



INTERNATIONAL CIVIL AVIATION ORGANIZATION

MIDDLE EAST OFFICE

FIFTH MEETING OF THE FIFA WORLD CUP 2022 TASK FORCE

(FWC2022 TF/5)

(Virtual, 23 – 24 March 2021)

SUMMARY OF DISCUSSIONS

1. PLACE AND DURATION

1.1 The Fifth meeting of the FIFA World Cup 2022 Task Force (FWC2022 TF/5) was held virtually, on 23 and 24 March 2021, using MS Teams.

2. OPENING

2.1 The meeting was opened by Mr. Ahmad Amireh, ICAO Regional Officer, Air Traffic Management and Search and Rescue (RO/ATM/SAR), who welcomed all the participants. Mr. Amireh recalled the main tasks assigned to the FWC2022 Task Force, and highlighted the time constraints related to FWC2022 Action Plan and the need to expedite the progress related to the action items. He thanked all the participants for their attendance and wished the meeting every success in its deliberations.

3. ATTENDANCE

3.1 The meeting was attended by a total of sixty-six (66) participants from eleven (11) States (Bahrain, Egypt, India, Iran, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, UAE and USA/FAA) and six (6) International Organizations (ACAO, AEROTHAI, CANSO, EUROCONTROL, IFATCA and MIDRMA). The list of participants is at **Attachment A**.

4. OFFICERS AND SECRETARIAT

4.1 The FWC2022 TF/5 meeting was chaired by Mr. Mohammed Almuhamadi, Head of Doha Tower Unit, Qatar Civil Aviation Authority (QCAA). Mr. Almuhamadi extended appreciation to all participants for accepting the invitation to actively participate in the meetings and share their experiences and views, which would support the achievement of the objectives of the FWC2022 TF.

4.1 Mr. Ahmad Amireh, RO/ATM/SAR, MID Regional Office, was the Secretary of the meeting.

5. DISCUSSIONS

AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA

5.1 The meeting adopted the following Agenda:

Agenda Item 1: Adoption of the Provisional Agenda

Agenda Item 2: Regional Framework and Action Plan:

- Update from Qatar
- MID Region RVSM Airspace Safety Assessment
- Review and Update FWC 2022 Roadmap and Operational Plan
- Update the FWC 2022 Action Plan

Agenda Item 3: Future Work Programme

Agenda Item 4: Any other Business

5.2 The documentation and presentations delivered during the meeting are available on the ICAO MID Office website at: <https://www.icao.int/MID/Pages/2021/FWC2022%20TF5.aspx>

AGENDA ITEM 2: REGIONAL FRAMEWORK AND ACTION PLAN

Update from Qatar

5.3 The subject was addressed in PPT/2, presented by Qatar, showing the progress made on the ground for the preparation of the event, including the Airports terminal expansions, Stadiums completion and Road/Metro developments for the participating spectators.

5.4 Qatar emphasized that the three runways at Hamad international and Doha international airports will be made available to cater for the arrivals and departures flights, and would be managed as IATA Level-3 Slot coordinated principle during the period of 30 October to 25 December 2022.

MID Region RVSM Airspace Safety Assessment

5.5 The subject was addressed in WP/3, presented by the MIDRMA.

5.6 The meeting recalled the discussion during the MIDANPIRG/18 virtual meeting (15 – 22 February 2021), in particular to MIDANPIRG Conclusion 17/24 related to the MID Region RVSM Airspace Safety Assessment during the period of the FWC 2022 (November – December 2022), and the offer received to provide a list of probabilistic/predicted LHD reports, which will enable the MIDRMA to use the current version of the MIDRAS software to conduct the required assessment. However, the MIDANPIRG meeting did not reach the consensus to proceed on this direction. The MIDRMA proposed to use the available historical data available within the MIDRMA and forecasted FWC 2022 Traffic data provided by Qatar to calculate the Technical Risk and Overall Risk values required for the development of the assessment based on worst case scenario within RVSM airspace. The MIDANPIRG/18 meeting agreed on the following conclusion to replace and supersede the Conclusion 17/24:

MIDANPIRG CONCLUSION 18/30: MID REGION RVSM AIRSPACE SAFETY ASSESSMENT RELATED TO THE FWC2022

That, the MIDRMA conduct a MID Region RVSM airspace safety assessment, to ensure that the overall risk is meeting the ICAO TLS; and identify the peak periods, hotspots, bottlenecks, etc., based on a worst case scenario, using the forecasted traffic during the FWC 2022 period and all historical LHD reports available within the MIDRMA database.

5.7 The meeting noted that the FWC 2022 traffic forecast, provided by Qatar, and the regional traffic forecast, provided by MIDRMA, along with the available LHD archive were used to develop the RVSM Airspace Assessment, using the ICAO methodology similar to the annual SMR Report, for all the route network in MID Region FIRs based on the worst case scenario, and highlighted the use of the following criteria:

- a) FWC 2022 Traffic Forecast during the whole period of the event were 30'916 movements (15'375 as Arrivals and 15'541 Departures within Doha TMA).
- b) The MIDRMA ensured the continuity of the forecasted Arrival / Departure traffic within all MID Region FIRs Entry/Exit points, using the waypoints database and the routing options provided by MIDRMA Focal Point of each MID State.
- c) The FWC 2022 Traffic Forecast were supplemented with MID Region Traffic Forecast for 2022, based on the SMR 2019 Traffic Data Sample (TDS), as it is the most recent normal level of traffic movements, with expected annual traffic growth of 13%, and logical distribution of vertical and longitudinal separation.

Note: TDS for SMR 2020 showed a reduction of 68% due COVID-19 impact, it is anticipated that traffic levels will be resumed to normal at the time of the event.

- d) the fast time simulation analysis was calculated for 30 days, to identify the congestion hotspots and bottlenecks.
- e) the assessment shows only the results for the most affected FIRs by the forecasted movements related to the event, namely (Bahrain, Baghdad, Kuwait, Muscat, Jeddah, Tehran and Emirates FIRs).
- f) the archived LHD reports related to the said FIRs were included in the assessment, for the last three SMR cycles.
- g) the Airspace beyond the RVSM layer was out of the scope of this assessment, as per the MIDANPIRG Conclusion.

5.8 The MIDRMA presented the results of the assessment, as at **Appendix A**. The assessment addressed each of the said FIRs with observations within the RVSM airspace related to potential hotspots, bottlenecks and major traffic flow.

Note: with anticipated traffic growth of 39% (3 x 13% annual growth) of TDS for SMR 2019, which was collected during the Hajj season (1 – 31 Aug 2019), the assessment results show potential traffic congestion within some FIRs not related to the FWC 2022 Traffic Movements. However, it would be useful to consider the results of analysis.

5.9 Based on the Traffic Forecasts and the criteria stated in Paragraph 5.4 above, the worst case RVSM Airspace Assessment, at **Appendix A**, shows that the Technical Risk and the Overall Risk values for the concerned FIRs are meeting the ICAO Target Level of Safety TLS.

5.10 The MIDRMA highlighted that the calculated results could be affected if more LHD Reports are received during the coming period till the event (SMR 2021 and SMR 2022); and airspace/route network structure improvement projects and implementation of ATFM measures.

5.11 Furthermore, the MIDRMA highlighted a concern regarding the traffic movements in the lower airspace, related to climbing and descending traffic bound from/to Doha TMA bellow RVSM layer and traffic exchange between the nearby destinations.

5.12 The meeting noted with appreciation the development of the RVSM Airspace assessments, by the available tools and expertise within the MIDRMA with the support of Qatar and the MID Office, to show the potential impact of the FWC 2022 traffic movements on the MID RVSM Route network structure. The meeting agreed on the following actions:

- a) distribute the results of the assessment to the concerned States/ANSPs ATM Focal Points, and invite States/ANSPs to consider the identified issues.
- b) invite Qatar to share the results of the Airspace Assessment below RVSM Airspace within Doha TMA, and assess the possibility to extend the assessment to include traffic movements beyond the RVSM level and traffic exchange with nearby destinations.
- c) support the MID States/ANSPs on the improvement plans for the identified hotspots, bottlenecks related to the FWC 2022 by organizing Ad-hoc meetings when necessary.
- d) traffic flows might be dynamically changed according to the progress of the tournament, however the exaggerated forecasted traffic and using worst case scenario will accommodate the expected changes, along with the expected improvements and flow measures to be applied.

Review and Update FWC2022 Roadmap and Operational Plan

5.13 The subject was addressed in PPT/4, presented by Qatar.

5.14 The meeting was apprised that the traffic volumes anticipated by Qatar is 1600 movement per day, that could reach up to 2000 movement per day for the last 5 days prior the opening, for that Qatar initiated an airspace restructure (SIDs, STARs) within Doha TMA for capacity enhancements. The existing parameters of Doha TMA will be maintained. However, based on the results of the simulation of the new structure proposals, the Entry/Exit points, the existing routes and traffic flow will be also maintained up to the extent possible, unless otherwise deemed necessary to achieve the required enhancement. A temporary measure might be required and will be coordinated with adjacent States/ANSPs for LoAs amendment.

5.15 Furthermore, other measures might be required to cater for the expected traffic movements during the event, including CDR Routes, CMC and FUA implementations, contingency arrangements, ATFM introduction, Slot Coordination and allocation system, and handling general aviation, business jet operations, along with VVIP and State aircraft operations arrangements.

5.16 The meeting noted that, a specific FWC 2022 ATFM CONOPS will be developed by Qatar based on MID Region ATFM CONOPS (MID Doc 014) by the end of May 2021, which will be presented to the ATFM TF/5 meeting.

5.17 The meeting was apprised with the progress of the FWC 2022 Operational Plan and Roadmap. The meeting invited Qatar to engage the adjacent States/ANSPs by sharing the document and plans with the concerned States/ANSPs to allow sufficient time for the enhancements and preparations of the implementation. The adjacent States/ANSPs showed the interest to receive the documents to support the implementation of the measures.

5.18 The meeting noted that Qatar will develop a more detailed draft of the FWC2022 Roadmap and Operation Plan (which include the expected measures, Action Plan, contingency arrangements, temporary LoAs proposals...) to be presented to the ATM SG/7 meeting (15 – 18 November 2021) for review and implementation in a timely manner.

5.19 The meeting invited Qatar to establish an operational committee to manage the traffic on pre-tactical level, and to coordinate the measures with ATM/ATFM Focal Points on the MID Region States/ANSPs.

5.20 The meeting noted with appreciation the invitation received for the UEFA EURO 2020 Coordination Planning virtual Meeting, which is organized jointly by UEFA and EUROCONTROL.

Update the FWC2022 Action Plan

5.21 The meeting reviewed and updated the FWC2022 Action Plan, as at **Appendix B**.

AGENDA ITEM 3: FUTURE WORK PROGRAMME

5.22 The meeting reviewed and updated the FWC2022 TF Terms of Reference, as at **Appendix C**.

5.23 The meeting agreed that the FWC2022 TF/6 meeting be held during the third quarter of 2021 after ATM SG/7 meeting. The meeting will be either virtual or face-to-face based on COVID-19 situation which will continue to be monitored. The venue for face-to-face meeting will be the ICAO MID Regional Office, Cairo, Egypt, unless a State offers to host the meeting. The exact dates and venue will be coordinated between the ICAO MID Office and the Chairperson of the FWC2022 Task Force.

5.24 An ad-hoc coordination meeting may be organized to follow-up the FWC 2022 Action Plan, as deemed necessary.

AGENDA ITEM 4: ANY OTHER BUSINESS

5.25 Nothing has been discussed under this Agenda Item.



MID Region RVSM Airspace Safety Assessment related to the Expected Traffic Growth During FWC 2022

Prepared by the Middle East Regional Monitoring Agency (MIDRMA)

SUMMARY

The aim of this study is to present to the FWC 2022 TF the expected hotspots/bottlenecks generated from the predicted RVSM traffic data for FIRs expected to be affected by the traffic growth during the FWC 2022 event.

1.Introduction:

1.1 With reference to the MIDANPIRG Conclusion 17/24 related to the MID Region RVSM Airspace safety assessment during the period of the FWC 2022 event (November – December 2022), the meeting noted that the subject has been followed up by the MIDRMA Board, the FWC 2022 TF and the ATM SG; and it was found that, the MIDRMA would be able to assess the technical risk, while the operational risk would need LHD reports, which could not be available beforehand. Therefore, it would not be possible to meet the mandate given by MIDANPIRG, through Conclusion 17/24, to identify the peak periods, hotspots, bottlenecks, etc.

