



Twenty Second Meeting of the Africa-Indian Ocean Planning and Implementation Regional Group (APIRG/22)
(Accra, Ghana, 29 July – 02 August 2019)

Agenda Item 3: Tactical Action Group

REPORT OF THE ELEVENTH MEETING OF THE AFI TACTICAL ACTION GROUP (TAG/11)

(Presented by Secretariat)

SUMMARY
This WP presents the Summary of Discussions of the Eleventh Meeting of the Tactical Action Group (TAG/11) and the follow up actions required by APIRG.
REFERENCE(S): REPORT OF SPECIAL AFI RAN REPORT OF APIRG/17 REPORT OF TAG/11 PANS-ATM, Doc 4444
Related ICAO Strategic Objective(s): A, B, C, E

1. INTRODUCTION

1.1. The TAG was established based upon Recommendation 6/6 of the Special AFI Regional Air Navigation Meeting AFI RAN. The key functions of the Group include performance of Safety Assessments and reduced vertical separation minimum (RVSM) and scrutinize incidents and ATM occurrences that has the potential to reduce the Target Level of Safety necessary for continued RVSM operations across the region.

1.2. The Eleventh TAG meeting was hosted by IATA in Johannesburg, South Africa on 8 March 2019.

2. DISCUSSION

2.1. The meeting noted that the monthly teleconferences had ceased since the last one held on 26 April 2018, Consequently, UCRs for the remaining months of 2018 could not be analyzed prior to the TAG/11 meeting. TAG agreed that IATA, ICAO, ARMA and AIAG Chair analyze the outstanding UCRs from May to December 2018. ICAO was requested to take the necessary measures to resume the monthly teleconferences.

2.2. Statistical Reports

2.2.1 The last monthly teleconference was held in April 2018.

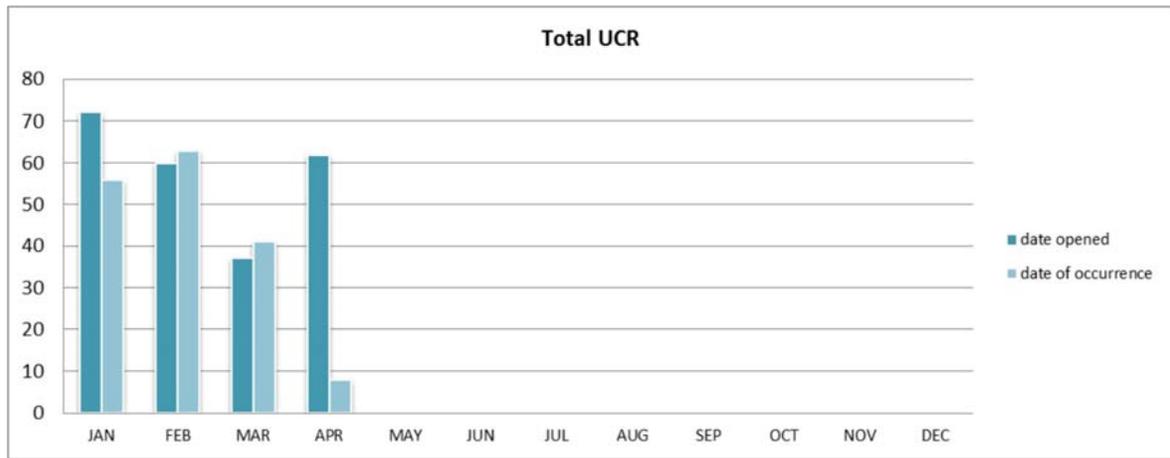


Fig. 1 Date of UCR Occurrence and Date Opened

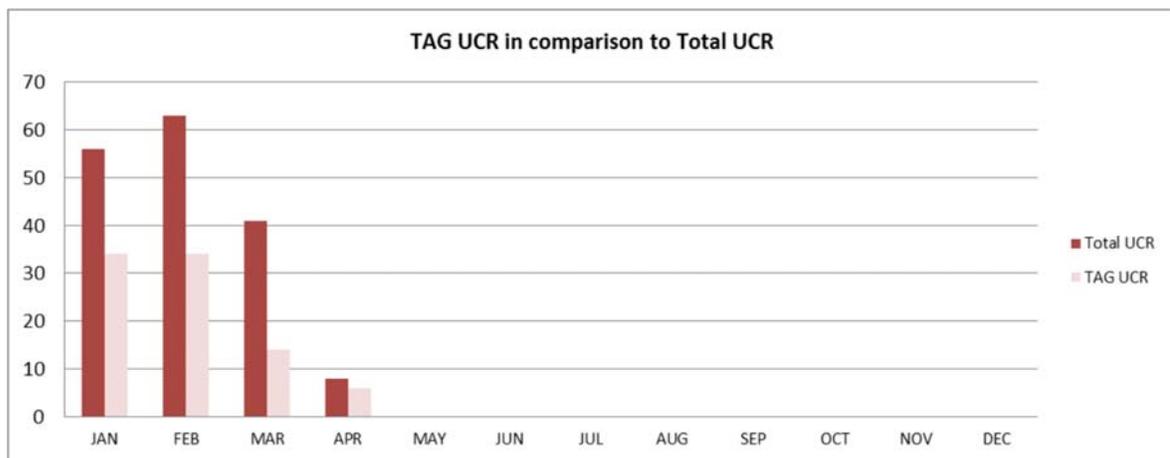


Fig. 2: January 2018 to February 2019, 52% of all events took place in the RVSM airspace (TAG UCR)

2.2.2 AIRPROX, ATS and Communication events are common to both the RVSM airspace as well as the airspace below FL290. Historically, other categories including aircraft operations and coordination are common to both RVSM and non-RVSM airspace. In 2018, 100% of all coordination, 92% of all communication and 47% of all AIRPROX events took place in the RVSM airspace; whilst only 31% of all ATS events occurred in RVSM airspace. (Fig. 3)

