



International Civil Aviation Organization

MIDANPIRG Steering Group

Fourth Meeting (MSG/4)
(Cairo, Egypt, 24 - 26 November 2014)

Agenda Item 3: Global, Inter and Intra-Regional Activities

CONTINGENCY PLANNING

(Presented by the Secretariat)

SUMMARY

This paper presents the global, inter and intra-regional activities related to contingency planning.

Action by the meeting is at paragraph 3.

REFERENCES

- AHACG/1 Report
- AHACG/2 Report
- EASA Safety Information Bulletin Nr. 2014-30 dated 13 November 2014
- FAA NOTAM A0056/14 dated 4 November 2014
- ICAO State Letter Ref: AN 13/4.3 Open 13/25 dated 22 March 2013
- ICAO State Letter Ref: AN 13/4.2-14/59 dated 24 July 2014
- MIDANPIRG/14 Report
- SCM-IACA Summary of Discussions

1. INTRODUCTION

1.1 In accordance with Annex 11 provisions, the Air traffic services authorities shall develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plans shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

1.2 Contingency plans may constitute a temporary deviation from the approved regional air navigation plans; such deviations are approved, as necessary, by the President of the ICAO Council on behalf of the Council.

1.3 It is to be underlined that no contingency arrangement can be successful unless it has been consulted with all affected stakeholders, including *inter alia*, airlines, military, ATC units, and aerodrome operators. Each involved State must ensure that there is an adequate effort to identify potential problems that can be addressed in designing the contingency scheme, or mitigated as part of a safety analysis.

2. DISCUSSION

2.1 The meeting may wish to recall that, the whole world was rightly shocked by the tragic event involving flight MH17 that occurred in the Ukraine Airspace on 17 July 2014. This incident and others demonstrate that commercial flights are not immune from military actions when they operate over areas of conflict.

2.2 Based on the above, ICAO issued State Letter Ref: AN 13/4.2-14/59 dated 24 July 2014 at **Appendix A**, addressing the safety and security of civil aircraft operating in airspace affected by conflict, and calling for close coordination between civil and military authorities in the event of armed conflict or the potential for armed conflict and requesting the State responsible for providing air traffic services to identify the geographical area of the conflict, assess the hazards or potential hazards to civil aircraft operations, and determine whether such operations in or through the area of conflict should be avoided or may be continued under specified conditions.

2.3 Furthermore, ICAO established the Task Force on Risk to Civil Aviation arising from Conflict Zones (TF RCZ). The TF RCZ conducted two successful meetings on 29 July 2014 and 25-26 August 2014. The TF RCZ/2 meeting agreed on the following two immediate projects:

- a) The first pilot project agreed by the States, regional organizations and wide-ranging industry groups who comprise the TF RCZ will explore how the Notice to Airmen (NOTAM) system already in place between States and operators could be better used to share urgent and critical conflict zone risk information.
- b) The second project will be piloted by key ICAO partners on a new centralized system to be established for the prompt sharing of conflict zone risk information.

2.4 The TF RCZ will be meeting again in December 2014 for its next round of talks but ICAO will be delivering the group's preliminary findings to the 203rd Session of the ICAO Council in October 2014.

2.5 The meeting may wish to note that the First meeting of the Ad-Hoc Afghanistan Contingency Group (AHACG/1) was held in Kuala Lumpur, Malaysia, 11-12 September 2014, and the AHACG/2 meeting was held in Istanbul, Turkey, 17-19 November 2014. These Ad-Hoc meetings were organized by the three ICAO Regional Offices, Asia-Pacific (APAC), Europe and North Atlantic (EUR/NAT) and Middle East (MID), to agree on inter-regional contingency arrangements to be implemented in case of the discontinuity of the Air Traffic Services (ATS) in Afghanistan after 15 December 2014, the date of the termination of the current ANSP contract.

2.6 The AHACG/2 meeting was updated on the matters pertaining to regional planning for Afghanistan's Capacity and Contingency since the AHACG/1 meeting. The AHACG/2 meeting noted that a contract extension of between six and nine months was being offered by the North Atlantic Treaty Organization (NATO)-International Security Assistance Force (ISAF) and United States Air Force Central Command (AFCENT). This was intended to bridge the gap from the day the current arrangements that were due to expire on 15 December 2014 until a new arrangement could be put in place. The meeting was informed that the inter-agency agreement had been signed so an extension of the current contractor (iAP) was imminent in the next few days.

2.7 Regarding the medium and longer term, funding the extension of the current contract with the existing ANS Provider (ANSP) only delayed a decision on whether to engage a new ANSP or to temporarily delegate ANS responsibilities to another State. The AHACG/1 meeting had noted that a delegated ANSP could provide the ATS remotely, using High Frequency (HF), Automatic Dependent Surveillance – Contract (ADS-C) and Controller Pilot Data Link Communications (CPDLC). However, Afghanistan stated at the AHACG/2 meeting that the option of delegated ATS was not being considered at this stage.

2.8 The meeting noted that contingency plans should include an assessment of:

- a) capacity, using modelling/simulation;
- b) safety, identifying required mitigation actions;
- c) security, if applicable, due to conflict zones en-route; and
- d) timeline for implementation including approvals, Letters of Agreement and publication of aeronautical information and coordinating and publishing revised airline schedules.

2.9 It was highlighted that finalization of safety and security cases should take into account such matters as, inter alia:

- a) Safety Case
 - i. simulator and safety team assessment of the contingency scheme to determine:
 - potential safety issues and mitigating actions;
 - appropriateness of capacity and flow management procedures;
 - training needs and programme;
 - minimum CNS infrastructure availability and redundancy; and
 - transition arrangements between contingency and non-contingency airspace;
 - ii. details of how coordination and communication mechanisms between ATS units, including how Letters of Agreement will be effective;
 - iii. human performance assessments for ATM and airlines to minimize human factors issues;
 - iv. promulgation standards for the effective update of ATM and airline aeronautical databases; and
 - v. consideration of irregular events, both natural and unnatural (e.g.: convective weather, depressurisation, provision of essential traffic information, significant meteorological information and search and rescue); and
- b) Security Case to ensure the safe passage of flights –
 - i. assessment of civil/military procedures;
 - ii. assessment of conflict zones; and
 - iii. security of key ANS facilities

2.10 IATA informed the meeting that their Members would not operate in a class G Airspace (where only flight information and alerting services exist).

2.11 In line with the above, the meeting was informed that IFALPA will request from its Members to refuse flying over uncontrolled airspaces or where conflicts exist.

2.12 The AHACG/2 meeting offered an opportunity for bi-lateral and tri-lateral meetings between States in order to optimize the route structure at the relevant interfaces.

2.13 The main achievements of the AHACG/2 meeting are presented at **Appendix B** and the final report will be posted on the ICAO APAC Regional Website (<http://www.icao.int/APAC/Meetings/Pages/2014-AHACG2.aspx>).

2.14 The meeting may wish to note that the Special Coordination Meeting on the Implementation of ATM Contingency Arrangements in the MID Region (SCM-IACA) was held at the ICAO MID Regional Office, Cairo, Egypt, 24-25 September 2014. The main objectives of the meeting were to discuss the issues related to the safety of the traffic circumnavigating Iraq, Syria and Ukraine Airspaces through Tehran Flight Information Region (FIR) and to agree on ATM contingency arrangements to be implemented in a harmonized manner to overcome the challenges.

2.15 The SCM-IACA meeting was apprised of the situation in Iraq, Libya and Syria including the actions undertaken by ICAO after the tragic incident of the MH17 on 17 July 2014, in particular the issued State Letters and the establishment of the TF RCZ. The meeting was also apprised of the outcome of the AHACG/1 meeting.

2.16 The SCM-IACA meeting noted with appreciation the contingency measures implemented by Iraq to ensure the safety of the traffic operating within Baghdad FIR through the avoidance of the conflict zones. Iraq highlighted that proactive measures have been put in place by the Iraqi Civil Aviation Authority (ICAA) to protect commercial traffic from airspaces with potential conflict. Measures such as fully segregated military airspaces and close coordination with the military ensure the ability to separate civilian traffic from the activities associated with the conflict zones. The meeting noted that no incidents have been reported related to the ground invasion and that ICAA is ready to implement contingency route schemes in coordination with the airspace users. ICAA will continue to publish appropriate aeronautical information related to the status of Iraqi Airspace.