1.2 MIDANPIRG was informed that, as a follow-up action and in order to find a way forward to meet the mandate given by MIDANPIRG, the ICAO MID Office organized coordination meetings with the FWC2022 TF Chairman, Qatar, the MIDRMA and the MIDRAS Developer. It was agreed that it is possible to use artificial intelligence and the available historical data related to LHD, forecasted traffic and the ATS Route Network Structure to provide probabilistic/predicted LHD reports, which will enable the MIDRMA to use the current version of the MIDRAS software to conduct the required safety assessment, as per MIDANPIRG Conclusion 17/24. MIDANPIRG/18 (Virtual, 15 – 22 Feb 2021) meeting reviewed the project proposal by the MIDRAS Developer (Cost # 25,600 USD). No consensus was reached to proceed with the proposal. Based on a proposal by the MIDRMA, the meeting agreed that the MID Region RVSM Airspace safety assessment related to the FWC 2022, be developed based on a worst case scenario (using all available historical LHD reports) for the assessment of the risk of collision due to operational errors. And agreed on MIDANPIRG Conclusion 18/30: MID Region RVSM Airspace Safety assessment related to the FWC 2022.

That, the MIDRMA conduct a MID Region RVSM airspace safety assessment, to ensure that the overall risk is meeting the ICAO TLS; and identify the peak periods, hotspots, bottlenecks, etc., based on a worst case scenario, using the forecasted traffic during the FWC 2022 period and all historical LHD reports available within the MIDRMA database.

2. Discussion:

2.1 According to the proposal presented by MIDRMA to MIDANPIRG/18 to conduct the assessment based in a worst case scenario, the MIDRMA requested from Qatar the forecasted traffic for landing/departing all the airports in Qatar, these data will be supplemented with the forecasted RVSM traffic for all the surrounding FIRs to Qatar including Bahrain FIR which is the most affected FIR by the event.

2.2 The MIDRMA accepted the final version of Qatar predicted traffic data on 14th March 2021 which is only 8 days to hand over the assessment to ICAO MID Office for presenting it during the FWC2022 TF/5, Virtual, 23 - 24 Mar 2021. Although the time was not enough to finalize this assessment, the MIDRMA decided to proceed with the study by close coordination with the ICAO MID ATM Officer to avoid further delay.

2.3 Forecasted TDS Received from Qatar

- a- The total predicted movements received from Qatar were **30,916**, distributed as **15,541** Departures from Qatar airports and **15,375** as Arrivals.
- b- Out of the **15,541** departures from Qatar airports MIDRMA found **8,190** flights will be exiting Bahrain FIR below RVSM airspace and will not be included in the assessment for Bahrain FIR but will be used for further en-route analysis beyond Bahrain FIR, the remaining **7,351** flights were used for the analysis.
- c- Out **15,375** arrivals for Qatar airports MIDRMA found **7,037** movements entering Bahrain FIR below the RVSM airspace and will not be used in the assessment for Bahrain but these movements will be used in the previous FIRs, the remaining **8,338** movements were used for the assessment.
- d- The total movements to/from Qatar airports used for the assessment :
$$7351 + 8338 = \mathbf{15,689}$$
 movements
- e- MIDRMA had to correct some errors found in the received data such as wrong exit/entry flight levels and points.

2.4 Forecasted TDS Used for RVSM Airspace Safety Assessment

- a- MIDRMA decided to use the archived RVSM TDS which was received to develop SMR 2019 as the TDS for SMR 2020 was not reflecting the actual/normal traffic level for the MID Region because of the Corona Pandemic.
- b- After a careful review of the traffic flow of FWC 2022, MIDRMA found that most FIRs that will be affected by this event are: Bahrain, Baghdad, Kuwait, Muscat, Jeddah, Tehran

and Emirates FIRs, while other FIRs may be affected but not as severe as those mentioned due to its proximity to Qatar.

- c- MIDRMA developed a software to generate the forecasted TDS taking into consideration the following:
 - i. Annual traffic growth of 13%.
 - ii. Traffic growth for the event was calculated per day/hour/minute at each entry/exit points including departure/arrival aerodromes.
 - iii. Distribution of entry/exit flight levels.
 - iv. Distribution of entry/exit times with logic longitudinal spacing.
- d- MIDRMA merged the forecasted TDS received from Qatar with the forecasted TDS developed for each FIR (after applying 39% traffic growth) based in the entry/exit points and linked all the TDS for the continuity of traffic flow in the neighboring FIRs.

2.5 Operational Error Reports – Large Height Deviations (LHDs)

- a- In order to calculate the overall risk for RVSM airspace during the FWC 2022 event, the archived LHD reports received from the most affected FIRs mentioned in Para 2.4 for last three years were used to obtain the results for the worst case scenario.
Note: The level of reporting LHD in the MID region for SMR 2018 reporting period was very low.
- b- Calculated technical and overall TLS for each FIR:

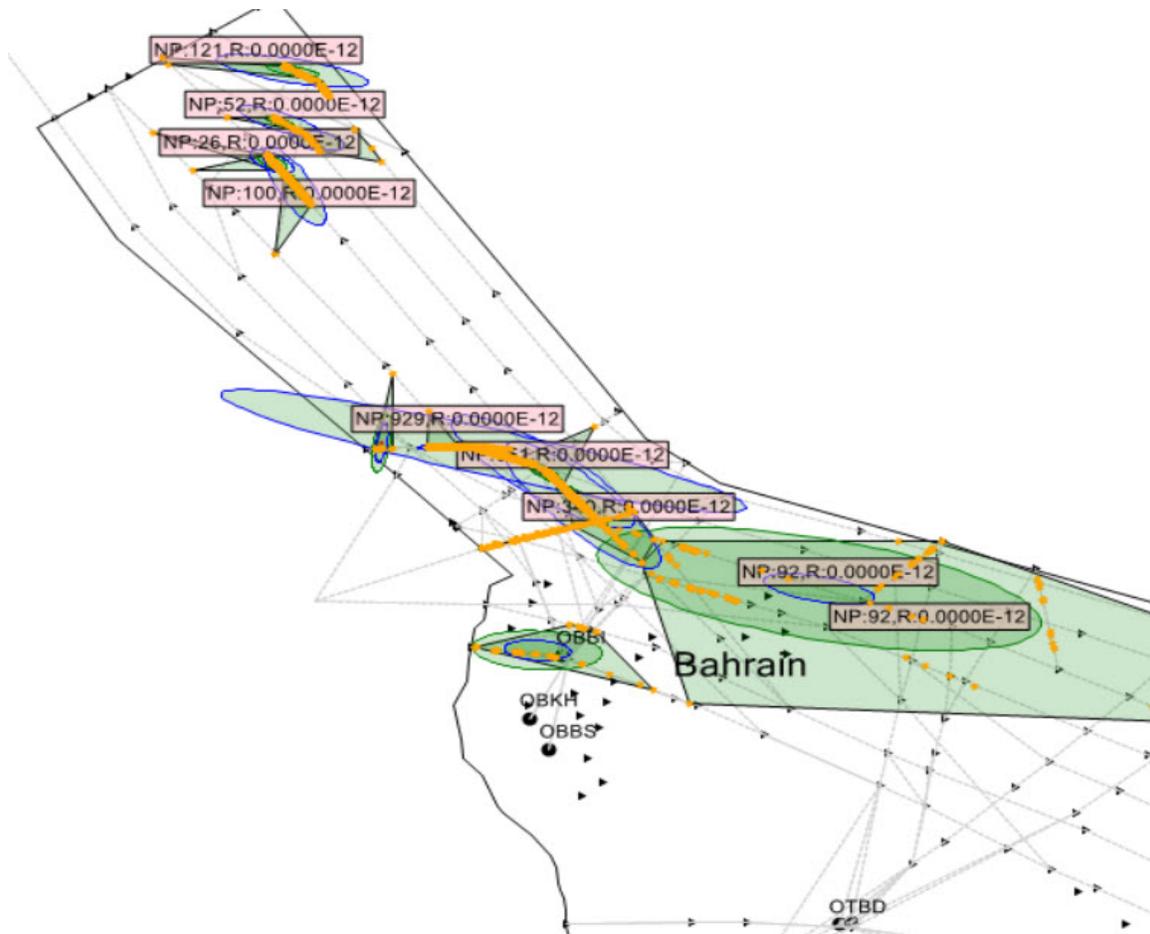
FIR	Technical Risk Values ICAO TLS 2.5×10^{-5}	Overall Risk Values ICAO TLS 5×10^{-5}	Remarks
Bahrain	1.856×10^{-16}	2.916×10^{-10}	Both Values Above ICAO TLS
Baghdad	3.87×10^{-12}	1.949×10^{-10}	Both Values Above ICAO TLS
Kuwait	7.144×10^{-17}	4.672×10^{-13}	Both Values Above ICAO TLS
Muscat	5.617×10^{-15}	5.762×10^{-10}	Both Values Above ICAO TLS
Jeddah	2.6810×10^{-14}	1.067×10^{-10}	Both Values Above ICAO TLS
Tehran	8.358×10^{-14}	2.008×10^{-10}	Both Values Above ICAO TLS
Emirates	2.715×10^{-14}	3.13×10^{-13}	Both Values Above ICAO TLS

- c- The above results reflect ICAO's TLS for assessing RVSM safety based on forecasted traffic without knowing whether the traffic volumes will return back to normal or not as the MID region lost approximately 68% of RVSM traffic during the SMR 2020 reporting period compared to SMR 2019 due to the Corona pandemic.
- d- The calculated results could be severely affected if more LHD reports are received for the next period which could increase the risk values. Therefore, the above mentioned results should be considered as hypothetical results without giving any guarantee in case these results deteriorate or even improve.

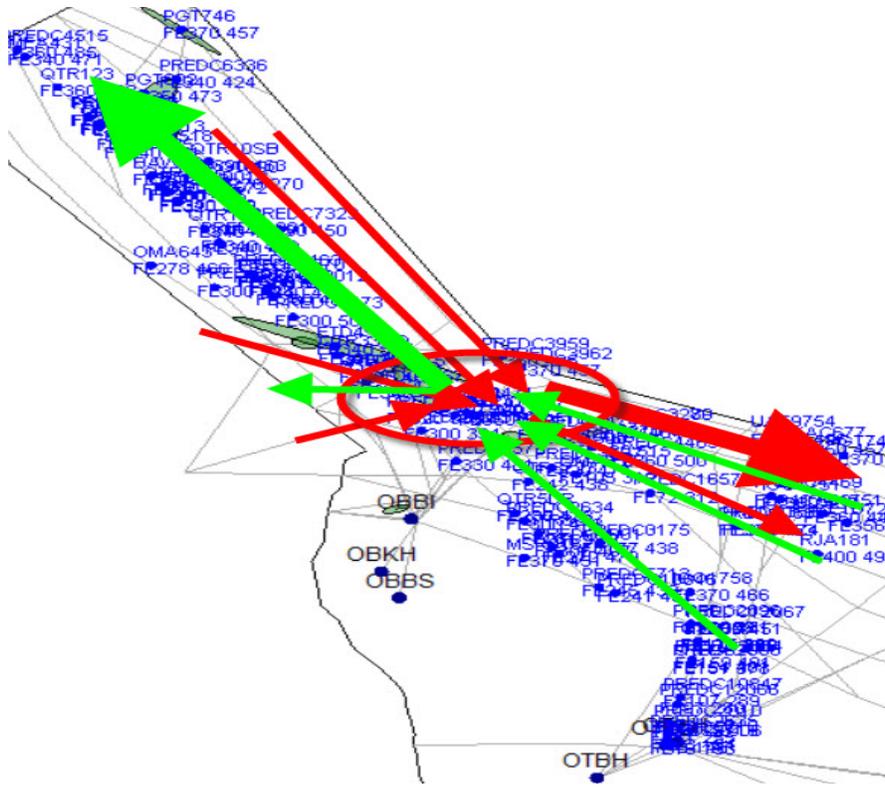
3. MIDRMA Observations for the ICAO MID RVSM Airspace ONLY.

