



CAR/SAM Planning and Implementation Regional Group (GREPECAS)  
**Nineteenth Scrutiny Working Group Meeting**  
Barranquilla, Colombia, 18 to 22 November 2019

**Agenda Item 3: Review of the results of the analysis of Large Height Deviation (LHD)**

**a) Indicator data on points of greatest occurrence of LHD events**

**SAFETY ASSESSMENT OF RVSM AIRSPACE IN CAR/SAM FIRs**

(Presented by CARSAMMA)

<b>SUMMARY</b>	
This working paper presents a summary of large height deviation (LHD) reports received by CARSAMMA, and their analysis using the SMS methodology advocated by ICAO and endorsed by GREPECAS, which recommended its use by CARSAMMA in the CAR/SAM Regions.	
<b>Action:</b>	That States use the information herein for the adoption of appropriate mitigating actions.
<i>Strategic objective:</i>	<ul style="list-style-type: none"><li>• Safety</li></ul>
<i>References:</i>	<ul style="list-style-type: none"><li>• ICAO SMS Manual; and</li><li>• Report of large height deviations (LHDs) in 2017.</li></ul>

**1. Background**

1.1. The CAR/SAM Regional Planning and Implementation Group (GREPECAS) entrusted the Caribbean and South American Monitoring Agency (CARSAMMA) with the implementation of the safety management systems (SMS) methodology for analysing LHDs.

1.2. SMS is used for estimating the system risk value.

1.3. An extremely important new application of the methodology for SMS LHD analysis is the risk assessment and quick trend identification system and the critical points where risk occurs, thus reducing system safety calculation time.

1.4. The purpose of this work is to provide a summary of the safety assessment conducted in RVSM airspace of CAR/SAM FIRs. The safety assessment was conducted for an operational period of 12 consecutive months.

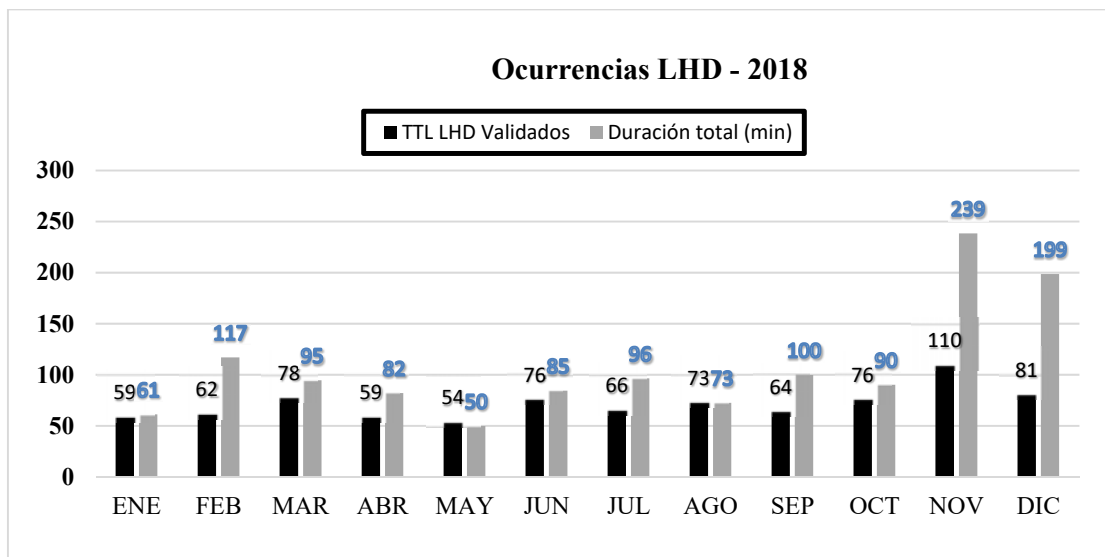
**2. Context**

2.1. A cumulative series of LHD reports covering a period of 12 months between January and December 2018 was used in this safety assessment.

2.2. **Table 1** and **Graph 1** summarise the validated LHD occurrences received by CARSAMMA and their duration (in minutes), by month.

Month	Number of LHDs	Total Duration (min.)	Average Duration (min.)	Average Risk	Highest Risk
January	59	61	1.04	21.2	45
February	62	117	1.89	22.2	35
March	78	95	1.21	21.7	45
April	59	82	1.39	23.8	51
May	54	50	0.92	21.4	45
June	76	85	1.11	22.3	60
July	66	96	1.46	20.7	55
August	73	73	1.00	25.6	<b>75</b>
September	64	100	1.56	23.8	55
October	76	90	1.19	26.2	55
November	110	239	2.17	23.0	55
December	81	199	2.45	27.9	55
Total	<b>858</b>	<b>1,286</b>	<b>1.50</b>	<b>23.4</b>	

*Table 1 - LHD occurrences, with duration, average duration, average risk and highest risk, by month*



*Graph 1 - LHD occurrences/duration, by month*

2.3. In November, three situations occurred which added up to 123 minutes of the total 239 minutes of failures occurred during that month. One was in the Comodoro Rivadavia FIR, Report 870 (VR = 41) due to a 43-minute coordination failure in the Mount Pleasant APP, and the other two in the Maiquetia FIR: Report 882 (VR = 34) and Report 883 (VR = 39) due to a coordination failure in the Amazon ACC, of 40 minutes each. In December, two situations occurred that, when added together, lasted 87 out of the total of 199 minutes of failures in that month. The two reports occurred in the Comodoro Rivadavia FIR, due to a coordination failure in the Mount Pleasant APP, Report 897 (VR = 46) and Report 923 (VR = 46).

2.4. LHD reports were issued every month in 2018, in which the Lima FIR experienced risks due to bad coordination, lack of coordination, or handoff problems due to equipment failure/error in the Bogota ACC, resulting in very high VR. The largest occurred in August, with VR = 75 (report 574), and the second largest in June, VR = 60 (report 377). All these reports occurred at PLG (Puerto

Leguizamo), the most frequent reporting point in 2018. **Table 2** below shows all the reports occurred in this TCP, their dates, codes and VR.

REPORT NUMBER	REPORTING BODY (FIR NAME)	FIR or PERSON COMMITTING THE FAULT / ERROR	DATE OF EVENT	INDICATOR	ACFT TYPE	TIME OF EVENT	CODE	RISK VALUE
57	LIMA	BOGOTA	28/01/18	TPU971	A320	00:09	E1	35
67	LIMA	BOGOTA	29/01/18	LAN575	B788	16:41	E2	45
75	LIMA	BOGOTA	04/02/18	LPE2393	A320	18:42	E2	30
77	LIMA	BOGOTA	05/02/18	CMP124	B738	02:07	E1	35
113	LIMA	BOGOTA	15/02/18	TPU145	A320	13:56	E1	35
156	LIMA	BOGOTA	07/03/18	TPU971	A320	23:54	E1	35
173	LIMA	BOGOTA	14/03/18	CMP454	B738	05:10	E2	45
194	LIMA	BOGOTA	19/03/18	ROI1510	B734	02:14	E2	45
229	LIMA	BOGOTA	31/03/18	TPU971	A320	23:54	E2	45
233	BOGOTA	LIMA	01/04/18	LPE2452	A320	15:51	E1	20
234	LIMA	BOGOTA	01/04/18	TPU4211	A332	17:33	E1	35
246	LIMA	BOGOTA	08/04/18	LAN591	B789	19:21	E1	35
250	LIMA	BOGOTA	10/04/18	AVA025	B788	00:15	E2	30
261	BOGOTA	LIMA	17/04/18	CMP245	B738	19:06	E2	25
296	LIMA	BOGOTA	04/05/18	ETR8601	B733	00:56	E1	35
302	LIMA	BOGOTA	06/05/18	LPE2489	A320	01:55	E1	35
324	LIMA	BOGOTA	18/05/18	CMP207	B738	22:59	E2	45
351	LIMA	BOGOTA	29/05/18	ARG1371	A332	16:37	E1	35
377	LIMA	BOGOTA	09/06/18	LPE2447	A320	00:57	E2	60
444	LIMA	BOGOTA	03/07/18	LPE2483	A319	00:33	E2	55
450	LIMA	BOGOTA	07/07/18	LPE2483	A320	01:35	E2	30
498	LIMA	BOGOTA	25/07/18	LPE2453	A320	00:58	E2	45
524	LIMA	BOGOTA	06/08/18	AVA051	A320	23:38	F	35
548	LIMA	BOGOTA	14/08/18	LCO1101	B763	12:25	F	35
556	LIMA	BOGOTA	16/08/18	KYE551	MD11	01:52	F	55
565	LIMA	BOGOTA	18/08/18	CMP283	B738	21:58	F	55
572	LIMA	BOGOTA	22/08/18	CMP279	B738	19:00	F	55
574	LIMA	BOGOTA	23/08/18	LPE2483	A320	00:35	F	75
600	LIMA	BOGOTA	04/09/18	AVA241	A320	20:30	F	55
613	LIMA	BOGOTA	08/09/18	LPE2447	A320	01:12	F	55
614	LIMA	BOGOTA	08/09/18	LPE2483	A319	01:34	F	55
633	LIMA	BOGOTA	18/09/18	LPE2447	A320	01:01	F	55
676	LIMA	BOGOTA	06/10/18	LPE2393	A320	19:02	F	55
679	LIMA	BOGOTA	07/10/18	LPE2453	A320	00:24	F	55
711	LIMA	BOGOTA	15/10/18	CJT7145	B763	15:17	F	55
733	LIMA	BOGOTA	21/10/18	TPU143	A320	21:46	F	55
736	LIMA	BOGOTA	24/10/18	BAW2239	B772	23:18	F	55
748	LIMA	BOGOTA	28/10/18	TPU143	A320	21:37	F	55
755	LIMA	BOGOTA	31/10/18	CMP363	B738	00:24	F	55
771	LIMA	BOGOTA	04/11/18	LPE2449	A320	02:41	F	55
783	LIMA	BOGOTA	06/11/18	GLG8382	A320	03:19	F	55
805	LIMA	BOGOTA	11/11/18	LPE2393	A319	19:12	F	55
817	LIMA	BOGOTA	14/11/18	LPE2447	A320	01:04	F	55
891	LIMA - (BOGOTA)	BOGOTA	02/12/18	TPU143	A320	21:40	E2	45
909	LIMA	BOGOTA	08/12/18	TPU143	A320	21:33	F	55

REPORT NUMBER	REPORTING BODY (FIR NAME)	FIR or PERSON COMMITTING THE FAULT / ERROR	DATE OF EVENT	INDICATOR	ACFT TYPE	TIME OF EVENT	CODE	RISK VALUE
936	LIMA	BOGOTA	18/12/18	TPU971	A320	00:16	F	55
937	LIMA	BOGOTA	18/12/18	LPE2447	A319	01:06	F	55
939	LIMA	BOGOTA	18/12/18	CMP244	B738	04:41	F	55
942	LIMA	BOGOTA	19/12/18	ETR8601	B733	13:17	F	55
949	LIMA	BOGOTA	21/12/18	TPU147	A320	21:33	F	55
950	LIMA	BOGOTA	22/12/18	ROI1523	B734	08:52	F	55
957	LIMA	BOGOTA	25/12/18	LPE2483	A320	00:46	E1	35
960	LIMA	BOGOTA	25/12/18	CMP101	B738	22:25	E2	45
961	LIMA	BOGOTA	25/12/18	CMP127	B737	22:45	E2	45

**Table 2. LHD occurrences in the most frequently reported point and with the highest VR**

Table 3 below highlights flights that were most involved in these reports.

DATE OF EVENT	FLIGHT NUMBER	AIRCRAFT REGISTRATION	AIRCRAFT TYPE	TIME OF EVENT	REPORT CODE	RISK VALUE
04/05/18	ETR8601	YV625T	B733	00:56	E1	35
19/12/18	ETR8601	YV625T	B733	13:17	F	55
04/02/18	LPE2393	CCBAB	A320	18:42	E2	30
06/10/18	LPE2393	CCBAJ	A320	19:02	F	55
11/11/18	LPE2393	CCBCE	A319	19:12	F	55
09/06/18	LPE2447	CCBAA	A320	00:57	E2	60
08/09/18	LPE2447	CCBAF	A320	01:12	F	55
18/09/18	LPE2447	CCBAM	A320	01:01	F	55
14/11/18	LPE2447	CCCQM	A320	01:04	F	55
18/12/18	LPE2447	CCCPI	A319	01:06	F	55
25/07/18	LPE2453	CCBAL	A320	00:58	E2	45
07/10/18	LPE2453	CCBAF	A320	00:24	F	55
03/07/18	LPE2483	CCCPM	A319	00:33	E2	55
07/07/18	LPE2483	CCCQM	A320	01:35	E2	30
23/08/18	LPE2483	CCBAM	A320	00:35	F	75
08/09/18	LPE2483	CCBCE	A319	01:34	F	55
25/12/18	LPE2483	CCBFO	A320	00:46	E1	35
21/10/18	TPU143	N498TA	A320	21:46	F	55
28/10/18	TPU143	N684TA	A320	21:37	F	55
02/12/18	TPU143	N680TA	A320	21:40	E2	45
08/12/18	TPU143	N491TA	A320	21:33	F	55
28/01/18	TPU971	N745AV	A320	00:09	E1	35
07/03/18	TPU971	N496TA	A320	23:54	E1	35
31/03/18	TPU971	N748AV	A320	23:54	E2	45
18/12/18	TPU971	N683TA	A320	00:16	F	55

**Table 3. Most involved flights**

2.5. In several months of the year, long duration LHDs greater than, or equal to, five (5) minutes were reported: in February, in the Antofagasta FIR (6 minutes), due to bad coordination of the Lima ACC; in March, in the Havana FIR (5 minutes), due to AIDC failure, and in the La Paz FIR (12 minutes), due to bad coordination of the Amazon ACC; in April, 2 reports (16 minutes and 7 minutes) in the Asunción FIR, due to lack of coordination on the part of the La Paz ACC, and in the La Paz FIR (6 minutes), due to lack of coordination on the part of the Curitiba ACC.

2.6. Likewise, in June, in the Curitiba FIR (15 minutes), due to bad coordination in the Resistencia ACC; in July, in the Antofagasta FIR (5 minutes), due to bad coordination in the Lima ACC; in the Central America FIR (35 minutes), due to bad coordination in the Guayaquil ACC; in September, in the Cordoba FIR (30 minutes), due to pilot fault; and in October, in the Asuncion FIR (6 minutes), due to bad coordination on the part of the La Paz ACC.

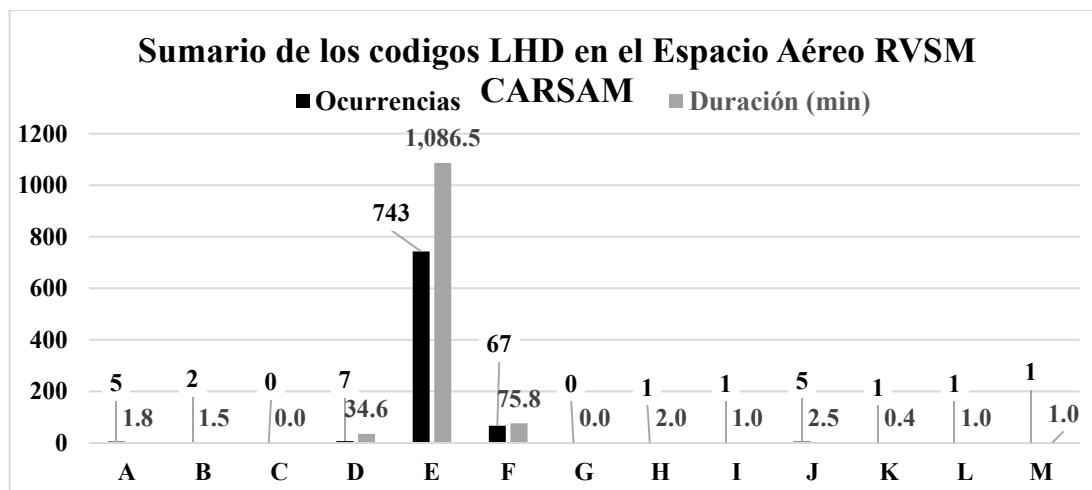
2.7. Also, in November, in the Curacao FIR (7 minutes), due to lack of coordination by the Kingston ACC; in the Comodoro Rivadavia FIR (43 minutes), due to lack of coordination by the Mount Pleasant APP; and in the Maiquetia FIR, two 40-minute reports, due to bad coordination by the Amazonico ACC. In December, in the Asuncion FIR (6 minutes), due to bad coordination on the part of the La Paz ACC; in the Comodoro Rivadavia FIR, 2 reports (42 and 45 minutes), due to lack of coordination on the part of the Mount Pleasant APP; in the Resistencia FIR (10 minutes), due to lack of coordination on the part of the La Paz ACC; and in the Antofagasta FIR (5 minutes), due to bad coordination on the part of the Lima ACC.

