



**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)

<b>SUMMARY</b>	
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.	
<b>REFERENCES:</b>	
- ICAO Annex 19 - Safety Management.	
<b>ICAO Strategic Objectives:</b>	A - <i>Safety</i> B - <i>Air navigation capacity and efficiency</i>

**2. Introduction**

2.1 Piarco FIR/CTA/UTA is adjoined by nine (9) adjacent FIRs/CTAs (**Appendix A**), namely, San Juan (TJZS), New York (KZNY), Santa Maria (LPPO), SAL (GVSC), Dakar (GOOO), Cayenne (SOOO), Paramaribo (SMPM), Georgetown (SYGC) and Venezuela (SVZM). The ANSP has been recording and analysing 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, 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 LHD occurrences to ANS Staff.

3.2 Since employing the strategic approaches, the ANSP has observed a decreasing trend (Appendix B) in the number of LHD occurrences attributable to Piarco ACC from 2011 onwards. It is hoped that there is a direct correlation between the strategic mitigation approaches and the observed decreasing trend.

3.3 Our assessments have shown that “practical drift” and the non-adherence to Standard Operating Procedures (SOPs) play major roles in the occurrence of LHDs attributable to Piarco ACC.

3.4 In the future the ANSP has therefore taken the decision to include the following strategies:

- 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;
- Scheduled refresher training every two years;
- Identifying and introducing Quality Assurance Officers on each Shift;
- Upgrade of the ATM System and implementation of AIDC;
- Possible implementation of Radar handoffs with adjacent FIRs/CTAs and TMAs; and
- Encourage voluntary use of the Critical Incident Stress Management (CISM) Programme and Employee Assistance Programme (EAP) to help deal with work stress related issues that can impact performance.

4. **Suggested actions:**

- a) The Meeting is invited to note the information contained in this paper.

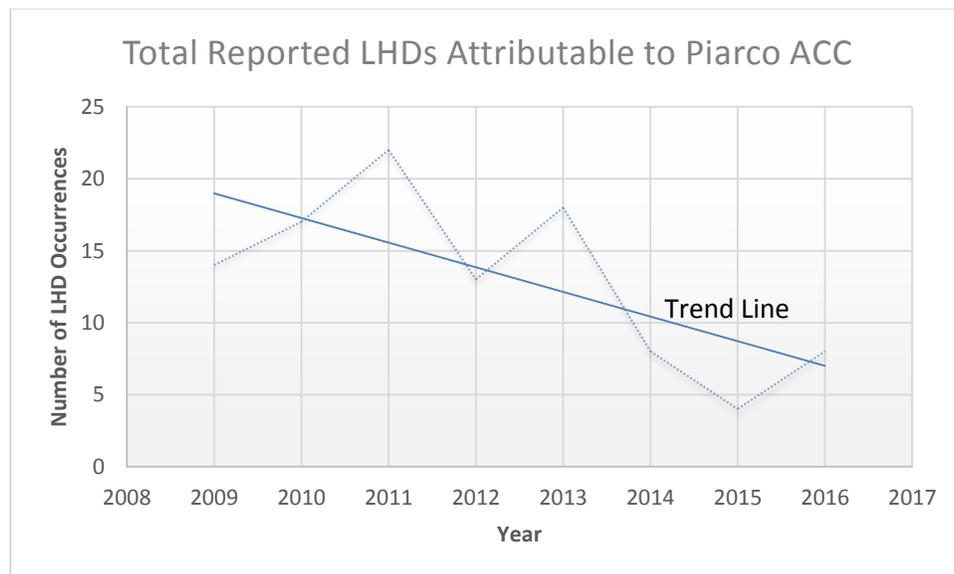
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## APPENDIX B

## LHD Occurrences Attributable to Piarco ACC for the Years 2009 to September 2016

MONTH	YEAR							
	2009	2010	2011	2012	2013	2014	2015	2016
JANUARY	0	2	2	1	3	1	1	0
FEBRUARY	4	0	0	0	0	1	0	2
MARCH	0	2	2	2	2	1	0	0
APRIL	0	2	3	1	2	0	1	1
MAY	1	0	2	1	1	1	0	0
JUNE	1	1	2	0	2	0	0	1
JULY	0	1	0	1	0	1	0	0
AUGUST	1	1	3	1	3	0	1	1
SEPTEMBER	0	1	1	1	2	0	1	0
OCTOBER	3	3	2	0	0	1	0	0
NOVEMBER	2	1	2	1	0	0	0	1
DECEMBER	2	3	3	4	3	2	0	2
<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>