3.1 Bahrain FIR

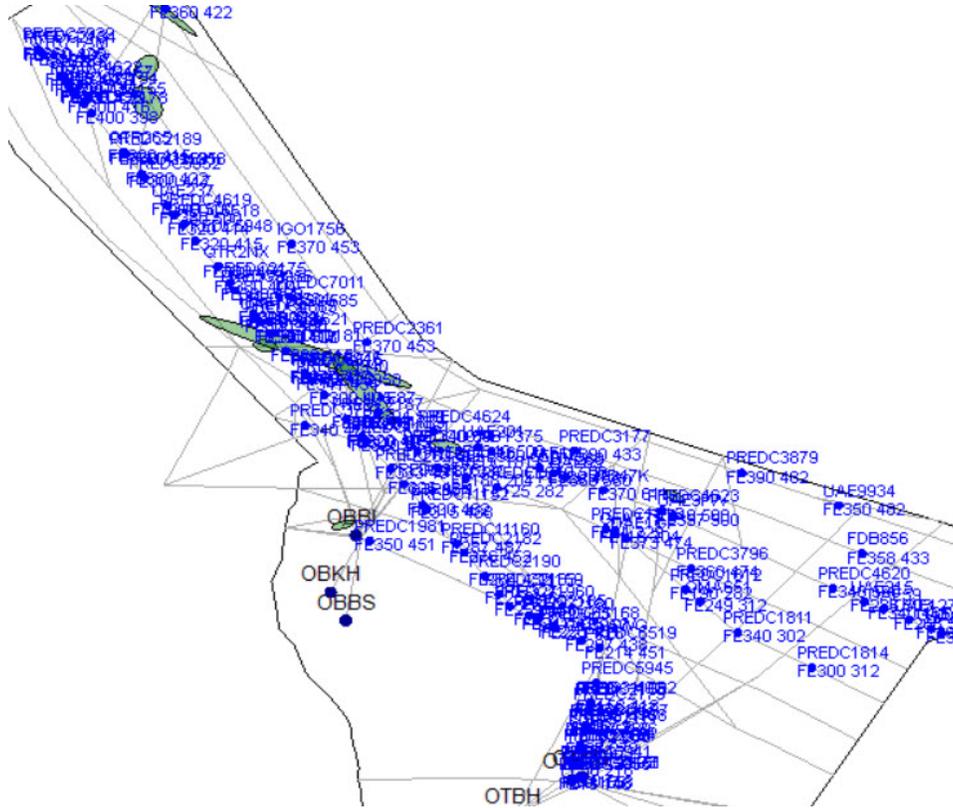
- a. Bahrain FIR considered to be the most affected FIR in the Middle East Region during the FWC 2022 event because large number of Qatar airports landers/departures will be either descending/climbing phase and will be mixed with departures/arrivals for adjacent aerodromes such as Bahrain and Dammam which will cause air traffic congestion below the RVSM airspace and might have serious impact to RVSM airspace as well.
- b. The RVSM airspace to the north and north east of Bahrain VOR is the converging /diverging airspace of nearly all the overflying traffic within Bahrain FIR, this airspace formed one of the most complicated hotspots observed in this study (also detected during the annual MID RVSM SMRs) which caused the passing frequency to increase well above the normal figures for the annual SMRs.
- c. Map 1 below reflects the hotspots of Bahrain FIR which are marked by orange color along the traffic congestion.



Bahrain FIR Hotspots – Map 1



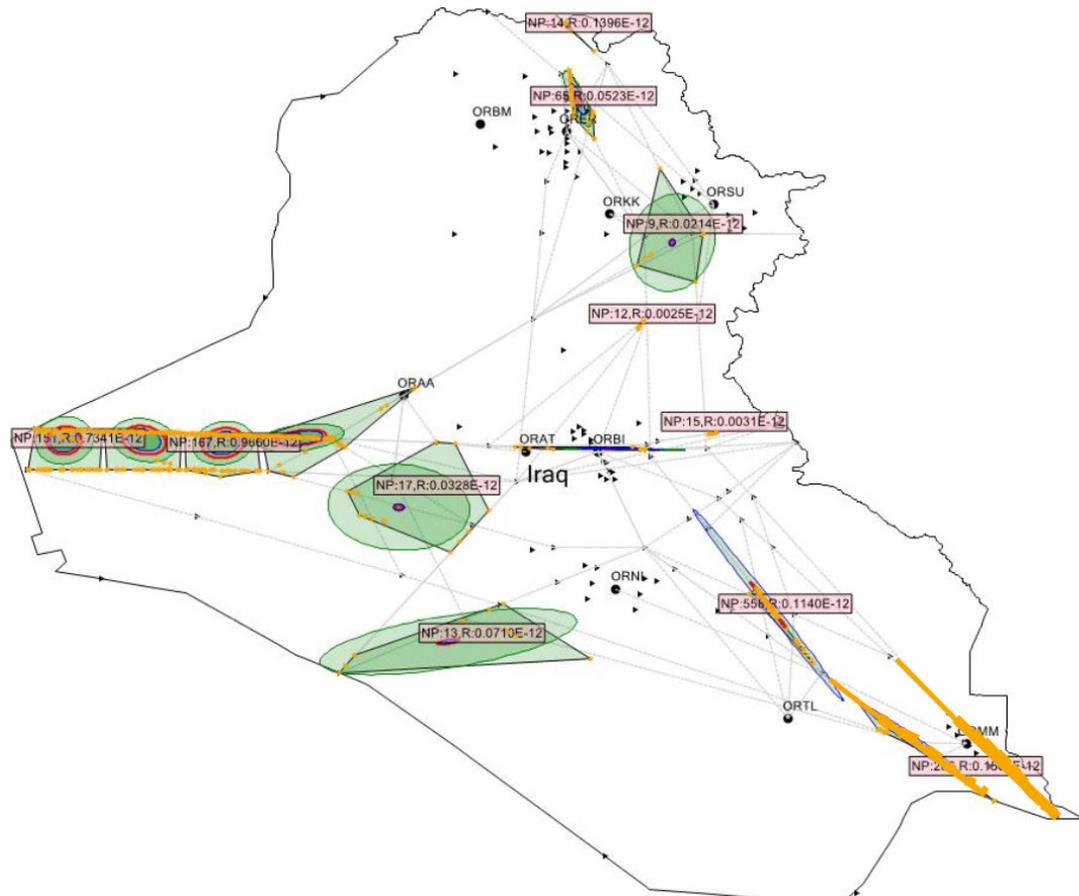
Bahrain FIR - Traffic Flow Simulation 1



Bahrain FIR - Traffic Flow Simulation 2

3.2 Baghdad FIR

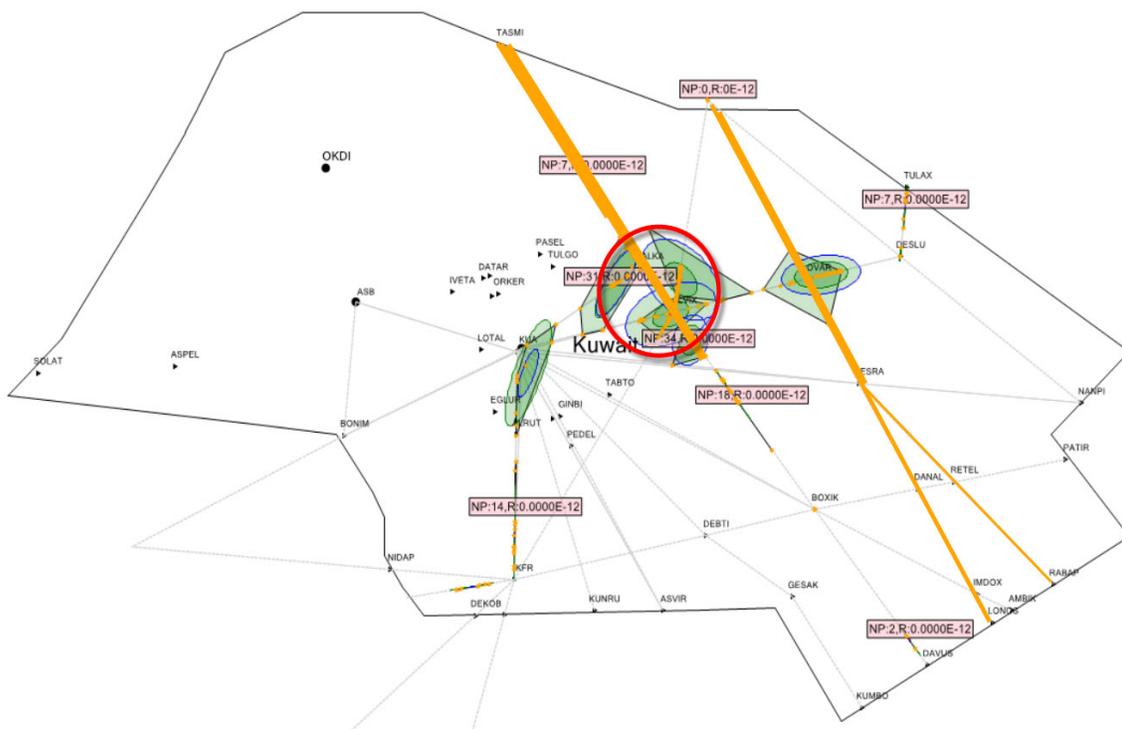
- a- The extreme majority of the traffic flow in Baghdad FIR are flowing North to South and vice versa with some considerable number of traffic crossing this flow from East to West and vice versa which is causing the Technical Risk Value to be lower than all the other FIRs in this study, this reduction is still well above the ICAO TLS and acceptable for RVSM operations.
- b- The passing frequency between RAPLU and MODIK increased very high and reached to a level that will require the ATM Authority in Iraq to review the flow in this airway.
- c- MIDRMA suggests to split this airway into two different airways (east and west).
- d- Baghdad FIR entry point TASMI at the southern FIR boundary with Kuwait is the most congested point in the Middle East RVSM airspace and so as SIDAD the exit point into Kuwait FIR, these two points cannot take any more of traffic growth and it is time for Iraq ATM to establish another points adjacent to SIDAD as an exit point and another one close to TASMI as an entry point to reduce the traffic congestion.



Baghdad FIR Hotspots – Map 2

3.3 Kuwait FIR

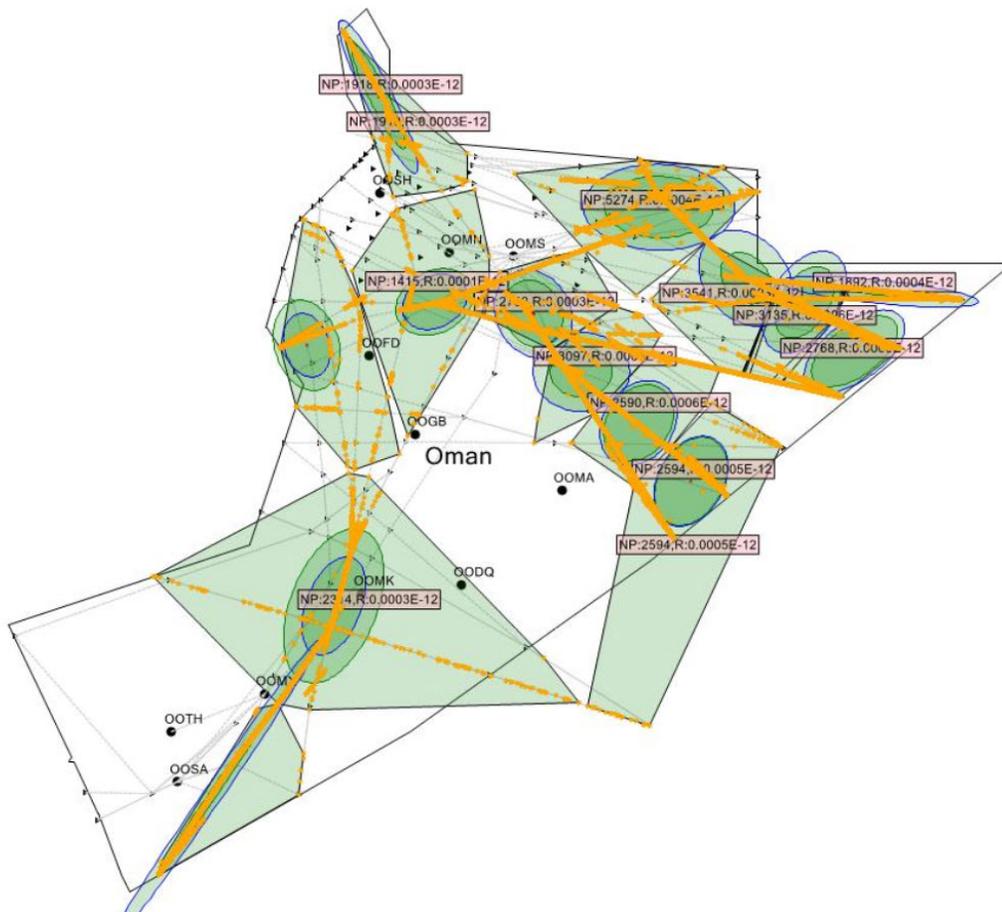
- a- The traffic flow in Kuwait FIR mostly linked with Baghdad and Bahrain FIRs, and flows north and south bound with small number of traffic crossing east and west bound.
- b- Traffic congestion was clearly demonstrated between TASMI and RALKA as a northbound flow and between SIDAD and SESRA as a southbound traffic flow supporting MIDRMA's proposal to establish two more points to reduce this traffic congestion.
- c- The main hotspot observed in Kuwait FIR found between points ALVIX and RALKA were 63% of the crossing traffic occurred at this portion of the airspace, the passing frequency is not very high but it's worth reviewing the airway structure to the east and north east of KUA and explore better flow options to reduce the congestion between these two points.



