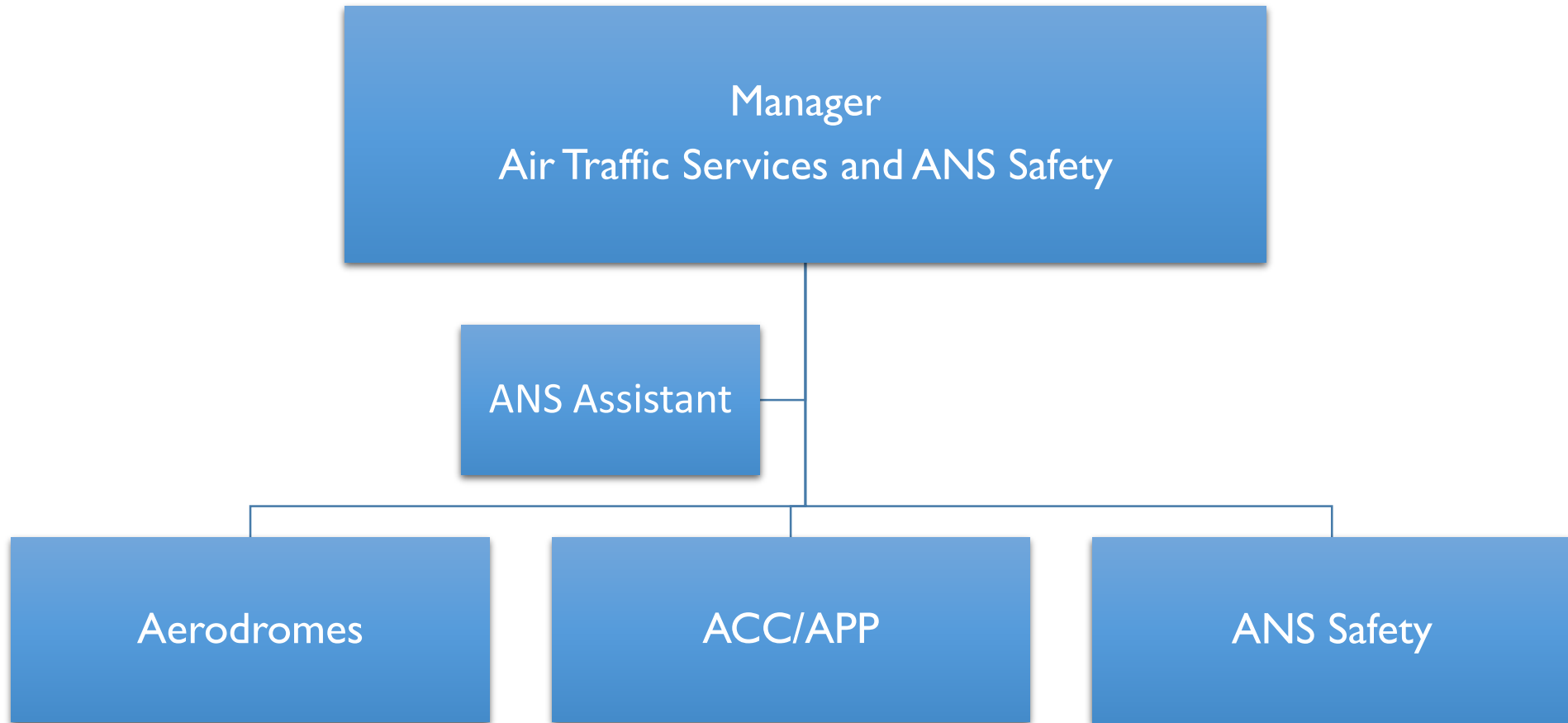


**ANSP**  
Air Navigation  
Service Provider

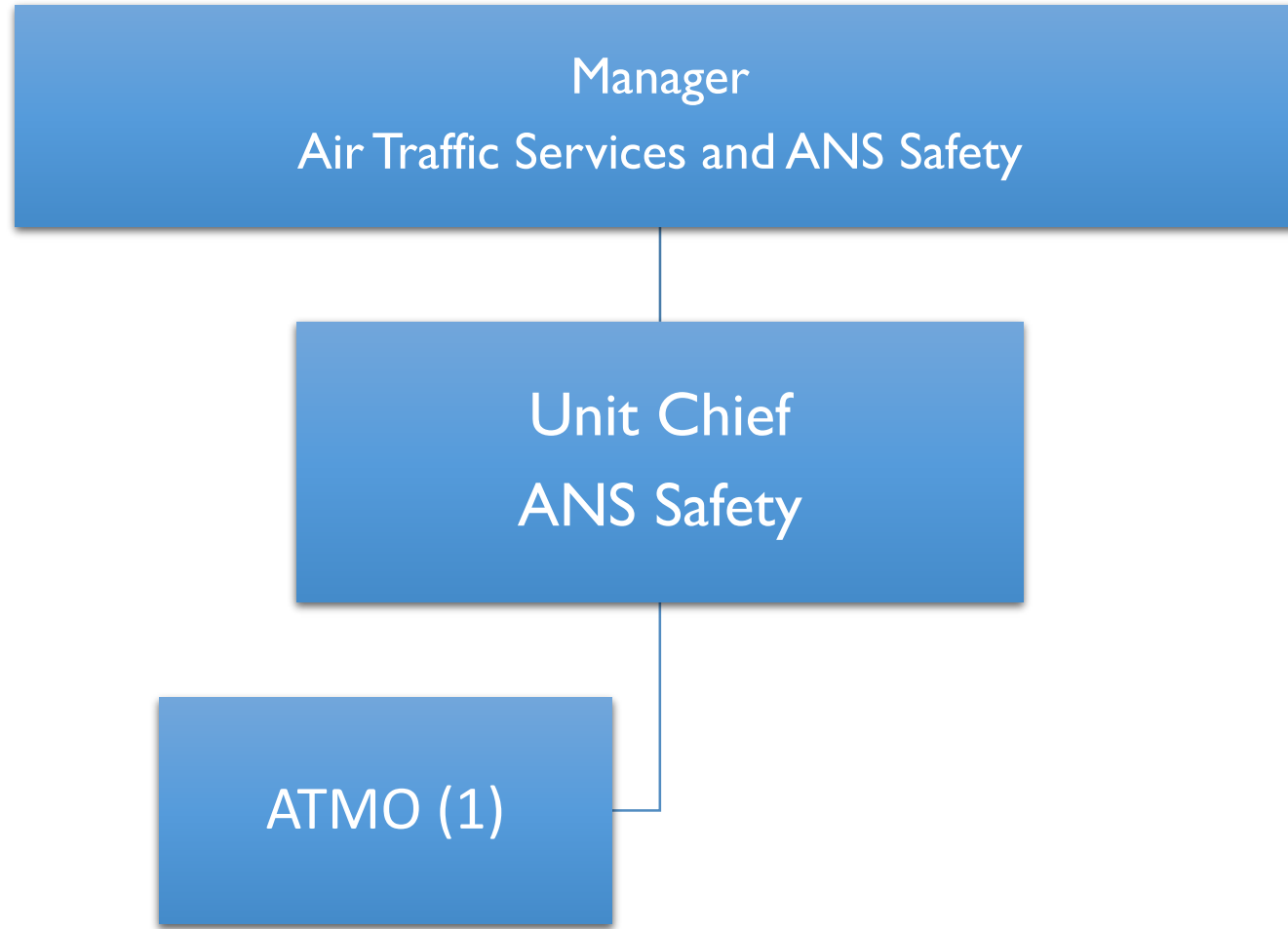
14-Nov-17

# AIR TRAFFIC SERVICES

# AIR NAVIGATION SERVICES SAFETY



# AIR NAVIGATION SERVICES SAFETY



# AIR NAVIGATION SERVICES SAFETY

## ANSSU - Overview

Formation of ANS Safety Unit (ANSSU)

Components of a Safety Management System (SMS)

Strategic Activities of the ANSSU

Conclusion



**ANSP**  
Air Navigation  
Service Provider

# AIR NAVIGATION SERVICES SAFETY

## ANSSU - Objectives

Need for establishment of a Safety Management System

To ensure that the possibility of injury to persons and or property damage is reduced to, or maintained at or below acceptable level via a continuous process of **Hazard Identification** and **Safety Risk Management**.