2.8. Table 4 and Graph 2 summarise the number of LHD occurrences in CAR/SAM RVSM airspace, their duration (in minutes), and the number of flight levels crossed without authorisation, by LHD code, between 1 January and 31 December 2018, inclusive.

LHD code	Description of LHD codes	Number of LHD occurrences	Duration of LHD (min)	Levels crossed without authorisation
<b>A</b>	The flight crew failed to climb/descend the aircraft as cleared.	5	1.8	2
<b>B</b>	The flight crew climbed/descended without ATC clearance.	2	1.5	3
<b>C</b>	Incorrect operation or interpretation of airborne equipment (e.g. malfunction of operational FMS, incorrect transcription of ATC clearance or re-clearance, flight plan followed instead of ATC clearance, original clearance followed instead of re-clearance, etc.).	0	0.0	0
<b>D</b>	ATC loop error (e.g., ATC issues, incorrect clearance or flight crew misunderstands clearance message).	7	34.6	4
<b>E</b>	ATC-to-ATC coordination errors concerning transfer or control responsibility due to human factors (e.g., late or inexistent coordination; incorrect estimated/actual time; flight level, ATS route, etc., in conflict with the agreed parameters).	743	1,086.5	827
<b>F</b>	ATC-to-ATC coordination errors concerning transfer or control responsibility due to equipment failure or technical issues.	67	75.8	29
<b>G</b>	Deviation due to aircraft contingency leading to sudden inability to maintain assigned flight level (e.g., pressurisation failure, engine failure).	0	0.0	0
<b>H</b>	Deviation due to airborne equipment failure leading to unintentional or undetected change of flight level.	1	2.0	1
<b>I</b>	Deviation due to turbulence or other weather-related cause.	1	1.0	0
<b>J</b>	Deviation due to TCAS resolution advisory; flight crew correctly following a TCAS resolution advisory.	5	2.5	2
<b>K</b>	Deviation due to TCAS resolution advisory; flight crew incorrectly following a TCAS resolution advisory.	1	0.4	1

LHD code	Description of LHD codes	Number of LHD occurrences	Duration of LHD (min)	Levels crossed without authorisation
L	A non-RVSM aircraft is provided with RVSM separation (e.g., flight plan indicating RVSM approval, but aircraft not approved; ATC misinterprets flight plan)	1	1.0	0
M	Other – this includes flights operating (including climbing/descending) in airspace where flight crews are unable to establish normal air-ground communications with the responsible ATS unit.	1	1.0	0
<b>Total</b>	<b>(Jan 2018 – Dec 2018)</b>	<b>834</b>	<b>1,208.1</b>	<b>869</b>

Table 4. Summary of LHD occurrences and duration, by LHD code

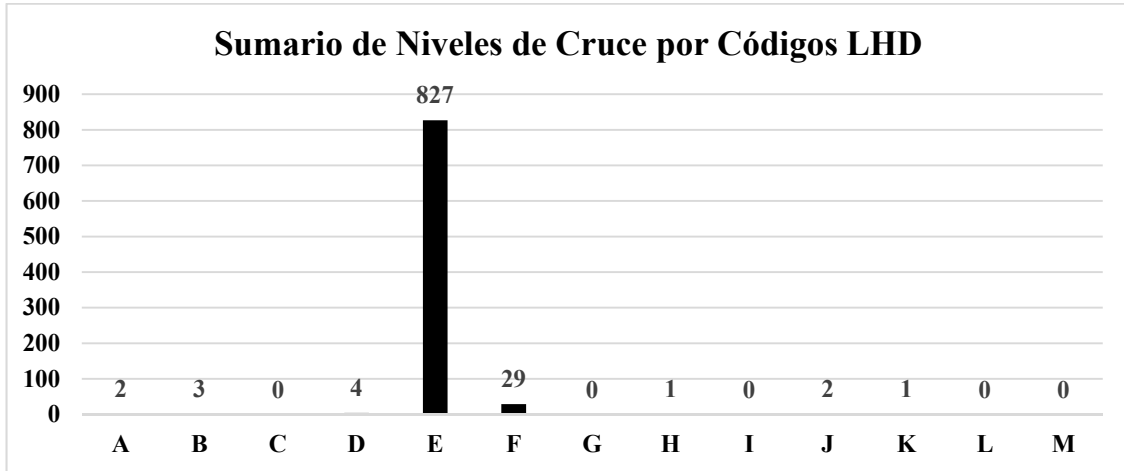


Graph 2. Summary of LHD occurrences, by code

2.9. E-coded LHDs (coordination error between ATC units, inexistent and/or bad coordination) were, once again, the most frequent in 2018, with 743 events, followed by codes “F” (67), “D” (8), “A” (5), “J” (5), “B” (2), “H”, “I”, “K”, “L” and “M” (1). The high number of E-coded LHDs shows the need for better coordination between adjacent ATC units, which could be achieved through sensitisation and training of controllers in coordination issues.

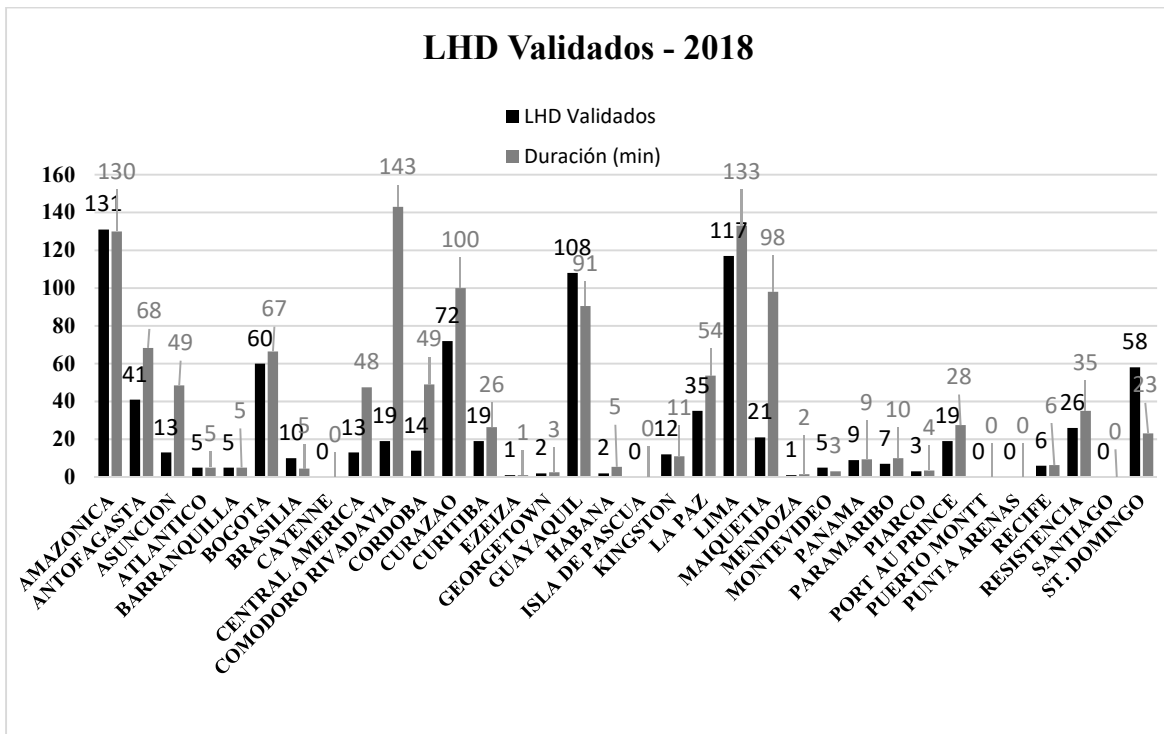
2.10. Likewise, Graph 2 shows that, in terms of duration, E-coded LHDs stood out in this analysis. They are the ones that most compromise air navigation safety, with a total duration of 1,086.5 minutes, or 18.1 hours. This is one of the worst air traffic incidents, since the aircraft involved were not expected in that position (E2), or at that level (E1).

2.11. **Graph 3** shows LHDs, per code, involving crossing of levels without air traffic control clearance. In this case, E-coded LHDs prevailed, with 827 level crossings.



Graph 3 - Summary of LHDs, by levels crossed

2.12. **Graph 4** shows all validated LHDs, by FIR. It should be noted that the Lima and Guayaquil FIRs have the highest absolute duration in minutes, thereby exposing aircraft to greater operational risk.



Graph 4 - Summary of LHD occurrences, by FIR

### 3. Assessment of risk value (VR)

3.1. This section updates the results of the safety assessment of RVSM airspace in CAR/SAM FIRs. Accordingly, the methodology for assessing risk value (SMS) was applied for assessing the internationally accepted safety of this airspace.

3.2. Estimating risk value parameters - The initial numbers and material for estimating the values of each parameter of the internationally accepted risk value (VR), which were used for the

safety assessment of RVSM airspace are summarised in the following formula and described in **Table 5**.

$$VR = (P \times D \times S) + R + W + T, \text{ where:}$$

Parameter	Description	Value
<b>VR</b>	Risk value	To be calculated
<b>P</b>	Probability of the position	Varies from 1 to 5
<b>D</b>	Duration of the event	Varies from 1 to 3
<b>S</b>	Severity of the event	Varies from 1 to 5
<b>R</b>	With or without RADAR/ADS	With=5 or without=10
<b>W</b>	Weather conditions	VMC=0 or IMC=5
<b>T</b>	Other traffic (if any)	The range varies from 5 (with radar) to 10 (without radar)
	<b>TOTAL</b>	<b>Maximum: 100</b>

*Table 5. Calculation of risk value parameters*

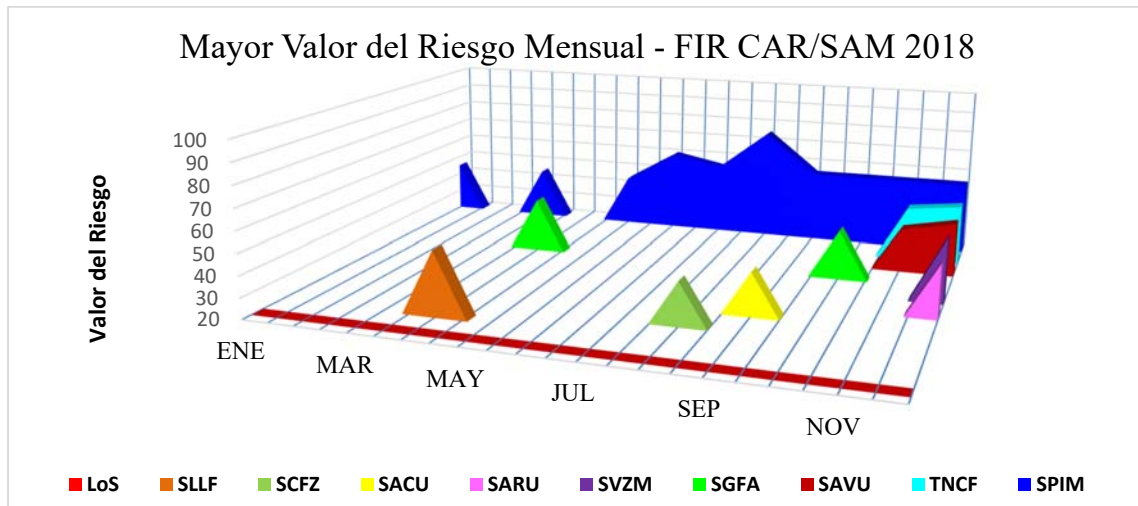
3.3. Safety assessment - The CAR/SAM FIR airspace safety assessment results are shown in **Table 6** and **Graph 5** (FIRs with LHDs of a VR  $\geq 41$ ). The level of safety (**LoS**) limit was established at the ICAO GTE 11 meeting held in 2011 (Lima, Peru).

	LoS	SLLF	SCFZ	SACU	SARU	SVZM	SGFA	SAVU	TNCF	SPIM
<b>JAN</b>	20									45
<b>FEB</b>	20									
<b>MAR</b>	20									45
<b>APR</b>	20	51					46			
<b>MAY</b>	20									45
<b>JUN</b>	20									60
<b>JUL</b>	20									55
<b>AUG</b>	20		41							75
<b>SEP</b>	20			41						55
<b>OCT</b>	20						44			55
<b>NOV</b>	20							41	46	55
<b>DEC</b>	20				46	51		46	49	55

*Table 6. Estimating the highest risk value for the LHD, by month*

3.4. In January, the Lima FIR (SPIM) had the highest VR (45). In February, the highest VR remained under 41. In March, the Lima FIR (SPIM) had the highest VR (45). In April, the La Paz FIR (SLLP) had the highest VR (516). In May, the Lima FIR (SPIM) had the highest VR (45). In June, the Lima FIR (SPIM) had the highest VR (60). In July, the Lima FIR (SPIM) had the highest VR (55). In August, the Lima FIR had the highest VR (75). In September, the Lima FIR (SPIM) had the highest VR (55). In October, the Lima FIR (SPIM) had the highest VR (55). In November, the Lima FIR (SPIM) had the highest VR (55). In December, the Lima FIR (SPIM) had the highest VR (55).

3.5. The graph below shows the highest risk values for all months, based on LHD reports between 1 January and 31 December 2018.



Graph 5 - Highest risk values for FIRs in CAR/SAM RVSM airspace. The red line is the VR of the LoS (20)

4. LHD safety analysis (SMS)

4.1. Appendix A describes all LHD reports whose failures or operational errors have been assessed in teleconferences or analysed by CARSAMMA in conjunction with the points of contact (PoCs) of the FIRs involved, as having the highest risk value (> 20) during the 12 months of 2018.

4.2. Table 7 shows the FIRs that were exposed to, and generated, risk.

CAR/SAM FIR	Exposed to Risk	%	Generated Risk	%
AMAZONICA	131	15.7	21	
ANTOFAGASTA	41	4.9	14	
ASUNCION	13		13	
ATLANTICO	5		3	
BARRANQUILLA	5		57	10.7
BOGOTA	60	7.2	172	21.1
BRASILIA	10		28	
CAYENNE	0		0	
CENTRAL AMERICA	13		23	
COMODORO RIVADAVIA	19		0	
CORDOBA	14		22	
CURAZAO	72	8.6	40	4.9
CURITIBA	19		13	
EZEIZA	1		20	
GEORGETOWN	2		6	
GUAYAQUIL	108	12.9	48	5.9
HABANA	2		2	
ISLA DE PASCUA	0		0	
KINGSTON	12		13	
LA PAZ	35	4.2	51	6.3
LIMA	117	14.0	58	7.1
MAIQUETIA	21		64	7.9
MENDOZA	1		0	
MONTEVIDEO	5		7	
PANAMA	9		43	5.3
PARAMARIBO	7		11	

CAR/SAM FIR	Exposed to Risk	%	Generated Risk	%
PIARCO	3		16	
PORT AU PRINCE	19		26	
PUERTO MONTT	0		0	
PUNTA ARENAS	0		1	
RECIFE	6		3	
RESISTENCIA	26		7	
SANTIAGO	0		0	
ST. DOMINGO	58	6.9	31	
<b>TOTAL</b>	<b>834</b>		<b>813</b>	
<b>NOTE:</b> Total reports by CAR FIRs: 179; by SAM FIRs: 655.				
<b>OTHER ADJACEN FIRS (*) (**)</b>				
	<b>Exposed to Risk</b>		<b>Generated Risk</b>	
ABIDJAN	0		2	
DAKAR	2		0	
EQUIPO	0		1	
MERIDA	1		1	
MIAMI	1		10	
MOUNT PLEASANT (*)	0		8	
NEW YORK	4		1	
PILOTO (**)	0		16	
SAN JUAN	16		6	
<b>TOTAL</b>	<b>24</b>		<b>45</b>	

**Table 7. FIRs that were exposed to, and generated, risk (LHDs) in 2018**

4.3. LHD Report 574 that was filed in August 2018 accounted for 4.0% of the risk assessment for that month, with a VR = 75, the highest in the sample.

4.4. The Amazonica FIR appears 131 times; the Lima FIR, 117 times; the Guayaquil FIR, 108 times; the Curacao FIR, 72 times; the Bogota FIR, 60 times; the Santo Domingo FIR, 58 times; the Antofagasta FIR, 41 times; and the La Paz FIR, 35 times, in LHD reports filed by adjacent FIRs, since they contributed to the generation of risk in RVSM airspace of the reporting FIRs.