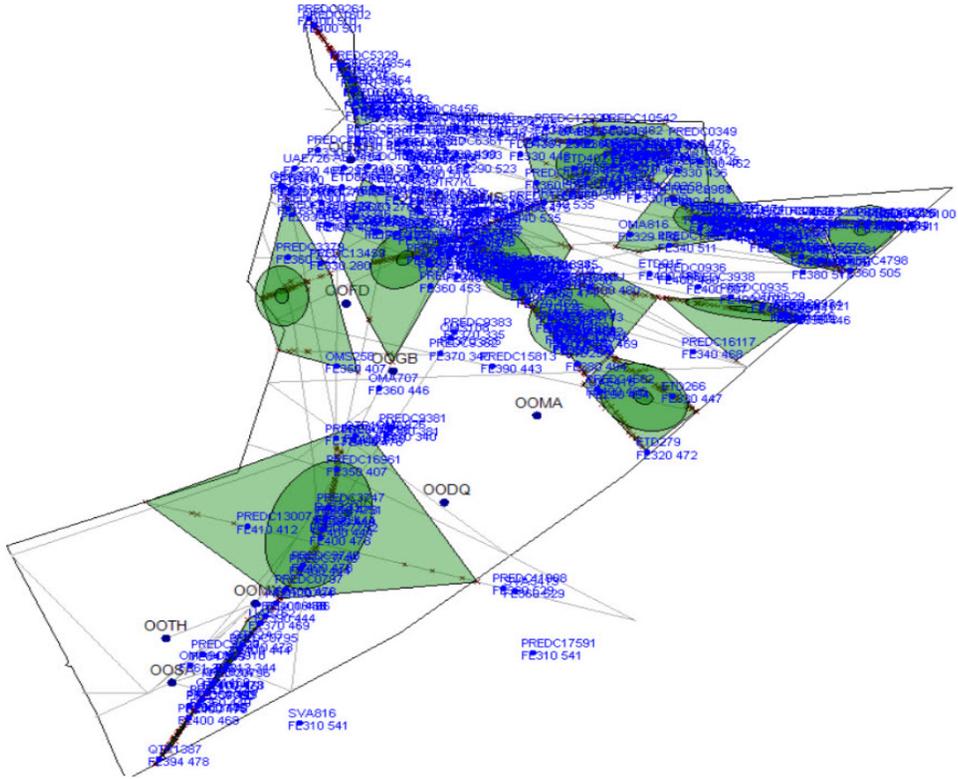
Kuwait FIR Hotspots – Map 3

3.4 Muscat FIR

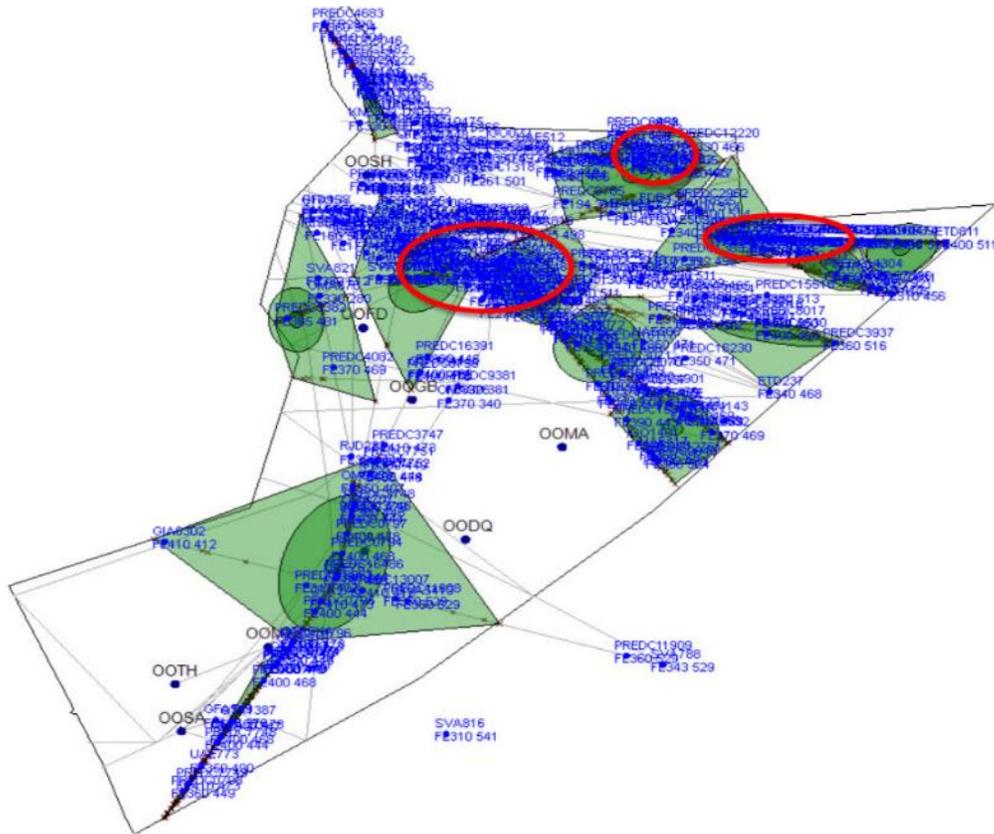
- a- Muscat FIR RVSM airspace remains at the forefront of the busiest FIRs in ICAO MID RVSM airspace in terms of its size and capacity with traffic flow nearly from every direction.
- b- Muscat FIR Hotspots – Map 4 below explains itself, the traffic congestions/concentration to the west of points RASKI, PARAR, TOTOX, REXOD, ALAMA and KITAL.
- c- One of the busiest hotspots detected is the triangle of OOMS, EMISO and EMURU which recorded 43% of the crossing traffic in Muscat FIR with high passing frequency and reflects the need to review the flow of RVSM traffic in this part of the FIR.
- d- More hotspots to the west of RASKI and PARAR were detected and concentrated between SETSI and RAGMA, again with high passing frequency caused from the complexity of RVSM traffic flow.
- e- Due to the complexity of the traffic flow within Muscat FIR, MIDRMA decided to make further analysis for each RVSM flight level (FL290 –FL410) and shall keep that in Appendix A of this study.



Muscat FIR Hotspots – Map 4



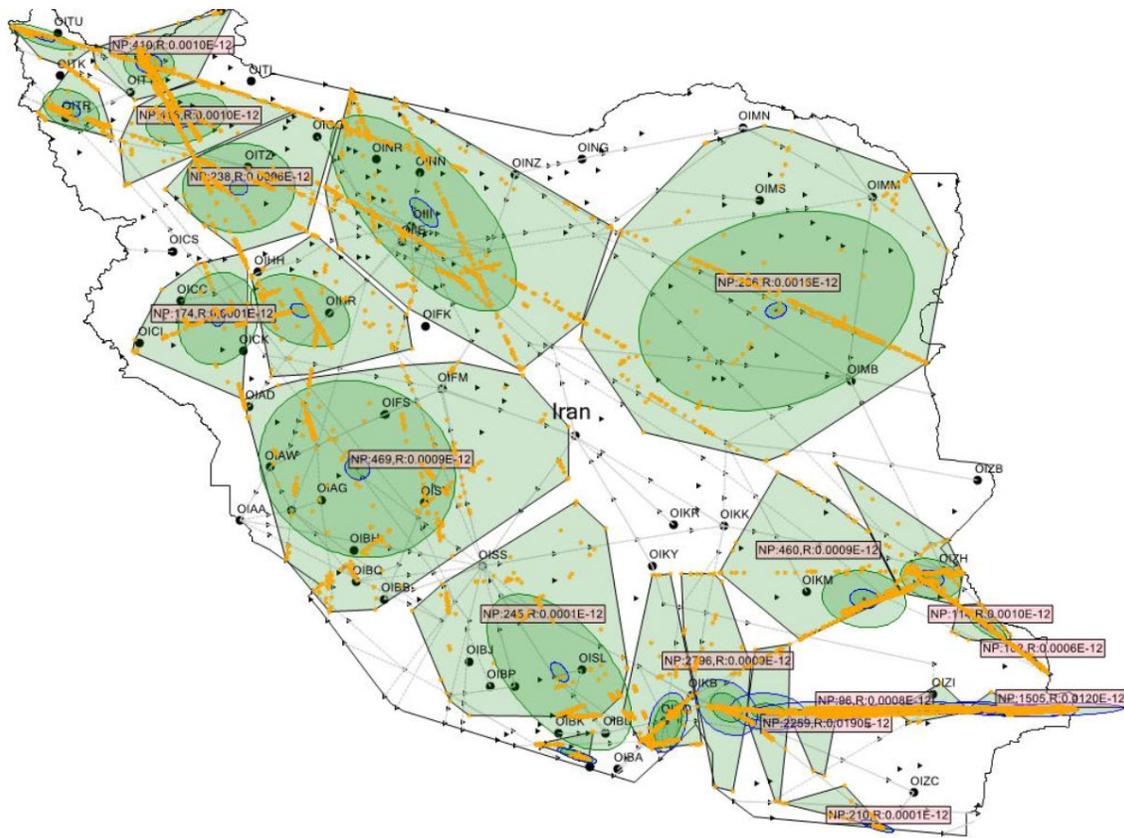
Muscat FIR Fast Simulation 1



Muscat FIR Fast Simulation 2

3.5 Tehran FIR

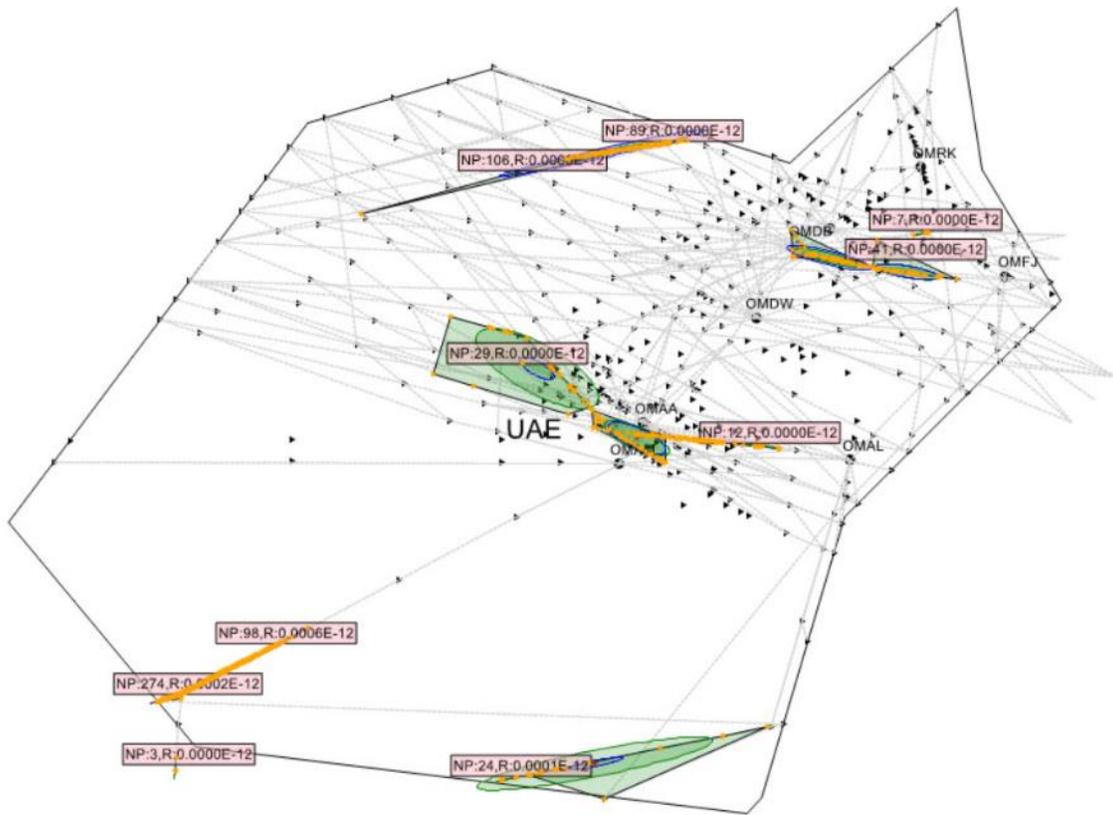
- a- The concentration of the traffic flow clearly detected to the North West of Tehran FIR and marked from N/W of OITZ all the way to Ankara FIR.
- b- The RVSM airspace to the west of point ASVIB and RUKOT/NOVSU also recorded high passing frequency, due to the presence of a portion of the airways to the west of point ASVIB and GOKSO/GENEV (141 NM) treated as bidirectional airway. It is recommended to establish another point to the south of the ASVIB to remove this congestion.
- c- Other hotspots observed in Tehran FIR (see Tehran FIR Hotspots Map 5 for more details) however, due to the large spacing of these hotspots in the wide airspace of Tehran FIR, their influence will be limited and not related to the traffic growth of the FWC 2022 event other than the ones in paragraph a. and b. above.
- d- Further analysis to some RVSM flight levels in Tehran FIR in appendix A of this study.