2.17 Based on the above, the SCM-IACA meeting noted that IATA will convene a meeting, in UAE with the major Air Operators to re-analyze the situation in Iraq Airspace and recommend actions as appropriate.

2.18 The SCM-IACA meeting noted the significant increase of traffic overflying Tehran FIR (the figures approximately doubled after 8 August 2014, 480 to 900 Flights per day). The meeting applauded Iran for their efforts and their quick response to accommodate the extra traffic flows through the implementation of contingency measures. It was highlighted that the interface Iran-Pakistan is considered as a bottleneck due to the 10 minutes longitudinal separation required by Pakistan. Accordingly, the meeting urged ICAO to follow-up this issue with Pakistan to implement 20 NM Longitudinal Separation to ensure harmonized traffic flow across the Regions and to establish two (2) additional Entry/Exist Points between Karachi and Tehran FIRs.

2.19 The SCM-IACA meeting noted Iran's concerns related to the maintenance and improvement of their CNS/ATM infrastructure and the challenges they are facing due to the sanctions imposed on Iran. Accordingly, and in the benefit of safety, it was recommended that ICAO raises the subject to relevant authorities and support Iran's proposal to exempt the civil aviation equipment from the sanctions.

2.20 The SCM-IACA meeting noted the concerns raised by Bahrain related to the interfaces, ALSER, ORSAR and MIDS and those raised by UAE related to ORSAR and DARAX. The meeting commended the efforts and the commitment of the concerned States to solve these issues. Accordingly, side meetings between the concerned States took place, which led to the signature of an updated Letter of Agreement (LoA) between Bahrain and Iran and the negotiation of an update to the Bahrain-Kuwait and Iran-UAE LoAs. The new routes and the contingency routes at the interface between Bahrain and Tehran FIRs were successfully implemented on 16 October 2014.

2.21 In the same vein, Iran and UAE discussed the issues related to ORSAR and DARAX and agreed to split the traffic on DARAX into two (2) unidirectional parallel routes. Accordingly, the meeting encouraged the concerned States to sign the LoA and agree on an effective date, as soon as practicable.

2.22 The SCM-IACA meeting noted that Egypt is still studying the proposal to reduce the longitudinal separation to 10 NM with Saudi Arabia and that they are considering the implementation of some contingency arrangements to better accommodate the extra traffic flows within Cairo FIR. Egypt underlined that Cyprus are still applying 30NM Longitudinal Separation.

2.23 Based on the discussions and taking into consideration the situation in the MID Region, the SCM-IACA meeting agreed to the following:

- The MID Region ATM Contingency Plan should be amended to cover the cases of significant traffic increase in some FIRs, as a result of the circumnavigation of Airspace(s) due to conflict zones, weather, etc.
- In accordance with the MID Region ATM Contingency Plan, extra traffic shall be accommodated on the existing route network, unless additional routes are needed. Accordingly, coordination between the concerned States and the Users (IATA) should be carried out for the implementation of temporary routes, on case-by-case basis. In this regard, the meeting agreed that there is no need for the development of permanent Contingency Routing Schemes to be included in the MID Region ATM Contingency Plan.
- A draft process for notification and coordination of contingency was developed to complement the responsibilities/tasks of the Contingency Coordination Team reflected in the MID Region ATM Contingency Plan (it will be presented by IATA in separate paper).
- The revised version of the MID Region ATM Contingency Plan should be presented to MSG/4 meeting, Cairo, Egypt 24-26 November 2014 for endorsement.
- ICAO MID Regional Office and IATA MENA to communicate to the relevant authorities Iran's concerns related to the impediments for the improvement of their CNS/ATM system due the sanctions imposed on Iran.
- With regard to Afghanistan Contingency planning, ICAO MID Regional Office, IATA and the concerned States to continue their support and contribution to the work programme of the AHACG, in order to ensure the implementation of harmonized inter-regional contingency arrangements.
- Bahrain, Iran and UAE to request formally from the ICAO MID Regional Office the allocation of Five Letter Name Codes (5LNCs) and route designators for the new established ATS routes and request the amendment of the MID ANP accordingly.
- ICAO to follow-up with Oman the concerns related to the implemented restrictions on the traffic flow entering Muscat FIR.
- The development of ATFM Plan for the implementation of harmonized ATFM measures within the MID Region should be considered. This would be addressed during the ANSIG/1 or the ATM SG/2 meetings.
- The following is a non-exhaustive list for consideration by States during their contingency planning process:
 - Develop/update their National Contingency Plan.
 - Design contingency routes and Flight Level Allocation Scheme (FLAS) in consultation with the Airspace Users (IATA).

- Involve the MIDRMA for the safety assessment of the new ATS routes within the RVSM Airspace.
- Develop necessary coordination and communication procedures.
- Determine minimum longitudinal, lateral and vertical separations (aircraft spacing, where no ATC service is provided).
- Determine capacity of contingency airspace; both the degraded airspace, and the airspace used for alternative routes.
- Conduct traffic simulation of ATS contingency routes and, in the case of alternative airspace, normal traffic. The simulation should preferably be a fast-time simulation using known/anticipated traffic to determine whether demand will exceed capacity.
- Conduct real-time simulation of contingency procedures.
- Finalize procedures.
- Conduct Safety Analysis.
- Finalize Contingency Plan, related LoA or other agreement instruments, and promulgate AIS Publication.
- Conduct simulator training of operational ATC staff.
- Conduct regular review of contingency plan, and refresher simulator training of ATC staff.
- Consider the implementation of well-defined segregated airspace to be avoided in case of conflict, weather, etc.
- ICAO to follow-up with Oman the concerns related to the implemented restrictions on the traffic flow entering Muscat FIR.

2.24 Based on all the foregoing, the meeting is invited to review and endorse the revised version of the MID Region ATM Contingency Plan at **Appendix C**. Accordingly, the meeting is invited to agree to the following Draft MSG Conclusion:

Why	To endorse the revised version of the MID Region ATM Contingency Plan
What	MID Region ATM Contingency Plan
Who	MSG/4 on behalf of MIDANPIRG
When	November 2014

DRAFT MSG CONCLUSION 4/XX: MID REGION ATM CONTINGENCY PLAN

That, the MID Region ATM Contingency Plan (Edition November 2014):

- a) is endorsed as a Regional Document to be available on the ICAO MID website;*
- b) be used by States and concerned stakeholders to ensure the orderly flow of international air traffic in the event of disruptions of air traffic services and related supporting services and to preserve the availability of major world air routes within the air transportation system in such circumstances.*

2.25 The meeting may wish to note that the situation in Syria has not changed since the issuance of the ICAO warning Letter Ref: AN 13/4.3 Open 13/25 dated 22 March 2013 at **Appendix D**, drawing States' attention to the possible existence of serious risks to the safety of international civil flights operating within the Damascus Flight Information Region (FIR).

2.26 The ATS in Libya were disrupted on 14 July 2014, requiring the activation of the MID Region ATM Contingency Plan through the establishment of the Contingency Coordination Team (CCT). Currently, the Libyan Airspace is closed for international traffic.

2.27 The meeting may wish to recall that the Group called the Islamic State in Iraq and Syria (ISIS) overrun Mosul city in Iraq on 10 June 2014 and started the invasion of the north part of Iraq and the North east of Syria, which has been considered as threat to civil aviation operations within Baghdad FIR. Accordingly, many Air Operators decided to circumnavigate Baghdad Flight Information Region (FIR).

2.28 The meeting may wish to note that the U.S. Federal Aviation Administration (FAA) issued the NOTAM A0056/14 dated 4 November 2014 requesting all U.S. air carriers and commercial operators; all persons exercising the privileges of an airman certificate issued by the FAA, except such persons operating U.S. registered aircraft for a foreign air carrier; and all operators of aircraft registered in the United States, except where the operator of such aircraft is a foreign air carrier, to avoid flying into, out of, within or over the Sinai peninsula in the Cairo FIR at or below FL260.