An effective SMS Programme needs to be established throughout the ANS:

ATM

CNS

AIM



Guided by: ICAO POS Declaration, Annex 19 & Doc 9859, TTCAR 15 Part II





# AIR NAVIGATION SERVICES SAFETY Stakeholders

## Internal

BOARD OF DIRECTORS

OFFICE OF THE DGCA

Corporate Services

Safety Regulations

AVSEC

CATC

ANS

## External

ICAO, CARSAMMA, RASG-PA

Adjacent ANSPs

AATT

AIRLINE Operators

MET Services

FIRE SERVICES

Ground Handlers



# AIR NAVIGATION SERVICES SAFETY

## Components of an SMS

### Safety Policy and Objectives

- Commitment, Accountability, Objectivity

### Safety Risk Management

- Continuous HIRA

### Safety Assurance

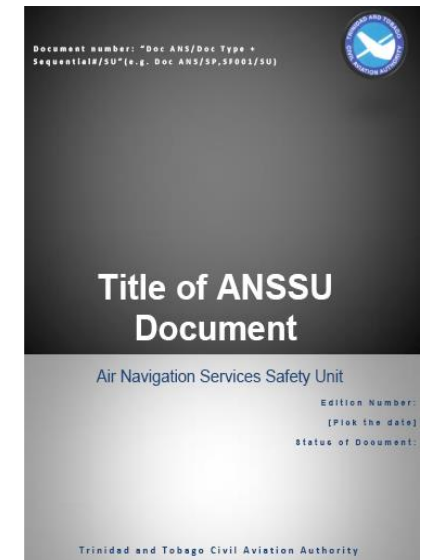
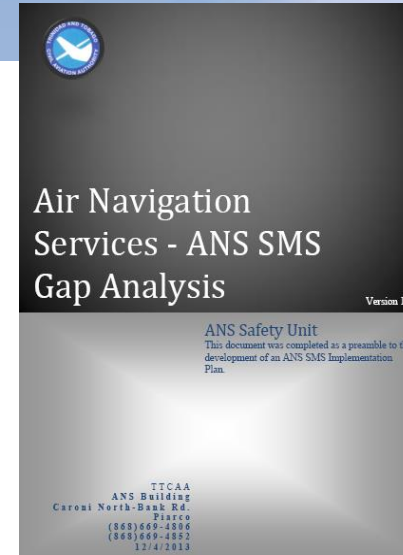
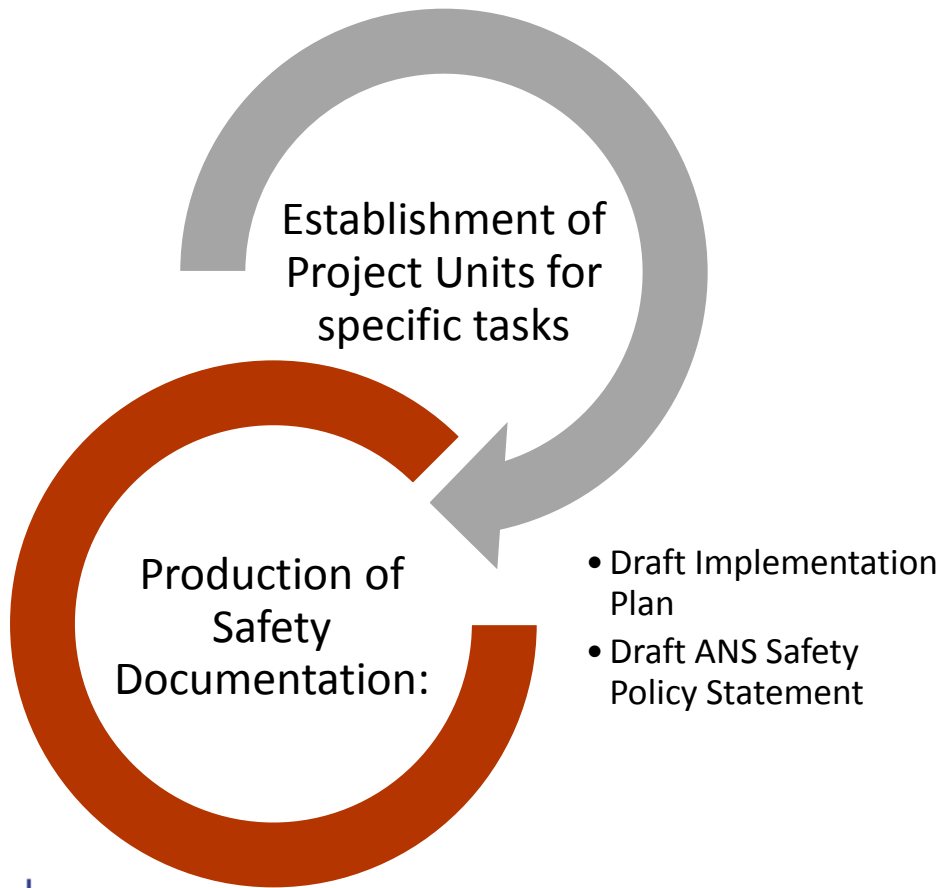
- Continuous Safety Performance Monitoring & Measurement, Change Management