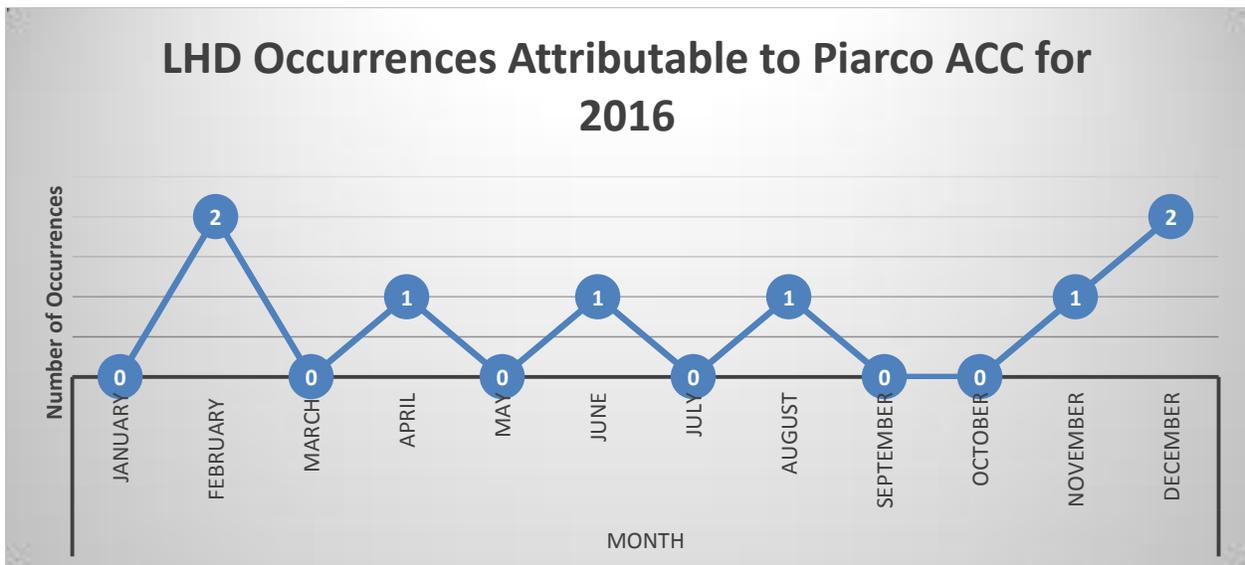
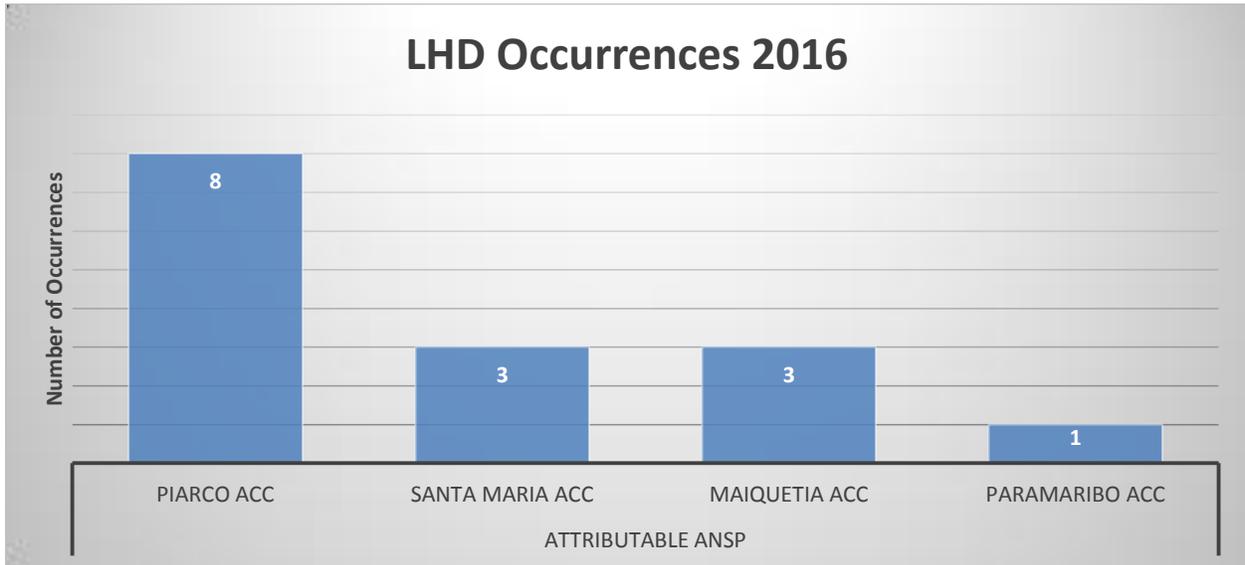
## APPENDIX C