2.29 In line with the above, the European Aviation Safety Agency (EASA) issued the Safety Information Bulletin Nr. 2014-30 dated 13 November 2014 recommending all operators to take any available information into account in their risk assessments and routing decisions if planning to fly into, out of, within or over the Northern Sinai Governorate of Egypt and to monitor all relevant information, including NOTAMs.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) review and endorse the revised version of the MID Region ATM Contingency Plan at **Appendix C**, and agree to the proposed Draft MSG Conclusion at para. 2.22;
- b) encourage States and concerned stakeholders to support the activities related to the inter-regional contingency arrangements; and
- c) urge States to take into consideration the recommendations emanated from the SCM-IACA, AHACG/1 and AHACG/2 meetings, while developing their contingency plans/measures.



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Ref.: AN 13/4.2-14/59

24 July 2014

Subject: Safety and security of civil aircraft operating in airspace affected by conflict

Action required: a) note the need for close coordination between civil and military authorities in the event of armed conflict or the potential for armed conflict; and
b) restrict or prohibit uniformly the aircraft of other States from flying over your territory for reasons of military necessity or public safety

Sir/Madam,

1. I have the honour to address you as the appropriate State civil authority for initiating coordination in the event that military forces are engaged in conflict, and responsible for oversight of aircraft operator(s) that may operate in airspace affected by armed conflict.

2. Taking into consideration the armed conflicts that are currently underway in various locations, I draw your attention to the possible existence of serious risks to the safety of international civil flights and the critical need for close coordination between civil and military authorities. In this respect, you are reminded that Article 9 of the *Convention on International Civil Aviation* (Doc 7300) sets forth that each contracting State may, for reasons of military necessity or public safety, restrict or prohibit uniformly the aircraft of other States from flying over its territory. Such prohibited areas, if needed, shall be of reasonable extent and location so as not to interfere unnecessarily with air navigation. Notices to airmen (NOTAM) or other communications containing the necessary information, advice and measures to be taken should then be issued and subsequently updated in the light of developments.

3. The responsibility for initiating the coordination process rests with the State whose military forces are engaged in the conflict. The responsibility for instituting special measures to assure the safety and security of international civil aircraft operations remains with the State responsible for providing air traffic services in the airspace affected by the conflict, even in cases where coordination is not initiated or completed.

4. Based on all available information, the State responsible for providing air traffic services should identify the geographical area of the conflict, assess the hazards or potential hazards to civil

aircraft operations, and determine whether such operations in or through the area of conflict should be avoided or may be continued under specified conditions.

5. It is further recalled that each State shall keep under constant review the level of threat to civil aviation within its territory, and establish and implement policies and procedures to adjust relevant elements of its national civil aviation security programme accordingly, based upon a security risk assessment carried out by the relevant national authorities.

6. ICAO Standards are contained in Annex 11 — *Air Traffic Services*, Annex 15 — *Aeronautical Information Services*, and Annex 17 — *Security* with guidance available in the *Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations* (Doc 9554) and *Aviation Security Manual* (Doc 8973 – Restricted). The obligations of States under the *Convention* and the requirements in its annexes should not be confused with hazard notifications circulated in State letters by ICAO under those exceptional circumstances where potential risks to the safety of civil aviation operations are incapable of being effectively communicated by States, whether over sovereign territory or over the high seas.

7. I also wish to draw your attention on the need for the appropriate authorities to consider and mitigate the safety risk and potential congestion consequences in the event that operators decide, based on their assessments of the level of risk involved, to circumnavigate various airspace affected by conflict, availing themselves of alternate routings in neighbouring flight information regions (FIRs).

Accept, Sir/Madam, the assurances of my highest consideration.

A handwritten signature in black ink, appearing to be 'Raymond Benjamin', written in a cursive style.

Raymond Benjamin
Secretary General

APPENDIX B

The main achievements of the Second meeting of the Ad-Hoc Afghanistan Contingency Group (AHACG/2)

- a) Afghanistan and NATO/ISAF confirmed the signature of the inter-agencies agreement which will ensure the extension of the current ANSP contract for six to nine month from the date of the termination of the contract.
- b) The meeting provided an opportunity to agree measures that would optimize the route structures at the following interfaces:
 - Afghanistan - Pakistan;
 - Afghanistan – Iran;
 - Azerbaijan - Turkey;
 - Azerbaijan - Armenia;
 - Azerbaijan - Iran;
 - Bulgaria - Turkey;
 - Georgia - Turkey;
 - Iran - Turkey;
 - Iran - Pakistan;
 - Iran - Armenia;
 - Pakistan – India;
 - Tajikistan – Kyrgyzstan.
- c) Several bi-lateral and multi-lateral meetings between States were convened and the following are the main results achieved:

Iran – Armenia

Letter of Agreement (LoA) reviewed and signed, which includes the reduction of longitudinal separation from 30 NM to 20 NM, with effective implementation date 11 DEC 2014.

Iran – Azerbaijan

- LoA reviewed and signed, which includes the reduction of longitudinal separation from 30 NM to 20 NM, and the contingency agreement between the Baku and Tehran ACC, with effective implementation date 11 DEC 2014.
- GND-GND Communication problems were addressed.

Iran – Turkey

LOA reviewed, and signed, planned implementation date will be 05 FEB 2015, and the updated LoA would include the following:

- establishment of 1 additional (currently 5 waypoints) entry/exit waypoint on FIR border Ankara/Tehran;
- rearrangement of flow directions for several waypoints:
 - waypoint BONAM change from westbound to bi-directional to allow eastbound flows/departures within Ankara FIR to south east
 - waypoint ALRAM change from eastbound to bi-directional to allow westbound traffic flows from Gulf Area to enter European flows

GND-GND (direct COM line between Ankara and Tehran ACC) Communication problems discussed and visit of technical experts for 1-3 Dec 2014 arranged.

Iran – Pakistan

LoA reviewed, still needs to be signed, planned implementation date will be 05 MAR 2015, and the revised LoA would include the following:

- The implementation of 50 NM RNAV separation for RNAV5 and RNP5 equipped aircraft (for all other non-equipped aircraft the separation will remain with 10 min)
- at the interface area between Iran- Pakistan – Afghanistan between PIRAN and GADER LoA was mended to handover eastbound traffic on A453 at FL260 or FL280 and to handover westbound traffic on A453 at FL270 or FL290,
- Pending further coordination with the military authorities in Pakistan and the full implementation of ADS-B the FL410 and F430 could also be used in the future,

Iran – Afghanistan

Discussion on communication problems between Tehran ACC and Kabul ACC, further exchange needed at the upcoming COM Coordination meeting in New Delhi (16-18 December 2014), Iran offered the possibility to use the ICAO TRAINAIR Institute for ATCO training, which would be at low-cost and offer the language benefits as courses could be held in Persian.

Afghanistan – Pakistan

LoA discussed and still with ISAF for review/corrections, signature process discussed and confirmation that LoA should be signed soon.

Pakistan – India

The LoA, which has not been updated for long time, was discussed; but still needs to be signed and a planned implementation date could be the AIRAC date of March or April 2015. The updated LoA would include:

- the implementation of 50 NM RNAV separation;
- the implementation of AIDC between Karachi-Ahmadabad ACCs;
- the implementation of AIDC between Karachi and Delhi as well as Bombay ACC is not possible at the moment as the upgrade to AIDC Version 3.0 would be a pre-requisite; and
- There was agreement on a kind of ATFM scenario implementation (with level restriction scenarios) in case of the circumnavigation of the Kabul FIR to accommodate the shift of traffic flows between both States.

Pakistan will try to participate at the upcoming COM Coordination meeting in New Delhi (16-18 December 2014) for further discussions of the open issues, the update of the LoA was in principle agreed, still needs to be signed and a planned implementation date could be the MAR/APR AIRAC 2015 date.

Georgia – Turkey

- Implementation of a uni-directional ATS route structure/system discussed (change of

N644 from bi-directional ATS-Route to uni-directional eastbound ATS Route and implementation of a new uni-directional westbound ATS-Route) to unload the Black Sea traffic flows.

- Discussion of a further reduced radar longitudinal separation from 20 NM to 10 NM after the implementation of OLDI.
- Next bi-lateral meeting arranged in Tbilisi on 4 December 2014, Letter of Agreement revision depends on successful OLDI implementation and further ATS-Route structure studies. Expected implementation date could be 1st Quarter 2015.

Armenia – Turkey

Discussions to further unload of traffic flows in the Black Sea area which will continue at next RND SG and RDGE meetings. No concrete implementation dates set but any alleviation would be a huge advantage in a possible contingency scenario.