Tehran FIR Hotspots – Map 5

3.7 Emirates FIR

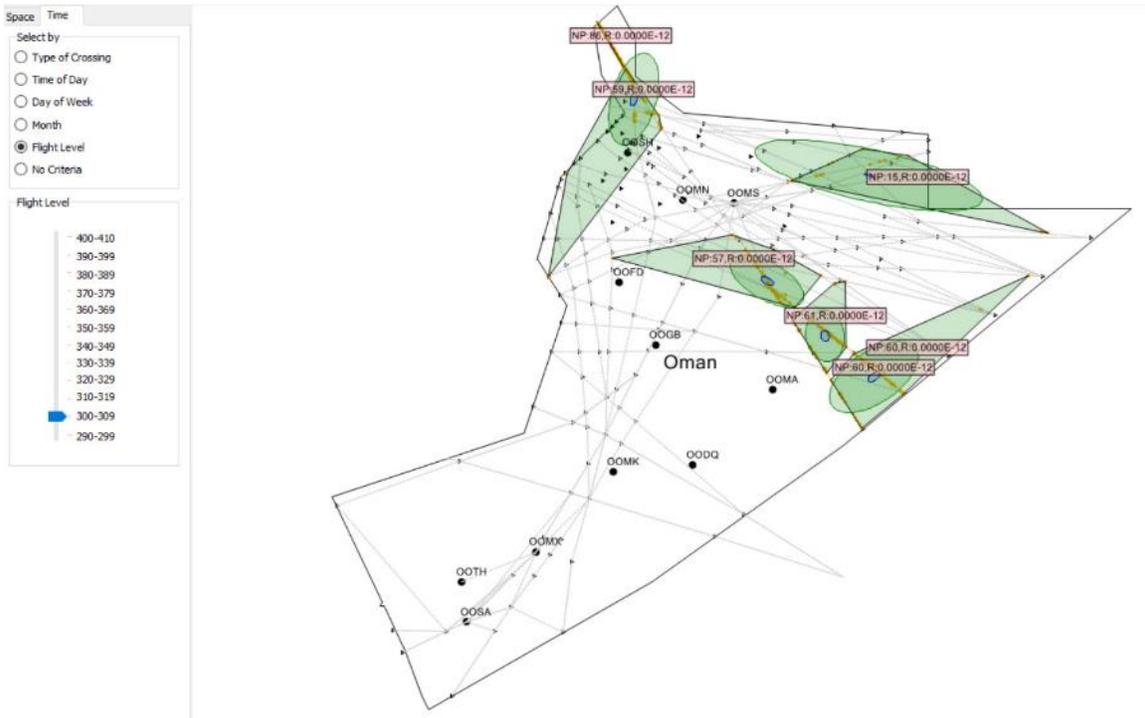
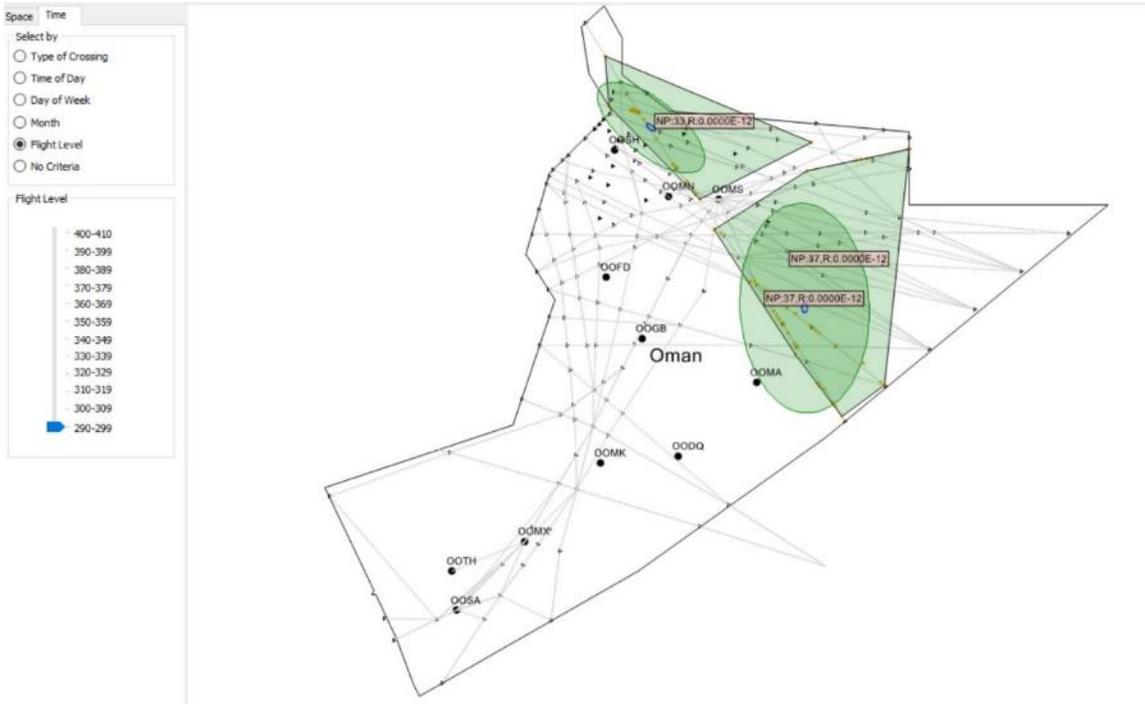
- a- Emirates FIR is expected to be extremely busy during the FWC 2022 event below the RVSM airspace as it will receive all the traffic bound from/to Muscat, Tehran, Bahrain FIRs and due to the location of the Emirates FIR the majority of the RVSM traffic will be either in the descend/climb phase with more in level flight overflying the Emirates FIR.
- b- The two hotspots detected to the N/W of OMAA recorded normal passing frequency and without risk as they were formed due to increased traffic.
- c- The portion of AWY M318 between GOLGU and ESROM is bidirectional were RVSM traffic are either crossing at their flight levels or initiating descend from the RVSM airspace or going through the RVSM layer for their cruise levels.

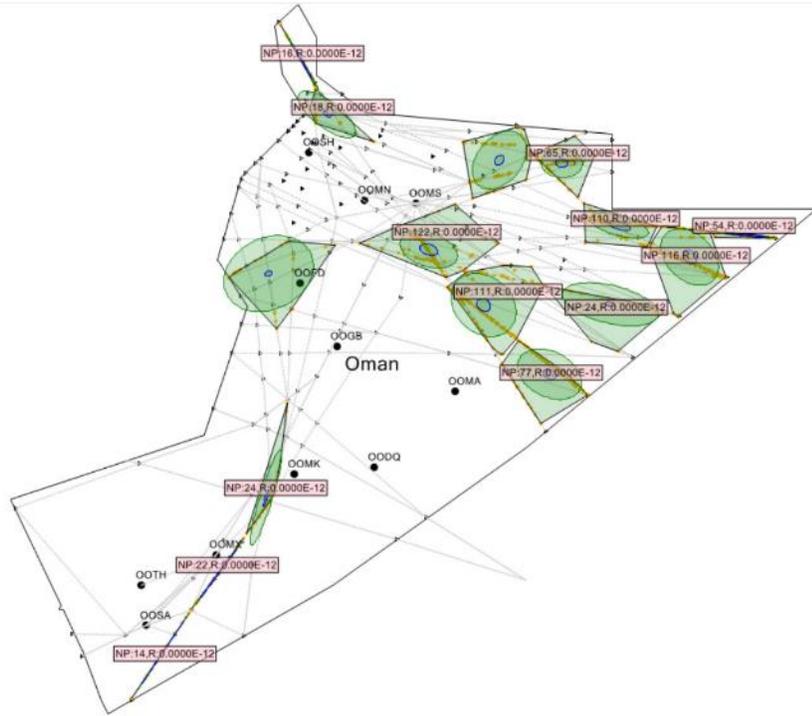
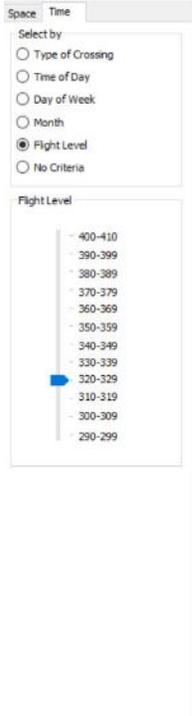
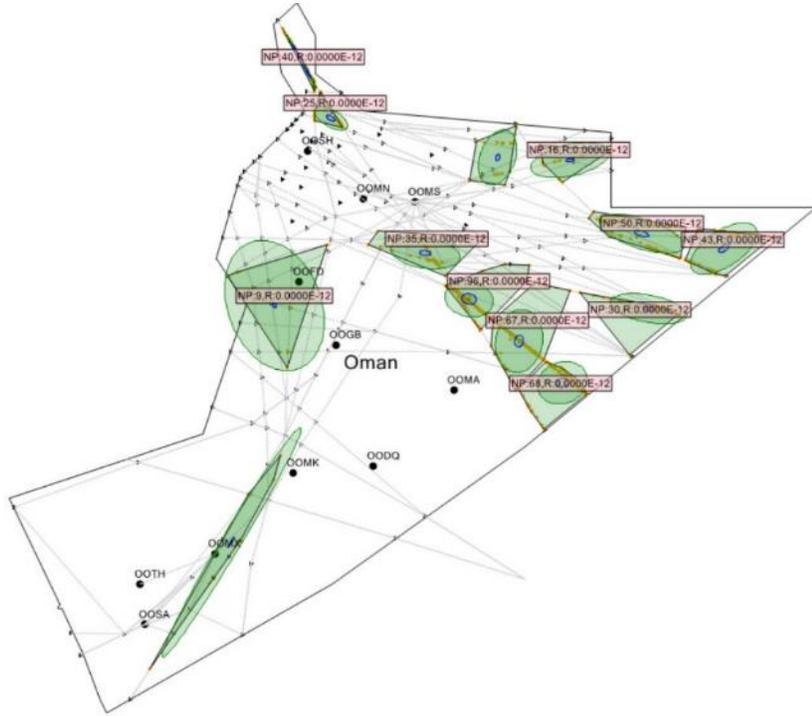
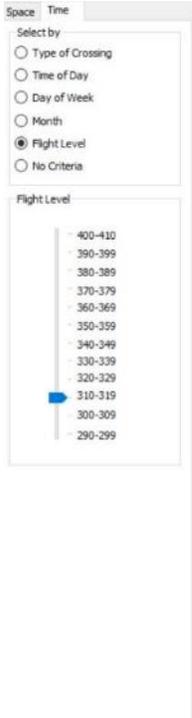