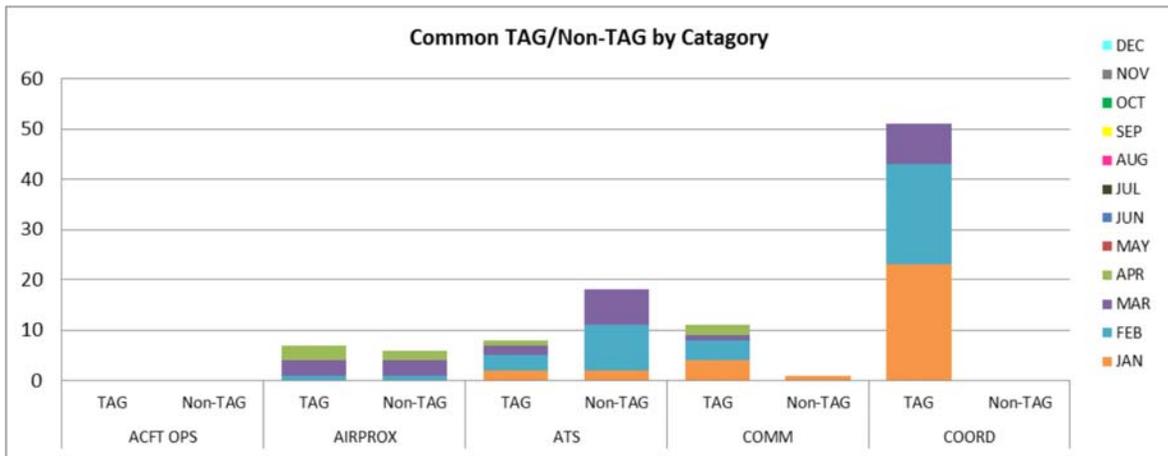


Fig. 3

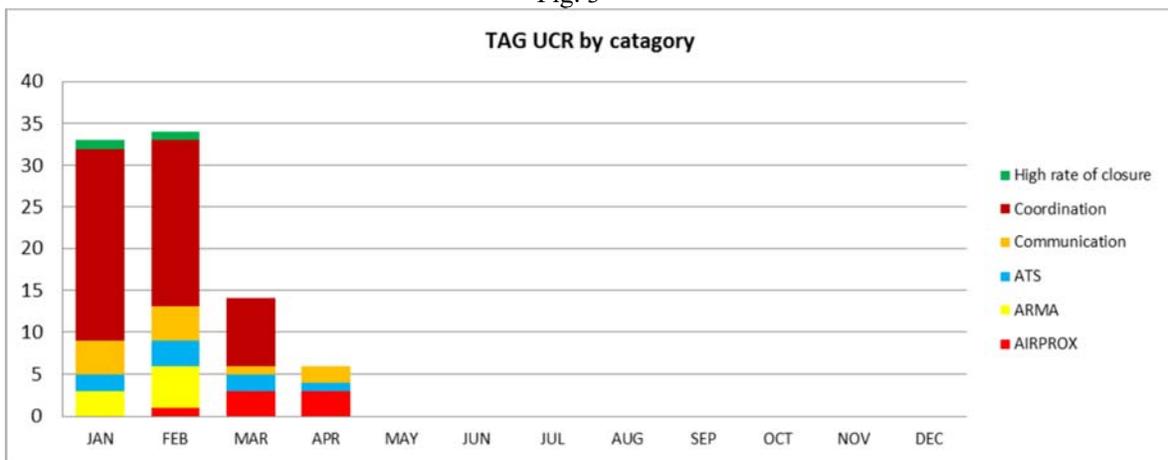


Fig. 4 TAG UCR by Category

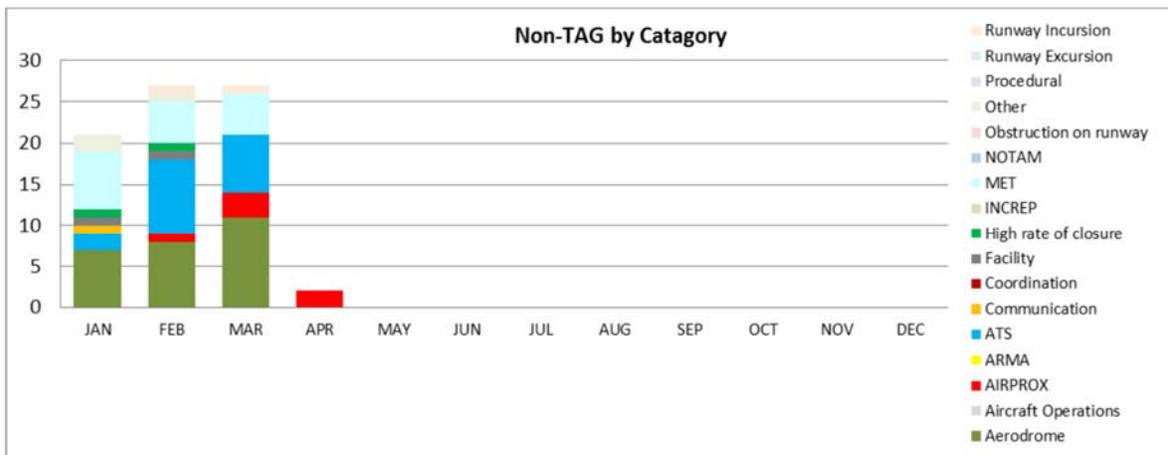


Fig. 5: Non-TAG by Category

2.2.3 In the airspace below FL290, the most prevalent classification of events is aerodrome (34%), followed by ATS (23%) and MET (22%). The TAG recommended for scrutiny action for UCRs in non-RVSM airspace, and pay particular attention to increasing trend of incidents at or in the vicinity of aerodromes.