4.5. The Bogota FIR appears 172 times; the Maiquetia FIR, 64 times; the Lima FIR, 59 times; the Barranquilla FIR, 57 times; the La Paz FIR, 50 times; the Guayaquil FIR, 48 times; the Panama FIR, 43 times; and the Curacao FIR, 40 times in the generation of risk to adjacent FIRs.

4.6. Although the Ezeiza FIR filed only one LHD report, it generated 20 cases of risk for adjacent FIRs, especially for the Comodoro Rivadavia FIR, with 10 errors/failures; then, for the Resistencia FIR, with 8 errors/failures, and for the Cordoba and Montevideo FIRs, with 1 error/failure to each.

4.7. Secondly, although the Barranquilla FIR only filed 5 LHDs, it generated 57 cases of risk for adjacent FIRs, mainly for the Curacao FIR with 40 errors/failures; then for the Maiquetia FIR with 12 errors/failures, and for the Kingston FIR with 5 errors/failures.

4.8. In the third place, the Panama FIR filed 4 LHD events, generating 43 cases of risk for adjacent FIRs, especially for the Bogota FIR with 35 errors/failures; then for Central America FIR with 6 errors/failures; and for the Kingston FIR with 2 errors/failures.

4.9. In the fourth place, the PIARCO FIR filed 3 LHD events by adjacent FIRs; however, it generating 16 cases of risk for the adjacent FIRs, mainly for the San Juan FIR with 9 errors/failures; the Paramaribo FIR with 3 errors/failures; the New York FIR with 2 errors/failures; and the Dakar and Georgetown FIRs with 1 error/failure each.

4.10. Part of the analytical process includes a detailed review of certain operational errors/failures in order to identify the contributing factors and ensuring that the safety authorities of CAR/SAM FIRs apply procedures and processes to reduce the probability of recurrence.

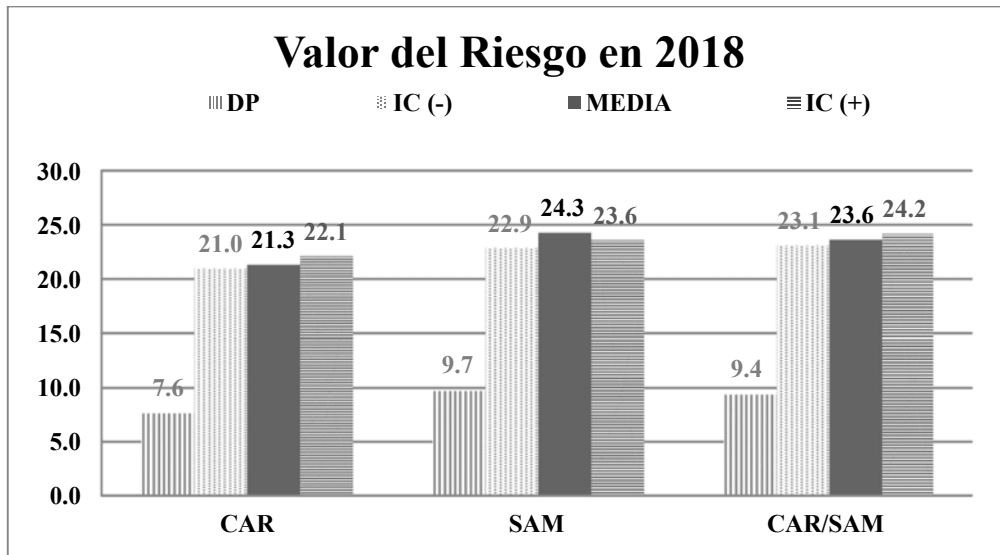
4.11. In the case of RVSM airspace, CARSAMMA assessed the individual operational errors identified in the LHD reports submitted by the 34 FIRs within its geographical area of coverage, grouping them by FIR and then by State, using the following statistical tools:

**Average** of risk value  $\Rightarrow M = \sum VR / n$  ;

**Standard deviations**  $\Rightarrow \sigma = \sqrt{\frac{1}{N} \sum_{i=1}^N (x - \bar{x})^2}$  ; and

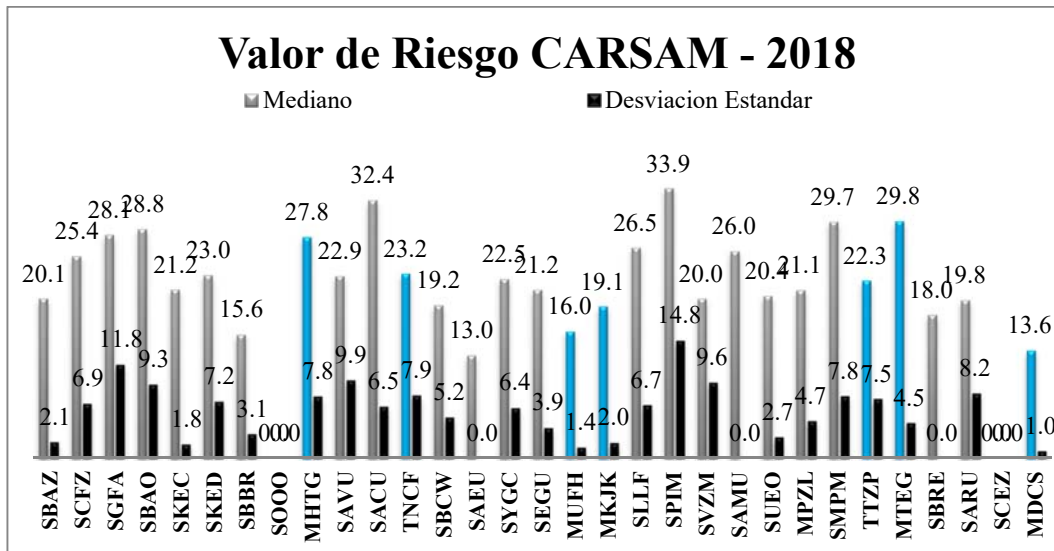
**Confidence interval** for analysis at 95% (= 1.96).

4.12. **Graph 6** shows all these values, the average, the standard deviation and the confidence interval of risk values, assigned to the operational errors reported in large height deviations in all the FIRs involved in the 2017 LHD data analysis.



*Graph 6 - Average value, standard deviation and confidence interval of the CAR and SAM Regions*

4.13. **Graph 7** shows the average values and standard deviations obtained from this analysis, with risk value contributions assigned to operational errors of large height deviations, by FIR involved in the 2018 LHD data analysis.



Graph 7 - Contribution of average values and standard deviations, by FIR involved in the risk

4.14. Graph 8 below shows the geographical location of risk points (hot spots, VR ≥ 41) in LHD reports, with 13 points and 50 reports in the data set for 12 consecutive months in 2018, issued by CAR/SAM FIRs. The image is intended to provide a means to identify specific risk points related to RVSM operations.

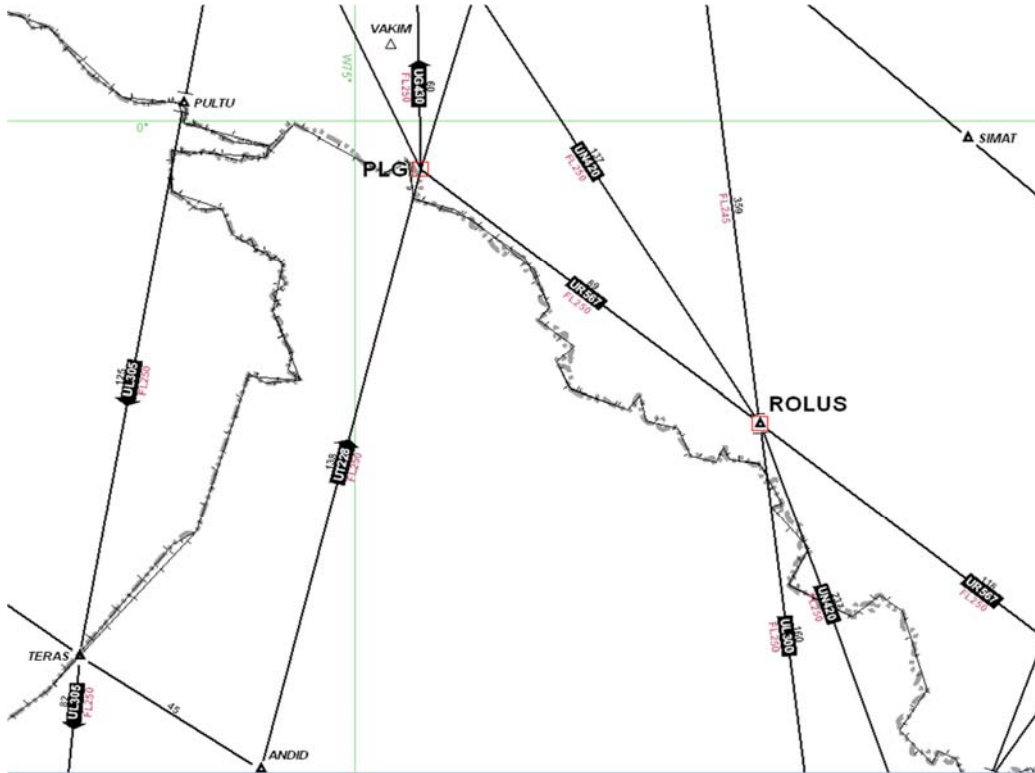


Graph 8 - CAR/SAM FIRs - RVSM large height deviation (LHD) risk points  
January - December 2018

4.15. The black dot in the above graph shows the place where the LHDs had the highest VR (75), due to failure to review the estimate of the Bogota Control Centre with the Lima Control Centre

and, in addition, the AIDC transfer was in the pre-operational stage. Only 37 reports had VR ≥ 41 at this point.

On 28 April 2019, information was received from the Bogota FIR that, as of 26 April, an amendment entered into force in which, according to the Lima FIR, the traffic previously routed through PLG was now being routed via ROLUS (in both directions). Therefore, PLG remained South - North only, in order to eliminate the risk in this sector (according to **Graph 9**).



**Graph 9. New circulation between the Lima and Bogota FIRs, involving the PLG and ROLUS TCPs**

4.16. It may be noted that in 2018, there were some reports with high values, mainly between the Mount Pleasant APP (EGYP) and the Comodoro Rivadavia FIR; between the Asuncion and the La Paz FIRs; between the Resistencia and the La Paz FIRs; and between the La Paz and the Curitiba FIRs. In 2018, the La Paz FIR filed 35 cases of risk and generated 51 risks to its adjacent FIRs. It should also be noted that there were several reports between the Antofagasta and Córdoba FIRs; the Curacao and Kingston FIRs, the Curacao and Barranquilla FIRs, and the Maiquetia and San Juan FIRs. There was also an increase in the number of reports involving FIRs that were not previously involved, which generated a VR equal to, or greater than, 41.

4.17. **Table 8** below shows some points and number of reports with a VR equal to, or greater than, 39 points, number of times these were reported, maximum VRs, and the FIRs involved.

**Remarks:**

- 1) The point marked with (\*\*) is located within the FIR.
- 2) In the column **FIRs Involved**, the first FIR mentioned is the one suffering the risk.
- 3) There is a total of 76 reports with VR equal to, or greater than, 39, in a universe of 227 reports, at 29 points.

Points	Number of Reports	Risk Value (MAX)	FIRs Involved
2500S 03035W	1 / 1	39	Atlántico X Montevideo
4718S 06740W	1 / 1	41	Comodoro Rivadavia X CTR Mount Pleasant
5000S 05600W	1 / 5	46	Comodoro Rivadavia X CTR Mount Pleasant
ABIDE	1 / 4	39	Bogotá X Amazónica
ABIDE	0 / 26	-	Amazónica X Bogotá
ANRAX	2 / 2	39	Bogotá X Guayaquil
ANRAX	0 / 3	-	Guayaquil X Bogotá
ASASO	1 / 2	39	Paramaribo X Georgetown
BOGOR	1 / 1	46	Comodoro Rivadavia X CTR Mount Pleasant
BOLDO	1 / 3	39	Central America X Bogotá
DOBNJ	4 / 5	39	Lima X La Paz
DOBNJ	0 / 2	-	La Paz X Lima
ENSOL	1 / 3	39	Bogotá X Guayaquil
ENSOL	0 / 13	-	Guayaquil X Bogotá
KOMPA	1 / 2	39	Lima X La Paz
KONRI	2 / 9	41	Antofagasta X Córdoba
LESIR	1 / 3	39	Central America X Panamá
* LIDOL *	1 / 1	46	Curacao X Kingston
LIXAS	1 / 2	39	Central America X Guayaquil
LIXAS	0 / 13	-	Guayaquil X Central America
MILOK	1 / 1	51	Maiquetía X San Juan
MILOK	0 / 3	-	San Juan X Maiquetía
MOMDI	2 / 5	46 y 39	Asunción X La Paz
MOMDI	0 / 2	-	La Paz X Asunción
OGLUT	2 / 2	39	Bogotá X Panamá
OROMU	1 / 3	44	Asunción X La Paz
PILCO	1 / 4	46	Resistencia X La Paz
PILCO	0 / 1	-	La Paz X Resistencia
PLG	37 / 52	75, 60, 55 (26), 45 (9)	Lima X Bogotá
PLG	0 / 2	-	Bogotá X Lima
PUBUM	3 / 7	39	Córdoba X La Paz
PUBUM	2 / 5	39	La Paz X Córdoba
RCO	1 / 2	39	La Paz X Amazónica
RCO	0 / 1	-	Amazónica X La Paz
REMEK	1 / 2	46	Asunción X La Paz
SBAODIII2	1 / 2	39	Atlántico X Abdijan
SELAN	1 / 6	49	Curacao X Barranquilla
SIDAK	1 / 8	51	La Paz X Curitiba
SIDAK	0 / 1	-	Asunción X La Paz
TRAPP	1 / 3	39	Paramaribo X Piarco
TRAPP	0 / 1	-	Piarco X Paramaribo
VUMPI	1 / 3	39	Maiquetía X Amazónica
VUMPI	0 / 10	-	Amazónica X Maiquetía

**Table 8. CAR/SAM FIRs - RVSM large height deviations (LHD) risk points**  
January - December 2018

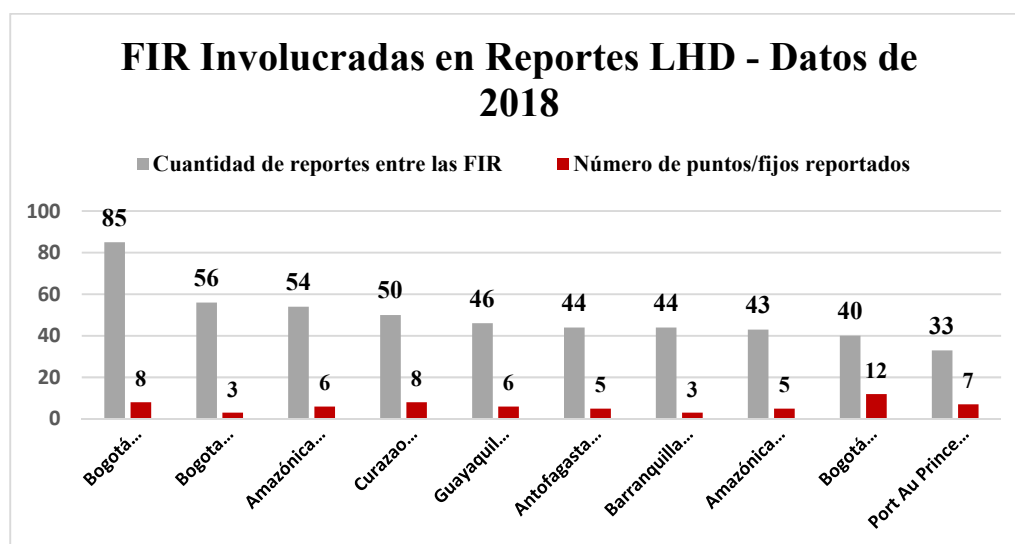
4.18. **Table 9** shows the first 30 pairs of FIRs that filed the largest number of reports, with the total number of reports between them and the total number of points/fixes reported. Two aspects must be highlighted:

- 1) The Mount Pleasant Control (EGYP) only generated 8 LHD reports in 2018 for 5 points in the Comodoro Rivadavia FIR, but with a very high VR, as seen in paragraph 2.5; and
- 2) The San Juan FIR experienced risk due to failures/errors from the Maiquetia (6), Piarco (9) and Curacao (1) FIRs, but generated risk to the Santo Domingo (3), Maiquetia (2) and Curacao (1) FIRs.