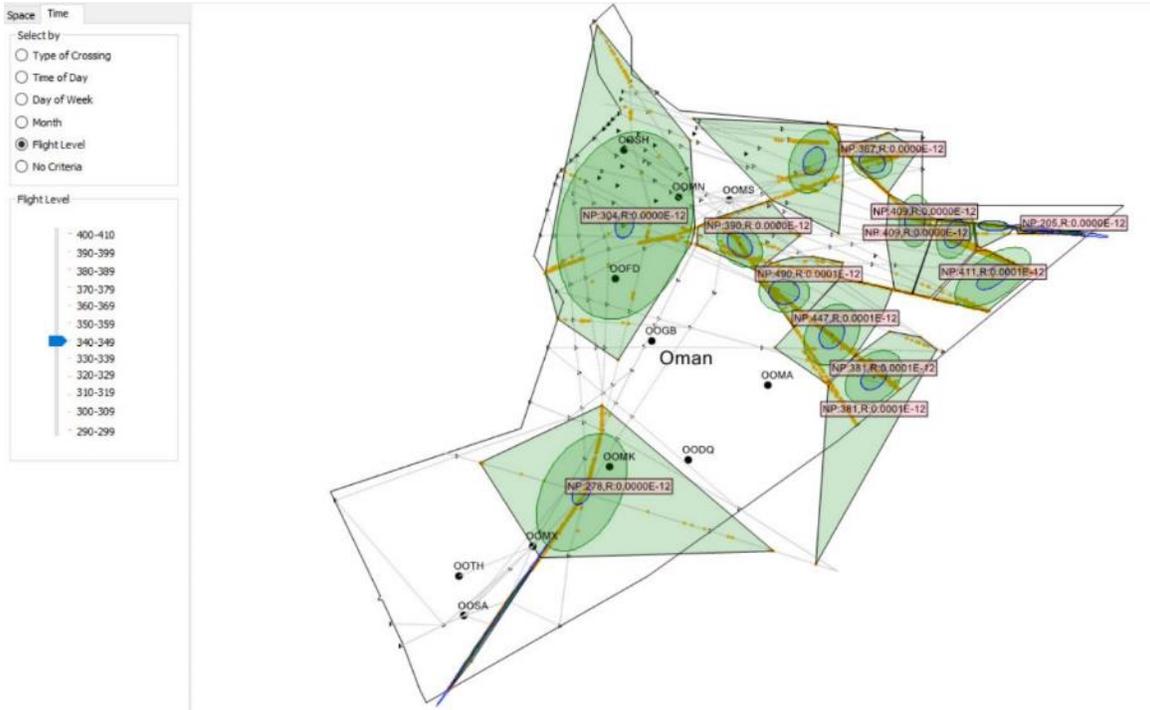
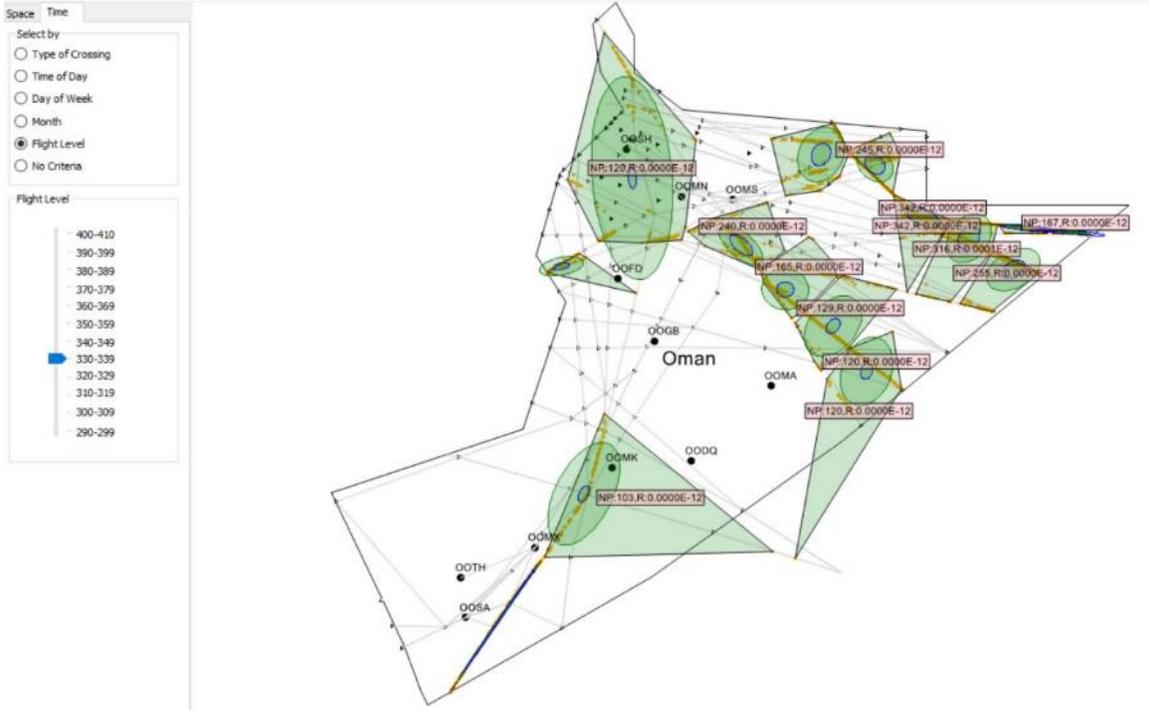
Emirates FIR Hotspots – Map 7

Appendix "A" – Analysis of RVSM Flight Levels

Muscat FIR

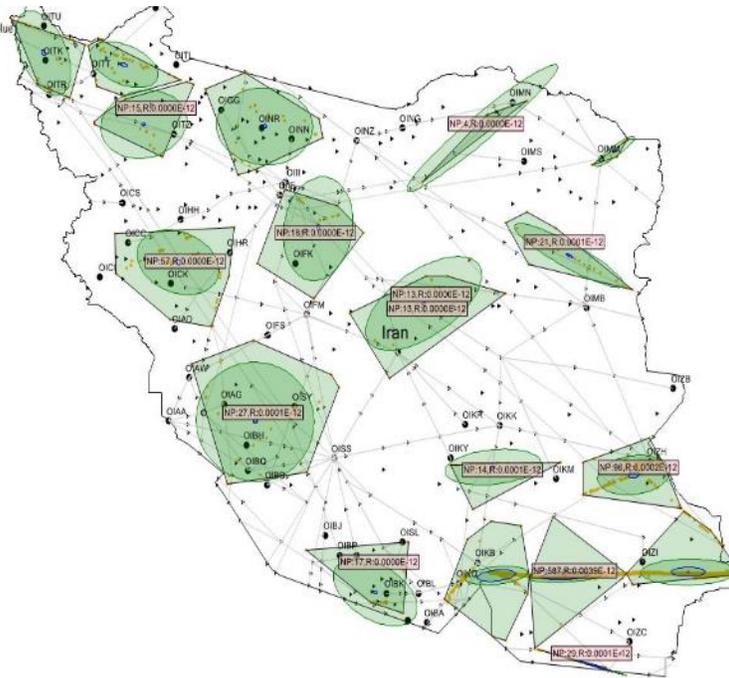




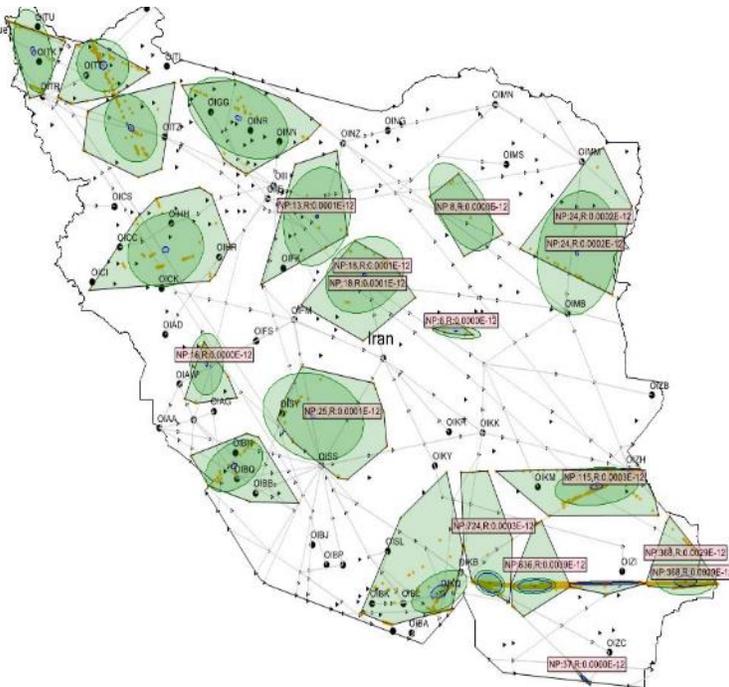


Tehran FIR

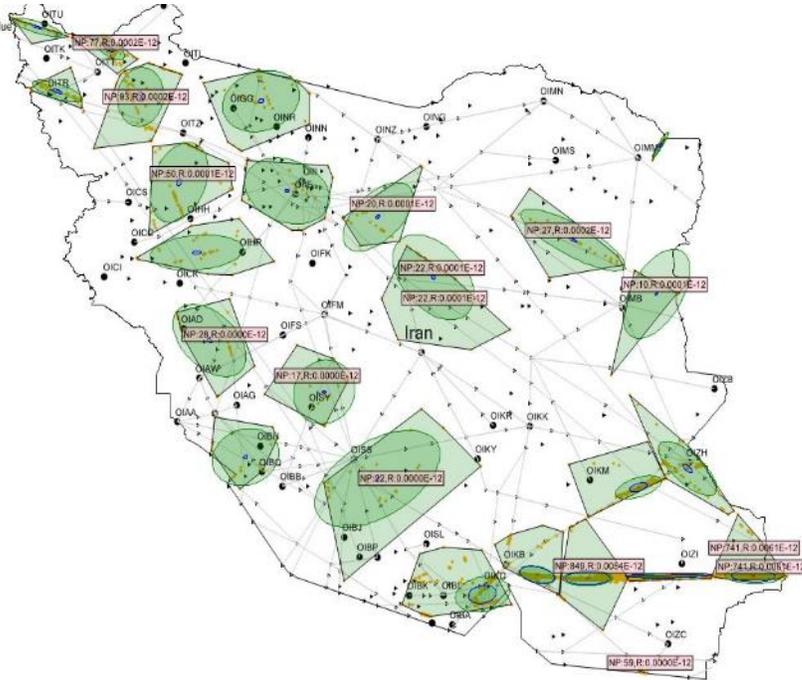
Method: KMean
Scale: Scaled with Risk (red) and Num Points (blue)
Selection: Flight level
FL330-FL340



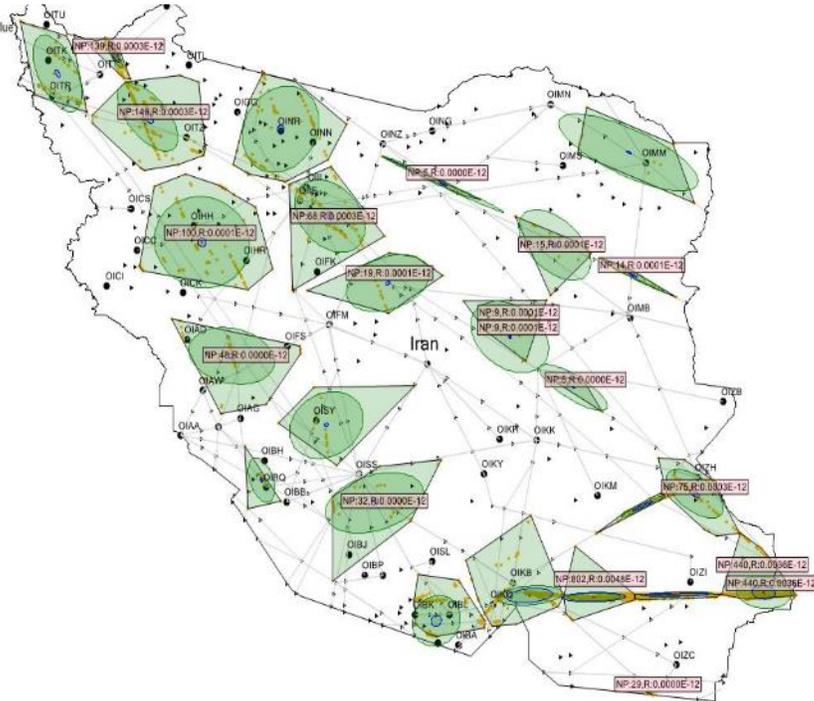
Method: KMean
Scale: Scaled with Risk (red) and Num Points (blue)
Selection: Flight level
FL340-FL350