Azerbaijan – Turkey

Discussions to further unload of traffic flows in the Black Sea area which will continue at next RND SG and RDGE meetings. No concrete implementation dates set but any alleviation would be a huge advantage in a possible contingency scenario.

Turkey – Bulgaria

Initial discussion on the implementation of 2 additional FIR boundary waypoints and the better alignment of traffic flows in the Black Sea area. Alternative proposals developed and discussed which will continue at next RND SG and RDGE meetings. Envisaged implementation date could be 2nd Quarter 2015 and any alleviation on this axis would be a huge advantage in a possible contingency scenario.

Tajikistan – Kyrgyzstan

Implementation of missing bi-directional ATS-Route segment between OU (Osh) – TOPAZ discussed, RDGE20 proposal, and implementation was agreed for 5 March 2015 and the LoA will be revised accordingly. This ATS-Route will allow flying east of Kabul FIR via FIRUZ – PADDY and incorporates the already existing delegation of 12NM of AFG airspace to Dushanbe ACC. In a contingency scenario, this ATS-Route would be a much shorter (300 NM) alternative to re-routings via L888.

- d) Azerbaijan, India, Iran, Pakistan and Tajikistan offered to support Afghanistan, in particular in the training of their ATCOs.
- e) It was highlighted that Afghanistan has the sovereignty over its Airspace in accordance with the provisions of the Chicago Convention.
- f) The meeting noted that the military aircraft operating at the secured FL300 are RVSM approved. Moreover, NATO proposed that the concerns related to the secured FL300 for military use should be addressed during the High Level meeting, Hong Kong, 28 November 2014, in order that Afghanistan could coordinate with the relevant military authorities operating in Afghanistan for the release of FL 300 and the allocation of another FL.

- g) The meeting discussed the issues related to the flight plans distribution and communications with Afghanistan and agree that Iran be invited to the Communication Coordination Meeting, New Delhi, India, 16-17 December 2014.
- h) The meeting supported the position of Turkey and IATA that the issues related to the provisions of ATS at the lower airspace, as well as the access to the airports within Kabul FIR should also be addressed in any contingency arrangements.
- i) Iran informed the meeting that they are ready to implement the Organized Track Systems proposed by the AHACG/1 meeting (Scenario C) with minor changes. Pakistan advised that they would support the implementation of the OTS.
- j) Armenia advised that last year they successfully implemented a new ATM system, which provided an increase of capacity from 25 to 40 aircraft per day.
- k) The meeting recommended to Afghanistan to take the necessary measures to:
 - ensure the continued provisions of ANS within Kabul FIR;
 - coordinate with the ANSP to provide familiarization for the qualified ATCO at Kabul ACC;
 - establish an ANS oversight entity to oversee the ANSP in order to ensure that the ATS are provide in adequate and safe manner in accordance with ICAO SARPS and PANS and the State regulations;
 - ensure that the contract related to the VSAT is extended before February 2015;
 - install at least HF station to be used as back in case of VSAT failure; and
 - ensure the availability of adequate Meteorological and Search and Rescue Services.

APPENDIX C



INTERNATIONAL CIVIL AVIATION ORGANIZATION

MID REGION ATM CONTINGENCY PLAN

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of ICAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontier or boundaries.

MID REGION AIR TRAFFIC MANAGEMENT CONTINGENCY PLAN

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FOREWORD

This Document is for guidance only. Regulatory material relating to the MID Regional aircraft operations is contained in relevant ICAO Annexes, PANS/ATM (Doc.4444), Regional Supplementary Procedures (Doc.7030), States AIPs and current NOTAMs, which should be read in conjunction with the material contained in this Document.

Guidelines for contingency measures for application in the event of disruptions of air traffic services and related supporting services were first approved by the Council on 27 June 1984 in response to Assembly Resolution A23-12, following a study by the Air Navigation Commission and consultation with States and international organizations concerned, as required by the Resolution. The guidelines were subsequently amended and amplified in the light of experience gained with the application of contingency measures in various parts of the world and in differing circumstances.

The purpose of the guidelines is to assist in providing for the safe and orderly flow of international air traffic in the event of disruptions of air traffic services and related supporting services and in preserving the availability of major world air routes within the air transportation system in such circumstances.

The MID Regional Air Traffic Management Contingency Plan is primarily for the information to operators and pilots planning and conducting operations in MID Region. The intent is to provide a description of the arrangements in place to deal with a range of contingency situations.

This Contingency Plan has been developed with the approval of the Middle East Air Navigation Planning and Implementation Regional Group (MIDANPIRG); a MID Regional planning body established under the auspices of the International Civil Aviation Organization (ICAO). This Group is responsible for developing the required operational procedures; specifying the necessary services and facilities and; defining the aircraft and operator approval standards employed in the MID Region.

RECORD OF AMENDMENTS

[illegible]

INTRODUCTION

The MID Region Air Traffic Management (ATM) Contingency Plan has been developed to ensure, to the extent possible, the continued safety of air navigation in the event of disruption or potential disruption of Air Traffic Services and related supporting services in the MID Region, in accordance with the provisions of ICAO Annex 11 – Air Traffic Services, Chapter 2, paragraph 2.30 and its Attachment C. The Plan might be also activated in cases when airspace users decided to circumnavigate airspace(s) due to conflict zones, weather, etc. which might increase significantly the air traffic in other airspace(s).

The MID Region is fast growing continental airspace in the world. In 2010 in excess of **976400** flights transited the airspace. The ATS Route accommodates a high concentration of traffic which regularly sees traffic flows in excess of 100 flights per hour. Control of traffic in this vast and complex airspace is delegated to a number of states, with their Continental Control facilities geographically dispersed.

The table shows the aircraft movements forecast to the year 2030:

	Actual	Forecast	Average Annual Growth
			2010-2030
	2010	2030	(per cent)
AFR-MEA	68588	446722	9.8
ASIA-MEA	261359	1384191	8.7
EUR-MEA	276285	977855	6.5
INTRA MEA	349324	2287506	9.9
NAM-MEA	20843	107917	8.6
TOTAL	976399	5204191	8.7

Contingency Routing (CR) has been developed and contained in the Plan based on the major traffic flows through the MID Region, taking into consideration the movements' number between City Pairs.

This Plan is designed to provide alternative routes for the traffic flows between the MID Region and Asia, Africa, and Europe, which will allow aircraft operators to circumnavigate airspace(s) in the MID Region, as deemed necessary, or due to a perceived risk to the safety of flight with a minimum of disruption to flight operations.

These alternative routes (Contingency Routing – CR) are based mainly on the existing route network. Concerned States, in consultation with airspace users, might establish ~~temporary~~ ~~routes could be considered~~ to relief traffic congestion resulting from the implementation of the Contingency plan.

It is recognized that operators may incur economic penalties during application of the contingency scenarios. Therefore, air traffic flow control measures will be implemented as required.

The ICAO MID Regional Office will coordinate with ICAO HQ and the concerned Regional Offices any amendment to the Regional Contingency Plan.

The appropriate ICAO Regional Office will distribute this contingency plan to all relevant States and international organizations within their regions.

This Document is available to users through the ICAO MID website <http://www.icao.int/mid/>

To assist in keeping this document up to date, Stakeholders are encouraged to provide the ICAO MID Regional Office (icaomid@icao.int) with their comments/suggestions.

MID Region ATM Contingency Focal Points

The List of the MID Region ATM Contingency Focal Points is at **Table 1**. This list should be reviewed and updated, as appropriate.