FIRs Involved	Number of Reports	Number of Points Reported
Bogotá ↔ Guayaquil	85	8
Bogotá ↔ Lima	56	3
Amazónica ↔ Maiquetía	54	6
Curacao ↔ St. Domingo	50	8
Guayaquil ↔ Lima	46	6
Antofagasta ↔ Lima	44	5
Barranquilla ↔ Curazao	44	3
Amazónica ↔ Bogotá	43	5
Bogotá ↔ Panamá	40	12
Port Au Prince ↔ St. Domingo	33	6
Central America ↔ Guayaquil	25	5
Córdoba ↔ La Paz	19	4
Amazónica ↔ La Paz	18	7
La Paz ↔ Lima	18	7
Asunción ↔ La Paz	17	5
Amazónica ↔ Brasilia	13	8
Barranquilla ↔ Maiquetía	12	4
Antofagasta → Córdoba	11	2
Comodoro Rivadavia → Ezeiza	10	6
Curacao ↔ Kingston	10	4
Amazónica ↔ Lima	9	5
Amazónica ↔ Paramaribo	9	2
Asunción ↔ Resistencia	9	5
Piarco ↔ San Juan	9	4
Comodoro Rivadavia → Mount Pleasant	8	5
Curitiba ← La Paz	8	2
Ezeiza ↔ Resistencia	8	4
Maiquetía ↔ San Juan	8	3
Brasilia ↔ Curitiba	7	6
Curitiba ↔ Montevideo	7	5

Table 9 - CAR/SAM FIRs - Number of reports between FIRs and total number of points reported

4.19. Graph 10 below shows the first 10 pairs of FIRs that filed the most reports.



Graph 10. CAR/SAM FIRs - Number of reports between FIRs and number of points reported

4.20. Table 10 below shows the first 22 pairs of FIRs that filed the largest number of reports, with the respective points/fijos reported.

<b>FIRs Involved</b>	<b>Reported Points/Fixes</b>
Bogotá ↔ Guayaquil	ANGEL – ANRAX – BOKAN – BOLOM - ENSOL – PULTU – UGUPI - VAMOS
Bogota ↔ Lima	PLG – PUPAS - ROLUS
Amazónica ↔ Maiquetía	PAKON – POVLA – UGAGA - VAGAN – VUMPI – ZORRO
Curacao ↔ St. Domingo	BEROX – IRGUT – KARUM – KISAS – PALAS – POKAK – TEKOL – VESKA
Guayaquil ↔ Lima	ANPAL – ARNEL – EVLIM – PABOB – TERAS – VAKUD
Antofagasta ↔ Lima	ALDAX - ARI – ESDIN – IREMI – SORTA
Barranquilla ↔ Curacao	AMBAS – OROSA – SELAN
Amazónica ↔ Bogotá	ABIDE – ARUXA – ASAPA - BRACO – LET
Bogotá ↔ Panamá	ARORO – BUSMO – BUXOS – DAKMO – ILTUR – IRASO – IVROS – KAKOL – KUBEK – OGLUT – TINPA - TOKUT
Port Au Prince ↔ St. Domingo	DCR – ETBOD – ONPAD – OSIDU – PIGBI - RETAK
Central America ↔ Guayaquil	ARTOM – LIXAS – LOGAL – OSELO - UGADI
Córdoba ↔ La Paz	GAXOK – GESPA – MARIA - PUBUM
Amazónica ↔ La Paz	EROGI – ISARA – KILEV – RCO – UBKAB – UDIDI - VILUX
La Paz ↔ Lima	1319S 06900W – DOBNI – ELAKO – KOMPA – OBLIR - ORALO - RAXUN
Asunción ↔ La Paz	BUXOR - MOMDI – OROMU - REMEK - SIDAK
Amazónica ↔ Brasilia	BURLO – MABMA – MALMI – MASVA – MIPAD – MOMSO – OPTEN - POPTI
Barranquilla ↔ Maiquetía	GILGA – ORTIZ – SIDOS - URIBI
Antofagasta → Córdoba	GEKAL - KONRI
Comodoro Rivadavia → Ezeiza	40S 050W – 4244S 05458W – 45S 050W – 45S 052W – 50S 056W – 50S 057W
Curacao ↔ Kingston	AMBIN – DIBOK – LIDOL - TARBA

*Table 10 - CAR/SAM FIRs - Name of points reported between FIRs*

5. **Suggested action**

5.1. The Meeting is invited to:

- a) take note of the information contained in this working paper, and the States willing to do so may use this information as a reference to mitigate their LHDs;
- b) submit that decision to the members of the GTE for their knowledge, approval and delivery to GREPECAS; and
- c) use the information herein for the adoption of specific actions by States and service providers to improve the level of safety in CAR/SAM airspace.

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## APENDIX A

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
3	SAN JUAN	PIARCO	02/01/2018	ELOPO	60	E1	13
4	CURAZAO	BARRANQUILLA	03/01/2018	OROSA	90	E1	26
5	AMAZONICA	MAIQUETIA	03/01/2018	VUMPI	60	E1	18
6	LA PAZ	CORDOBA	04/01/2018	PUBUM	30	E1	23
7	SAN JUAN	PIARCO	04/01/2018	LAMKN	60	E1	13
8	GUAYAQUIL	LIMA	05/01/2018	VAKUD	60	E1	18
9	CENTRAL AMERICA	GUAYAQUIL	06/01/2018	LIXAS	60	E2	22
11	CORDOBA	LA PAZ	07/01/2018	GESPA	90	E2	34
13	LIMA	ANTOFAGASTA	07/01/2018	IREMI	60	E1	18
15	LIMA	ANTOFAGASTA	07/01/2018	IREMI	60	E1	18
16	BOGOTA	PANAMA	08/01/2018	TOKUT	60	E1	18
17	CURAZAO	BARRANQUILLA	08/01/2018	OROSA	90	E1	26
18	AMAZONICA	LA PAZ	10/01/2018	UDIDI	60	E2	22
19	BRASILIA	BRASILIA	10/01/2018	ARSAX	70	D	23
20	ST. DOMINGO	CURAZAO	12/01/2018	POKAK	0	E2	17
21	AMAZONICA	MAIQUETIA	12/01/2018	PAKON	60	E1	18
22	ST. DOMINGO	CURAZAO	13/01/2018	KARUM	0	E2	17
24	ST. DOMINGO	SAN JUAN	14/01/2018	MELLA	0	E1	13
25	RECIFE	BRASILIA	15/01/2018	BETAR	60	E1	18
26	RECIFE	BRASILIA	15/01/2018	EGDES	60	E1	18
27	AMAZONICA	BOGOTA	15/01/2018	ABIDE	60	E2	22
28	BOGOTA	PANAMA	15/01/2018	BUXOS	90	E1	31
29	BOGOTA	GUAYAQUIL	15/01/2018	BOKAN	60	E1	20
30	ANTOFAGASTA	LIMA	16/01/2018	SORTA	60	E1	18
31	ST. DOMINGO	PORT AU PRINCE	16/01/2018	OSIDU	0	E1	13
32	CENTRAL AMERICA	KINGSTON	17/01/2018	UMAKA	60	E2	22
33	AMAZONICA	PARAMARIBO	17/01/2018	ACARI	60	E1	18
34	ANTOFAGASTA	LIMA	17/01/2018	IREMI	90	E1	26
36	MAIQUETIA	BOGOTA	17/01/2018	KIKAS	60	E2	17
37	ANTOFAGASTA	CORDOBA	18/01/2018	KONRI	180	E1	29
38	LIMA	AMAZONICA	18/01/2018	LIMPO	60	E1	18
39	CURAZAO	MAIQUETIA	18/01/2018	ACORA	60	E1	13
40	ST. DOMINGO	SAN JUAN	18/01/2018	KATOK	0	E1	13
41	PANAMA	BOGOTA	19/01/2018	DAKMO	60	E1	18
42	ST. DOMINGO	PORT AU PRINCE	21/01/2018	ETBOD	0	E1	13
43	ANTOFAGASTA	LIMA	22/01/2018	IREMI	90	E1	26
45	RESISTENCIA	CORDOBA	22/01/2018	SIKOB	60	E2	22
46	ST. DOMINGO	PORT AU PRINCE	23/01/2018	PIGBI	0	E1	15
47	GUAYAQUIL	CENTRAL AMERICA	23/01/2018	UGADI	60	E2	22
48	AMAZONICA	BOGOTA	23/01/2018	ABIDE	60	E2	22
49	CENTRAL AMERICA	PANAMA	23/01/2018	PADUR	60	E1	18
50	GUAYAQUIL	CENTRAL AMERICA	23/01/2018	LIXAS	60	E2	22
51	LA PAZ	CORDOBA	24/01/2018	PUBUM	65	E1	23
52	ANTOFAGASTA	CORDOBA	24/01/2018	GEKAL	180	E1	29
53	CORDOBA	LA PAZ	25/01/2018	MARIA	90	E2	34
55	AMAZONICA	PARAMARIBO	27/01/2018	ACARI	60	E1	18
56	MAIQUETIA	BARRANQUILLA	27/01/2018	SIDOS	60	E2	17

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
57	LIMA	BOGOTA	28/01/2018	PLG	90	E1	35
59	ANTOFAGASTA	LIMA	28/01/2018	IREMI	60	E1	18
60	AMAZONICA	BOGOTA	28/01/2018	ASAPA	60	E2	22
61	LIMA	GUAYAQUIL	29/01/2018	VAKUD	60	E1	18
63	ANTOFAGASTA	LIMA	29/01/2018	SORTA	90	E1	26
64	AMAZONICA	MAIQUETIA	29/01/2018	POVLA	60	E1	18
65	ANTOFAGASTA	LIMA	29/01/2018	SORTA	90	E2	34
67	LIMA	BOGOTA	29/01/2018	PLG	90	E2	45
68	AMAZONICA	BOGOTA	30/01/2018	ABIDE	60	E2	22
69	AMAZONICA	PARAMARIBO	31/01/2018	ACARI	60	E2	22
70	RESISTENCIA	EZEIZA	02/02/2018	TODES	0	E2	17
71	PORT AU PRINCE	MIAMI	02/02/2018	JOSES	90	E1	31
72	LA PAZ	ASUNCION	03/02/2018	MOMDI	60	E1	23
73	GUAYAQUIL	BOGOTA	04/02/2018	ENSOL	60	E2	22
74	NEW YORK	MIAMI	04/02/2018	LETON	60	E1	13
75	LIMA	BOGOTA	04/02/2018	PLG	0	E2	30
76	AMAZONICA	BOGOTA	04/02/2018	ABIDE	60	E1	18
77	LIMA	BOGOTA	05/02/2018	PLG	90	E1	35
78	CURAZAO	BARRANQUILLA	05/02/2018	AMBAS	60	E2	17
79	AMAZONICA	MAIQUETIA	05/02/2018	PAKON	60	E2	22
80	ST. DOMINGO	CURAZAO	05/02/2018	TEKOL	0	E2	17
81	GUAYAQUIL	BOGOTA	06/02/2018	BOKAN	60	E2	25
83	GUAYAQUIL	CENTRAL AMERICA	06/02/2018	LIXAS	60	E2	22
84	CURAZAO	BARRANQUILLA	06/02/2018	SELAN	60	E1	13
85	CURAZAO	BARRANQUILLA	06/02/2018	OROSA	90	E1	26
86	CURAZAO	BARRANQUILLA	06/02/2018	OROSA	90	E1	26
87	CURAZAO	BARRANQUILLA	06/02/2018	OROSA	90	E1	26
88	PORT AU PRINCE	MIAMI	06/02/2018	ALBBE	90	E1	31
89	CURAZAO	MAIQUETIA	06/02/2018	CHAVE	60	E2	17
90	KINGSTON	CURAZAO	07/02/2018	DIBOK	60	E1	18
92	GUAYAQUIL	CENTRAL AMERICA	08/02/2018	UGADI	60	E1	18
93	BOGOTA	PANAMA	09/02/2018	BUSMO	60	E2	22
94	AMAZONICA	BRASILIA	09/02/2018	BURLO	60	E1	18
95	AMAZONICA	MAIQUETIA	09/02/2018	ZORRO	60	E1	18
96	PORT AU PRINCE	ST. DOMINGO	09/02/2018	PIGBI	90	E1	35
97	BOGOTA	PANAMA	10/02/2018	BUXOS	60	E1	18
98	LA PAZ	AMAZONICA	10/02/2018	KILEV	45	E1	23
99	LIMA	GUAYAQUIL	10/02/2018	EVLIM	60	E2	22
100	AMAZONICA	MAIQUETIA	11/02/2018	POVLA	60	E2	22
102	LIMA	ANTOFAGASTA	11/02/2018	IREMI	60	E1	18
103	SAN JUAN	MAIQUETIA	12/02/2018	MILOK	60	E1	13
104	CORDOBA	LA PAZ	12/02/2018	GESPA	90	E2	34
105	AMAZONICA	BOGOTA	12/02/2018	BRACO	60	E2	22
106	CURAZAO	ST. DOMINGO	12/02/2018	PALAS	90	E1	26
108	CURAZAO	ST. DOMINGO	13/02/2018	PALAS	90	E1	26
109	CURITIBA	MONTEVIDEO	13/02/2018	UGELO	60	E1	18
110	BOGOTA	MAIQUETIA	13/02/2018	CUC	60	E2	22
111	ANTOFAGASTA	LIMA	14/02/2018	SORTA	480	E1	34
113	LIMA	BOGOTA	15/02/2018	PLG	90	E1	35
114	RECIFE	CURITIBA	15/02/2018	IRUXI	60	E1	18

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
115	GUAYAQUIL	BOGOTA	16/02/2018	UGUPI	60	E1	20
116	ATLANTICO	ABDIJAN	18/02/2018	SBAODIII2	60	E2	22
118	ANTOFAGASTA	LIMA	18/02/2018	IREMI	90	E2	34
119	GUAYAQUIL	BOGOTA	18/02/2018	UGUPI	0	E2	25
120	PORT AU PRINCE	KINGSTON	20/02/2018	BENET	60	E1	18
121	BOGOTA	PANAMA	20/02/2018	DAKMO	60	E2	22
122	ST. DOMINGO	MIAMI	20/02/2018	SEKAR	0	E2	17
123	PANAMA	KINGSTON	20/02/2018	ARNAL	60	E2	22
125	LIMA	ANTOFAGASTA	21/02/2018	ALDAX	60	E2	22
126	LA PAZ	AMAZONICA	22/02/2018	RCO	40	E1	23
127	LA PAZ	AMAZONICA	22/02/2018	UBKAB	40	E1	23
128	AMAZONICA	MAIQUETIA	22/02/2018	UGAGA	60	E1	18
129	AMAZONICA	PARAMARIBO	22/02/2018	ACARI	60	E1	18
130	ST. DOMINGO	MIAMI	22/02/2018	SEKAR	0	E2	17
131	DAKAR	ATLANTICO	23/02/2018	KODOS	3000	E1	34
132	KINGSTON	PANAMA	23/02/2018	DAGUD	60	E1	18
133	KINGSTON	CURAZAO	23/02/2018	AMBIN	60	E1	18
134	BOGOTA	GUAYAQUIL	25/02/2018	ENSOL	60	E1	18
135	AMAZONICA	RECIFE	27/02/2018	ENRUS	60	E2	22
136	MAIQUETIA	BARRANQUILLA	27/02/2018	GILGA	60	E2	17
137	BOGOTA	GUAYAQUIL	28/02/2018	ANGEL	60	E1	18
138	AMAZONICA	BOGOTA	28/02/2018	ABIDE	60	E2	22
139	CURAZAO	BARRANQUILLA	01/03/2018	OROSA	90	E1	26
141	GUAYAQUIL	LIMA	02/03/2018	PABOB	60	E1	18
142	AMAZONICA	MAIQUETIA	02/03/2018	POVLA	60	E1	18
143	ANTOFAGASTA	LIMA	02/03/2018	SORTA	90	E1	26
145	EZEIZA	RESISTENCIA	03/03/2018	KORTA	60	E1	13
146	CURAZAO	ST. DOMINGO	04/03/2018	IRGUT	60	E1	13
147	CURAZAO	ST. DOMINGO	04/03/2018	BEROX	60	E1	13
148	LIMA	GUAYAQUIL	04/03/2018	VAKUD	60	E1	18
149	CURAZAO	ST. DOMINGO	04/03/2018	BEROX	60	E1	13
150	RESISTENCIA	ASUNCION	05/03/2018	KUBIR	60	E1	13
151	ATLANTICO	MONTEVIDEO	06/03/2018	2500S 03035W	90	E2	39
152	CURAZAO	BARRANQUILLA	06/03/2018	OROSA	90	E1	26
154	LA PAZ	RESISTENCIA	06/03/2018	PILCO	60	E1	23
155	GUAYAQUIL	BOGOTA	06/03/2018	ENSOL	0	E1	18
156	LIMA	BOGOTA	07/03/2018	PLG	90	E1	35
157	AMAZONICA	BRASILIA	09/03/2018	MASVA	60	E2	22
158	AMAZONICA	BOGOTA	09/03/2018	BRACO	60	E2	22
160	LIMA	PILOTO	09/03/2018	ANDID	60	I	14
161	LIMA	GUAYAQUIL	09/03/2018	EVLIM	60	E1	18
162	AMAZONICA	BRASILIA	10/03/2018	POPTI	60	E1	18
163	CURAZAO	BARRANQUILLA	10/03/2018	OROSA	90	E1	26
164	AMAZONICA	MAIQUETIA	11/03/2018	PAKON	60	E2	22
165	GUAYAQUIL	BOGOTA	11/03/2018	ENSOL	60	E2	27
166	AMAZONICA	BOGOTA	11/03/2018	BRACO	60	E1	18
167	ST. DOMINGO	CURAZAO	12/03/2018	VESKA	10	E2	20
168	GEORGETOWN	PARAMARIBO	13/03/2018	UMREM	60	E2	27
169	RESISTENCIA	EZEIZA	13/03/2018	TODES	60	E2	17
170	RECIFE	CURITIBA	14/03/2018	VRI	60	E1	18
172	LIMA	GUAYAQUIL	14/03/2018	VAKUD	60	E1	18