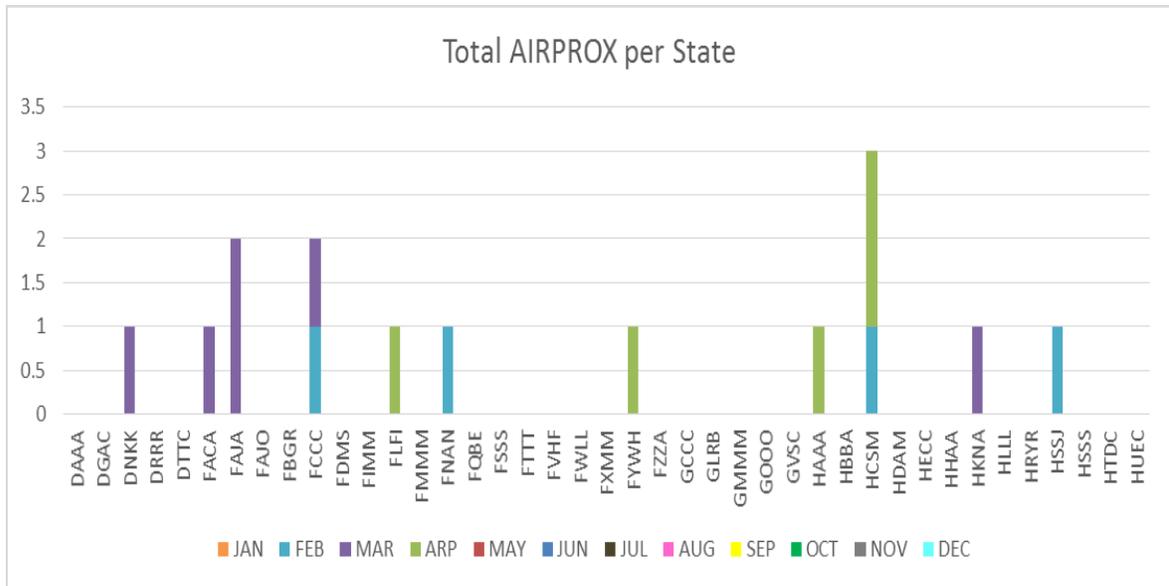


Fig. 6: AIRPROX per State

2.2.4 The TAG took note of the high number of AIRPROXES in Mogadishu FIR and called for an urgent action to address the contributing factors.

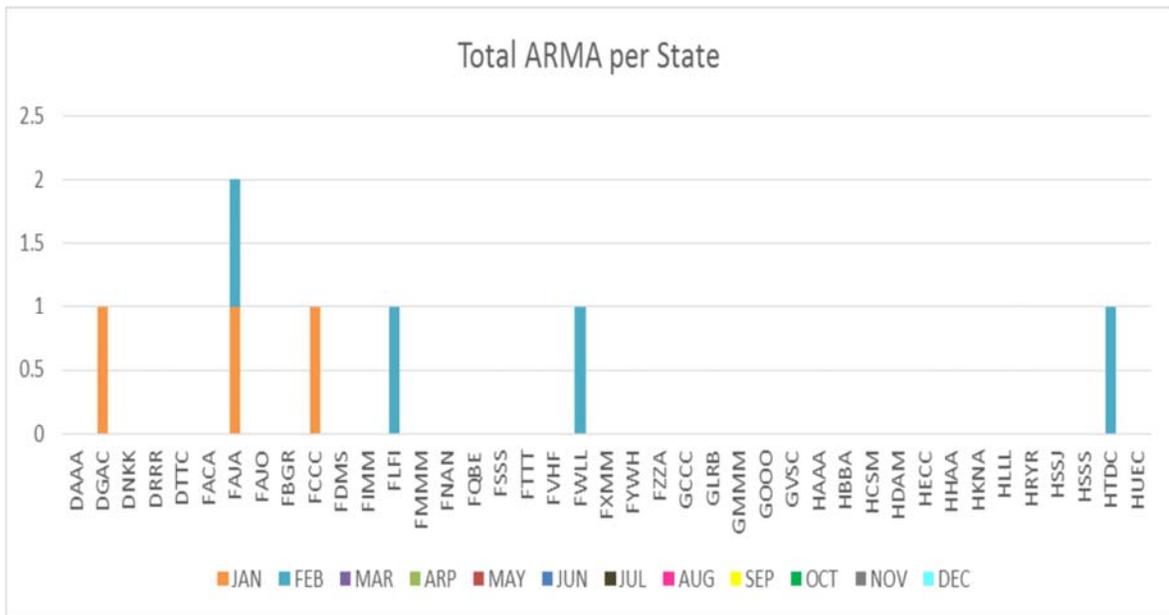


Fig. 7: Total ARMA Events per State

2.2.5 South Africa (FAJA and FACA) is the biggest contributor to ATS events with 23% followed by Somalia (HCSM) with 19%. Kenya (HKNA), with 11% is third and South Sudan (HSSJ) and Tanzania (HTDC) each contribute 8%.

