



Agenda Item 2: Analysis of Large Height Deviations (LHDs)

TREND IDENTIFICATION

(Presented by CARSAMMA)

SUMMARY	
This paper presents a summary of the trends of some LHDs when the aircraft calls from a point other than the coordinated point and also when the aircraft is still climbing or descending.	
References:	
<ul style="list-style-type: none"> • GTE methodology • Large height deviation (LHD) reports, 2014-2015. 	
ICAO strategic objectives:	<i>A - Safety</i>

1. Background

1.1. The CAR/SAM Regional Planning and Implementation Group (GREPECAS) entrusted the Caribbean and South American Monitoring Agency (CARSAMMA) with receiving, analysing and coding LHDs and presenting them at the GTE and at teleconferences for their validation, since they provided information for risk calculation using the qualitative (SMS/SGSO) and quantitative (CRM) methods.

1.2. The purpose of this work is to provide more information to experts in order to further analyse the LHD reports corresponding to 2014 and the first half of 2015 received at CARSAMMA, so as to avoid repeating similar errors, especially at the specified points, and so that the experts of the FIRs involved may take the relevant mitigation action.

2. Discussion

2.1. Some LHD reports of 2014 (first and second semester) and of the first half of 2015 (in bold) showed as coordination error in the final parameter a level other than the coordinated level, that is, traffic was still climbing or descending.

2.2. **Table 1** shows all LHD reports that fall into this category: traffic is coordinated at one level and calls while climbing or descending.

Report	Reporting FIR	FIR that fails	Position
42	Resistencia	Asunción	REPAM
88	Guayaquil	Bogotá	ENSOL
264	Lima	Guayaquil	VAKUD
367	Bogotá	Panama	DAKMO
401	Bogotá	Panama	DAKMO
408	Bogotá	Guayaquil	MOXAS
461	Bogotá	Guayaquil	BOKAN
473	Bogotá	Guayaquil	MOXAS
511	Mérida	Central America	ERBOR
513	Bogotá	Guayaquil	BOKAN
661	Mérida	Central America	TAP
748	Bogotá	Guayaquil	BOKAN
991	Bogotá	Panama	BUSMO
1002	Habana	Central America	SELEK
1109	Bogotá	Panama	BUSMO
1155	Central America	Mérida	TAKUX
1440	Guayaquil	Bogotá	PULTU
22	Resistencia	Asunción	REPAM
61	Guayaquil	Bogotá	UGUPI
71	Bogotá	Guayaquil	BOKAN
89	Bogotá	Panama	BUSMO
206	Guayaquil	Central America	LIXAS
335	Georgetown	Piarco	MINDA
343	Curazao	Santo Domingo	PALAS
367	Port Au Prince	Santo Domingo	RETAK
448	Maiquetía	Barranquilla	ORTIZ
529	Lima	La Paz	ELAKO
654	Mérida	Central America	PENSO

Table 1: LHD reports in which transfers are made at one level and call made while climbing or descending

2.3. As may be seen from Table 1, the FIR that reports more cases is Bogota (11 times). The most frequently reported is Guayaquil (7 times) and the most reported points are BOKAN, DAKMO, MOXAS and BUSMO in 2014. So far in 2015, no point is worth mentioning; only BOKAN and BUSMO appear again as points already reported in 2014. Position REPAM is also noteworthy, since it was reported in 2014 and already has another report for 2015.

2.4. Some LHD reports corresponding to 2014 (first and second semester) and to the first half of 2015 (in bold) showed as coordination error in the final parameter a level other than the coordinated level, that is, the aircraft is arriving on an airway and changes airway without any coordination.

2.5. **Table 2** shows all LHD reports that fall into this category: traffic is coordinated at one point and calls from another.