### Safety Promotion

- Creating a Learning and Safety Awareness Culture



# AIR NAVIGATION SERVICES SAFETY Milestones



**ANSP**  
Air Navigation  
Service Provider

# AIR NAVIGATION SERVICES SAFETY

## Milestones

### Production of Safety Documentation:

- Incident Safety Reports (ISRs) - 5
- Large Height Deviation Reports - 42
- Safety Presentations - 11
- Basic Safety Assessments - 4

### Safety Briefings (15+)

### Safety Information Sharing (Internal and External)



**ANSP**  
Air Navigation  
Service Provider

14-Nov-17

12/30/2014

Prepare  
TCAA –  
FOR PIAR

Doc: ANS/LHDO02/16/SU

TCAA - AIR NAVIGATION SERVICES

GTE/17-IP/08  
31/10/17

International Civil Aviation Organization  
Seventeenth meeting of the GREPECAS  
Scrutiny Working Group (GTE/17)  
Lima, Peru, 30 October to 03 November 2017

---

Inci

**Agenda Item 3: Large Height Deviation (LHD) Analysis**

**LHD MITIGATION MEASURES IMPLEMENTATION PROGRESS BY TRINIDAD AND TOBAGO BASED ON AN SMS APPROACH**  
(Presented by Trinidad and Tobago)

SUMMARY

This information paper contains an LHD analysis for the Piarco FIR/CTA/UTA for the period 2009 to 2016 with special focus on 2016 and the progress made by mitigation measures that have been adopted in an attempt to keep the occurrences as low as reasonably practicable.

REFERENCES:

- ICAO Annex 1 - Safety Management  
ICAO Strategic Objectives  
A - Safety  
B - Air navigation, accuracy and efficiency

**2. Introduction**

2.1 Piarco FIR/CTA/UTA is joined by nine (9) adjacent FIRs/CTAs (Appendix A) namely, San Juan (TJZS), New York (LNY), Santa Maria (LSP), SAL (GVSC), Dakar (GOOO), Cayenne (SOOO), Paramaribo (SIPM), Georgetown (GTTG) and Venezuela (SVZM). The ANSP has been recording and analyzing reportable LHD occurrences attributable to Piarco ACC for a period of at least seven (7) years from 2009. This data is disseminated to CARSAMMA monthly. Various strategic approaches are used in an attempt to mitigate the occurrences attributable to Piarco.

**3. Discussion**

3.1 Appendix B, provides data collected on LHD occurrences attributable to Piarco Area Control Centre (ACC) from 2009 to 2016. The trend over the last seven (7) years has shown a general decrease of such occurrences. In an attempt to mitigate occurrences, the ANSP employs a number of strategic approaches mentioned below.

- Gathering and assessing safety data associated with the LHD occurrences (Appendices B, C, D and E);
- Collaboration with ANSP Departments (e.g. ATS, ADM and CNS);
- Exchanging of safety data and collaboration with ANSPs responsible for providing ATS in the adjacent FIRs/CTAs;
- Exchanging of safety data and collaboration with concerned airline operators;
- Generating safety awareness through:

Occurrences for  
risons from  
016  
NS Safety

AFETY UNIT

Large Height Deviation (LHD) Occurrences for 9 to 2016 based on reports submitted by Piarco ACC to the Unit Chief ANS Safety.

Current Measures to reduce risk/s & risk Index	Further actions to reduce risk/s and resulting risk Index	Responsibility
<ul style="list-style-type: none"> <li>• SOPs</li> <li>• VCCS</li> <li>• CNS</li> <li>• Call</li> <li>• Supervision from Shift Supervisor</li> </ul>	<ul style="list-style-type: none"> <li>• Reinforcement of ATIS</li> <li>• Training and Supervision by Shift Supervisor</li> </ul>	<ul style="list-style-type: none"> <li>• Duty ATCO</li> <li>• Shift Supervisor</li> <li>• Project Leader ACC &amp; APP</li> <li>• Operations</li> <li>• Safety Unit</li> <li>• Safety Manager/MATS</li> </ul>
<ul style="list-style-type: none"> <li>• SOPs</li> <li>• General Supervision from Shift Supervisor</li> </ul>	<ul style="list-style-type: none"> <li>• Reinforcement of SOPs (e.g. Refresher Training and Supervision by Shift Supervisor)</li> <li>• Implementation system to record real time safety training and investigation tool</li> </ul>	<ul style="list-style-type: none"> <li>• Duty ATCO</li> <li>• Shift Supervisor</li> <li>• Project Leader ACC &amp; APP</li> <li>• Operations</li> <li>• Safety Unit</li> <li>• MATS</li> <li>• EVANS</li> </ul>