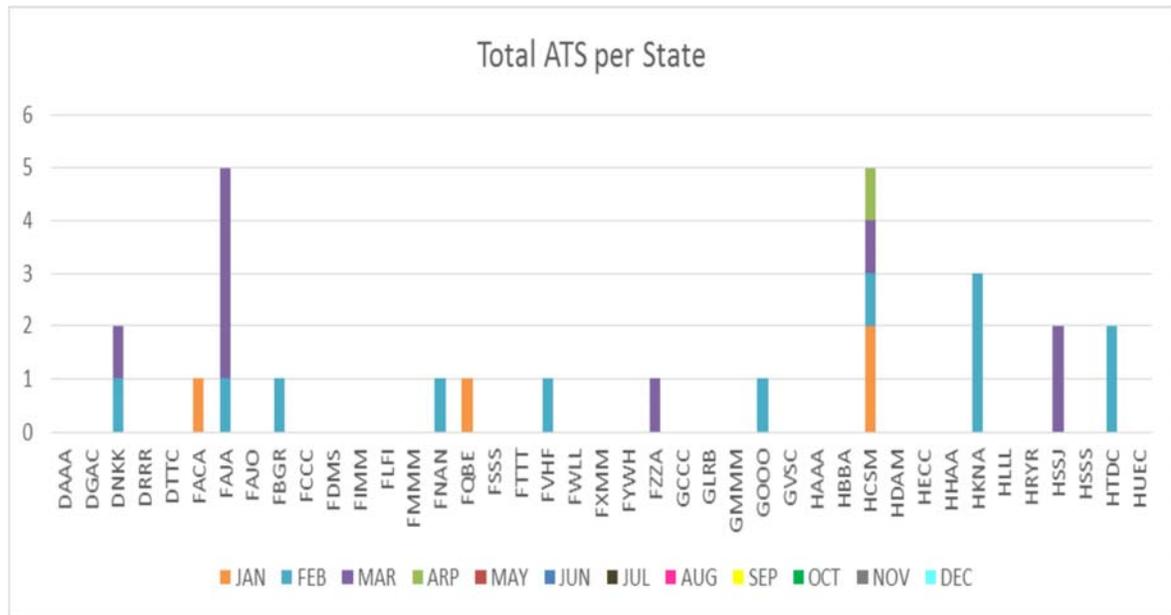


Fig. 8: ATS Events by State

2.2.6 South Africa (FAJA and FACA) is the biggest contributor to ATS events with 23% followed by Somalia (HCSM) with 19%. Kenya (HKNA), with 11% is third and South Sudan (HSSJ) and Tanzania (HTDC) each contribute 8%.

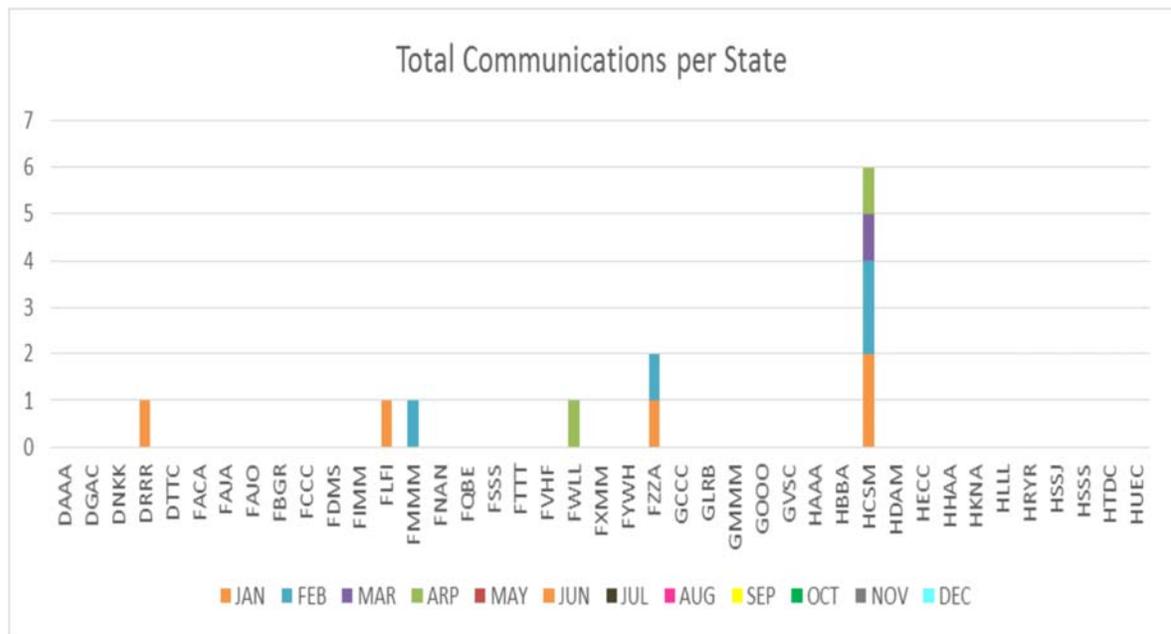


Fig. 9: Communication

2.2.7 The highest contributor to communications is Somalia (HCSM), which accounts for 50% of all Communication events for 2018 thus far. DRC (FZZA) is the next highest contributor with 17%. The meeting recommended for FIR Coordination Meetings to be conducted under the aegis of ICAO to address the trend of unsatisfactory condition reports in Mogadishu and Kinshasa FIRs.