Table 1.**MID Region ATM Contingency Focal Points**

NAMES	PHONE (WORK)	PHONE (HOME)	MOBILE PHONE	FAX	E-MAIL	OTHER CONTACT DETAILS
BAHRAIN						
Mr. Ali Ahmed Mohammed	973 17321116		973 39969399	973 17321 9977	aliahmed@caa.gov.bh	Bahrain ACC Duty Supervisor Tel: 973 1732 1081/1080 Fax: 973 1732 1029 Email : bahatc@caa.gov.bh
Mr. Saleem Mohammed Hasan	9731732 1117		973 39608860	973 17321 9966	saleemmh@caa.gov.bh	
EGYPT						
Mr. Moatassem Bellah Abd Elraheem Baligh	202 265 7849	202 639 1792	01001695252	202 268 0627	moatassem_5@hotmail.com	
Mr. Aly Hussien Aly	202 637 3950	202 417 8460	201 01609 760	202 268 0627		
IRAN						
Mr. Ebrahim Shoushtari Deputy CEO for Aeronautical Operations (IAC)	982163148900		989121861900	9821 63148906	E_shoushtari@yahoo.com E.shoushtari@airport.ir	<i>Note.- During New Year Holidays in Iran (20 March – 5 April) or for any urgent message Contact Tehran ACC on +9821-44544116</i>
Mr. Ali- Arabi DG of ATS Department	98 21 445 44101		98-9122967946	9821 44544102	aarabi@airport.ir	
Mr. Javad – Pashaei Deputy Director of ATS Dept.	9821 44544103		989122967946	9821 44544102	aarabi@airport.ir	
Mr. Ramezan Ali Ziaee Deputy Director of ATS Dept.	9821-44544103		989123874917	9821 44544102	r.a.ziaee@airport.ir	

NAMES	PHONE (WORK)	PHONE (HOME)	MOBILE PHONE	FAX	E-MAIL	OTHER CONTACT DETAILS
IRAQ						
Mr. Ali Mohsin Hashim ATS Director	96418133370	9647702997761	9647815762525		atc_iraqcaa@yahoo.com	
JORDAN						
Mr. Nayef Al Marshoud Director, ATM	9626 489 7729	962 5 3862584	962 797498992 962 777789470	9626 4891 266	nayefmarshoud@hotmail.com datm@carc.gov.jo	
KUWAIT						
Mr. Adel S. Boresli	965 24710268		96599036556	965 24346221	as.buresli@dgca.gov.kw	
LEBANON						
Walid Al Hassanieh Chief Air Navigation Dept.	+ 961 1 628178		+961 70474517	+961 1 629023	hassaniehw@beirutairport.gov.lb	AFTN OLBAZPZX
LIBYA						
Mr. Issa Maaroug. Air Navigation Director	218 21 5630811	218 91 6827688	218 92 5439240	218.21.3605535	airnav.director@caal.ly	LIBYAN C.A.A P.O.BOX 14399
OMAN						
Mr. Abdullah Nasser Al- Harthy	968519201		9689476806	968519939 /519930	Abdullah_nasser@dgcam.com.om	
Mr. Saud Al-Adhoobi	968519305		9689321664	968519939/519930	saud@dgcam.com.om	
SAUDI ARABIA						
Mr. Mohammad Al Alawi	96626401005		96655621582	9662 6401005	alalawi_m@yahoo.com	
SUDAN						
Mr. Abubakr Elsiddig Elamin	249183784964		249912146745	249183784964	abubakratco@live.com	ATM Director ANS P.O. Box 137 code 11112, Khartoum, Sudan
SYRIA						
Eng. Feras MohamadDirector General of Civil Aviation	963 1133 33815			963 11 2232201	dgca@scaa.sy	<u>P.O.BOX:6257 Damascus,</u> <u>Syria</u>
Mr.Hassan Hamoud ATM Director	009631154010180	00963116460395	00963 988235106	963 11 540101801	atm@scaa.sy	P.O.BOX:6257 Damascus, Syria

NAMES	PHONE (WORK)	PHONE (HOME)	MOBILE PHONE	FAX	E-MAIL	OTHER CONTACT DETAILS
UNITED ARAB EMIRATES (UAE)						
Mr. Ahmed Al Jallaf Assistant Director General, ANS, GCAA	9712 599 6888		97150 614 9065	9712 599 6883	aljallaf@szc.gcaa.ae	9712 599 6999 SCZ
YEMEN						
Mr. Abdullah Ahmed Al- Awlaqi	9671 345 402	9671 506828	967777776830	967-1-344047	ns@gmail.com	D.G ANS
Mr. Abdullah Abdulwareth Aleryani	967-1-345403	967-1-344254	967777190602	967-1-345403	ernlabd@gmail.com	D.G ACC/FIC
Mr. Ahmed Mohammed Al- Koobati	967-1-344675	967-1-214375	967777241375	967-1-344047	70@yahoo.com	D.Air Navigation Operation
IATA						
Mr. George Rhodes	96 26 580 4200 Ext 1215			962 (6) 593 9912	rhodesg@iata.org	
ICAO MID						
Mr. Elie El Khoury (RO ATM/SAR)	202 267 4845 ext 104			202 267 4843	ekhouryi@icao.int	
Mr. Mohamed Smaoui (DRD)	202 267 4841 ext. 116/115			202 267 4843	msmaoui@icao.int	
ICAO APAC						
Mr. Leonard Wicks (RO ATM)	662 537 8189 ext 152				lwicks@icao.int	
ICAO ESAF						
Mr. Seboeso Machobane (RO ATM)					SMachobane@icao.int	
ICAO EUR/NAT						
Mr. Sven Halle RO/ATM					shalle@icao.int	
ICAO WACAF						
Mr. Gaoussou Konate (DRD)					GKonate@icao.int	
ICAO Headquarters						
Mr. Chris Dalton (C/ATM)	1514 954-6711	1 514 281-0731	1 514 951-0283	1-514-954 8197	cdalton@icao.int	

CHAPTER 1

MID STATES' CONTINGENCY PLANS

Air traffic services authorities shall develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plans shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

States shall ensure to include in their contingency plans provisions related to the spread of communicable diseases, based on the ICAO guidance related to the Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA).

The State(s) responsible for providing air traffic services and related supporting services in particular portions of airspace is (are) also responsible, in the event of disruption or potential disruption of these services, for instituting measures to ensure the safety of international civil aviation operations and, where possible, for making provisions for alternative facilities and services. To that end the State(s) should develop, promulgate and implement appropriate contingency plans. Such plans should be developed in consultation with other States and airspace users concerned and with ICAO, as appropriate, whenever the effects of the service disruption(s) are likely to affect the services in adjacent airspace.

The responsibility for appropriate contingency action in respect of airspace over the high seas continues to rest with the State(s) normally responsible for providing the services until, and unless, that responsibility is temporarily reassigned by ICAO to (an) other State(s).

States should periodically review their national contingency plan and coordinate any amendments with neighbouring States and ICAO.

MID States' Contingency Plans are available at the ICAO MID Regional Office and the status of contingency agreements in the MID Region is at **Table 2**.