Risk Index and Acceptability

IC - acceptable after review of the operation  
TS - Acceptable  
ANS Safety Unit: 04/02/2014

# AIR NAVIGATION SERVICES SAFETY

## Milestones

### Production of Quality Assurance Documentation:

- CNS Quality Assurance Reports
- AIM Training Records

ECAR TELEPHONE SYSTEM  
ROUTINE CHECK SHEET

WEEK ENDING: \_\_\_\_\_

ISLAND/SYSTEM/CIRCUIT	TELEPHONE NO.	MON	TUES	WED	THUR	FRI
SAN JUAN	1845 (SECTOR 2)					
SAN JUAN	1846 (SECTOR 8)					
MIAMI RADIO	1861					
BARBADOS	6001 TBPB					
GRENADA	6101 TGPY					
ST. VINCENT	6201 TVSV					
ST. LUCIA	6301 TLPL					
MARTINIQUE	6401 TFFF					
DOMINICA	6501 TDPD					
ANTIGUA	7001 TAPA					
GUADELOUPE	7201 TFFR					
ST. KITTS	7301 TKPK					
NEW YORK	1848					
CAYENNE HOTLINE	669-0619					
PARAMARIBO HOTLINE	669-3775					
A.N.R. ROBINSON HOTLINE	669-5242					
CAYENNE REDDIG						
PARAMARIBO REDDIG						
MAIQUETIA REDDIG						
GEORGETOWN REDDIG						
MANUAS REDDIG	611-9102					
PIARCO REDDIG	611-9102					
SANTA MARIA	011-351-296-886-046					
NORTH SECTOR	669-6181					
SOUTH SECTOR	669-6181					
A3 (123.7 MHz)						
A4 (126.5 MHz)						
A7 (123.4 MHz)						
A8 (133.1 MHz)						
APP (119.0 MHz)						
INTLS/TIME: TELECOMS						
INTLS/ TIME: ATC (OC)						

TRINIDAD AND TOBAGO CIVIL AVIATION AUTHORITY

PIARCO AIM		Record #: AIMQR622/XXX_YY		
SELECTION, TRAINING & COMPETENCIES		Date: Oct. 2012		
<b>EMPLOYEE TRAINING RECORD</b> for <b>AIDA NG SUPERVISOR</b>				
Employee	Employee #	Position	AIM Unit	Period
<small>This record is generated by Quality Management System Procedure AIM/QP622/QA which documents the procedure used by PLARCO's AIS_AIM for the Selection, Training and Competencies of all employees. General training requirements are identified in Position Job Descriptions, and supplemental remedial training needs are identified during employee performance evaluations and/or during observations of job performance.</small>				
<b>TRAINING COMPLETE</b>				
<b>TOPICS COVERED</b>				<b>ASSESSMENT</b> (Does the employee meet the required Standard?)
				Yes    No
1	Operating Sub-Systems			
2	User Management Access Rights			
3	System Parameters			
4	AFTN Routing			
5	Traffic Handling			
6	Traffic System Alerts			
Signature of Trainee:				Date:
Signature of Trainer:				Date:



**ANSP**  
Air Navigation  
Service Provider

# AIR NAVIGATION SERVICES SAFETY

## Current Responsibilities

- Safety Data Collection and Assessments
- Safety Reports
- Safety Briefings and De-Briefings
- Drafting the SMS Manual
- Collaboration with Internal and External Stakeholders
- ANS Certification Process





# AIR NAVIGATION SERVICES SAFETY

## LHD Safety Data Gathering

### LHD Occurrences Attributable to Piarco ACC for the Years 2009 to October 2017

MONTH	YEAR									TOTAL
	2009	2010	2011	2012	2013	2014	2015	2016	2017	
JANUARY	0	2	2	1	3	1	1	0	0	10
FEBRUARY	4	0	0	0	0	1	0	2	2	9
MARCH	0	2	2	2	2	1	0	0	3	12
APRIL	0	2	3	1	2	0	1	1	0	10
MAY	1	0	2	1	1	1	0	0	1	7
JUNE	1	1	2	0	2	0	0	1	0	7
JULY	0	1	0	1	0	1	0	0	1	4
AUGUST	1	1	3	1	3	0	1	1	0	11
SEPTEMBER	0	1	1	1	2	0	1	0	1	7
OCTOBER	3	3	2	0	0	1	0	0	0	9
NOVEMBER	2	1	2	1	0	0	0	1		7
DECEMBER	2	3	3	4	3	2	0	2		19
<b>TOTAL</b>	<b>14</b>	<b>17</b>	<b>22</b>	<b>13</b>	<b>18</b>	<b>8</b>	<b>4</b>	<b>8</b>	<b>8</b>	<b>112</b>