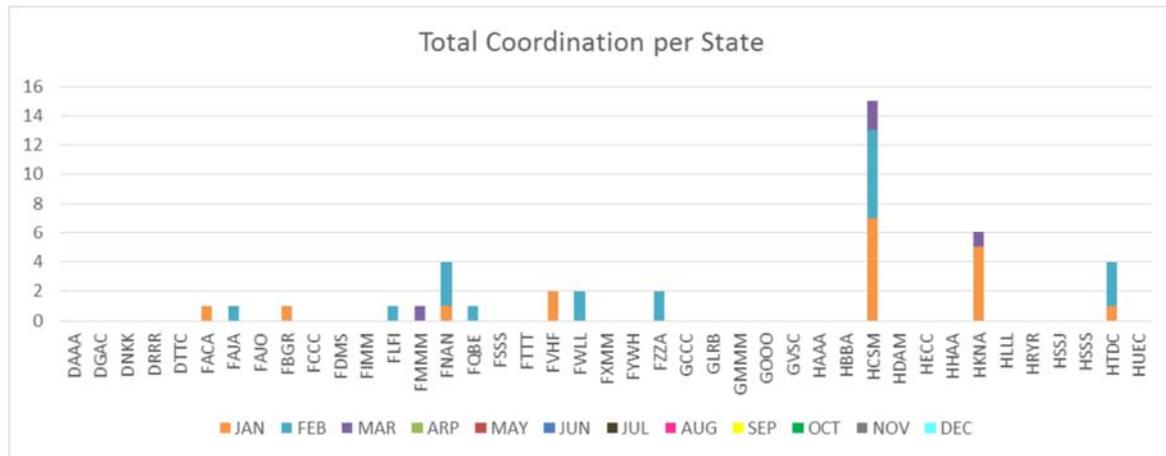


Fig. 10: Coordination

2.2.8 37% of coordination events took place in Somalia (HCSM) whilst Kenya (HKNA) accounts for 15% whilst Angola (FNAN) and Tanzania (HTDC) each contribute 10%

2.2.9 The TAG noted that 61% in RVSM UCRs were filed late and called on States, ANSPs and Airlines to endeavour to file UCRs promptly to enable effective trend analysis and timely action were necessary to address safety risks.

2.2.10 Action Items:

Somalia be informed of the high number of AIRPROXES in Mogadishu FIR which is safety risk and request for urgent action to address the unsatisfactory conditions in the FIR;

2.3 Progress on States’ actions to reduce UCRs

2.3.1 Angola, South Africa, Tanzania and ASECNA reported progress on actions taken to remedy causes of UCRs which were identified by TAG/10 and recommendations made.

2.3.2 ICAO was requested to advise if the use of CPDLC could be mandated for aircraft operating in the high-seas. The TAG was informed that CPDLC has been mandated in the EUR/NAT region and urged ICAO to ensure coordination between APIRG and GREPACAS and stakeholders in this regard.

2.4 States/FIRs specific issues and request for FIR Coordination Meetings

2.4.1 Somalia / Mogadishu FIR: The TAG identified Addis Abba, Gaborone, Mogadishu, Kinshasa and Lusaka as being among the FIRs with the high numbers of ATS events, AIRPROXES and Communication Failures and recommended that ICAO facilitate FIR Coordination Meetings to be held and ensure that adjacent FIRs/ATC Units are encouraged to attend the coordination meetings which among others, review existing airspace structure, route network, Hotspots and applicable ATC procedures.

2.5 Air Traffic Services (ATS) Incident Analysis Group (AIAG/16)

2.5.1 The TAG reviewed the outcome of the Sixteenth Meeting of the Air Traffic Services (ATS) Incident Analysis Group (AIAG/16) meeting held prior to its meeting. The Findings and Recommendations from AIAG/16 meeting will be presented by IATA to APIRG/22.

2.6. Specific reduced vertical separation minima (RVSM) issues

2.6.1 Coordination Failures

2.6.1.1 The TAG was informed of the outcome of ARMA’s initiatives to identify and address risks associated with coordination failures which has encouraged some FIR/ACC’s to voluntarily report coordination failures to ARMA.

2.6.1.2 The revised RVSM Large Height Deviation definition now includes the resultant outcome of coordination failures and reads as follows:

2.6.1.3 Large Height Deviation (LHD). A vertical deviation from an ATC assigned or coordinated altitude that results in an error of 300 ft. or more. The deviation may be the result of human error, equipment malfunction or environmental factors such as turbulence, and should be reported in accordance with the LHD types.

2.6.1.4 In addition, a new trend of LHD, Code E - Coordination errors in the ATC-to-ATC transfer of control responsibility as a result of Human Factors (e.g. late or non-existent coordination; incorrect time estimate/actual; flight level, ATS route, etc. not in accordance with agreed parameter has been included as contributing factor to LHD.

2.6.1.5 The TAG was informed on the increasing number of coordination failure between Sanaa and Djibouti, Sanaa and Mogadishu and also between Sanaa and Asmara ACCs both of which have significant impact on the AFI RVSM TLS.

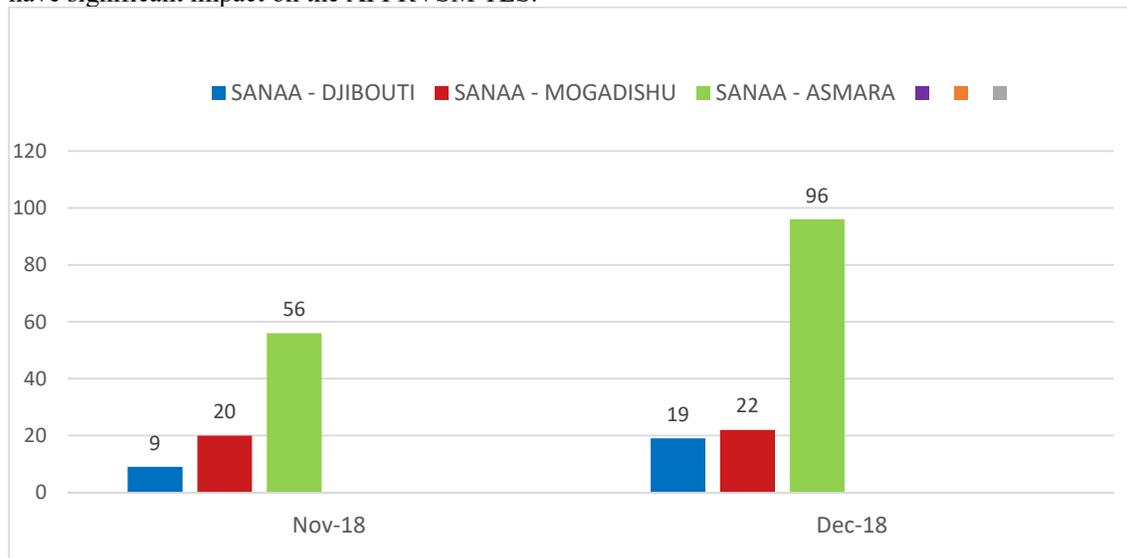


Fig. 11: ATS Coordination

2.6.1.8 Under-reporting of Large Height Deviation (LHD) from the mathematicians working on the RVSM TLS does help in providing accurate assessment of the safety situation in the AFI region.