Table 2. Status of Contingency Agreements in the MID Region

STATE	CORRESPONDING STATES			REMARKS
BAHRAIN	<input checked="" type="checkbox"/> IRAN <input checked="" type="checkbox"/> KUWAIT	<input checked="" type="checkbox"/> QATAR <input checked="" type="checkbox"/> SAUDI ARABIA	<input checked="" type="checkbox"/> UAE	Completed
EGYPT	<input checked="" type="checkbox"/> GREECE <input checked="" type="checkbox"/> JORDAN	<input checked="" type="checkbox"/> LYBIA <input checked="" type="checkbox"/> CYPRUS	<input checked="" type="checkbox"/> SAUDI ARABIA <input checked="" type="checkbox"/> SUDAN	Completed
IRAN	<input checked="" type="checkbox"/> ARMENIA <input type="checkbox"/> AZERBAIJAN <input type="checkbox"/> TURKMANISTAN <input type="checkbox"/> AFGHANISTAN	<input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> IRAQ <input type="checkbox"/> KUWAIT <input checked="" type="checkbox"/> OMAN	<input checked="" type="checkbox"/> PAKISTAN <input checked="" type="checkbox"/> TURKEY <input type="checkbox"/> UAE	6/11
IRAQ	<input checked="" type="checkbox"/> IRAN <input type="checkbox"/> JORDAN	<input type="checkbox"/> KUWAIT <input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SYRIA <input type="checkbox"/> TURKEY	0/6
JORDAN	<input checked="" type="checkbox"/> EGYPT <input type="checkbox"/> IRAQ	<input type="checkbox"/> ISRAEL <input checked="" type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SYRIA	2/5
KUWAIT	<input checked="" type="checkbox"/> BAHRAIN <input type="checkbox"/> IRAN	<input type="checkbox"/> IRAQ	<input checked="" type="checkbox"/> SAUDI ARABIA	2/4
LEBANON	<input type="checkbox"/> CYPRUS	<input type="checkbox"/> SYRIA		0/2
LIBYA	<input type="checkbox"/> ALGERIA <input type="checkbox"/> CHAD <input checked="" type="checkbox"/> EGYPT	<input type="checkbox"/> MALTA <input type="checkbox"/> NIGER	<input type="checkbox"/> SUDAN <input type="checkbox"/> TUNIS	1/7
OMAN	<input checked="" type="checkbox"/> BAHRAIN <input type="checkbox"/> INDIA <input checked="" type="checkbox"/> IRAN	<input type="checkbox"/> PAKISTAN <input type="checkbox"/> SAUDI ARABIA	<input checked="" type="checkbox"/> UAE <input checked="" type="checkbox"/> YEMEN	4/7
QATAR	<input checked="" type="checkbox"/> BAHRAIN	<input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> UAE	1/3
SAUDI ARABIA	<input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> EGYPT <input type="checkbox"/> ERITREA <input type="checkbox"/> IRAQ	<input checked="" type="checkbox"/> JORDAN <input checked="" type="checkbox"/> KUWAIT <input type="checkbox"/> OMAN	<input type="checkbox"/> SUDAN <input type="checkbox"/> UAE <input type="checkbox"/> YEMEN	4/10
SUDAN	<input type="checkbox"/> CENTRAL AFRICAN <input type="checkbox"/> CHAD <input checked="" type="checkbox"/> EGYPT	<input type="checkbox"/> ERITREA <input type="checkbox"/> ETHIOPIA <input type="checkbox"/> LIBYA	<input type="checkbox"/> SAUDI ARABIA <input type="checkbox"/> SOUTH SUDAN	1/8
SYRIA	<input type="checkbox"/> IRAQ <input type="checkbox"/> JORDAN	<input type="checkbox"/> LEBANON <input type="checkbox"/> CYPRUS	<input type="checkbox"/> TURKEY	0/5
UAE	<input checked="" type="checkbox"/> BAHRAIN <input type="checkbox"/> IRAN	<input checked="" type="checkbox"/> OMAN <input type="checkbox"/> QATAR	<input type="checkbox"/> SAUDI ARABIA	2/5
YEMEN	<input type="checkbox"/> DJIBOUTI <input type="checkbox"/> ERITREA <input type="checkbox"/> ETHIOPIA	<input type="checkbox"/> INDIA <input checked="" type="checkbox"/> OMAN <input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SOMALIA	1/7

☒ Agreement Signed ☐ Agreement NOT Signed Signed Agreements / Total No. of required Agreements

Table 2

CHAPTER 2

COMMON PROCEDURES

Implementation of the plan

A Contingency Coordination Team (CCT) to be established from the following members:

- ICAO (HQ and Regional Offices Focal points), ~~and~~ IATA and EUROCONTROL as permanent members;
- States concerned as essential members; and
- Other organizations, Agencies etc., when deemed necessary, as temporary members.

The main tasks of the CCT are as follows:

- monitor continuously information from all relevant sources;
- initiate action for the activation/deactivation of the Contingency Plan;
- arrange for the constant supply of relevant aeronautical information to the ICAO Regional Office and Headquarters;
- liaise with international/regional organizations as appropriate; ~~and~~
- exchange up-to-date information with States directly concerned and States which are potential participants in contingency arrangements; and-
- use the notification/coordination process at Table 3, to facilitate the challenges related to the implementation of contingency arrangements.

In the event of adoption of contingency procedures States/ANSPs will notify all affected agencies and operators appropriately.

In **Limited Service situations**: the individual States/ANSP will decide upon the level of notification necessary and take action as required to cascade the information.

In **No Service situations**: it is likely that the ATC facility involved will be subject to evacuation. In this instance the States/ANSP will issue NOTAMs and broadcast on appropriate frequencies that contingency procedures have been initiated. The notification process employed by individual States/ANSPs is detailed in their national plan. However the general format will be as the following example of the type of information which may be promulgated:

NOTAM

“Due to emergency evacuation of (States ACC) all ATC services are terminated. Flights within (States ACC) FIR should continue as cleared and contact the next ATC agency as soon as possible. Flights not in receipt of an ATC clearance should land at an appropriate airfield or request clearance to avoid (State) FIR. Flights should monitor (defined frequencies).”

Broadcast an evacuation message on appropriate frequencies:

“Emergency evacuation of (Sates ACC) is in progress. No air traffic control service will be provided by (States ACC). Use extreme caution and monitor (control frequencies), emergency frequencies and air to air frequencies. Contact the next air traffic control unit as soon as possible”.

Traffic Information Broadcast by Aircraft (TIBA) procedures

The following communications procedures have been developed in accordance with the Traffic Information Broadcast by Aircraft (TIBA) procedures recommended by ICAO (Annex 11 – Air Traffic Services, Attachment C). These procedures should be applied when completing an altitude change to comply with the ATC clearance.

At least 3 minutes prior to the commencement of a climb or descent the flight should broadcast on the last assigned frequency, 121.5, 243.0 and 123.45 the following:

“ALL STATION (callsign) (direction) DIRECT FROM (landfall fix) TO (oceanic entry point) LEAVING FLIGHT LEVEL (number) FOR FLIGHT LEVEL (number) AT (distance)(direction) FROM (oceanic entry point) AT (time)”

When the level change begins, the flight should make the following broadcast:

“ALL STATIONS (callsign) (direction) DIRECTION FROM (landfall fix) TO (oceanic entry point) LEAVING FLIGHT LEVEL (number) NOW FOR FLIGHT LEVEL (number).”

When level, the flight should make the following broadcast:

“ALL STATIONS (callsign) MAINTAINING FLIGHT LEVEL (number).”

Table 3. Notification/coordination process

<u>Airspace Avoidance</u>				
<u>Airlines</u>	<u>Airline Actions</u>	<u>IATA Actions</u>	<u>Contingency Coordination Team (CCT)</u>	<u>States/ ANSP</u>
<u>Monitor global activities that have an effect on flight operations. (currently in place)</u>	<u>NONE</u>	<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
<u>Review state activity that requires airline safety and security review (currently in place)</u>	<u>Notify IATA as to effected FIR’ and factors under review. (security and or safety)</u>	<u>When more than (%) of airlines reporting, notify CCT of pending review</u>	<u>NONE</u>	<u>NONE</u>
<u>Identify specific Factors and pending trigger events (currently in place)</u>	<u>inform IATA on review findings and possible trigger events</u>	<u>Inform CCT on findings and number of airlines reporting</u>	<u>Notify effected states/ANSP on number of airlines reviewing current activity</u>	<u>NONE</u>
<u>Event triggered: reviewing avoidance options and select avoidance scenario</u>	<u>inform IATA of selected scenario and volume/initial timelines.</u>	<u>Inform CCT</u>	<u>Notify effected States/ANSP scenario and volume/timelines</u>	<u>Review scenario and give feedback on feasibility</u>
<u>48 Hours prior to activation of planned avoidance re-routes</u>	<u>Notify IATA</u>	<u>Notify CCT</u>	<u>Notify effected states/ANSP</u>	<u>Prepare NOTAMS and avoidance scenario</u>
<u>24 Hours prior to activation of planned avoidance re-routes</u>	<u>Notify IATA</u>	<u>Notify CCT</u>	<u>Notify effected states/ANSP</u>	<u>Publish NOTAMS</u>

CHAPTER 3

AIR TRAFFIC MANAGEMENT

ATS Responsibilities

Tactical ATC considerations during periods of overloading may require re-assignment of routes or portions thereof.

Alternative routes should be designed to maximize the use of existing ATS route structures and communication, navigation and surveillance services.

In the event that ATS cannot be provided within the (XXX) CTA/UTA/FIR, the Civil Aviation Authority shall publish the corresponding NOTAM indicating the following:

- a) Time and date of the beginning of the contingency measures;
- b) Airspace available for landing and overflying traffic and airspace to be avoided;
- c) Details of the facilities and services available or not available and any limits on ATS provision (e.g., ACC, APP, TWR and FIS), including an expected date of restoration of services if available;
- d) Information on the provisions made for alternative services;
- e) ATS contingency routes;
- f) Procedures to be followed by neighbouring ATS units;
- g) Procedures to be followed by pilots; and
- h) Any other details with respect to the disruption and actions being taken that aircraft operators may find useful.