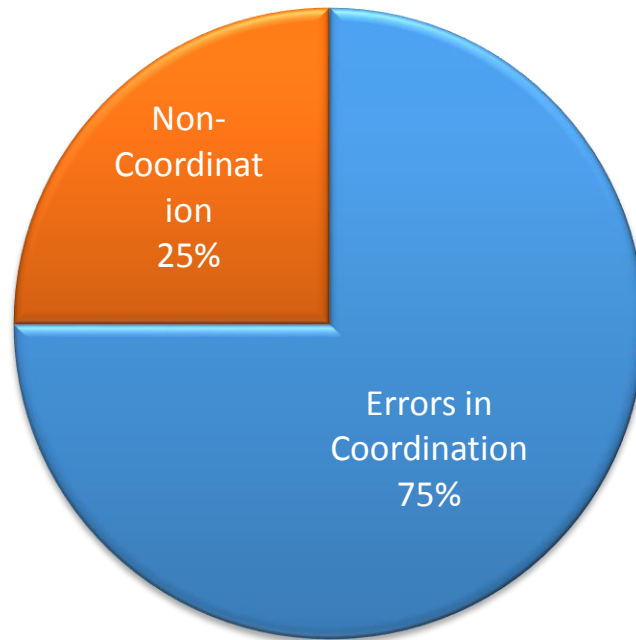


# AIR NAVIGATION SERVICES SAFETY

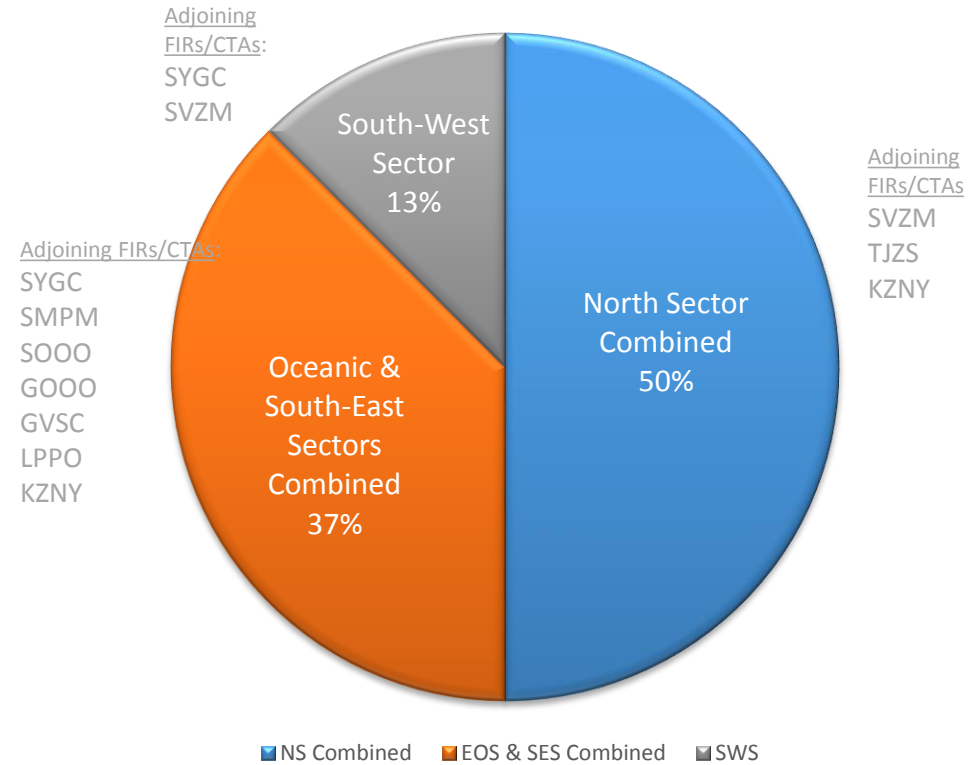
## LHD Safety Data Analysis

### Assessment of LHD Occurrences Attributable to Piarco ACC for 2016

Type and percentage of LHD Occurrences for 2016 Attributable to Piarco ACC



Percentage of LHD Occurrences in Piarco's Operational Sectors for 2016



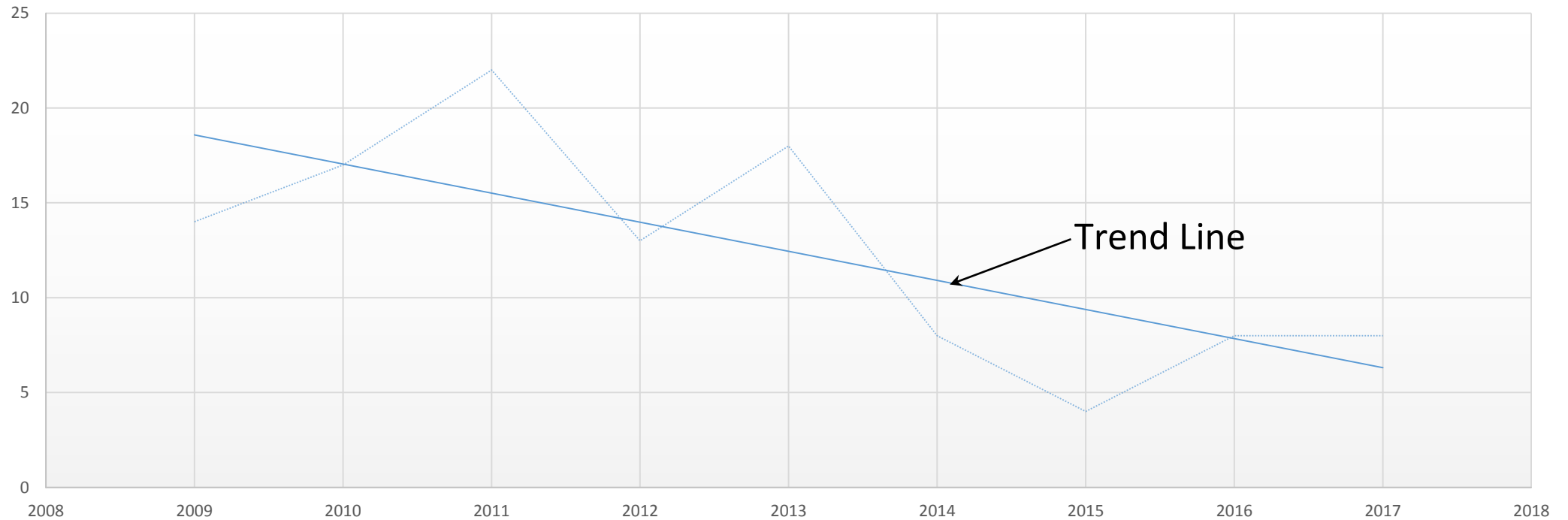


# AIR NAVIGATION SERVICES SAFETY

## LHD Safety Data Analysis

### LHD Occurrences Attributable to Piarco ACC for the Years 2009 to October 2017

Total Reported LHDs Attributable to Piarco ACC from 2009 to October 2017

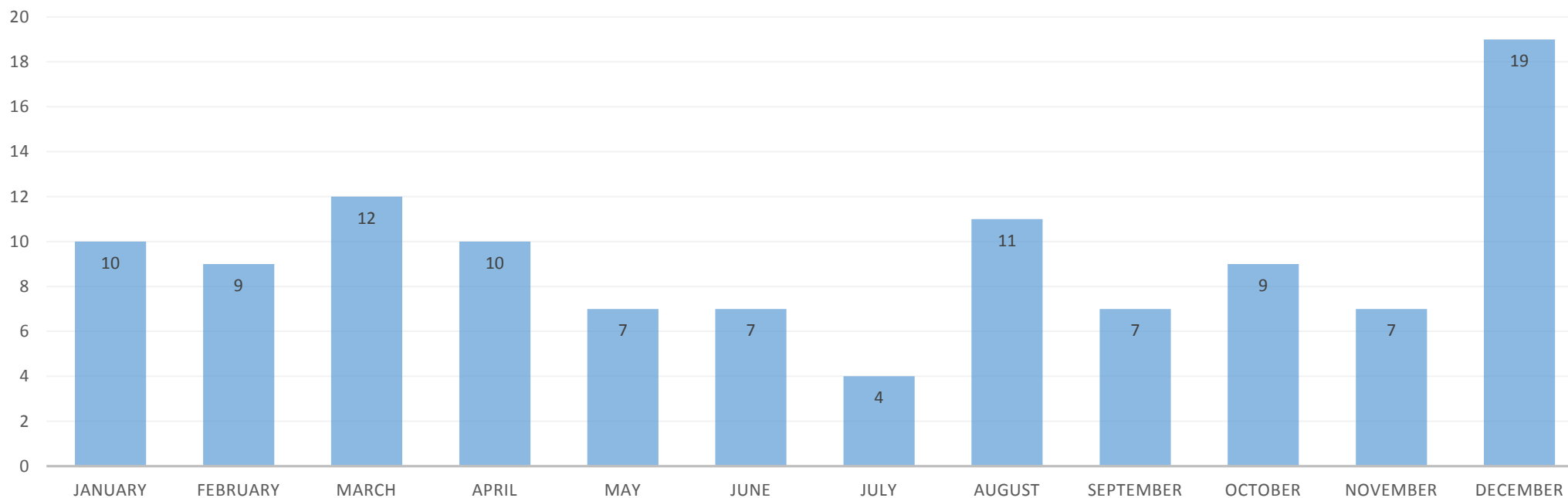