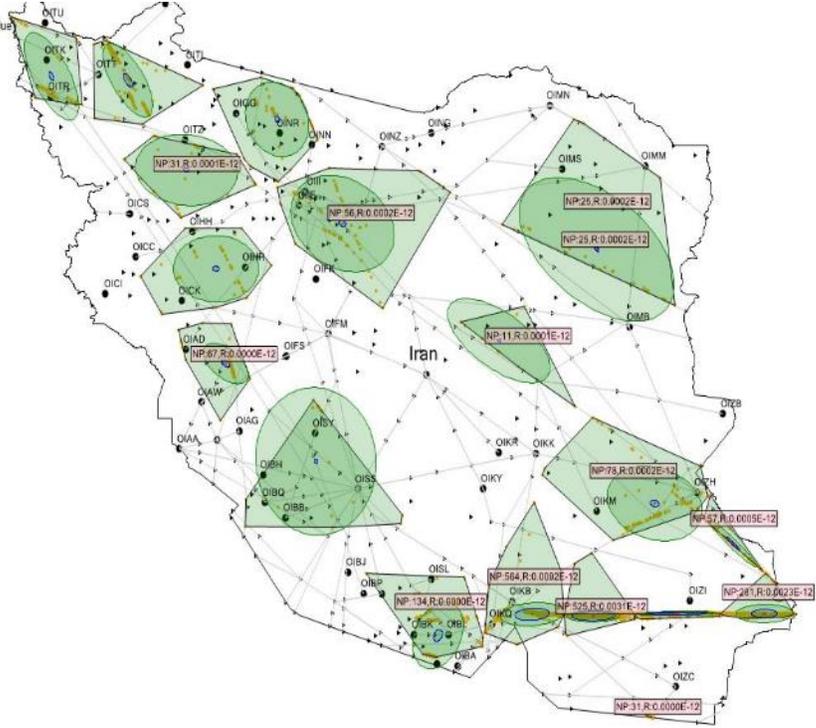
Method: KMean
Scale: Scaled with Risk (red) and Num Points (blue)
Selection: Flight level
FL350-FL360



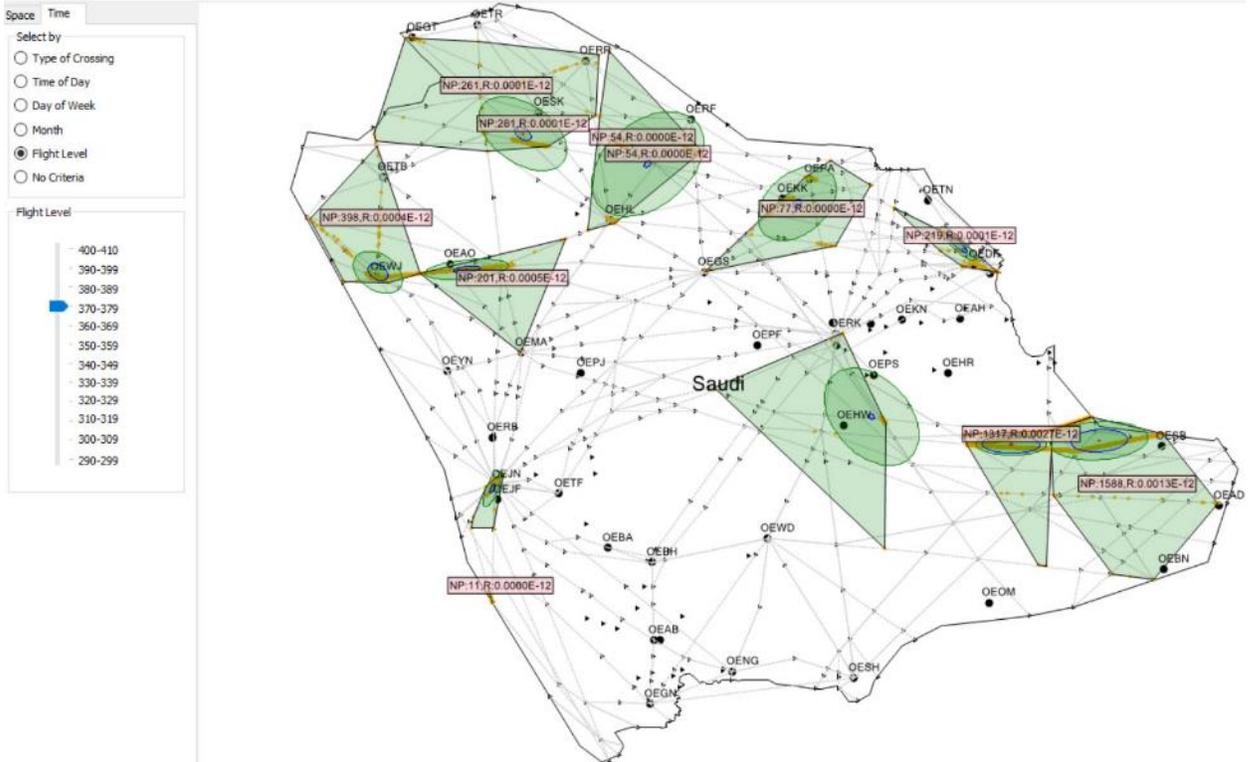
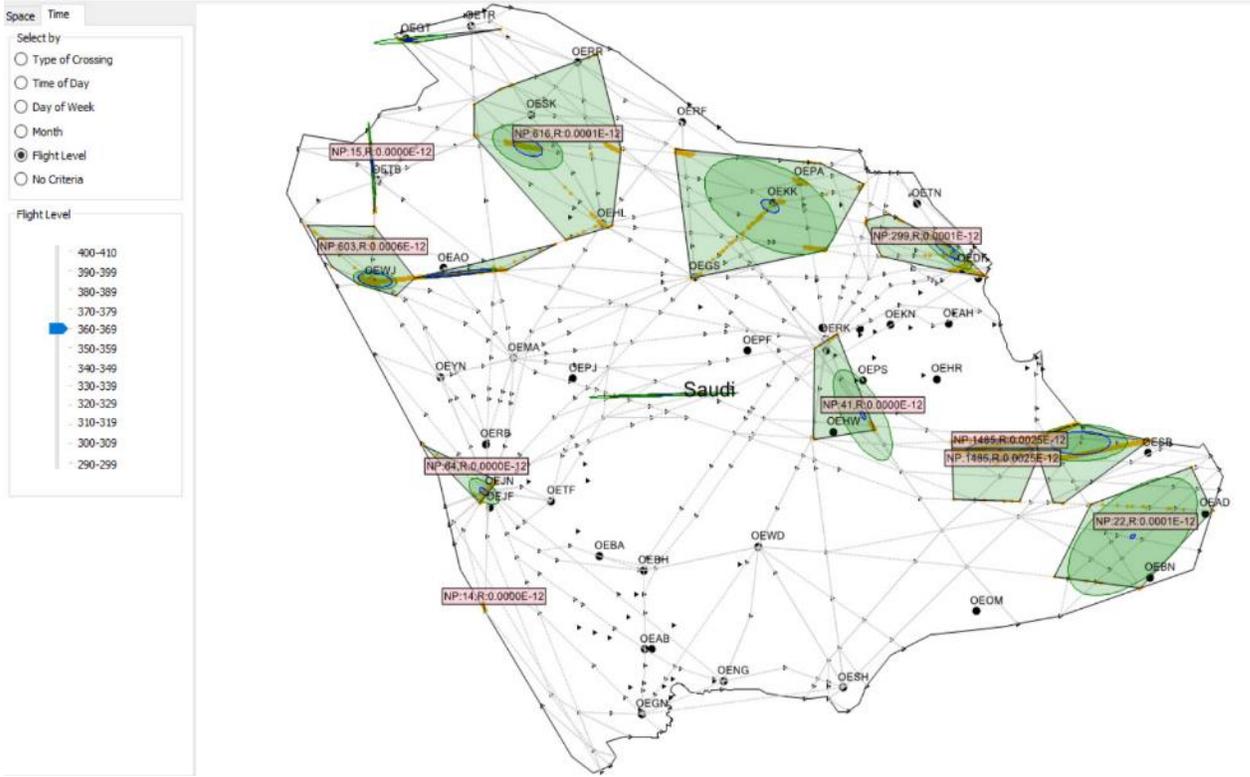
Method: KMean
Scale: Scaled with Risk (red) and Num Points (blue)
Selection: Flight level
FL360-FL370

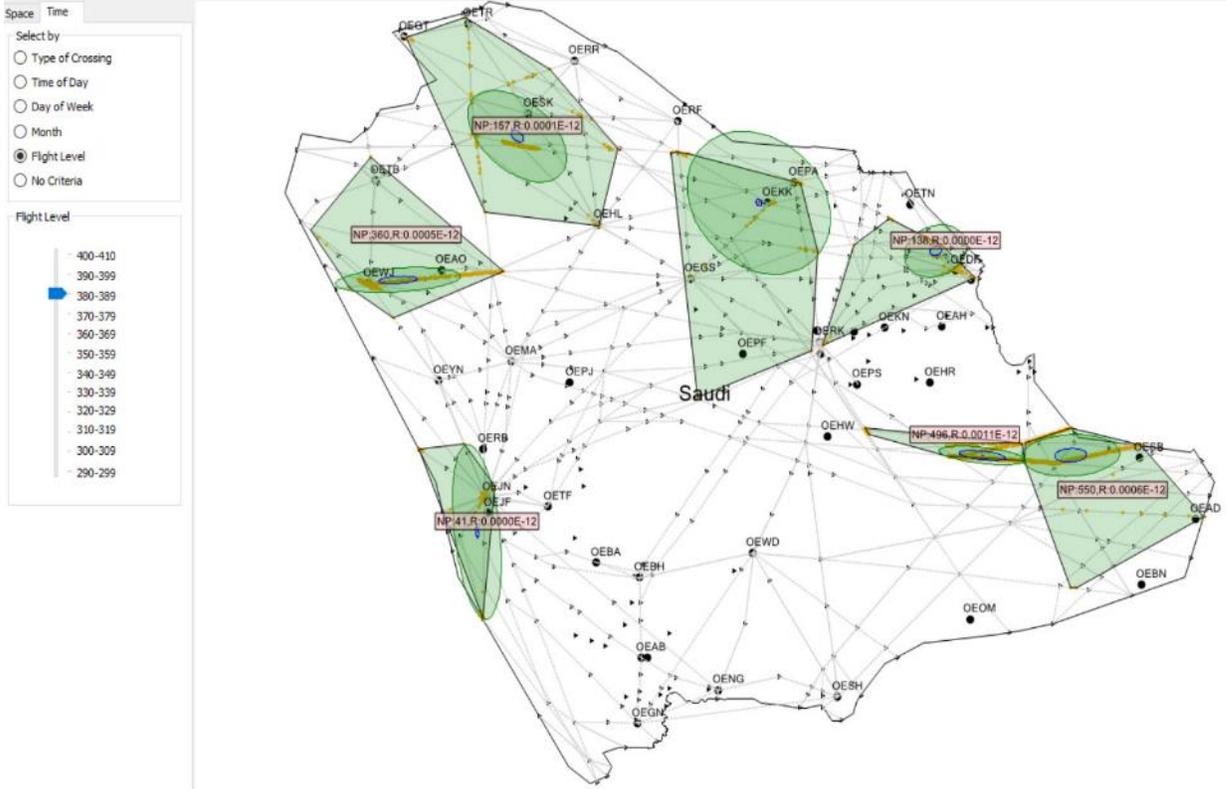


Method: KMean
Scale: Scaled with Risk (red) and Num Points (blue)
Selection: Flight level
FL370-FL380