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
173	LIMA	BOGOTA	14/03/2018	PLG	90	E2	45
174	CURAZAO	BARRANQUILLA	14/03/2018	AMBAS	60	E1	13
175	CORDOBA	RESISTENCIA	15/03/2018	SARNA	60	E1	23
176	AMAZONICA	LA PAZ	15/03/2018	VILUX	60	E1	18
177	AMAZONICA	MAIQUETIA	15/03/2018	VAGAN	60	E2	22
178	AMAZONICA	MAIQUETIA	15/03/2018	PAKON	60	E2	22
179	SAN JUAN	MAIQUETIA	15/03/2018	KIKER	60	E1	13
180	KINGSTON	CURAZAO	15/03/2018	DIBOK	60	E1	18
181	MONTEVIDEO	CURITIBA	15/03/2018	UGELO	60	E2	17
182	CURAZAO	BARRANQUILLA	15/03/2018	OROSA	90	E1	26
183	GUAYAQUIL	BOGOTA	16/03/2018	PULTU	0	E1	18
184	BOGOTA	PANAMA	16/03/2018	KAKOL	60	E1	18
185	BOGOTA	PANAMA	16/03/2018	KAKOL	60	E1	18
186	GUAYAQUIL	LIMA	16/03/2018	VAKUD	60	E1	18
188	SAN JUAN	PIARCO	16/03/2018	ANADA	60	E1	13
190	CORDOBA	EZEIZA	17/03/2018	MJZ	60	E1	18
192	ANTOFAGASTA	LIMA	18/03/2018	IREMI	90	E2	34
193	LIMA	GUAYAQUIL	19/03/2018	VAKUD	60	E1	18
194	LIMA	BOGOTA	19/03/2018	PLG	90	E2	45
195	AMAZONICA	PARAMARIBO	19/03/2018	SIROS	60	E1	18
196	LIMA	AMAZONICA	19/03/2018	LIMPO	60	E1	18
197	HABANA	HABANA	19/03/2018	FUNKO	300	F	17
198	ANTOFAGASTA	CORDOBA	20/03/2018	GEKAL	20	E1	18
200	SAN JUAN	MAIQUETIA	20/03/2018	MILOK	60	E1	13
202	CORDOBA	LA PAZ	20/03/2018	PUBUM	90	E2	34
203	LA PAZ	AMAZONICA	20/03/2018	RCO	720	E1	39
204	SAN JUAN	PIARCO	20/03/2018	ILURI	60	E1	13
205	LIMA	GUAYAQUIL	20/03/2018	VAKUD	60	E1	18
206	CORDOBA	LA PAZ	21/03/2018	PUBUM	90	E2	39
207	CURITIBA	MONTEVIDEO	22/03/2018	AKNEN	0	E2	22
208	BOGOTA	PANAMA	23/03/2018	KAKOL	60	E1	18
209	CURAZAO	ST. DOMINGO	23/03/2018	BEROX	60	E1	13
211	CURAZAO	BARRANQUILLA	23/03/2018	OROSA	90	E1	26
212	ST. DOMINGO	CURAZAO	24/03/2018	VESKA	10	E1	15
213	PIARCO	PARAMARIBO	25/03/2018	TRAPP	90	E1	31
214	CURITIBA	BRASILIA	25/03/2018	BRU	0	E1	18
215	GUAYAQUIL	BOGOTA	26/03/2018	UGUPI	60	E2	25
216	AMAZONICA	BOGOTA	26/03/2018	ARUXA	60	E2	22
217	GUAYAQUIL	CENTRAL AMERICA	26/03/2018	OSELO	60	E1	18
218	BOGOTA	PANAMA	27/03/2018	KAKOL	60	E2	22
219	CURAZAO	BARRANQUILLA	27/03/2018	OROSA	90	E1	26
220	GUAYAQUIL	BOGOTA	28/03/2018	BOKAN	60	E1	20
221	GUAYAQUIL	BOGOTA	29/03/2018	UGUPI	60	E1	20
222	ANTOFAGASTA	LIMA	30/03/2018	ESDIN	90	E2	34
224	CURITIBA	PILOTO	31/03/2018	PAKUD	30	B	14
225	LIMA	ANTOFAGASTA	31/03/2018	IREMI	60	E1	18
227	AMAZONICA	LIMA	31/03/2018	OSORA	60	E1	18
228	LIMA	GUAYAQUIL	31/03/2018	ARNEL	60	E2	22
229	LIMA	BOGOTA	31/03/2018	PLG	90	E2	45
230	LIMA	GUAYAQUIL	01/04/2018	VAKUD	60	E2	22
231	GUAYAQUIL	BOGOTA	01/04/2018	UGUPI	60	E1	20

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
232	ASUNCION	LA PAZ	01/04/2018	MOMDI	960	E2	46
233	BOGOTA	LIMA	01/04/2018	PLG	60	E1	20
234	LIMA	BOGOTA	01/04/2018	PLG	90	E1	35
235	BOGOTA	PANAMA	02/04/2018	BUXOS	60	E2	22
236	PARAMARIBO	GEORGETOWN	03/04/2018	ASASO	90	E2	39
237	LIMA	GUAYAQUIL	03/04/2018	VAKUD	60	L	22
238	MONTEVIDEO	CURITIBA	04/04/2018	ISALA	60	E2	22
240	CURAZAO	ST. DOMINGO	04/04/2018	IRGUT	60	E1	13
241	ANTOFAGASTA	LIMA	05/04/2018	IREMI	0	E2	22
243	SAN JUAN	PIARCO	05/04/2018	ILURI	60	E1	18
244	LA PAZ	ASUNCION	07/04/2018	SIDAK	60	E2	27
245	GUAYAQUIL	BOGOTA	08/04/2018	UGUPI	0	E2	25
246	LIMA	BOGOTA	08/04/2018	PLG	90	E1	35
247	GUAYAQUIL	LIMA	08/04/2018	ARNEL	60	E1	18
248	CURAZAO	ST. DOMINGO	08/04/2018	VESKA	90	E1	30
249	RECIFE	EQUIPMENT	08/04/2018	1623S 04133W	120	H	18
250	LIMA	BOGOTA	10/04/2018	PLG	0	E2	30
251	LA PAZ	CURITIBA	10/04/2018	SIDAK	360	E2	51
252	CURAZAO	BARRANQUILLA	10/04/2018	OROSA	60	E1	18
253	ASUNCION	LA PAZ	10/04/2018	BUXOR	60	E2	22
254	GUAYAQUIL	BOGOTA	11/04/2018	VAMOS	60	E2	22
255	LIMA	AMAZONICA	12/04/2018	LIMPO	60	E1	18
256	BRASILIA	BRASILIA	13/04/2018	REINA	10	D	19
257	ST. DOMINGO	PORT AU PRINCE	13/04/2018	ETBOD	10	E2	17
259	CURAZAO	ST. DOMINGO	14/04/2018	IRGUT	60	E2	17
260	ATLANTICO	ABDIJAN	16/04/2018	SBAODIII2	90	E2	39
261	BOGOTA	LIMA	17/04/2018	PLG	60	E2	25
262	AMAZONICA	BRASILIA	18/04/2018	MIPAD	60	E2	22
263	ST. DOMINGO	PORT AU PRINCE	18/04/2018	OSIDU	10	E1	18
265	BOGOTA	PANAMA	18/04/2018	BUXOS	60	E2	22
266	ASUNCION	LA PAZ	18/04/2018	REMEK	420	E2	46
268	GUAYAQUIL	LIMA	18/04/2018	TERAS	60	E2	22
269	BOGOTA	PANAMA	19/04/2018	ILTUR	60	E1	18
270	ST. DOMINGO	PORT AU PRINCE	19/04/2018	ETBOD	10	E2	22
271	ASUNCION	LA PAZ	19/04/2018	BUXOR	60	E1	18
272	CURAZAO	KINGSTON	19/04/2018	DIBOK	90	E1	26
273	ANTOFAGASTA	LIMA	20/04/2018	ALDAX	0	E1	18
274	LIMA	GUAYAQUIL	21/04/2018	ARNEL	0	E2	22
275	AMAZONICA	MAIQUETIA	23/04/2018	VUMPI	60	E2	22
276	AMAZONICA	MAIQUETIA	23/04/2018	VAGAN	60	E2	22
277	AMAZONICA	MAIQUETIA	23/04/2018	UGAGA	60	E2	22
278	AMAZONICA	MAIQUETIA	23/04/2018	VUMPI	60	E2	22
279	LIMA	ANTOFAGASTA	23/04/2018	IREMI	60	E1	18
281	CURAZAO	BARRANQUILLA	23/04/2018	AMBAS	90	E2	34
282	CURAZAO	KINGSTON	23/04/2018	AMBIN	90	E1	16
283	AMAZONICA	RECIFE	25/04/2018	NEMIG	0	E2	22
284	GUAYAQUIL	BOGOTA	25/04/2018	UGUPI	60	E1	20
285	AMAZONICA	MAIQUETIA	26/04/2018	POVLA	60	E1	18
286	LIMA	GUAYAQUIL	26/04/2018	VAKUD	60	E1	18
287	ANTOFAGASTA	LIMA	27/04/2018	IREMI	90	E1	26
288	SAN JUAN	PIARCO	27/04/2018	ANADA	60	E2	22

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
289	GUAYAQUIL	BOGOTA	28/04/2018	UGUPI	60	E1	20
290	GUAYAQUIL	BOGOTA	28/04/2018	UGUPI	60	E1	20
291	LIMA	GUAYAQUIL	28/04/2018	VAKUD	0	E1	18
293	ANTOFAGASTA	LIMA	29/04/2018	SORTA	240	E1	34
294	AMAZONICA	BOGOTA	29/04/2018	ABIDE	60	E2	22
295	LIMA	LA PAZ	30/04/2018	1319S 06900W	0	E2	22
296	LIMA	BOGOTA	04/05/2018	PLG	90	E1	35
297	ANTOFAGASTA	LIMA	04/05/2018	SORTA	60	E1	18
299	ANTOFAGASTA	LIMA	04/05/2018	SORTA	90	E1	26
301	AMAZONICA	MAIQUETIA	05/05/2018	UGAGA	60	E1	18
302	LIMA	BOGOTA	06/05/2018	PLG	90	E1	35
303	GUAYAQUIL	LIMA	06/05/2018	VAKUD	60	F	26
304	LIMA	GUAYAQUIL	06/05/2018	ARNEL	60	F	22
305	LIMA	GUAYAQUIL	06/05/2018	VAKUD	60	F	26
306	CURITIBA	MONTEVIDEO	07/05/2018	AKNEN	0	E1	18
307	CURITIBA	MONTEVIDEO	09/05/2018	AKPOD	35	E1	18
308	LIMA	LA PAZ	10/05/2018	ORALO	60	E1	18
309	CURAZAO	BARRANQUILLA	10/05/2018	OROSA	90	E1	26
310	GUAYAQUIL	CENTRAL AMERICA	10/05/2018	LIXAS	60	E2	22
311	RESISTENCIA	CORDOBA	11/05/2018	SIKOB	60	E1	13
312	RESISTENCIA	CORDOBA	11/05/2018	TIKLA	60	E1	13
313	CURAZAO	ST. DOMINGO	11/05/2018	KARUM	60	E1	13
314	AMAZONICA	MAIQUETIA	13/05/2018	PAKON	60	E2	22
315	AMAZONICA	MAIQUETIA	13/05/2018	PAKON	60	E2	22
316	AMAZONICA	MAIQUETIA	13/05/2018	VAGAN	60	E2	22
318	GUAYAQUIL	BOGOTA	14/05/2018	BOKAN	60	E1	20
319	GUAYAQUIL	BOGOTA	15/05/2018	UGUPI	0	E1	20
320	LIMA	GUAYAQUIL	16/05/2018	VAKUD	0	F	26
321	AMAZONICA	MAIQUETIA	17/05/2018	VUMPI	60	E2	22
322	RESISTENCIA	CURITIBA	17/05/2018	KIMIK	60	E2	17
323	GUAYAQUIL	CENTRAL AMERICA	18/05/2018	UGADI	60	E1	18
324	LIMA	BOGOTA	18/05/2018	PLG	90	E2	45
325	ASUNCION	LA PAZ	19/05/2018	SIDAK	60	E2	22
326	ST. DOMINGO	PORT AU PRINCE	19/05/2018	DCR	10	E1	13
328	AMAZONICA	MAIQUETIA	19/05/2018	PAKON	60	E1	18
329	CURAZAO	BARRANQUILLA	20/05/2018	OROSA	90	E1	26
330	AMAZONICA	MAIQUETIA	21/05/2018	POVLA	60	E2	22
331	GUAYAQUIL	BOGOTA	21/05/2018	UGUPI	60	E2	25
332	NEW YORK	PIARCO	22/05/2018	DRDGE	60	E1	13
333	BOGOTA	GUAYAQUIL	22/05/2018	UGUPI	60	E1	20
334	AMAZONICA	PILOTO	22/05/2018	PUMKU	60	B	14
335	ST. DOMINGO	PORT AU PRINCE	22/05/2018	ETBOD	10	E1	13
336	AMAZONICA	MAIQUETIA	23/05/2018	UGAGA	60	E1	18
337	BOGOTA	GUAYAQUIL	23/05/2018	UGUPI	60	E1	20
338	LIMA	GUAYAQUIL	23/05/2018	VAKUD	60	F	26
339	LIMA	GUAYAQUIL	23/05/2018	VAKUD	60	F	26
340	GUAYAQUIL	BOGOTA	25/05/2018	BOKAN	0	E1	20
341	GUAYAQUIL	CENTRAL AMERICA	25/05/2018	LIXAS	60	E1	18
342	CURAZAO	ST. DOMINGO	26/05/2018	VESKA	60	E1	15