# AIR NAVIGATION SERVICES SAFETY

## LHD Safety Data Analysis

### LHD Occurrences per Month Attributable to Piarco ACC for the Years 2009 to October 2017

TOTAL LHD Occurrences per Month Attributable to Piarco from 2009 to October 2017



# AIR NAVIGATION SERVICES SAFETY

## Operational Irregularities Data Gathering

### Operational Irregularities Attributable to Piarco ATS for the Years 2014 to October 2017

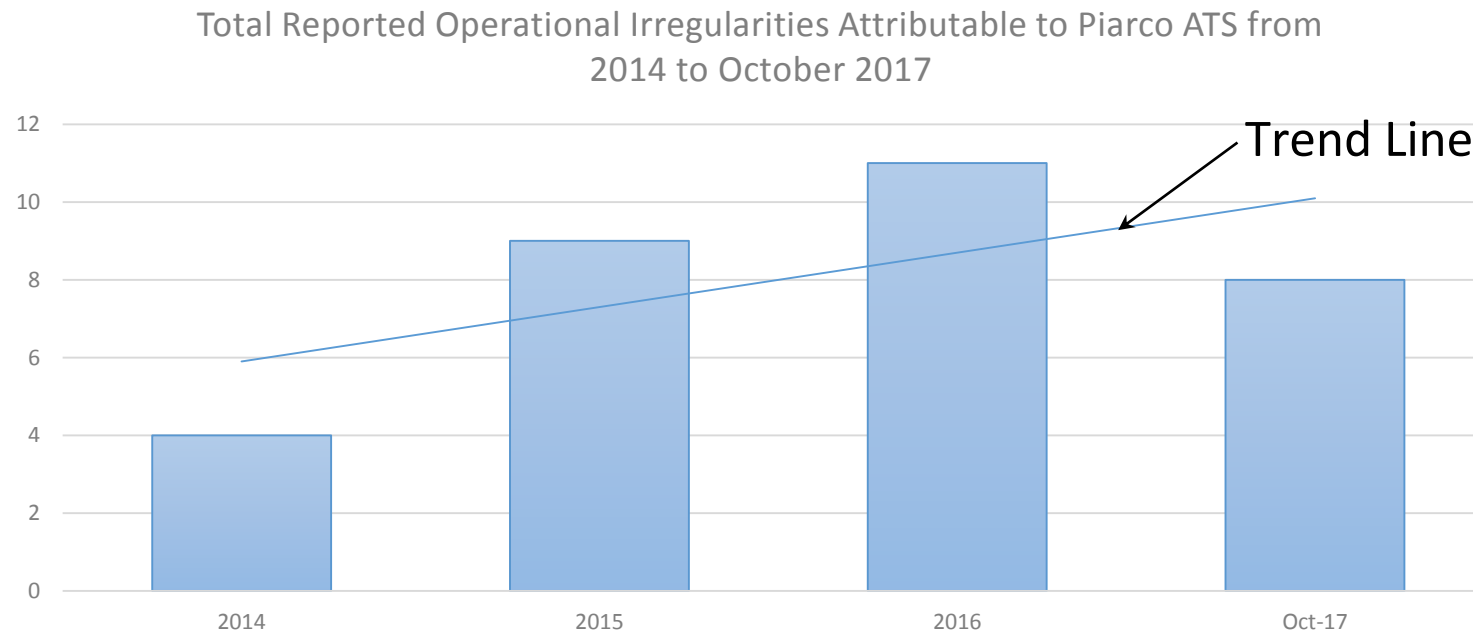
MONTH	YEAR				TOTAL
	2014	2015	2016	2017	
JANUARY	0	1	0	1	2
FEBRUARY	0	1	1	1	3
MARCH	1	0	0	2	3
APRIL	0	1	0	1	2
MAY	2	1	1	0	4
JUNE	0	1	3	0	4
JULY	0	2	0	1	3
AUGUST	0	2	2	1	5
SEPTEMBER	0	0	2	1	3
OCTOBER	1	0	2	0	3
NOVEMBER	0	0	0		0
DECEMBER	0	0	0		0
<b>TOTAL</b>	<b>4</b>	<b>9</b>	<b>11</b>	<b>8</b>	<b>32</b>