2.6.2 Report of Collision Risk Assessment (CRA) 12

2.6.2.1 The technical and total vertical collision risk assessments are based on the data and information available from AFI RVSM operations during the calendar year 2017 as collected and collated by ARMA.

2.6.2.3 The CRA 12 2017 estimate of the total vertical collision risk was 58.6×10^{-9} fatal accidents per flight hour, i.e. 12 times the total vertical TLS. It was approximately 1.6 times larger than its CRA 11 2016 counterpart. The increase in the CRA 12 2017 estimate of the total vertical collision risk represented the combined effect of increases in the probabilities of vertical overlap due to improper flight level crossings and flying at wrong flight levels. The former increased by a factor of approximately 1.2 and the latter by a factor of approximately 1.8.

Overall Collision Risk Assessment

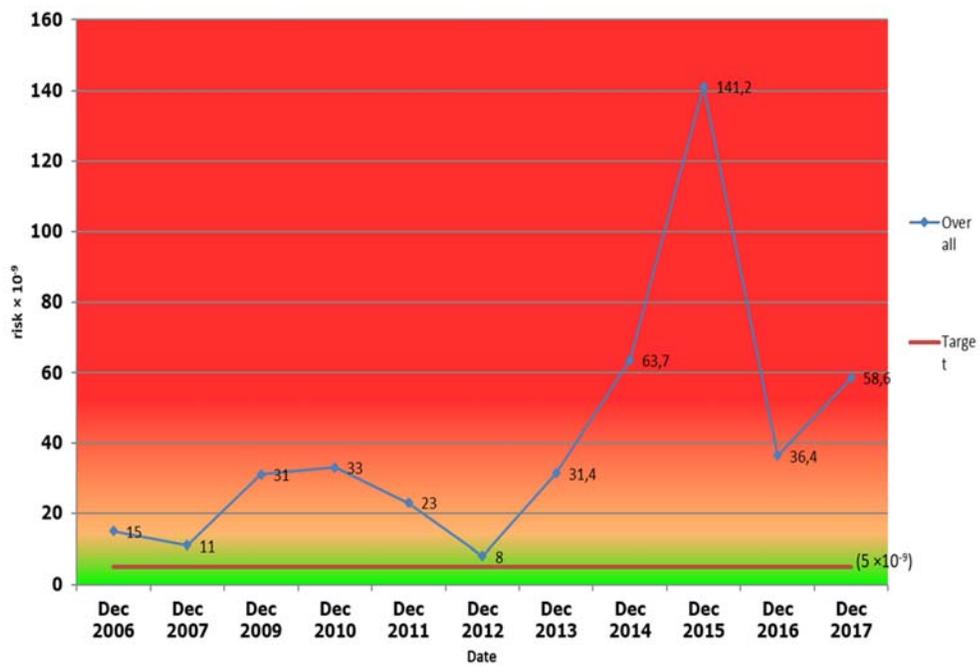


Fig 12

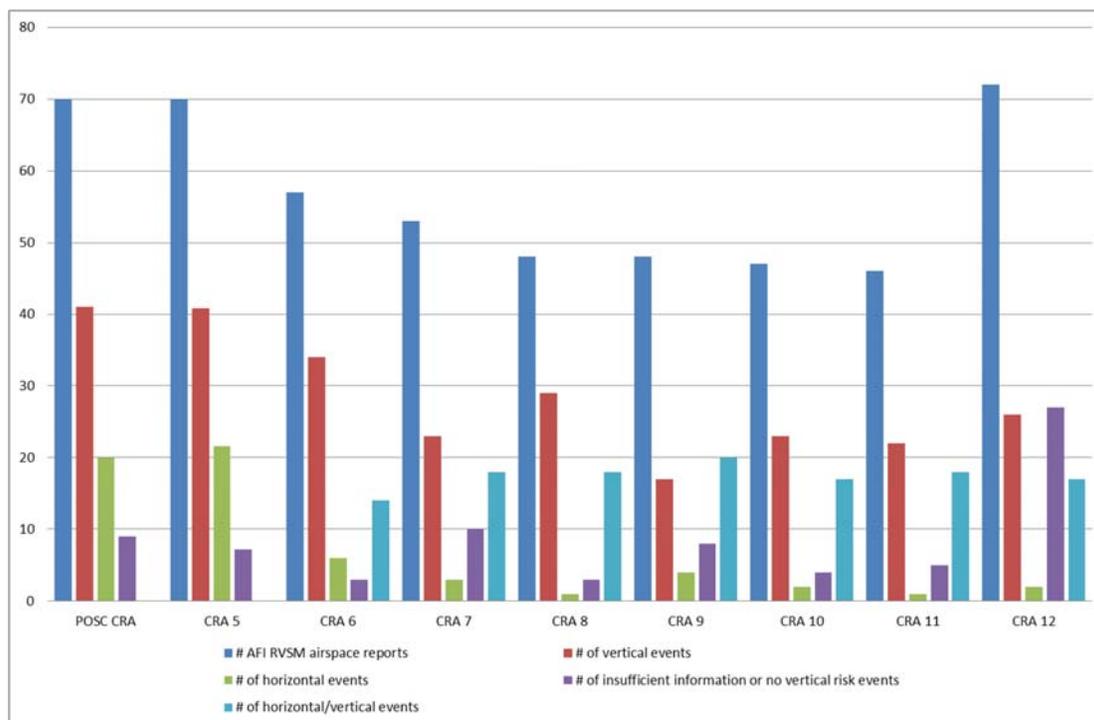


Fig 13

2.6.2.4 Coordination failures contributed significantly to flights operating at incorrect flight levels.

2.6.2.5 Non RVSM approved aircraft pose a risk in RVSM airspace which has been debated on many occasions and will continue to be pursued. It is believed that TAG/ARMA is managing the occurrences of Non RVSM approved aircraft as best as possible currently.