In the event that the CAA is unable to issue the NOTAM, the (alternate) CTA/UTA/FIR will take action to issue the NOTAM of closure airspace upon notification by corresponding CAA or the ICAO MID Regional Office.

Separation

Separation criteria will be applied in accordance with the *Procedures for Air Navigation Services-Air Traffic Management* (PANS-ATM, Doc 4444) and the *Regional Supplementary Procedures* (Doc 7030).

Level Restrictions

Where possible, aircraft on long-haul international flights shall be given priority with respect to cruising levels.

Other measures

Other measures related to the closure of airspace and the implementation of the contingency scheme with the (XXX) CTA/UTA/FIR may be taken as follows:

- a) Suspension of all VFR operations;
- b) Delay or suspension of general aviation IFR operations; and
- c) Delay or suspension of commercial IFR operations.

Transition to Contingency Plan

During times of uncertainty when airspace closures seem possible, aircraft operators should be prepared for a possible change in routing while en-route, familiarization of the alternative routes outlined in the contingency plan as well as what may be promulgated by a State via NOTAM or AIP.

In the event of airspace closure that has not been promulgated, ATC should, if possible, broadcast to all aircraft in their airspace, what airspace is being closed and to stand by for further instructions.

ATS providers should recognize that when closures of airspace or airports are promulgated, individual airlines might have different company requirements as to their alternative routings. ATC should be alert to respond to any request by aircraft and react commensurate with safety.

During the contingency operations, States concerned should take necessary measures to grant special over flight permissions to those flights avoiding the affected Airspace(s).

Transfer of Control and Coordination

The transfer of control and communication should be at the common FIR boundary between ATS units unless there is mutual agreement between adjacent ATS units. ATS providers should also review current coordination requirements in light of contingency operations or short notice of airspace closure.

CHAPTER 4

AIRSPACE AND ALTERNATIVE ROUTINGS

This Contingency Plan has been developed based on existing ATS routes and making use of appropriate contingency routes in the MID Region. Priority has been given to safety considerations and to ensuring that to the extent possible, ATC operations are not complicated. Temporary routes may be established where necessary.

The contingency routings are designed to take into consideration that disruptions to normal traffic flows have the potential to create an additional burden and complexity to ATC. Therefore, temporary contingency routes would be designed to be safe and instantly manageable by ATC. This may require additional track miles to be flown by the aircraft operator.

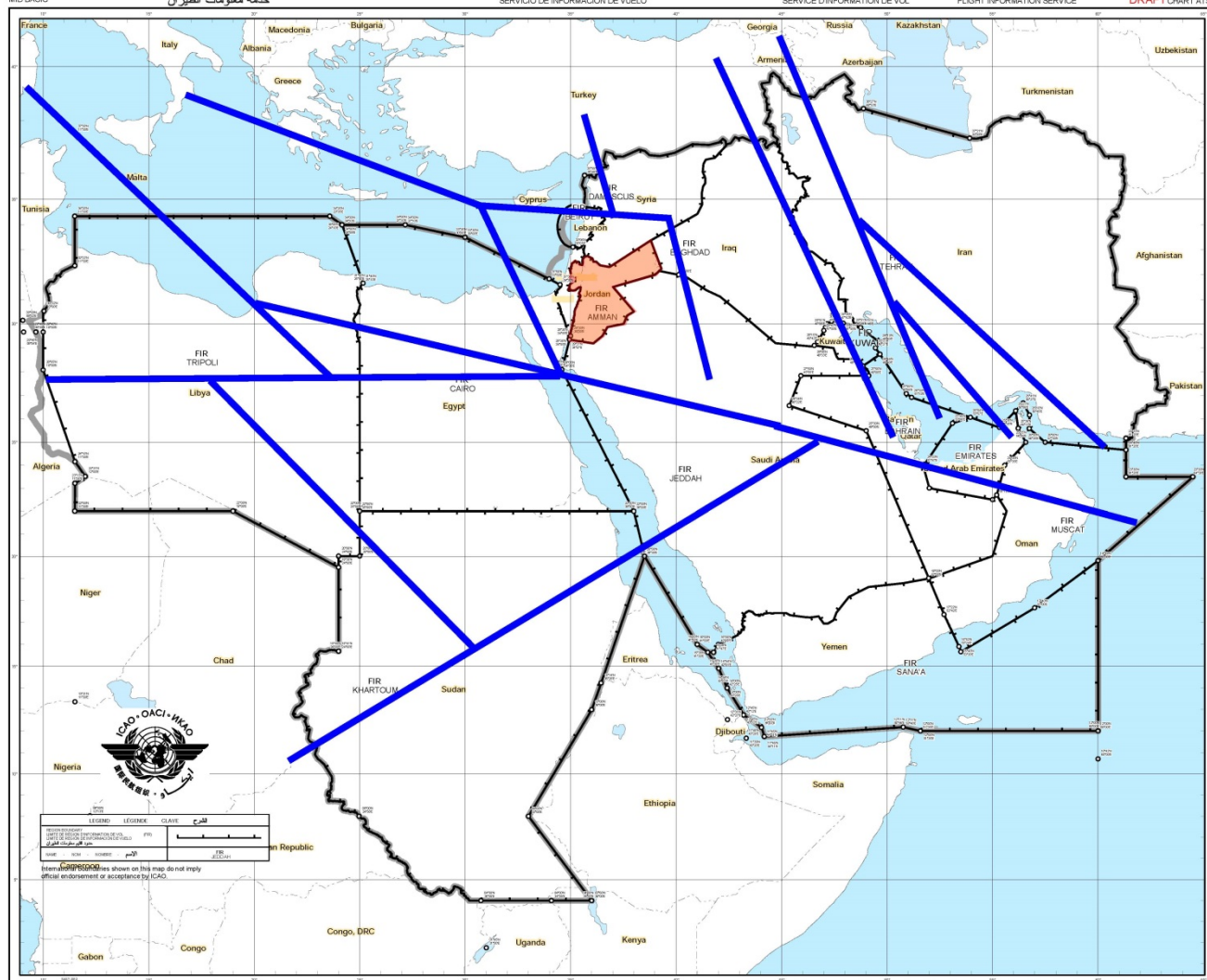
The alternative routings were given “CR” designators based on various scenarios that may be implemented. It is to be highlighted that the scenarios drawn on the charts were developed based on the existing route network, and do not reflect new routes. Furthermore, one scenario could be used to avoid different FIRs, subject to users’ requirements. The scenarios are detailed in the **Table 3** below:

CR	FIR(s) to be Avoided	Traffic Flows through the MID Region Alternative routings/FIRs	Remarks
CR 1	Amman	<i>Eastern Europe from/to Asia</i> <ul style="list-style-type: none"> ▪ Ankara, Baghdad, Jeddah ▪ Ankara, Tehran ▪ Ankara, Damascus, Baghdad, Jeddah <i>Western Europe from/to Asia</i> <ul style="list-style-type: none"> ▪ Nicosia, Cairo, Jeddah ▪ Nicosia, Beirut, Damascus, Baghdad, Jeddah <i>Northern Africa from/to Asia</i> <ul style="list-style-type: none"> ▪ Cairo, Jeddah <i>Southern Africa from/to Asia</i> Not Applicable	
CR 2	Baghdad	<i>Eastern Europe from/to Asia</i> <ul style="list-style-type: none"> ▪ Ankara, Tehran, (Kuwait) or (Bahrain) or (UAE) ▪ Ankara, Damascus, Amman, Jeddah <i>Western Europe from/to Asia</i> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah ▪ Nicosia, Damascus, Amman, Jeddah ▪ Nicosia, Cairo, Jeddah <i>Northern Africa from/to Asia</i> <ul style="list-style-type: none"> ▪ Cairo, Jeddah <i>Southern Africa from/to Asia</i> <ul style="list-style-type: none"> ▪ Addis Ababa, (Asmara, Jeddah) or (Mogadishu, Sana’a) 	
CR 3	Bahrain	<i>Eastern Europe from/to Asia</i> <ul style="list-style-type: none"> ▪ Ankara, (Baghdad), Tehran, UAE, Muscat ▪ Ankara, Baghdad, Jeddah, Sana’a, Muscat <i>Western Europe from/to Asia</i> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah, Sana’a; Muscat ▪ Nicosia, Damascus, Amman, Jeddah ▪ Nicosia, Cairo, Jeddah, Sana’a, Muscat <i>Northern Africa from/to Asia</i> <ul style="list-style-type: none"> ▪ Cairo, Jeddah, Sana’a, Muscat <i>Southern Africa from/to Asia</i>	