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
343	AMAZONICA	MAIQUETIA	26/05/2018	VUMPI	60	E1	18
344	ASUNCION	LA PAZ	26/05/2018	MOMDI	60	E1	18
347	CURAZAO	ST. DOMINGO	27/05/2018	BEROX	60	E1	13
348	GUAYAQUIL	BOGOTA	28/05/2018	PULTU	60	E2	22
350	GUAYAQUIL	BOGOTA	29/05/2018	BOKAN	0	E1	20
351	LIMA	BOGOTA	29/05/2018	PLG	90	E1	35
352	AMAZONICA	PARAMARIBO	30/05/2018	SIROS	60	E2	22
353	BRASILIA	BRASILIA	30/05/2018	OPKES	30	D	14
355	BOGOTA	GUAYAQUIL	31/05/2018	ENSOL	90	E2	39
356	CURAZAO	PORT AU PRINCE	31/05/2018	LENOM	90	E1	26
357	ANTOFAGASTA	LIMA	31/05/2018	ALDAX	0	E2	17
358	BOGOTA	LIMA	02/06/2018	ROLUS	90	E1	31
360	PORT AU PRINCE	ST. DOMINGO	02/06/2018	PIGBI	90	E1	35
361	GUAYAQUIL	CENTRAL AMERICA	03/06/2018	LOGAL	0	E2	22
362	GUAYAQUIL	BOGOTA	03/06/2018	UGUPI	60	E1	20
363	GUAYAQUIL	CENTRAL AMERICA	03/06/2018	OSELO	60	E2	22
364	AMAZONICA	BRASILIA	03/06/2018	MABMA	60	E1	18
365	AMAZONICA	PARAMARIBO	04/06/2018	ACARI	60	E2	22
366	AMAZONICA	BOGOTA	05/06/2018	BRACO	60	E2	22
367	ANTOFAGASTA	CORDOBA	05/06/2018	GEKAL	60	E1	13
368	ST. DOMINGO	CURAZAO	05/06/2018	KISAS	30	E1	18
369	MERIDA	PILOTO	06/06/2018	NOSAT	180	M	13
370	SAN JUAN	CURAZAO	06/06/2018	SCAPA	60	E1	13
371	AMAZONICA	BRASILIA	07/06/2018	OPTEN	60	E2	22
372	AMAZONICA	BRASILIA	07/06/2018	MOMSO	60	E2	22
373	AMAZONICA	BRASILIA	07/06/2018	MOMSO	60	E2	22
374	AMAZONICA	MAIQUETIA	07/06/2018	UGAGA	60	E2	22
375	BOGOTA	GUAYAQUIL	07/06/2018	UGUPI	90	E1	35
376	GUAYAQUIL	BOGOTA	08/06/2018	UGUPI	60	E1	20
377	LIMA	BOGOTA	09/06/2018	PLG	240	E2	60
378	AMAZONICA	BRASILIA	09/06/2018	OPTEN	60	E2	22
379	BOGOTA	PANAMA	09/06/2018	DAKMO	60	E2	22
380	KINGSTON	BARRANQUILLA	09/06/2018	KILER	60	E1	18
381	AMAZONICA	MAIQUETIA	10/06/2018	PAKON	60	E1	18
382	ST. DOMINGO	PORT AU PRINCE	10/06/2018	DCR	30	E1	18
383	BOGOTA	GUAYAQUIL	11/06/2018	BOKAN	60	E1	20
384	LA PAZ	CURITIBA	11/06/2018	SIDAK	60	E2	27
385	AMAZONICA	MAIQUETIA	11/06/2018	ZORRO	60	E1	18
386	GUAYAQUIL	BOGOTA	11/06/2018	PULTU	0	E1	18
387	GUAYAQUIL	BOGOTA	11/06/2018	UGUPI	0	E1	20
388	CURITIBA	RESISTENCIA	12/06/2018	ILPEP	900	E1	34
389	BOGOTA	PANAMA	12/06/2018	BUXOS	60	E1	18
390	GUAYAQUIL	BOGOTA	12/06/2018	PULTU	0	E1	18
391	GUAYAQUIL	BOGOTA	12/06/2018	PULTU	60	E2	22
392	PANAMA	CENTRAL AMERICA	12/06/2018	ANSON	60	E1	18
393	AMAZONICA	MAIQUETIA	13/06/2018	UGAGA	60	E1	18
394	LA PAZ	CURITIBA	13/06/2018	SIDAK	60	E1	23
395	CURITIBA	PILOTO	13/06/2018	PENSO	30	A	16
396	ST. DOMINGO	PORT AU PRINCE	13/06/2018	ETBOD	30	E1	18

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
397	GUAYAQUIL	BOGOTA	13/06/2018	ANGEL	60	E2	22
398	GUAYAQUIL	CENTRAL AMERICA	14/06/2018	LIXAS	0	E2	22
399	PARAMARIBO	GEORGETOWN	15/06/2018	KOXAM	90	E2	34
400	CENTRAL AMERICA	BOGOTA	15/06/2018	BOLDO	0	E2	22
401	MONTEVIDEO	CURITIBA	15/06/2018	CUARA	0	E2	22
402	CURAZAO	ST. DOMINGO	16/06/2018	PALAS	60	E1	13
405	LIMA	ANTOFAGASTA	16/06/2018	IREMI	60	E1	18
406	BOGOTA	GUAYAQUIL	17/06/2018	ENSOL	60	E1	18
407	AMAZONICA	MAIQUETIA	17/06/2018	ZORRO	60	E2	22
408	LIMA	GUAYAQUIL	17/06/2018	PABOB	90	E1	31
409	ST. DOMINGO	PORT AU PRINCE	17/06/2018	OSIDU	30	E2	22
410	ST. DOMINGO	CURAZAO	17/06/2018	POKAK	30	E1	18
411	LA PAZ	CORDOBA	18/06/2018	PUBUM	60	E1	23
413	BRASILIA	ATCO / PILOTO	18/06/2018	RCL	15	D	14
414	GUAYAQUIL	BOGOTA	19/06/2018	UGUPI	60	E1	20
415	ST. DOMINGO	CURAZAO	20/06/2018	VESKA	15	E1	20
416	AMAZONICA	MAIQUETIA	20/06/2018	ZORRO	60	E1	18
417	AMAZONICA	BOGOTA	20/06/2018	ABIDE	60	E1	18
418	CURAZAO	BARRANQUILLA	20/06/2018	OROSA	90	E1	26
419	GUAYAQUIL	BOGOTA	21/06/2018	BOKAN	60	E1	20
420	AMAZONICA	BOGOTA	21/06/2018	BRACO	60	E1	18
421	BRASILIA	PILOTO	22/06/2018	PANIM	30	J	15
422	LA PAZ	LIMA	23/06/2018	ORALO	90	E2	34
425	AMAZONICA	MAIQUETIA	24/06/2018	PAKON	60	E1	18
426	KINGSTON	PANAMA	25/06/2018	ARNAL	60	E1	18
427	CURITIBA	BRASILIA	25/06/2018	GEMUV	0	E2	22
428	KINGSTON	BARRANQUILLA	25/06/2018	OTAMO	0	E1	23
429	GUAYAQUIL	BOGOTA	25/06/2018	UGUPI	0	E2	25
430	PORT AU PRINCE	MIAMI	25/06/2018	JOSES	90	E1	31
431	CURAZAO	BARRANQUILLA	26/06/2018	OROSA	90	E1	26
432	LA PAZ	LIMA	26/06/2018	DOBNI	90	E1	31
434	BOGOTA	PANAMA	28/06/2018	KAKOL	60	E2	22
435	GUAYAQUIL	BOGOTA	29/06/2018	ENSOL	0	E1	18
436	SAN JUAN	MAIQUETIA	29/06/2018	ARMUR	60	E1	13
437	GUAYAQUIL	BOGOTA	29/06/2018	PULTU	0	E1	18
438	CENTRAL AMERICA	BOGOTA / PANAMA	30/06/2018	LESIR	90	E1	31
439	BOGOTA	GUAYAQUIL	30/06/2018	UGUPI	90	E1	35
440	BOGOTA	GUAYAQUIL	30/06/2018	UGUPI	90	E1	35
441	ST. DOMINGO	CURAZAO	02/07/2018	IRGUT	10	E1	13
442	LIMA	GUAYAQUIL	02/07/2018	VAKUD	0	F	26
443	LIMA	GUAYAQUIL	02/07/2018	ARNEL	60	F	22
444	LIMA	BOGOTA	03/07/2018	PLG	90	E2	55
445	AMAZONICA	BOGOTA	03/07/2018	ABIDE	60	E1	18
447	ANTOFAGASTA	LIMA	04/07/2018	SORTA	90	E1	26
448	ST. DOMINGO	MIAMI	05/07/2018	SEKAR	10	E1	13
449	ST. DOMINGO	CURAZAO	06/07/2018	VESKA	10	E1	15
450	LIMA	BOGOTA	07/07/2018	PLG	0	E2	30
451	ANTOFAGASTA	LIMA	07/07/2018	SORTA	300	E1	34
453	ST. DOMINGO	PORT AU PRINCE	07/07/2018	PIGBI	10	E1	15
454	CENTRAL AMERICA	PANAMA	07/07/2018	LESIR	60	E2	22

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
455	AMAZONICA	BRASILIA	08/07/2018	MALMI	60	E1	18
456	GUAYAQUIL	CENTRAL AMERICA	08/07/2018	LIXAS	60	E1	18
457	GUAYAQUIL	BOGOTA	09/07/2018	BOKAN	60	E1	20
458	KINGSTON	PORT AU PRINCE	10/07/2018	BENET	60	E2	22
459	GUAYAQUIL	BOGOTA	10/07/2018	UGUPI	60	E1	20
460	GUAYAQUIL	BOGOTA	11/07/2018	BOKAN	0	E1	20
461	LIMA	GUAYAQUIL	11/07/2018	ARNEL	60	F	22
462	GUAYAQUIL	LIMA	11/07/2018	ANPAL	60	E2	22
464	LIMA	GUAYAQUIL	11/07/2018	VAKUD	60	F	26
465	ST. DOMINGO	PORT AU PRINCE	12/07/2018	OSIDU	10	E1	13
467	CENTRAL AMERICA	GUAYAQUIL	12/07/2018	LIXAS	2100	E1	39
468	CURAZAO	ST. DOMINGO	12/07/2018	PALAS	60	E1	18
469	AMAZONICA	MAIQUETIA	13/07/2018	PAKON	60	E1	18
470	BOGOTA	PANAMA	13/07/2018	DAKMO	60	E1	18
471	AMAZONICA	BOGOTA	13/07/2018	ABIDE	60	E1	18
472	ST. DOMINGO	PORT AU PRINCE	13/07/2018	PIGBI	10	E1	15
473	LIMA	GUAYAQUIL	13/07/2018	ARNEL	60	F	22
475	MAIQUETIA	SAN JUAN	15/07/2018	ARMUR	60	E1	13
477	GUAYAQUIL	BOGOTA	16/07/2018	UGUPI	60	E1	20
478	PARAMARIBO	GEORGETOWN	17/07/2018	ASASO	60	E1	18
479	CURITIBA	PILOTO	18/07/2018	MAGNA	20	A	8
480	RESISTENCIA	LA PAZ	19/07/2018	PILCO	120	E1	26
481	AMAZONICA	LA PAZ	19/07/2018	KILEV	60	E2	22
482	ST. DOMINGO	PORT AU PRINCE	19/07/2018	DCR	10	E1	13
483	AMAZONICA	MAIQUETIA	20/07/2018	ZORRO	60	E2	22
484	AMAZONICA	MAIQUETIA	20/07/2018	VUMPI	60	E2	22
485	LA PAZ	CORDOBA	20/07/2018	GESPA	60	E1	23
486	NEW YORK	MIAMI	20/07/2018	LETON	90	E1	21
487	PORT AU PRINCE	ST. DOMINGO	21/07/2018	PIGBI	60	E1	20
488	ST. DOMINGO	CURAZAO	21/07/2018	VESKA	10	E2	20
489	BOGOTA	PANAMA	22/07/2018	TOKUT	60	M	12
490	ST. DOMINGO	CURAZAO	22/07/2018	VESKA	10	E1	15
491	CURAZAO	BARRANQUILLA	22/07/2018	AMBAS	90	E1	26
492	GUAYAQUIL	BOGOTA	23/07/2018	ANGEL	60	E1	18
493	CURAZAO	BARRANQUILLA	23/07/2018	OROSA	90	E1	26
494	AMAZONICA	LIMA	23/07/2018	LIMPO	60	E2	22
495	GUAYAQUIL	BOGOTA	24/07/2018	ENSOL	60	E1	18
496	GUAYAQUIL	BOGOTA	24/07/2018	UGUPI	60	E2	25
497	AMAZONICA	BOGOTA	24/07/2018	ABIDE	60	E2	22
498	LIMA	BOGOTA	25/07/2018	PLG	90	E2	45
499	GUAYAQUIL	BOGOTA	25/07/2018	VAMOS	60	E1	18
500	AMAZONICA	LIMA	26/07/2018	POSKA	60	E1	18
501	AMAZONICA	RECIFE	26/07/2018	OBLEV	60	E2	22
502	MIAMI	NEW YORK	27/07/2018	LUCTI	180	E1	34
503	BRASILIA	PILOTO	28/07/2018	FSA	10	A	13
504	BRASILIA	PILOTO	28/07/2018	OPRUT	15	A	13
505	NEW YORK	PIARCO	29/07/2018	BNJEE	60	E1	13
506	BOGOTA	PANAMA	29/07/2018	TINPA	60	E1	18
507	RESISTENCIA	EZEIZA	29/07/2018	VARES	60	E1	13
508	GUAYAQUIL	BOGOTA	30/07/2018	ENSOL	60	E1	18
509	AMAZONICA	BOGOTA	30/07/2018	ABIDE	60	E1	18

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
510	ST. DOMINGO	PORT AU PRINCE	31/07/2018	PIGBI	10	E1	15
511	AMAZONICA	BOGOTA	31/07/2018	ABIDE	60	E1	18
512	ATLANTICO	MONTEVIDEO	31/07/2018	SBAOSUE07	60	E2	22
513	BOGOTA	PANAMA	01/08/2018	BUXOS	60	E1	18
514	CURAZAO	BARRANQUILLA	02/08/2018	OROSA	90	E1	26
515	ST. DOMINGO	CURAZAO	02/08/2018	BEROX	10	E1	13
516	BOGOTA	AMAZONICA	02/08/2018	ABIDE	60	E2	22
517	AMAZONICA	MAIQUETIA	02/08/2018	ZORRO	60	E2	22
518	CURAZAO	BARRANQUILLA	02/08/2018	OROSA	90	E2	34
519	LIMA	AMAZONICA	03/08/2018	LET	0	E2	22
520	ST. DOMINGO	CURAZAO	03/08/2018	IRGUT	10	E2	17
521	ATLANTICO	MONTEVIDEO	03/08/2018	SBAOSUE07	0	E2	22
522	BOGOTA	PANAMA	05/08/2018	BUSMO	60	E1	18
523	LA PAZ	CURITIBA	06/08/2018	SIDAK	60	E1	23
524	LIMA	BOGOTA	06/08/2018	PLG	0	F	35
526	LIMA	BOGOTA	07/08/2018	PUPAS	60	E2	22
527	ANTOFAGASTA	CORDOBA	07/08/2018	KONRI	180	E2	41
529	RESISTENCIA	ASUNCION	07/08/2018	FOZ	60	E2	22
530	CURITIBA	RESISTENCIA	07/08/2018	GEBUN	60	E2	22
532	AMAZONICA	BOGOTA	07/08/2018	ABIDE	60	E2	22
533	AMAZONICA	LA PAZ	08/08/2018	ISARA	60	E1	18
534	RESISTENCIA	LA PAZ	08/08/2018	PILCO	90	E2	34
535	AMAZONICA	BOGOTA	08/08/2018	ABIDE	60	E2	22
537	CENTRAL AMERICA	BOGOTA	09/08/2018	BOLDO	90	E2	39
538	AMAZONICA	BOGOTA	09/08/2018	ABIDE	60	E2	22
539	LA PAZ	CORDOBA	09/08/2018	PUBUM	120	E2	39
540	LIMA	GUAYAQUIL	10/08/2018	TERAS	0	F	22
541	BOGOTA	AMAZONICA	10/08/2018	ABIDE	90	E2	39
542	PANAMA	BOGOTA	10/08/2018	ARORO	20	F	18
543	GUAYAQUIL	BOGOTA	10/08/2018	ENSOL	60	E1	18
544	GUAYAQUIL	CENTRAL AMERICA	12/08/2018	ARTOM	60	E1	18
545	CENTRAL AMERICA	PANAMA	13/08/2018	PAPIN	90	E1	31
546	BOGOTA	AMAZONICA	13/08/2018	ARUXA	60	E2	22
547	AMAZONICA	LA PAZ	14/08/2018	RCO	60	E2	22
548	LIMA	BOGOTA	14/08/2018	PLG	0	F	35
549	CENTRAL AMERICA	BOGOTA	14/08/2018	BOLDO	90	E1	31
550	LIMA	GUAYAQUIL	15/08/2018	EVLIM	60	F	18
551	MAIQUETIA	BARRANQUILLA	15/08/2018	URIBI	60	E1	13
552	PORT AU PRINCE	MIAMI	15/08/2018	JOSES	90	E1	31
553	LA PAZ	AMAZONICA	16/08/2018	KILEV	60	E2	27
554	GUAYAQUIL	BOGOTA	16/08/2018	UGUPI	60	E1	20
556	LIMA	BOGOTA	16/08/2018	PLG	90	F	55
557	CENTRAL AMERICA	MERIDA	16/08/2018	KATIS	0	E2	27
558	SAN JUAN	MAIQUETIA	16/08/2018	MILOK	60	E1	13
559	MONTEVIDEO	RESISTENCIA	17/08/2018	MCS	60	E1	23
560	ST. DOMINGO	PORT AU PRINCE	18/08/2018	PIGBI	10	E1	15
561	LIMA	GUAYAQUIL	18/08/2018	EVLIM	0	F	23
562	LIMA	GUAYAQUIL	18/08/2018	VAKUD	0	F	26
564	ANTOFAGASTA	CORDOBA	18/08/2018	KONRI	0	E1	13
565	LIMA	BOGOTA	18/08/2018	PLG	90	F	55
566	GUAYAQUIL	BOGOTA	19/08/2018	UGUPI	60	E1	20