Jeddah FIR





FWC 2022 ACTION PLAN

ACTION		Target date	Deliverable	Champion	Supported by	Status / remarks
No.	Description					
1	Prepare a working paper on the outcome of the FWC2022 to MIDANPIRG/17	30 Mar 2019	WP to MIDANPIRG Combined with ATFM WP	Secretariat	Chairman	Completed
2	Task the MIDRMA to carry out an airspace assessment for the MID Region based on the anticipated traffic flow during the FWC2022	18 Apr 2019	MIDANPIRG Conclusion	MIDANPIRG	ICAO MID	Completed Conclusion 18/30
3	Initial FWC2022 Roadmap and Operation plan principles to be presented on FWC2022 TF/4 meeting	22 Sep 2020		Qatar		Completed
4	Airspace assessment study and tool developer meeting to review the offer and agree on the details	1 Oct 2020	Detailed requirements, deliverables and timelines. Legal and financial responsibilities	Qatar, MIDRMA	ICAO MID	Cancelled
5	Provide the forecasted FWC2022 FPL/Traffic data to the MIDRMA using the Traffic Data Sample template	15 Oct 2020	Forecasted FWC2022 FPL/Traffic data for at least 10 days	Qatar	MIDRMA	Completed
6	Prepare an initial FWC2022 Roadmap and Operational Plan outlines to be shared with ATFM Core Team that includes all required procedures, action plan, contingency measures, etc.	31 Oct 2020	Initial FWC2022 Roadmap and Operational Plan	Qatar	Core team	Completed
7	Assess the potential impact on traffic flows within the RVSM Airspace	Mar 2021	FWC2022 RVSM Airspace assessment	MIDRMA	Qatar	Completed
8	Present the results of the airspace assessment to the FWC2022 TF/5 meeting	23 – 24 Mar 2021	WP/PPT	MIDRMA	ICAO MID	Completed
9	Circulate the results of RVSM Airspace assessment to the States	April 2021	SL	ICAO MID		
10	FWC2022 ATFM CONOPS draft	May 2021	FWC 2022 ATFM CONOPS	Qatar	TF Chairman	

11	Present the results of the Airspace Assessment to the ATFM TF/5 and ATM SG/7 meeting	May 2021 Nov 2021	WPs/PPTs	TF Chairman	ICAO MID, ATFM Core Team	
12	FWC2022 Roadmap and Operational Plan to be presented to the FWC2022 TF/6 meeting	Q4-2021	WP/PPT Draft FWC2022 Roadmap and Operational Plan	Qatar	TF Chairman	On-going
13	Present FWC2022 Roadmap, Operational Plan and Airspace structure assessment to MIDANPIRG/19	Feb 2022	WP	TF Chairman	ICAO	
14	Ad-hoc Coordination meetings for Doha TMA conceptual designs (Entry/Exit points, cross border measures, LoAs...) with adjacent Airspaces	Nov 2021		TF Chairman	ICAO MID	
15	Conduct familiarization visit(s) to State(s) or Organizations that would be managing major events	TBD	Familiarization visit(s)	Qatar and Members of FWC2022 TF, as required	FAA EUROCONTROL/ CANSO AEROTHAI	On-going UEFA 2020 / EUROCONTROL

**TERMS OF REFERENCE (TOR) OF THE
MIDANPIRG FIFA WORLD CUP 2022 TASK FORCE
(FWC2022 TF)**

1. OBJECTIVES AND SCOPE

- 1.1 The Task Force will be expected to apply the performance-based approach through a collaborative manner to address the most strategic decisions to reach the following:
- a) A sufficient coordination between the Air Navigation Service Providers (ANSPs), airports, airspace users and regulators;
 - b) A sufficient coordination at local, regional and inter-regional levels to accommodate safely and efficiently the expected significant increase of traffic; and
 - c) A defragmented approach from an operational perspective to achieve (gate-to-gate, city pairs, and an oriented track system) which leads to more than optimum flight and airport operations efficiency.
- 1.2 The Task Force shall support the MID Region ATFM System once established.

2. TERMS OF REFERENCE OF THE TASKFORCE

- 2.1 Develop and follow-up the implementation of ~~an FWC2022 action~~ Action plan ~~Plan~~ to accommodate the expected high increase of traffic, in a safe and efficient manner, taking into consideration similar experiences from other regions.
- 2.2 Address other major events ~~such as the EXPO 2020 and~~ and develop action plan(s) to accommodate the changes in traffic flows as required.
- 2.3 Define explicit and implicit strategic objectives (e.g. improved safety, increased air traffic capacity, improved efficiency, and mitigation of airspace congestion impact).
- 2.4 Identify operational and technical requirements including proposals for airspace management changes and amendment to the MID ATS Route Network to accommodate the air traffic through the establishment of temporary routes as required.
- 2.5 Develop the concept of collaborative decision-making at the strategic, tactical and pre- tactical levels, which would be implemented before and during the World Cup event.
- 2.6 Suggest methods for increased interaction between airspace providers in order to make sure that the network effects of any trajectory selection are properly incorporated in the decisions.
- 2.7 Develop collaborative regional mechanism for the implementation of ATFM solutions/measures such as Ground Delay Program (GDP), which would be implemented for departures from airports in the region.
- 2.8 Assess the operational performance of the ATM network by its capability to accommodate demand through realistically modeled network nodes, i.e. airports and airspace volumes.
- 2.9 The Task Force shall work in close coordination with the ATFM TF to avoid duplication of efforts.

3. COMPOSITION

- 3.1 The World Cup 2022 Task Force is composed of experts from:
- a) MIDANPIRG Member States;
 - b) India, FAA, AACO, ACAO, AEROTHAI, CANSO, EUROCONTROL and IATA; and
 - c) other representatives from States, Organizations and Industry may be invited on ad-hoc basis, when required.
- 3.2 ICAO MID Office will act as the Secretary of the Task Force.

4. WORKING PROCEDURES

- 4.1 Qatar shall act as the Chairman of the Task Force.
- 4.2 In order to effectively perform its tasks and responsibilities, the Task Force will meet as required in order to achieve its objectives.
- ~~4.3 Coordination will be carried out among the Task Force members and with concerned State(s) through correspondence and teleconferences and, if required, face to face meetings with stakeholders on case by case basis.~~
- ~~4.4.3~~ A Core Team might be established to follow-up with the concerned State(s) and air operators the conduct of safety and operational assessments and provide support as appropriate.
- ~~4.4 The Chairperson, in close co-operation with the Secretary, shall make all necessary arrangements for the most efficient working of the Task Force. The Task Force shall at all times conduct its activities in the most efficient manner possible with a minimum of formality and paper work (paperless meetings). Permanent contact shall be maintained between the Chairpeson, Secretary and Members of the Task Force to advance the work. Best advantage should be taken of modern communications facilities, particularly video-conferencing (Virtual Meetings) and e-mails.~~
- ~~4.5 Face-to-face meetings will be conducted when it is necessary to do so.~~

LIST OF PARTICIPANTS

State	Name	Title
BAHRAIN	Mr. Abdulla Hasan Al Qadhi	Chief, Aeronautical Information Management & Airspace Planning
	Mr. Abdulla Jaffar Ali	Air Traffic Controller
	Mr. Ahmed Mohammed Al Shamlan	Head, Search & Rescue
	Mr. Ahmed Mohammed Bucheery	Chief Air Traffic Management
	Mr. Ahmed Yousif Al Malki	Head Shift Air Traffic Control Centre
	Mr. David Edward Christmas	ATM Project Manager, DFS Aviation Services
	Mrs. Hanan Hasan Falamarzi	Head, ATM Training & Development
	Mr. Isa Mohammed Khameeri	Head, Safety & Quality Management
	Mr. Mohammed A. Wahab Khalifa	Head, Standards & Licensing
	Mr. Rashid Saleh Al Choban	Chief, Standards, Licensing & Development
EGYPT	Mr. Ahmed Abd El-Aziem Amaar	Senior ATCO – NANSC
	Mr. Amr Ibrahim Abdel Latiff	ANS Inspector – ECAA
	Mr. Ehab Raslan Mohamed	General Manager of Research and Development – NANSC

State	Name	Title
	Mr. Hassan Mohamed Abd El-Moteleb	Senior ATCO – NANSC
	Ms. Gillan El-Said Yasser	En-route Radar Controller in Cairo ACC – NANSC
	Mr. Mohamed Mohamed Mostafa Abd El-Motelb	Senior ATCO – NANSC
	Mr. Mostafa Mohamed Assem	ATCO – R&D Specialist – NANSC
	Nav. Tayseer Mohamed Abdel Kareem	Head of Central Administration for Air Navigation Services – ECAA
INDIA	Mr. Anup Kumar	Jt. General Manager (ATM-ATFM) – Airports Authority of India
	Mr. Hasrat Ali Khan	Assistant Manager (ATM)
	Ms. Veena Bisht	DGM (ATM-ATFM) – Airports Authority of India
IRAN	Mr. Ayoub Rezaei Samarin	ACC supervisor
	Mr. Behzad Soheil	Deputy Director General of ATM in Area Control
	Mr. Meisam Shaker Arani	Director of Aerodrome and Air Navigation Service
	Mr. Mohammad Mirzaei	Deputy of ATM Automation and Flight Planning Office
	Mr. Shahram Najafi	Tehran ACC radar controller

State	Name	Title
JORDAN	Mr. Ali Taleb Nemer Emrazeeq	Chief of Amman Terminal Area Control Center-Queen Alia International Airport
	Mr. Khaled Arabiyat	Director, Legal Affairs Directorate & Air Traffic Management (ATM)
	Mr. Marwan Hani Al-Masri	Air Traffic Control Officer ATCO, Jordan MIDRMA Focal Point Amman Terminal Area Control Center
	Mr. Muneeb Anwar Al-Ali	D. Aerodromes Safety and Standards / A.D. Air Navigation Safety
	Ms. Narman As'ad	Chief of ATM Training Division
	Mr. Nart Omar Bzadogh	Director / Quality & Safety Management System –ANSP
	Mr. Tamer Alnabelsi	ATM Specialist (ATM Division)
KUWAIT	Mr. Hisham S. Buabbas Ansi	Air Navigation Services Inspector
	Mr. Tareq F. Alghareeb	Head of Radar Operations
OMAN	Mr. Abdullah Said Al-Hasani	Standard Officer – ATFM
	Mr. Nasser Salim Al-Mazroui	Act. Director Air Traffic Control
	Mr. Sulaiman Nasser Al-Salmi	Standard Officer – Airspace
QATAR	Mr. Dhiraj Ramdoyal	Head ANS Inspectorate
	Mr. Saleh Mohammed Alnisf	Head of IMS/Senior ATC
	Mr. Kevin John Cooper	ATC Advisor

State	Name	Title
	Mr. Mohamed Abdulaziz Almuhamadi	ATC Advisor
	Dr. Ramy Saad	ANS Inspector
SAUDI ARABIA	Mr. Ahmad Sami Abughallab	Air Traffic Flow Management Section Head
	Mr. Terad Ali J. ALGhamedi	Analysis & Planning Supervisor Airspace Management / SANS
UAE	Mr. Hamad Rashid Al Belushi	Air Navigation Services Specialist
	Mr. Mohammed Khamis Al Blooshi	Senior Research and Dataset officer
	Mr. Odd Erik Kjersem	Senior ATC Supervisor
USA/FAA	Mr. Travis Fiebelkorn	Senior International ATC Operations Officer Air Traffic Organization, System Operations - Europe, Africa, Middle East Group
	Mr. Robert Roxbrough	Attaché, Senior Representative – Abu Dhabi Office of International Affairs
Org.	Name	Title
ACAO	Mr. Hicham Bennani	Air Navigation and Safety Expert
AEROTHAI	Mr. Piyawut Tantimekabut (Toon)	Air Traffic Management Network Manager
CANSO	Mr. Stuart Ratcliffe	OSC ATFM/A-CDM Work Group Co-Chair
EUROCONTROL	Mr. Keith Crawford	Senior ATFCM Expert - NMD/ACD/OPL
IFATCA	Mr. Ahmed Mohamed Motemed Hassan	Air Traffic Controller

State	Name	Title
	Mr. Mohamed Zakaria El-sayed Tolba	Air Traffic Controller
	Mr. Raouf Helmy	IFATCA Representative, Middle East
MIDRMA	Mr. Fareed Al Alawi	MIDRMA Manager
	Mr. Fathi Al-thawadi	MIDRMA Officer
	Mr. Amal Jo Antony	Data Analyst
ICAO MID	Mr. Radhouan Aissaoui	Regional Officer, Information Management (RO/IM)
	Mr. Ahmad Amireh	Regional Officer, Air Traffic Management and Search and Rescue (RO/ATM/SAR)
	Mr. Ahmad Kavehfiroz	Regional Officer, Air Traffic Management (RO/ATM)
	Ms. Dina Elkarimy	Technical Assistant (ATM/SAR/ASF)