Report	Reporting FIR	FIR that fails	Coordinated position	Position from which the aircraft calls
119	Bogotá	Guayaquil	ENSOL	UGUPI
144	Bogotá	Guayaquil	VAMOS	MOXAS
148	Amazónica	Bogotá	BRACO	MTU
215	Panamá	Bogotá	TOKUT	BUXOS
254	Bogotá	Guayaquil	ANGEL	UGUPI
260	Bogotá	Guayaquil	MOXAS	VAMOS
267	Panama	Bogotá	BUXOS	TOKUT
299	Bogotá	Guayaquil	MOXAS	VAMOS
312	Bogotá	Guayaquil	MOXAS	VAMOS
364	Bogotá	Guayaquil	PULTU	BOKAN
374	Bogotá	Guayaquil	MOXAS	VAMOS
416	Bogotá	Guayaquil	MOXAS	VAMOS
419	Bogotá	Guayaquil	ITATA	UGUPI
426	Central America	Mérida	PENSO	ANIKO
541	Guayaquil	Bogotá	UGUPI	ENSOL
547	Bogotá	Guayaquil	ENSOL	UGUPI
558	Mérida	Central America	CTM	SATOS
591	Guayaquil	Bogotá	UGUPI	ENSOL
756	Guayaquil	Bogotá	UGUPI	ANRAX
922	Bogotá	Panama	BUXOS	TOKUT
924	Bogotá	Panama	BUXOS	TOKUT
930	Amazónica	Maiquetía	VUMPI	PAKON
1004	Guayaquil	Bogotá	ANGEL	BOKAN
1053	Guayaquil	Lima	ARNEL	VAKUD
1061	Mérida	Central America	AVRIS	NALDA
1077	Guayaquil	Bogotá	ITATA	UGUPI
1089	Bogotá	Panama	BUXOS	PUDAK
1124	Santo Domingo	Port Au Prince	ETBOD	PIGBI
1180	Guayaquil	Bogotá	PULTU	BOKAN
1198	Guayaquil	Bogotá	BOKAN	ENSOL
1211	Bogotá	Amazónica	ABIDE	BRACO
1232	La Paz	Asunción	OROMU	MARIA
1238	Bogotá	Guayaquil	VAMOS	MOXAS
1311	Guayaquil	Bogotá	ANGEL	ENSOL
1334	Port Au Prince	Santo Domingo	DCR	ETBOD
1337	La Paz	Lima	DOBNI	ELAKO
1374	Barranquilla	Kingston	OTAMO	KILER
1377	Mérida	Central America	TAP	ALSAL
1426	Guayaquil	Central America	UGADI	OSELO
1431	Guayaquil	Lima	EVLIM	LOBOT

Report	Reporting FIR	FIR that fails	Coordinated position	Position from which the aircraft calls
<u>1451</u>	La Paz	Lima	RAXUN	OBLIR
<u>1491</u>	Central America	Panama	FALLA	ANSON
<u>1506</u>	Port Au Prince	Santo Domingo	ONPAD	OSIDU
<u>1515</u>	La Paz	Amazónica	MIBOL	UDIDI
<u>1552</u>	Guayaquil	Central America	UGADI	OSELO
30	Montevideo	Curitiba	UGELO	BGE
100	Curitiba	La Paz	SIDAK (UL216)	SIDAK (UM402)
143	Kingston	Panama	ARNAL	DUXUN
192	Curazao	Santo Domingo	IRGUT	VESKA
260	Port Au Prince	Miami	BODLO	JOSES
348	Curazao	Santo Domingo	VESKA	IRGUT
405	Mérida	Central America	GABEN	TAP
439	Guayaquil	Bogotá	UGUPI	ITATA
440	Guayaquil	Bogotá	ANGEL	ENSOL
454	La Paz	Lima	RAXUN	OBLIR
486	Guayaquil	Bogotá	ENSOL	ANGEL
601	Lima	La Paz	ELAKO	ORALO
606	Mérida	Central America	NOTOS	ANREX

Table 2: LHD reports of transfers at one level and calls from another

2.6. As may be seen in Table 2, the FIRs that submit more reports in 2014 were: Bogota (16 times), followed by Guayaquil (12 times). The most frequently reported were: Guayaquil (12 times), followed by Bogota (11 times), and the most frequently reported points were MOXAS, swapped for VAMOS and *vice versa*, as well as BUXOS, swapped for TOKUT and *vice versa*. So far in 2015, the FIR that reported the largest number of these cases was Guayaquil (3 times) with error made by Bogotá (3 times), noting swaps between IRGUT and VESKA and *vice versa*, and between ENSOL and ANGEL and *vice versa*.

2.7. Some LHD reports corresponding to 2014 (first and second semester) and to the first half of 2015 (in bold) showed as coordination error the misunderstanding of level or time, that is, coordination is made, but collation is done improperly.

2.8. **Table 3** shows all LHD reports that fall into this category: traffic is coordinated at one level or time but since it was wrongly annotated, it gave rise to an LHD report.

Report	Reporting FIR	FIR that fails	Coordinated time or level	Annotated time or level
852	Central America	Havana	20:25	22:55
1026	Central America	Mérida	370	350
1036	Havana	Central America	360	380
1045	Antofagasta	Córdoba	09:13	09:33
1051	Guayaquil	Lima	400	340
1224	Central America	Mérida	370	330
156	Kingston	Panama	340	300
219	Mérida	Central America	340	300
423	Antofagasta	Lima	20:45	21:45
582	Mérida	Central America	350	360

Table 3: LHD reports where transfer was made but was wrongly understood

2.9. As may be seen in Table 3, the FIR that reported more cases in 2014 was Central America (3 times). The most frequently reported was Mérida (2 times). So far in 2015, the FIR that reported more cases was Mérida (2 times) with error made by Central America (2 times).

3. **Suggested action**

3.1. The Meeting is invited to:

- a) take note of the information provided in this working paper, and the States willing to do so may use this information as a reference for mitigating their LHDs; and
- b) submit such decision to the members of the GTE for their knowledge and approval.