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
567	GUAYAQUIL	BOGOTA	19/08/2018	UGUPI	60	E1	20
569	CURAZAO	ST. DOMINGO	20/08/2018	POKAK	90	E1	21
570	AMAZONICA	MAIQUETIA	21/08/2018	VUMPI	60	E1	18
571	PORT AU PRINCE	MIAMI	22/08/2018	JOSES	90	E1	31
572	LIMA	BOGOTA	22/08/2018	PLG	90	F	55
573	GUAYAQUIL	BOGOTA	22/08/2018	ENSOL	60	F	26
574	LIMA	BOGOTA	23/08/2018	PLG	180	F	75
575	ST. DOMINGO	CURAZAO	23/08/2018	POKAK	60	E2	17
576	ST. DOMINGO	CURAZAO	24/08/2018	IRGUT	10	E1	13
577	PORT AU PRINCE	ST. DOMINGO	25/08/2018	PIGBI	90	E1	35
579	LIMA	GUAYAQUIL	26/08/2018	ARNEL	60	F	22
580	RESISTENCIA	ASUNCION	27/08/2018	AKNEL	90	E2	34
581	AMAZONICA	ATLANTICO	28/08/2018	ESLEL	60	E2	22
582	AMAZONICA	BRASILIA	28/08/2018	OPTEN	60	E2	22
583	LIMA	LA PAZ	29/08/2018	DOBNI	90	E2	39
584	AMAZONICA	BRASILIA	29/08/2018	MABMA	60	E1	18
585	PANAMA	BOGOTA	29/08/2018	BUXOS	60	E2	17
586	AMAZONICA	BOGOTA	29/08/2018	ABIDE	60	E2	22
587	GUAYAQUIL	BOGOTA	29/08/2018	BOKAN	60	F	30
588	AMAZONICA	BOGOTA	30/08/2018	ABIDE	60	E1	18
589	PORT AU PRINCE	HABANA	30/08/2018	URLAM	90	E1	31
590	LA PAZ	CORDOBA	30/08/2018	GESPA	60	E1	23
591	AMAZONICA	LA PAZ	31/08/2018	UDIDI	60	E1	18
592	CURITIBA	BRASILIA	31/08/2018	NITLU	60	E1	18
593	ST. DOMINGO	CURAZAO	31/08/2018	VESKA	10	E1	15
594	CURITIBA	LA PAZ	01/09/2018	EVLOL	60	E2	22
595	LIMA	GUAYAQUIL	02/09/2018	ARNEL	60	E1	18
596	CURITIBA	BRASILIA	02/09/2018	ENPEG	60	E2	22
597	CURITIBA	BRASILIA	02/09/2018	PREGO	60	E2	22
598	GUAYAQUIL	CENTRAL AMERICA	03/09/2018	LIXAS	90	E1	26
599	GUAYAQUIL	BOGOTA	04/09/2018	UGUPI	60	F	30
600	LIMA	BOGOTA	04/09/2018	PLG	90	F	55
601	GUAYAQUIL	LIMA	04/09/2018	ANPAL	60	E1	18
603	AMAZONICA	BOGOTA	05/09/2018	ABIDE	60	E1	18
604	AMAZONICA	BOGOTA	05/09/2018	ARUXA	60	E2	22
605	LIMA	LA PAZ	05/09/2018	DOBNI	90	E2	39
607	ANTOFAGASTA	CORDOBA	05/09/2018	KONRI	90	E1	26
608	ANTOFAGASTA	CORDOBA	06/09/2018	KONRI	90	E1	26
610	LA PAZ	PILOTO	06/09/2018	TERAX	60	E1	23
611	GUAYAQUIL	BOGOTA	07/09/2018	BOLOM	60	F	14
612	GUAYAQUIL	LIMA	07/09/2018	ARNEL	60	F	22
613	LIMA	BOGOTA	08/09/2018	PLG	90	F	55
614	LIMA	BOGOTA	08/09/2018	PLG	90	F	55
615	CURAZAO	BARRANQUILLA	08/09/2018	OROSA	90	E1	26
616	GUAYAQUIL	BOGOTA	11/09/2018	ANGEL	60	E1	18
617	PANAMA	BOGOTA	11/09/2018	TOKUT	90	E1	26
618	LIMA	LA PAZ	13/09/2018	DOBNI	90	E1	31
619	BRASILIA	PILOTO	13/09/2018	OPVUK	25	J	15
620	ST. DOMINGO	CURAZAO	13/09/2018	KISAS	10	E1	13
621	ANTOFAGASTA	LIMA	14/09/2018	IREMI	90	E1	26
623	CURAZAO	ST. DOMINGO	14/09/2018	KARUM	60	E1	18

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
624	PORT AU PRINCE	CURAZAO	14/09/2018	LENOM	90	E1	31
625	PORT AU PRINCE	KINGSTON	14/09/2018	SASON	90	E1	31
626	CURAZAO	ST. DOMINGO	15/09/2018	BEROX	60	E1	13
627	AMAZONICA	BRASILIA	15/09/2018	MABMA	60	E1	18
628	ST. DOMINGO	CURAZAO	16/09/2018	IRGUT	10	E1	13
629	ANTOFAGASTA	LIMA	17/09/2018	IREMI	90	E1	26
631	GUAYAQUIL	LIMA	17/09/2018	EVLIM	60	F	18
632	GUAYAQUIL	BOGOTA	17/09/2018	ANGEL	60	F	18
633	LIMA	BOGOTA	18/09/2018	PLG	90	F	55
634	GUAYAQUIL	LIMA	18/09/2018	ARNEL	60	E1	18
636	AMAZONICA	MAIQUETIA	19/09/2018	VAGAN	60	E1	18
637	CURAZAO	MAIQUETIA	19/09/2018	ACORA	60	E1	13
638	AMAZONICA	LA PAZ	19/09/2018	EROGI	60	E2	22
639	AMAZONICA	BOGOTA	20/09/2018	ABIDE	60	E2	22
640	AMAZONICA	BOGOTA	20/09/2018	ABIDE	60	E2	22
641	BRASILIA	BRASILIA	20/09/2018	MOPLA	30	J	15
643	RESISTENCIA	MONTEVIDEO	21/09/2018	MCS	120	E1	26
644	BOGOTA	MAIQUETIA	21/09/2018	CUC	60	E2	22
645	AMAZONICA	PARAMARIBO	22/09/2018	SIROS	60	E1	18
646	LIMA	AMAZONICA	22/09/2018	ILNAM	60	E1	18
647	CORDOBA	PILOTO	24/09/2018	KONRI	1800	D	41
648	ANTOFAGASTA	CORDOBA	24/09/2018	KONRI	90	E1	26
649	AMAZONICA	MAIQUETIA	24/09/2018	VAGAN	60	E2	22
650	CURAZAO	BARRANQUILLA	24/09/2018	OROSA	90	E1	26
651	ST. DOMINGO	PORT AU PRINCE	24/09/2018	OSIDU	10	E1	13
653	LIMA	ANTOFAGASTA	25/09/2018	SORTA	60	E1	18
654	LA PAZ	CORDOBA	26/09/2018	GESPA	60	E1	23
655	CORDOBA	LA PAZ	26/09/2018	PUBUM	120	E1	26
656	AMAZONICA	BOGOTA	26/09/2018	ABIDE	60	E2	22
657	BOGOTA	MAIQUETIA	26/09/2018	KIKAS	60	E2	22
658	BOGOTA	MAIQUETIA	26/09/2018	CUC	60	E2	22
659	AMAZONICA	MAIQUETIA	27/09/2018	PAKON	60	E1	18
660	AMAZONICA	MAIQUETIA	27/09/2018	VUMPI	60	E1	18
661	LA PAZ	LIMA	27/09/2018	OBLIR	60	E1	23
662	LA PAZ	CURITIBA	28/09/2018	SIDAK	60	E2	27
663	AMAZONICA	LA PAZ	28/09/2018	UBKAB	60	E1	18
664	LIMA	AMAZONICA	28/09/2018	ILNAM	60	E1	18
665	GUAYAQUIL	BOGOTA	29/09/2018	BOKAN	60	E1	20
666	GUAYAQUIL	BOGOTA	01/10/2018	UGUPI	60	E2	25
667	LIMA	LA PAZ	01/10/2018	DOBNI	90	E2	39
668	COMODORO RIVADAVIA	EZEIZA	02/10/2018	4500S 05200W	60	E2	22
670	COMODORO RIVADAVIA	EZEIZA	04/10/2018	4500S 05200W	0	E2	22
671	MAIQUETIA	BARRANQUILLA	04/10/2018	GILGA	30	E2	17
672	LIMA	LA PAZ	05/10/2018	DOBNI	90	E2	39
673	GUAYAQUIL	BOGOTA	05/10/2018	UGUPI	60	F	30
674	ANTOFAGASTA	LIMA	06/10/2018	IREMI	90	E1	26
675	GUAYAQUIL	CENTRAL AMERICA	06/10/2018	LIXAS	60	E1	18
676	LIMA	BOGOTA	06/10/2018	PLG	90	F	55
677	LIMA	GUAYAQUIL	06/10/2018	ARNEL	90	E1	31

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
679	LIMA	BOGOTA	07/10/2018	PLG	90	F	55
680	GUAYAQUIL	CENTRAL AMERICA	07/10/2018	LIXAS	60	E1	18
681	AMAZONICA	LA PAZ	07/10/2018	KILEV	60	E2	22
683	RESISTENCIA	ASUNCION	07/10/2018	POS	60	E1	13
684	CURAZAO	BARRANQUILLA	07/10/2018	OROSA	90	E1	26
685	ASUNCION	LA PAZ	07/10/2018	OROMU	60	E1	18
686	CURAZAO	ST. DOMINGO	07/10/2018	VESKA	60	E1	15
687	RESISTENCIA	LA PAZ	08/10/2018	PILCO	90	E1	26
688	BOGOTA	PANAMA	08/10/2018	DAKMO	60	E1	18
689	BOGOTA	PANAMA	08/10/2018	DAKMO	60	E1	18
690	BOGOTA	PANAMA	08/10/2018	KUBEK	60	E1	18
691	BOGOTA	PANAMA	08/10/2018	ILTUR	60	E1	18
692	ASUNCION	LA PAZ	09/10/2018	OROMU	480	E1	44
693	ANTOFAGASTA	LIMA	10/10/2018	IREMI	90	E1	26
696	LIMA	ANTOFAGASTA	11/10/2018	ESDIN	90	E1	31
698	COMODORO RIVADAVIA	MOUNT PLEASANT	11/10/2018	5000S 05600W	60	E2	22
699	AMAZONICA	BOGOTA	11/10/2018	BRACO	60	E1	18
701	GUAYAQUIL	CENTRAL AMERICA	12/10/2018	LIXAS	60	E1	18
703	LIMA	ANTOFAGASTA	12/10/2018	ALDAX	60	E2	22
704	LIMA	ANTOFAGASTA	12/10/2018	ALDAX	60	F	13
705	ST. DOMINGO	CURAZAO	12/10/2018	IRGUT	10	E1	18
706	MAIQUETIA	BARRANQUILLA	13/10/2018	URIBI	0	E2	22
707	GUAYAQUIL	BOGOTA	13/10/2018	UGUPI	60	F	30
708	AMAZONICA	BOGOTA	14/10/2018	LET	60	E2	22
711	LIMA	BOGOTA	15/10/2018	PLG	90	F	55
713	LIMA	ANTOFAGASTA	16/10/2018	ARI	60	E2	22
714	ANTOFAGASTA	LIMA	16/10/2018	ESDIN	90	E2	34
716	MAIQUETIA	CURAZAO	16/10/2018	VODIN	30	E1	13
717	AMAZONICA	BOGOTA	17/10/2018	ABIDE	60	E1	18
718	GUAYAQUIL	BOGOTA	17/10/2018	BOKAN	60	F	30
719	AMAZONICA	MAIQUETIA	18/10/2018	VUMPI	60	E1	18
720	AMAZONICA	MAIQUETIA	18/10/2018	POVLA	60	E2	22
721	GUAYAQUIL	BOGOTA	18/10/2018	BOKAN	60	F	30
722	BOGOTA	PANAMA	18/10/2018	OGLUT	90	E2	39
723	CURITIBA	BRASILIA	19/10/2018	SCB	60	E1	18
724	BOGOTA	PANAMA	19/10/2018	IRASO	90	E1	31
725	CENTRAL AMERICA	PANAMA	19/10/2018	LESIR	90	E2	39
726	CURAZAO	BARRANQUILLA	19/10/2018	SELAN	60	E2	17
727	CURAZAO	BARRANQUILLA	20/10/2018	SELAN	90	E2	34
730	GUAYAQUIL	LIMA	21/10/2018	ARNEL	60	F	22
732	RESISTENCIA	EZEIZA	21/10/2018	RIOKA	60	E1	13
733	LIMA	BOGOTA	21/10/2018	PLG	90	F	55
734	LIMA	GUAYAQUIL	22/10/2018	ARNEL	60	E2	22
735	CURAZAO	BARRANQUILLA	24/10/2018	SELAN	90	E2	34
736	LIMA	BOGOTA	24/10/2018	PLG	90	F	55
738	AMAZONICA	MAIQUETIA	25/10/2018	POVLA	60	E2	22
739	COMODORO RIVADAVIA	EZEIZA	25/10/2018	4500S 05000W	60	E2	22
740	AMAZONICA	MAIQUETIA	26/10/2018	POVLA	60	E2	22

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
741	PANAMA	BOGOTA	26/10/2018	BUXOS	60	E1	18
742	BOGOTA	PANAMA	27/10/2018	ILTUR	60	E1	18
743	BRASILIA	BRASILIA	27/10/2018	QUARU	35	J	15
744	CURAZAO	KINGSTON	27/10/2018	AMBIN	90	E1	26
746	SAN JUAN	PIARCO	27/10/2018	ANADA	60	E1	13
747	COMODORO RIVADAVIA	MOUNT PLEASANT	28/10/2018	5000S 05600W	0	E2	22
748	LIMA	BOGOTA	28/10/2018	PLG	90	F	55
749	AMAZONICA	MAIQUETIA	29/10/2018	PAKON	60	E1	18
750	AMAZONICA	BOGOTA	29/10/2018	ABIDE	60	E2	22
751	LIMA	LA PAZ	29/10/2018	KOMPA	90	E1	31
753	ANTOFAGASTA	CORDOBA	30/10/2018	KONRI	90	E1	26
754	LA PAZ	LIMA	30/10/2018	ORALO	60	E1	18
755	LIMA	BOGOTA	31/10/2018	PLG	90	F	55
756	ST. DOMINGO	PORT AU PRINCE	31/10/2018	ONPAD	60	E2	22
757	LA PAZ	LIMA	31/10/2018	ELAKO	60	E2	27
759	AMAZONICA	BOGOTA	31/10/2018	ABIDE	60	E1	18
760	CURAZAO	BARRANQUILLA	31/10/2018	OROSA	90	E1	26
762	LIMA	ANTOFAGASTA	01/11/2018	ALDAX	0	E2	22
763	CURAZAO	BARRANQUILLA	01/11/2018	OROSA	90	E2	34
764	AMAZONICA	BOGOTA	01/11/2018	ABIDE	60	E1	18
765	AMAZONICA	GEORGETOWN	01/11/2018	DOBDA	60	E1	18
766	AMAZONICA	BOGOTA	01/11/2018	ABIDE	60	E2	22
767	KINGSTON	BARRANQUILLA	02/11/2018	OTAMO	60	E1	18
768	GUAYAQUIL	LIMA	03/11/2018	VAKUD	60	E1	18
770	CURAZAO	KINGSTON	03/11/2018	TARBA	90	E1	26
771	LIMA	BOGOTA	04/11/2018	PLG	90	F	55
772	CURITIBA	PILOTO	04/11/2018	PULBI	30	A	13
773	ST. DOMINGO	PORT AU PRINCE	04/11/2018	PIGBI	60	E1	15
775	ANTOFAGASTA	CORDOBA	05/11/2018	KONRI	0	E1	13
776	PARAMARIBO	PIARCO	05/11/2018	TRAPP	90	E1	26
777	LA PAZ	CURITIBA	05/11/2018	SIDAK	60	E1	23
778	COMODORO RIVADAVIA	EZEIZA	05/11/2018	4500S 05200W	60	E2	17
779	CURAZAO	KINGSTON	05/11/2018	LIDOL	420	E2	46
780	GUAYAQUIL	BOGOTA	05/11/2018	ENSOL	60	F	26
781	SAN JUAN	MAIQUETIA	05/11/2018	KIKER	60	E2	17
782	GEORGETOWN	PIARCO	06/11/2018	KORTO	90	D	18
783	LIMA	BOGOTA	06/11/2018	PLG	90	F	55
784	LA PAZ	ASUNCION	06/11/2018	BUXOR	60	E1	18
785	BOGOTA	PANAMA	06/11/2018	TOKUT	60	E1	18
786	BOGOTA	PANAMA	06/11/2018	BUSMO	60	E1	18
787	GUAYAQUIL	BOGOTA	06/11/2018	ANRAX	60	F	18
788	COMODORO RIVADAVIA	EZEIZA	08/11/2018	4000S 05000W	60	E2	17
789	BARRANQUILLA	KINGSTON	08/11/2018	KILER	60	E1	18
790	GUAYAQUIL	BOGOTA	09/11/2018	ENSOL	60	E1	18
791	LIMA	LA PAZ	09/11/2018	KOMPA	90	E2	39
792	SAN JUAN	PIARCO	09/11/2018	ILURI	60	E1	18
793	CORDOBA	LA PAZ	09/11/2018	PUBUM	90	E1	31
794	LA PAZ	AMAZONICA	09/11/2018	KILEV	120	E1	31
795	CURAZAO	ST. DOMINGO	10/11/2018	VESKA	90	E1	30