# AIR NAVIGATION SERVICES SAFETY

## Safety Data Analysis

### Operational Irregularities Attributable to Piarco ATS for the Years 2014 to October 2017

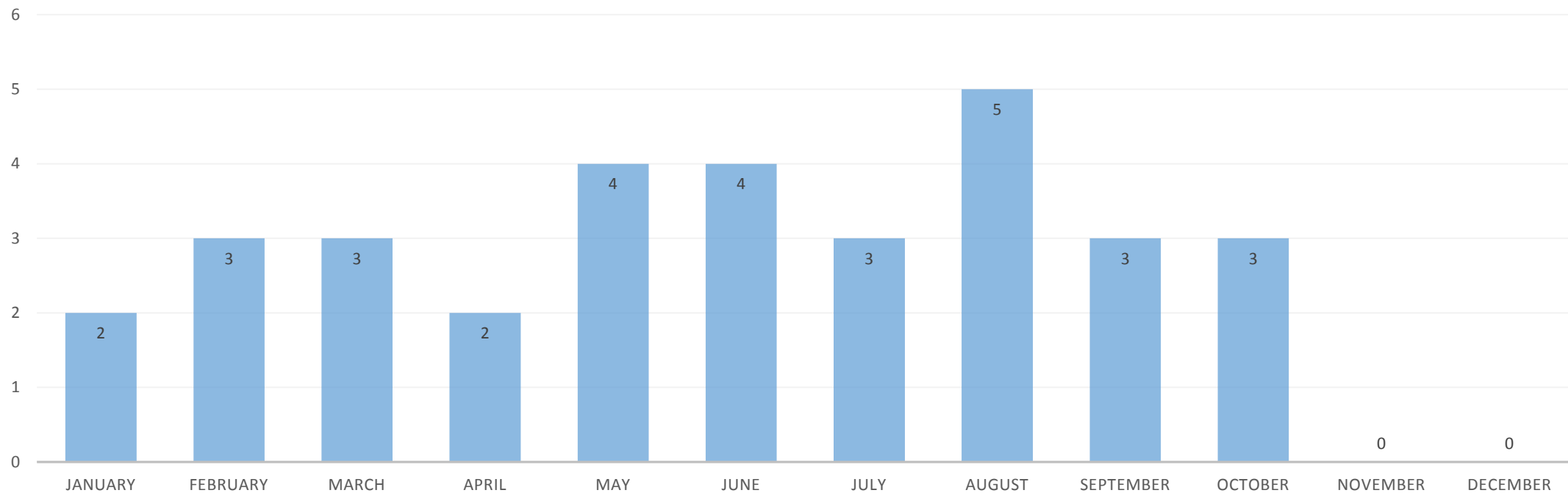


# AIR NAVIGATION SERVICES SAFETY

## Safety Data Analysis

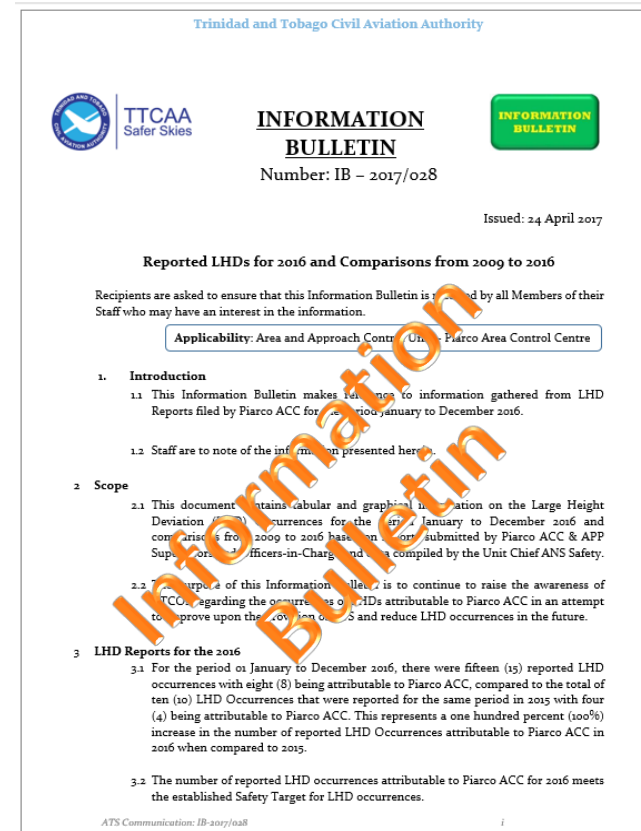
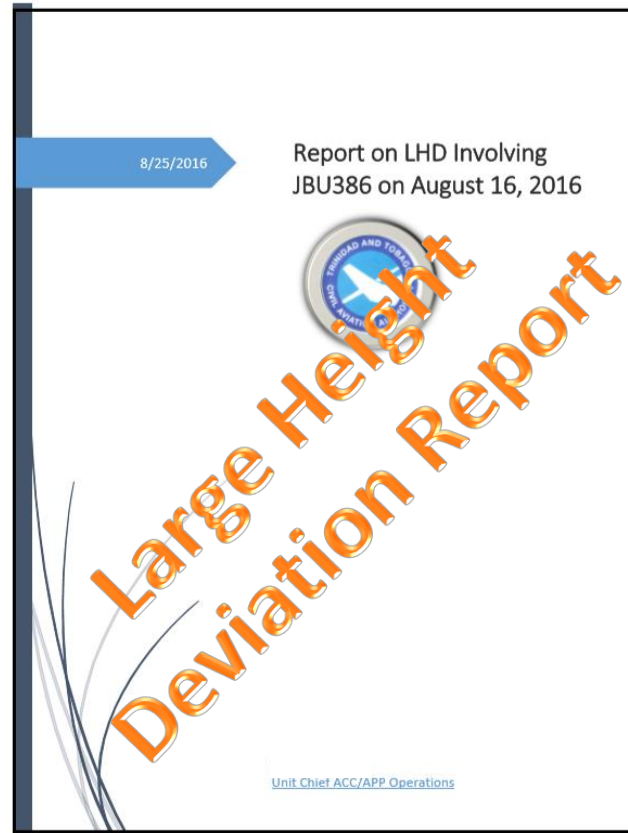
### Operational Irregularities per Month Attributable to Piarco ATS for the Years 2014 to October 2017