2.6.2.6 RVSM system safety must be promoted at every available opportunity so as to reach all RVSM system role-players. i.e. Aircraft Operators, Maintenance Organisations, CAAs, and ANSPs.

2.6.2.7 The implementation and use of the ICAO Strategic Lateral Offset Procedure (SLOP) within AFI should be encouraged, where applicable, to counteract the adverse effect of very accurate GNSS navigation on vertical collision risk. The safety benefits of the SLOP were not worked into CRA/12 2017 as the implementation of the SLOP has not been completed in AFI Region.

2.6.2.8 There remain several factors that require the estimate of the total vertical collision risk to be treated with caution. The estimate is most likely affected by under-reporting of vertical events involving large height deviations. Continued efforts to bring the total vertical risk further down to below the total vertical TLS and to improve the event reporting in AFI must be sustained.

FIR/UIR	CRA 12 2017		CRA11 2016	CRA 10 2015	CRA 9 2014	CRA 8 2013
	n _{x(opp)}	n _{x(equiv)}				
Accra	0.00351 8	0.003675	0.02147	0.02926	-	-
Addis Ababa	-	-	-	-	-	-
Algiers	0.05403 2	0.059434	0.11381	0.1323	0.09244	0.1446

Antananarivo	0.01481 6	0.014831	0.01166	0.03665	0.03866	0.0341 4
Asmara	-	-	-	-	0.01249	-
Beira	0.08225 1	0.082341	0.15083	0.1175	0.1004	0.1141
Brazzaville	0.01798 4	0.018808	0.015836	0.1639	0.04408	0.0450 9
Cape Town	0.00000 0	0.000006	0.000005	0.00053 5	0.002702	0.0013 2
Dakar	0.09205	0.092379	0.072278	0.07351	0.1118	0.1524
Dar Es Salaam	-	-	-	-	-	0.0833 9
Entebbe	-	-	-	0.02104	0.04153	0.0345 8
Gaborone	-	-	0.02864	0.05985	0.05603	0.0866 8
Harare	0.22789 4	0.228386	0.20042	0.2708	0.2073	0.1714
Johannesburg	0.00004 9	0.000088	0.00079	0.00049 3	0.000630	0.0010 7
Johannesburg Oceanic	-	-	-	-	-	-
Kano	0.10275 8	0.102794	0.13266	0.1465	-	-
Kinshasa	0.01189 8	0.011906	-	-	0.02332	0.0552 8
Lilongwe	-	-	-	-	-	-
Lomé	0.01735 1	0.018994	-	-	-	-
Luanda	-	-	-	-	-	-
Lusaka	0.03502 5	0.035304	0.03739	0.03052	0.01617	0.0403 0
Mauritius	0.00554 6	0.005548	0.00376	0.00566 1	0.005167	0.0059 3
Mogadishu	0.05789 8	0.057944	0.07546	0.09931	0.03721	0.0565 7
Nairobi	0.04234 8	0.045538	0.05673	0.06137	0.01217	0.0452 8
N'Djamena	0.09900 2	0.099079	0.21169	0.2142	0.1444	0.0956 0
Niamey	0.07014	0.071261	0.19777	0.1767	0.04139	0.0660 8
Roberts	0.01951 0	0.019516	0.02175	0.01983	0.03652	0.0355 7
Seychelles	0.01456 8	0.014830	0.01814	0.01312	0.01123	0.0192 8
Windhoek	0.01142 3	0.012615	0.01950	0.01859	0.01867	0.0131 6

Fig. 14

2.6.2.9 The TAG reiterated the need for all FIRs to submit RVSM safety data for the assessment every month to improve the distribution of the assessment area and therefore urged all States/FIRs to submit all the RVSM data from 2016 to 2018 as soon as practically possible to be included in the next Collision Risk Assessment.

FIR/UIR	No of months processed	Flight time estimate for 2017 (hrs)
Accra	11	33,798.96
Addis Ababa	-	
Algiers	11	142,441.87
Antananarivo	12	20,181.32
Asmara	-	
Beira	12	30,759.35
Brazzaville*	$(6+7+4) * 12 / 36 = 5.7$	30,408.80
Cape Town	8	20,057.55
Dakar*	$(3+12+12+0) * 12 / 48 = 6.8$	67,053.77
Dar Es Salaam	-	
Entebbe	-	
Gaborone	-	
Harare	10	16,760.46
Johannesburg	10	74,102.82
Johannesburg Oceanic	-	
Kano	12	15,658.12
Kinshasa	5	34,694.28
Lilongwe	-	
Lomé	12	5,475.10
Luanda	-	
Lusaka	9	11,115.84
Mauritius	11	14,358.42
Mogadishu	8	73,007.67
Nairobi	5	77,585.40
N'Djamena	7	39,064.26
Niamey*	$(11+12) * 12 / 24=11.5$	52,483.15
Roberts	11	7,772.22
Seychelles	10	20593.08
Windhoek	12	16,020.93
Total	209.9	803,393.37

Fig 15

2.6.2.10 The TAG requested ARMA to:

- a) encourage AFI States in the implementation of Strategic Lateral Offset Operations (SLOP);
- b) urge the appropriate APIRG structures to review the AFI route network; and
- c) assist, if possible, those FIRs mentioned in the paper to submit RVSM air traffic flow data.