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
796	BOGOTA	GUAYAQUIL	10/11/2018	ANRAX	90	E2	39
797	GUAYAQUIL	BOGOTA	10/11/2018	BOKAN	0	F	30
798	GUAYAQUIL	LIMA	10/11/2018	VAKUD	60	E1	18
800	CENTRAL AMERICA	GUAYAQUIL	10/11/2018	UGADI	60	E1	18
801	PORT AU PRINCE	ST. DOMINGO	10/11/2018	DCR	90	E1	26
802	COMODORO RIVADAVIA	EZEIZA	10/11/2018	4244S 05458W	60	E2	17
803	LIMA	LA PAZ	11/11/2018	ORALO	0	E2	22
804	RESISTENCIA	ASUNCION	11/11/2018	POS	60	E2	17
805	LIMA	BOGOTA	11/11/2018	PLG	90	F	55
806	ST. DOMINGO	SAN JUAN	11/11/2018	ANTEX	60	D	13
807	LA PAZ	LIMA	12/11/2018	DOBNI	60	E1	23
809	RESISTENCIA	ASUNCION	12/11/2018	POS	0	E1	18
810	RESISTENCIA	ASUNCION	12/11/2018	KALOM	60	E2	22
811	COMODORO RIVADAVIA	EZEIZA	12/11/2018	5000S 05600W	60	E2	17
812	COMODORO RIVADAVIA	EZEIZA	12/11/2018	4500S 05200W	60	E2	17
813	AMAZONICA	BOGOTA	13/11/2018	ARUXA	60	E2	22
814	AMAZONICA	MAIQUETIA	13/11/2018	UGAGA	60	E1	18
815	COMODORO RIVADAVIA	MOUNT PLEASANT	13/11/2018	5000S 05600W	60	E2	17
816	GUAYAQUIL	BOGOTA	13/11/2018	UGUPI	60	F	30
817	LIMA	BOGOTA	14/11/2018	PLG	90	F	55
818	ST. DOMINGO	CURAZAO	14/11/2018	PALAS	60	E1	13
819	BARRANQUILLA	CURAZAO	14/11/2018	OROSA	60	E2	22
821	BARRANQUILLA	CURAZAO	14/11/2018	OROSA	60	E2	22
823	COMODORO RIVADAVIA	EZEIZA	15/11/2018	4500S 05000W	60	E2	17
824	ANTOFAGASTA	LIMA	15/11/2018	ALDAX	0	F	18
826	LA PAZ	CURITIBA	15/11/2018	SIDAK	60	E2	27
827	COMODORO RIVADAVIA	MOUNT PLEASANT	15/11/2018	4500S 05700W	60	E2	17
828	CURAZAO	ST. DOMINGO	16/11/2018	IRGUT	90	E1	26
829	CURAZAO	BARRANQUILLA	16/11/2018	AMBAS	60	E1	13
830	LA PAZ	LIMA	16/11/2018	ORALO	60	E2	27
831	AMAZONICA	MAIQUETIA	17/11/2018	POVLA	60	E1	18
832	CURAZAO	ST. DOMINGO	17/11/2018	IRGUT	60	E1	13
833	AMAZONICA	MAIQUETIA	17/11/2018	UGAGA	60	E2	22
835	KINGSTON	BARRANQUILLA	17/11/2018	KILER	60	E1	18
836	GUAYAQUIL	CENTRAL AMERICA	17/11/2018	OSELO	60	E1	23
837	ANTOFAGASTA	LIMA	18/11/2018	IREMI	0	E1	18
839	BOGOTA	PANAMA	18/11/2018	ILTUR	60	E1	18
840	RESISTENCIA	ASUNCION	18/11/2018	POS	0	E1	18
842	CORDOBA	LA PAZ	18/11/2018	PUBUM	90	E1	31
843	PANAMA	KINGSTON	19/11/2018	ARNAL	90	E1	31
844	CURITIBA	BRASILIA	19/11/2018	PREGO	60	E2	22
845	GUAYAQUIL	CENTRAL AMERICA	20/11/2018	OSELO	60	E1	18
846	ST. DOMINGO	PORT AU PRINCE	20/11/2018	ETBOD	60	E2	17
847	GUAYAQUIL	CENTRAL AMERICA	20/11/2018	LIXAS	0	E1	18

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
848	LA PAZ	ASUNCION	20/11/2018	MOMDI	60	E1	23
849	ST. DOMINGO	CURAZAO	20/11/2018	PALAS	60	E1	13
850	MENDOZA	CORDOBA	21/11/2018	SOLER	90	E1	26
851	COMODORO RIVADAVIA	EZEIZA	21/11/2018	5000S 05700W	0	E2	17
852	ST. DOMINGO	CURAZAO	21/11/2018	KISAS	60	E1	13
854	PARAMARIBO	GEORGETOWN	22/11/2018	KOXAM	90	E1	26
857	PORT AU PRINCE	ST. DOMINGO	22/11/2018	ETBOD	90	E1	31
859	GUAYAQUIL	BOGOTA	22/11/2018	ANRAX	60	E1	18
860	CURAZAO	BARRANQUILLA	23/11/2018	SELAN	90	E1	26
861	AMAZONICA	PARAMARIBO	23/11/2018	SIROS	60	E1	18
862	GUAYAQUIL	BOGOTA	23/11/2018	ENSOL	60	E1	18
863	GUAYAQUIL	BOGOTA	23/11/2018	ENSOL	60	E1	18
864	RESISTENCIA	EZEIZA	23/11/2018	KORTA	60	E2	17
865	RESISTENCIA	EZEIZA	23/11/2018	RIOKA	60	E1	13
866	ASUNCION	LA PAZ	24/11/2018	OROMU	60	E2	22
867	AMAZONICA	LA PAZ	24/11/2018	UBKAB	60	E2	22
868	CURAZAO	KINGSTON	24/11/2018	AMBIN	60	E1	18
869	CORDOBA	LA PAZ	25/11/2018	GAXOK	90	E1	31
870	COMODORO RIVADAVIA	MOUNT PLEASANT	25/11/2018	4718S 06740W	2580	E2	41
871	SAN JUAN	PIARCO	25/11/2018	ANADA	60	E2	22
872	ST. DOMINGO	CURAZAO	25/11/2018	VESKA	60	E1	15
873	ST. DOMINGO	PORT AU PRINCE	25/11/2018	ETBOD	60	E1	13
874	GUAYAQUIL	BOGOTA	26/11/2018	ANRAX	60	F	18
875	ASUNCION	LA PAZ	27/11/2018	MOMDI	60	E1	18
876	BOGOTA	PANAMA	27/11/2018	IVROS	60	E1	18
877	BOGOTA	PANAMA	28/11/2018	BUXOS	60	E1	18
878	CORDOBA	LA PAZ	28/11/2018	PUBUM	90	E2	39
879	CORDOBA	LA PAZ	28/11/2018	PUBUM	90	E2	39
880	BOGOTA	PANAMA	28/11/2018	BUXOS	60	E1	18
881	BOGOTA	AMAZONICA	28/11/2018	ABIDE	60	E2	22
882	MAIQUETIA	AMAZONICA	29/11/2018	VUMPI	2400	E1	34
883	MAIQUETIA	AMAZONICA	29/11/2018	VUMPI	2400	E1	39
884	CURAZAO	ST. DOMINGO	29/11/2018	PALAS	90	E2	34
885	GUAYAQUIL	CENTRAL AMERICA	30/11/2018	LIXAS	60	E1	18
886	GUAYAQUIL	CENTRAL AMERICA	01/12/2018	LIXAS	60	E2	27
887	ASUNCION	LA PAZ	01/12/2018	REMEK	480	E1	34
888	CURAZAO	BARRANQUILLA	02/12/2018	SELAN	90	E2	49
889	RESISTENCIA	ASUNCION	02/12/2018	KUBIR	60	E1	13
891	LIMA	BOGOTA	02/12/2018	PLG	90	E2	45
892	BOGOTA	PANAMA	02/12/2018	OGLUT	90	E2	39
893	AMAZONICA	BOGOTA	02/12/2018	BRACO	60	E1	18
894	COMODORO RIVADAVIA	PUNTA ARENAS	03/12/2018	5040S 07254W	60	E2	17
895	PARAMARIBO	PIARCO	03/12/2018	TRAPP	90	E1	26
896	ASUNCION	LA PAZ	05/12/2018	MOMDI	60	E1	18
897	COMODORO RIVADAVIA	MOUNT PLEASANT	05/12/2018	5000S 05600W	2700	E2	46
898	CURAZAO	BARRANQUILLA	06/12/2018	AMBAS	60	E1	18

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
899	AMAZONICA	LA PAZ	06/12/2018	KILEV	60	E1	18
900	PANAMA	KINGSTON	06/12/2018	ARNAL	60	E2	22
901	MONTEVIDEO	RESISTENCIA	06/12/2018	SEKLO	0	E1	18
902	MAIQUETIA	AMAZONICA	07/12/2018	VUMPI	60	E1	18
903	GUAYAQUIL	BOGOTA	07/12/2018	BOKAN	60	E1	20
904	PIARCO	GEORGETOWN	07/12/2018	KORTO	60	E1	18
905	PORT AU PRINCE	ST. DOMINGO	07/12/2018	ETBOD	90	E1	31
906	DAKAR	PIARCO	08/12/2018	OPADO	90	E1	31
907	COMODORO RIVADAVIA	MOUNT PLEASANT	08/12/2018	DIGIS	60	E2	22
909	LIMA	BOGOTA	08/12/2018	PLG	90	F	55
910	MAIQUETIA	SAN JUAN	09/12/2018	MILOK	180	E2	51
911	BOGOTA	GUAYAQUIL	09/12/2018	ANRAX	90	E2	39
912	BOGOTA	PANAMA	10/12/2018	IRASO	90	E1	31
913	AMAZONICA	MAIQUETIA	10/12/2018	VUMPI	60	E2	22
914	MAIQUETIA	CURAZAO	10/12/2018	KABON	0	E2	17
915	CURAZAO	BARRANQUILLA	10/12/2018	OROSA	90	E1	31
917	LIMA	ANTOFAGASTA	11/12/2018	ALDAX	0	E2	22
918	BOGOTA	AMAZONICA	11/12/2018	ABIDE	60	E2	22
919	MAIQUETIA	BOGOTA	11/12/2018	KIKAS	60	E1	18
920	GUAYAQUIL	BOGOTA	12/12/2018	ENSOL	60	F	31
921	MAIQUETIA	BARRANQUILLA	12/12/2018	SIDOS	60	E2	17
922	MAIQUETIA	BARRANQUILLA	12/12/2018	SIDOS	60	E2	17
923	COMODORO RIVADAVIA	MOUNT PLEASANT	12/12/2018	BOGOR	2520	E2	46
925	PARAMARIBO	PIARCO	13/12/2018	TRAPP	90	E2	39
926	MAIQUETIA	BARRANQUILLA	13/12/2018	SIDOS	60	E1	13
927	LIMA	LA PAZ	14/12/2018	RAXUN	90	E1	31
928	MAIQUETIA	BARRANQUILLA	14/12/2018	ORTIZ	60	E2	17
929	ST. DOMINGO	CURAZAO	15/12/2018	BEROX	60	E1	13
930	MAIQUETIA	BARRANQUILLA	16/12/2018	URIBI	60	E2	17
931	MAIQUETIA	BARRANQUILLA	16/12/2018	URIBI	60	E2	17
932	ST. DOMINGO	PORT AU PRINCE	16/12/2018	PIGBI	60	E1	15
933	RESISTENCIA	LA PAZ	16/12/2018	PILCO	600	E2	46
934	CURITIBA	RESISTENCIA	17/12/2018	ARULA	60	E1	18
935	RESISTENCIA	PILOTO	17/12/2018	SIS	30	J	20
936	LIMA	BOGOTA	18/12/2018	PLG	90	F	55
937	LIMA	BOGOTA	18/12/2018	PLG	90	F	55
938	LA PAZ	CORDOBA	18/12/2018	PUBUM	120	E2	39
939	LIMA	BOGOTA	18/12/2018	PLG	90	F	55
940	ANTOFAGASTA	LIMA	18/12/2018	ESDIN	90	E1	21
942	LIMA	BOGOTA	19/12/2018	PLG	90	F	55
943	CURAZAO	BARRANQUILLA	20/12/2018	OROSA	90	E1	31
945	ST. DOMINGO	CURAZAO	20/12/2018	PALAS	60	E1	13
946	KINGSTON	BARRANQUILLA	21/12/2018	KILER	60	E2	22
948	MAIQUETIA	BARRANQUILLA	21/12/2018	SIDOS	60	E2	17
949	LIMA	BOGOTA	21/12/2018	PLG	90	F	55
950	LIMA	BOGOTA	22/12/2018	PLG	90	F	55
951	RECIFE	BRASILIA	22/12/2018	MUNUX	20	E1	18
952	PORT AU PRINCE	ST. DOMINGO	22/12/2018	RETAK	90	E1	26
953	LA PAZ	AMAZONICA	22/12/2018	KILEV	60	E1	23
954	CURAZAO	SAN JUAN	23/12/2018	SCAPA	60	E1	18

Sequence of reports	FIR suffering risk	FIR generating risk	Date of event	Position where risk occurred	Duration of event	LHD code	Risk value
955	CURAZAO	BARRANQUILLA	23/12/2018	OROSA	90	E1	31
956	CURAZAO	BARRANQUILLA	23/12/2018	OROSA	90	E1	31
957	LIMA	BOGOTA	25/12/2018	PLG	90	E1	35
958	ASUNCION	LA PAZ	25/12/2018	MOMDI	90	E2	39
959	ST. DOMINGO	PORT AU PRINCE	25/12/2018	PIGBI	60	E1	15
960	LIMA	BOGOTA	25/12/2018	PLG	90	E2	45
961	LIMA	BOGOTA	25/12/2018	PLG	90	E2	45
962	PIARCO	MAIQUETIA	26/12/2018	BOGSI	60	E1	18
963	RESISTENCIA	EZEIZA	26/12/2018	KORTA	60	E1	13
964	ANTOFAGASTA	LIMA	27/12/2018	IREMI	90	E1	21
966	BARRANQUILLA	CURAZAO	27/12/2018	OROSA	60	E2	22
967	ST. DOMINGO	CURAZAO	28/12/2018	IRGUT	60	E1	13
969	PORT AU PRINCE	ST. DOMINGO	28/12/2018	ETBOD	90	E1	31
970	GUAYAQUIL	BOGOTA	28/12/2018	UGUPI	60	F	30
971	ANTOFAGASTA	LIMA	28/12/2018	SORTA	300	E1	34
973	GUAYAQUIL	BOGOTA	28/12/2018	VAMOS	60	E1	18
974	HABANA	PILOTO	29/12/2018	UCL	24	K	15
975	ST. DOMINGO	CURAZAO	29/12/2018	PALAS	60	E1	13
976	BARRANQUILLA	CURAZAO	30/12/2018	OROSA	60	E2	22

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