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

ERROR ATTRIBUTED TO:	NO OF ERRORS	RESULTING FROM...	LHD CATEGORY CODE	SECTOR INVOLVED	NON-COORDINATION	ERROR IN COORDINATION
1. PIARCO ACC 04-02-2016 NAX6703	1	SAN JUAN CERAP coordinated NAX6703 with PIARCO ACC at position TIKAL at FL370. After initial contact with PIARCO ACC, the aircraft requested descent north of position TIKAL. PIARCO ACC <b>did not attain approval</b> from SAN JUAN CERAP and descended the aircraft to FL250. NAX6703 crossed position TIKAL descending out of FL335. SAN JUAN CERAP called PIARCO ACC to inform them that they observed the flight descending in SAN JUAN'S airspace.	E	NS Combined		1
2. PIARCO ACC 04-02-2016 FWI541	1	PIARCO ACC <b>inadvertently coordinated</b> FWI541 with NEW YORK ARTCC at position BENJEE maintaining FL350. The flight checked position BENJEE at 2203UTC climbing out of FL290 for FL350. NEW YORK ARTCC called PIARCO ACC to confirm the estimate passed.	E	NS Combined		1
3. PIARCO ACC 27-04-2016 IBE6650	1	IBE6650 was <b>erroneously coordinated</b> with NEW YORK ARTCC at position 18N04755W at 0731UTC FL370. NEW YORK ARTCC called PIARCO ACC to state that IBE6650 checked 18N04755W at 0631UTC.	E	EOS		1
4. PIARCO ACC 23-06-2016 CRL925	1	PIARCO ACC <b>did not coordinate</b> CRL925 with NEW YORK ARTCC at position DRDGE. The aircraft checked position DRDGE at 0020UTC F380.	E	NS Combined	1	
5. PIARCO ACC 16-08-2016 JBU386	1	PIARCO ACC coordinated JBU386 with SAN JUAN CERAP at position ILURI at 1720UTC F340. At the cockpit crew's request, PIARCO ACC cleared the flight to F360 and did not pass the level revision to SAN JUAN CERAP. The flight entered SAN JUAN CERAP'S airspace at F360. SAN JUAN CERAP called PIARCO ACC to inform of the <b>non-revised coordination</b> .	E	NS Combined		1
6. PIARCO ACC 16-11-2016 TAM8199	1	TAM8199 was maintaining FL350 in PIARCO'S airspace, when PIARCO ACC coordinated the flight with PARAMARIBO ACC at position DOLRO at FL330. The flight checked position DOLRO at F350. PARAMARIBO ACC called PIARCO ACC to inform of the <b>erroneous coordination</b> .	E	SES		1
7. PIARCO ACC 07-12-2016 PUE301	1	PIARCO ACC received an estimate on PUE301 via a CPL for position EKNUT from SANTA MARIA OCEANIC. Based on the filed FPL, the flight would have exited PIARCO'S airspace at 1822N04435W, fly for six (6) minutes in NEW YORK'S AIRSPACE and re-entered PIARCO'S airspace at position BUTUX. The estimate for 1822N04435W would have been 1610UTC. PIARCO ACC <b>forgot to coordinate</b> this estimate with NEW YORK ARTCC. After PUE301 entered NEW YORK'S airspace, the ANSP contacted PIARCO ACC to attain information on the flight and this was provided with such.	E	EOS	1	
8. PIARCO ACC 07-12-2016 BWA601	1	BWA601 departed from TTPP and was coordinated climbing to F370 by PIARCO ACC with GEROGETOWN ACC. The flight requested F310 and was so cleared by PIARCO ACC. The revised level <b>was not coordinated</b> with GEROGETOWN ACC. After BWA601 crossed position MINDA, GEROGETOWN ACC contacted PIARCO ACC to confirm the level that the flight was coordinated at.	E	SWS		1
<b>TOTALS</b>	<b>8</b>				<b>2</b>	<b>6</b>

**APPENDIX D**

**LHD Occurrences Reported by Piarco ACC for 2016**



**APPENDIX E**

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