TOTAL Operational Irregularities per Month Attributable to Piarco from 2014 to October 2017



# AIR NAVIGATION SERVICES SAFETY

## Sharing of Safety Information



**ANSP**  
Air Navigation  
Service Provider

14-Nov-17

# AIR NAVIGATION SERVICES SAFETY

## LHD Mitigation Measures

### Currently Employed by the ANSP

- Gathering and assessing safety data associated with Operational Occurrences,
- Collaboration with ANSP Departments (e.g. ATS, AIM and CNS),
- Exchanging of safety data and collaboration with ANSPs responsible for providing ATS in the adjacent FIRs/CTAs,
- Exchanging of safety data and collaboration with concerned airline operators,
- Generating safety awareness through:
  - Remedial actions inclusive of safety de-briefings performed with the concerned ANS Staff, and
  - Dissemination of Information Bulletins related to Operational Occurrences to ANS Staff.



# AIR NAVIGATION SERVICES SAFETY

## LHD Mitigation Measures

### Future Considerations by the ANSP

- Implementing a Normal Operations System Survey (NOSS) Programme;
- Implementing a Voluntary Reporting Programme;
- Continuance in addressing “Threat and Error” issues associated with “practical drift” and the coordination of flights between Piarco ACC and Adjacent ANSPs;
- Written and Oral Knowledge Verification Tests (KVTs) as part of ATS Proficiency Checks. ATIs and ATEs to be subjected to biannual Proficiency Checks with an higher pass mark required;
- Continuance in reinforcing the importance of adhering to SOPs;





# AIR NAVIGATION SERVICES SAFETY

## Future Objectives

### Targeted Objectives:

- Production of an SMS Manual

### Establishment of:

- Learning Culture
- Just/Fair Culture
- Safety Culture
- Professional Culture



**SMS HAZARD IDENTIFICATION & RECOMMENDATION**  
 TRINIDAD & TOBAGO CIVIL AVIATION AUTHORITY  
 AIR NAVIGATION SERVICES  
 ATS & ANS SAFETY DEPARTMENT

**Name of Person Filing Report/ANS Initials:** Enter here to enter Name and or ANS Initials.

**Date of Occurrence/Observation:** Click to enter date.      **Date of Filing Report:** Click to enter date.

**Time of Occurrence/Observation (UTC):** Click to enter time.      **Time of Filing Report (UTC):** Click to enter time.

**HAZARD TYPE**

WORK ENVIRONMENT       EQUIPMENT       PROCEDURES       ACTION BY PERSONS

OTHER : Briefly state here.

**STATE HAZARD LOCATION**

Click here to briefly state where hazard was observed or indicated.

**DESCRIPTION OF HAZARD**

Click here to describe hazard.

**SUGGESTED RECOMMENDATIONS**

Click here to enter suggested recommendations to mitigate event recurrence.

**OFFICIALS INFORMED**

Select those Officials informed about the identified hazard.

SUPERVISOR/OIC	<input type="checkbox"/>	UC AIM P&C	<input type="checkbox"/>
UC ACC & APP	<input type="checkbox"/>	UC AIRSPACE & FP DESIGN	<input type="checkbox"/>
UC AERODROMES	<input type="checkbox"/>	CNS ENGINEER	<input type="checkbox"/>
UC ANS SAFETY	<input type="checkbox"/>	MAIM	<input type="checkbox"/>
UC ANS TRAINING	<input type="checkbox"/>	MCIS	<input type="checkbox"/>
UC P&E	<input type="checkbox"/>	MATS & ANS SAFETY	<input type="checkbox"/>
UC SAR & AN-SEC	<input type="checkbox"/>	MANS P&D	<input type="checkbox"/>
UC AIM	<input type="checkbox"/>	EMANS	<input type="checkbox"/>
UC AIM QA	<input type="checkbox"/>	DGCA	<input type="checkbox"/>

**Note:** Please complete the relevant sections of this Form, save in the assigned folder and email to respective UCs and Manager including the UC ANS Safety and MATS & ANS Safety by the end of your Shift or Workday.



**ANSP**  
 Air Navigation  
 Service Provider

14-Nov-17

# AIR NAVIGATION SERVICES SAFETY

## Runway Safety Team



**ANSP**  
Air Navigation  
Service Provider

14-Nov-17

TRINIDAD AND TOBAGO RST

# AIR NAVIGATION SERVICES SAFETY

## Runway Safety Team Stakeholders



**ANSP**  
Air Navigation  
Service Provider

14-Nov-17



# AIR NAVIGATION SERVICES SAFETY

**THANKS FOR YOUR ATTENTION**



**ANSP**  
Air Navigation  
Service Provider

14-Nov-17