2.7 Implementation of Strategic Lateral Offset Procedure (SLOP) in the AFI Region

2.7.1 SLOP reduces the risk of aircraft passing directly over each other and was identified in the synopsis of the Mid Air collision which occurred involving a B738 and HS125, as a procedure that can prevent such incidents from happening in the AFI region.

2.7.2 States were requested via State Letter Ref. ES AN 4/45 – 945 to respond not later than 28 February 2013 as to the status of SLOP implementation within their FIRs. A review conducted by ARMA in order to establish the number of FIR's that have officially published and implemented the procedure indicated only 50% of the AFI States have implemented to date. The result of SLOP implementation in the AFI region is required for use in the annual RVSM Collision Risk Assessment.

2.7.3 The TAG meeting recalled that the below mentioned Conclusion which was adopted by APIRG 17 was a contributing factor to non-implementation of SLOP by some AFI States:

CONCLUSION 17/43: IMPLEMENTATION OF STRATEGIC LATERAL OFFSETS (SLOP) IN THE AFI REGION

That, AFI States implement SLOP within their areas of responsibility, by the AIRAC effective date of 30th November 2010, in line with provisions in PANS-ATM Doc 4444 Chapter 16 and the following guidance:

- a) *SLOP will be applied in those oceanic FIRs where fixed routes are established;*
- b) *SLOP will be applied in all areas of the continental AFI Region except in those areas where ATC separation is provided by surveillance, unless approved by the State; and*
- c) *SLOP will be applied in oceanic random routing areas (AORRA and IORRA) with effect from the target date of AIRAC date of 2 June 2011*

2.7.4 Most States/FIRs which have not as yet implemented SLOP quoted **APIRG CONCLUSION 17/43 (b)** as above as their reason and basis for non-implementation.

2.7.5 The ARMA has a requirement to establish the number of AFI FIRs in which SLOP has been implemented, pursuant to the above mentioned APIRG Conclusion and use the data in the AFI RVSM Collision Risk Assessments. The results of the survey conducted by ARMA are reflected hereunder:

FIR	Implemented SLOP (Yes/No)	Evidence Received (Yes/No)
Accra	Yes	Yes
Addis Ababa	No	
Algiers	No	Yes
Antananarivo	Yes	Yes
Asmara	No	
Beira	Yes	Yes
Brazzaville	Yes	Yes
Cape Town	No	Yes
Dakar (Terrestrial)	Yes	Yes
Dar Es Salaam	No	
Entebbe	No	
Gaborone	No	
Harare	Yes	Yes
Johannesburg	No	Yes
Johannesburg Oceanic	No	Yes
Kano	Yes	Yes
Kinshasa	Yes	Yes
Lilongwe	No	
Luanda	Yes	Yes
Lusaka	No	
Mauritius	No	
Mogadishu	Yes	Yes
Nairobi	No	Yes
N'djamena	Yes	Yes
Niamey	Yes	Yes
Roberts	Yes	Yes
Seychelles	Yes	Yes
Windhoek	No	Yes

Fig 16

2.7.6 ARMA and ICAO were requested to provide more education of SLOP to provide better clarification on ICAO provisions, applications, processes, benefits and delineation of roles and responsibilities of States, ANSPs and airspace users.

2.7.7 The TAG agreed with ARMA that **APIRG CONCLUSION 17/43 (b)** will have to be reviewed as it gave States the option to opt out of SLOP implementation in their respective FIRs. The Collision Risk Assessment study is an expensive task undertaken by ARMA and should be used to the full benefit of the region in improving our safety levels and meeting global standards.

2.7.8 The TAG was informed that the data required for next CRA had to be submitted by 31 May 2019. The TAG therefore recommended for proactive actions to be taken by all stakeholders in providing the requisite data before the 31 May 2019. In this regard, the TAG requested:

- a) ICAO, ARMA and FAA to provide AFI States, with all documents and guidance materials relating to SLOP including sample AIP Supplement (AIP SUPP), by 11 May 2019;

- b) States that have not as yet implemented SLOP to publish AIP SUPP for SLOP implementation by 25 April 2019 to take effect on 23 May 2019;
- c) States to ensure that aircraft and pilots are approved for SLOP operations; and
- d) ICAO to initiate the process and request APIRG to review **Conclusion 17/05 (b)**.

The full report of the TAG/11 meeting is available at the ICAO website.

3. DRAFT CONCLUSION

That,

- a) **States confirm/update the contact details of RVSM National Programme Managers or Focal Points;**
- b) **ICAO and ARMA jointly conduct seminars for State agencies and RVSM NPM/Focal Points to inform and/or update them on RVSM requirements and post implementation responsibilities of States, ANSPs, Airspace Users and other stakeholders.**
- c) **ICAO facilitate Coordination Meetings for Addis Ababa, Kinshasa and either Gaborone or Lusaka FIRs, and ensure the participation of neighbouring FIRs and/or ATC Units to resolve the high numbers of Coordination Failures;**
- d) **States/ANSPs be urged to report all vertical events involving large height deviations and take the necessary corrective action to reduce the total vertical risk further down to below the total vertical Target Level of Safety;**
- e) **AFI Trans-regional co-ordination failures between Sanaa FIR and Mogadishu, Asmara and Djibouti should be given immediate attention due to the number of events that have occurred. These events affect the busiest airspace in the AFI region.**
- f) **States/FIRs which have not yet done so are urged to submit all the RVSM data from 2018 to 2019 and establish a mechanism for submission of monthly data to ARMA;**
- g) **ICAO is requested to advise if the use of CPDLC can be mandated for aircraft operating in the high-seas;**
- h) **AFI States/FIRs are encouraged to implement Strategic Lateral Offset Operations (SLOP); and**
- i) **Secretariat coordinate with States/ANSPs and Airspace Users to facilitate a review of the AFI route network.**