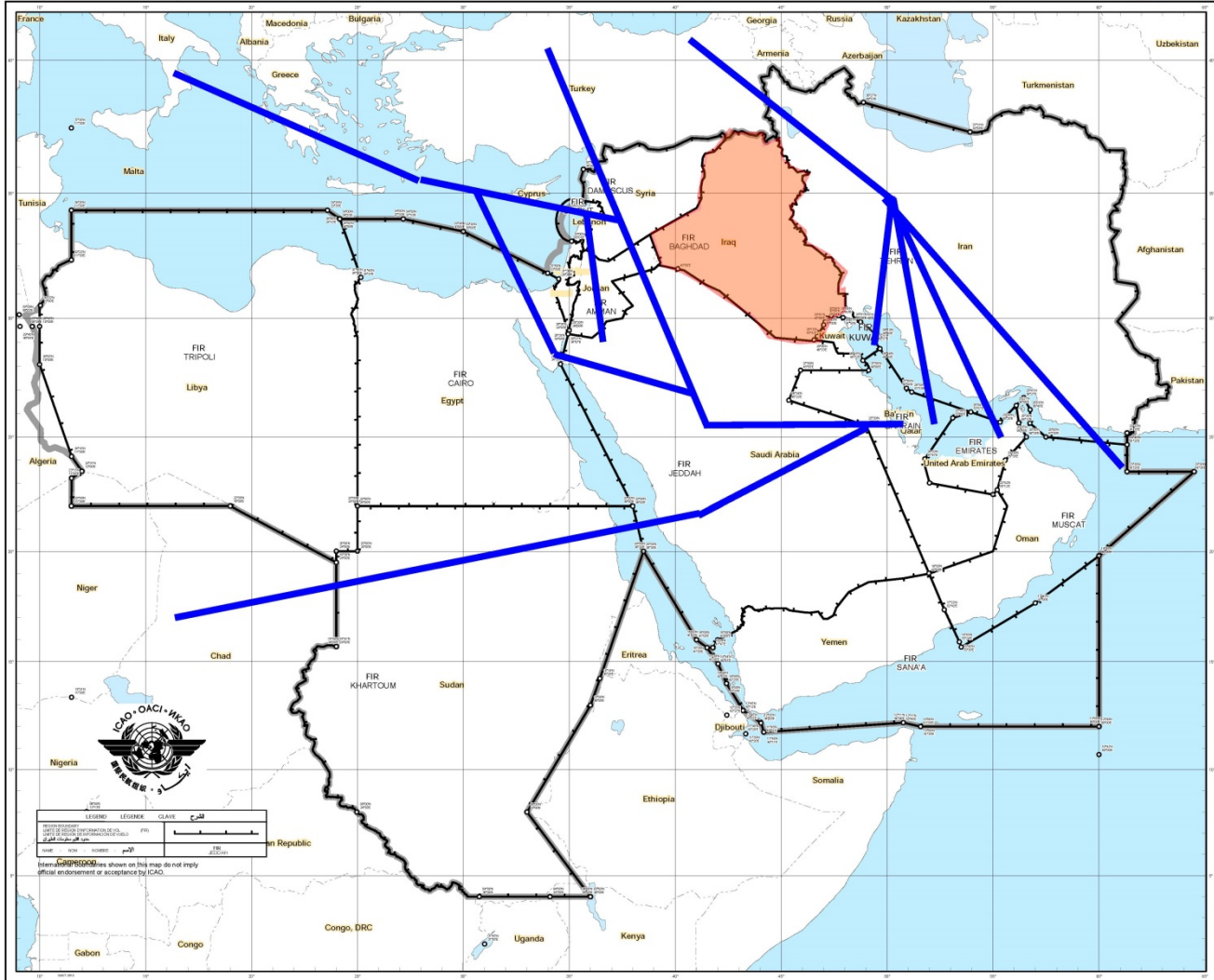
		<ul style="list-style-type: none"> ▪ Khartoum, Jeddah, Sana'a, Muscat ▪ Addis Ababa, Mogadishu, Sana'a, Muscat 	
CR 4	Beirut, Damascus	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, Baghdad Jeddah or Kuwait; ▪ Ankara, Tehran <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Cairo, Jeddah <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum Addis Ababa, Mogadishu, Sana'a ▪ Khartoum, Jeddah 	
CR 5	Cairo	<p><i>Eastern Europe from/to Asia</i></p> <p>Not Applicable</p> <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah ▪ Nicosia, Damascus, Baghdad; Kuwait, Bahrain, UAE ▪ Malta, Tripoli, Khartoum, Jeddah ▪ Malta, Tripoli, Khartoum, Asmara, Jeddah or Sana'a <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Tripoli, Khartoum, Jeddah ▪ Tripoli, Khartoum, Asmara, Jeddah or Sana'a ▪ Algiers, Niamey, N'djamena, Khartoum, Asmara, Jeddah or Sana'a <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum, Jeddah, Sana'a, Muscat ▪ Addis Ababa, (Asmara, Jeddah) or (Mogadishu, Sana'a) 	
		<ul style="list-style-type: none"> ▪ 	
CR 6	Iran	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Baku, Turkmenbashi, Ashgabat, Turkmenabad, Kabul, Karachi, Muscat or Delhi ▪ Baghdad, Kuwait, Bahrain, UAE, Muscat ▪ Nicosia Damascus Amman, Jeddah <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah ▪ Nicosia, Cairo, Jeddah <p><i>Northern Africa from/to Asia</i></p> <p>Not Applicable</p> <p><i>Southern Africa from/to Asia</i></p> <p>Not Applicable</p>	
CR 7	Jeddah	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, Baghdad, Kuwait, Bahrain, UAE, Muscat ▪ Ankara, Damascus, Amman, Baghdad, Kuwait, Bahrain, UAE <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Baghdad, Kuwait, Bahrain, ▪ Athens or Nicosia, Cairo, Amman, Baghdad, Kuwait, Bahrain <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Khartoum, Asmara, Sana'a <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum, Asmara, Sana'a ▪ Addis Ababa, Mogadishu, Sana'a, Muscat 	
CR 8	Khartoum	<i>Eastern Europe from/to Asia</i>	

		<p>Not Applicable</p> <p><i>Western Europe from/to Africa</i></p> <p>Not Applicable</p> <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah ▪ Tripoli, N'djamena, Brazzaville, Kinshasa, Entebbe, Nairobi Addis Ababa, Mogadishu, Sana'a, Jeddah or Muscat. <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Kinshasa, Entebbe, Nairobi Addis Ababa, Mogadishu, Sana'a, Jeddah or Muscat 	
CR 9	Muscat, UAE	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, Baghdad, Jeddah, Sana'a <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah, Sana'a ▪ Nicosia, Damascus, Amman, Jeddah ▪ Nicosia, Cairo, Jeddah, Sana'a <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah, Sana'a <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum, Jeddah, Sana'a ▪ Addis Ababa, (Asmara Jeddah) or (Mogadishu, or Sana'a) 	
CR 10	Sana'a	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, Baghdad, Tehran, UAE, Muscat ▪ Ankara, Baghdad, Jeddah, Bahrain, Muscat <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah, Bahrain; Muscat ▪ Nicosia, Damascus, Amman, Jeddah, Bahrain; Muscat ▪ Nicosia, Cairo, Jeddah, Bahrain; Muscat <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah, Bahrain; Muscat <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum, Jeddah, Bahrain; Muscat ▪ Addis Ababa, (Asmara Jeddah) or (Mogadishu, Mumbai, Muscat 	
CR 11	Tripoli	<p><i>Eastern Europe from/to Asia</i></p> <p>Not Applicable</p> <p><i>Western Europe from/to Africa</i></p> <ul style="list-style-type: none"> ▪ Malta, Cairo, Khartoum <p><i>Northern Africa from/to South Africa or Middle East</i></p> <ul style="list-style-type: none"> ▪ Malta, Athens, or Nicosia to Cairo, Khartoum or Jeddah ▪ Tunis, Algiers, Niamey, N'djamena <p><i>Southern Africa from/to Asia</i></p> <p>Not Applicable</p>	

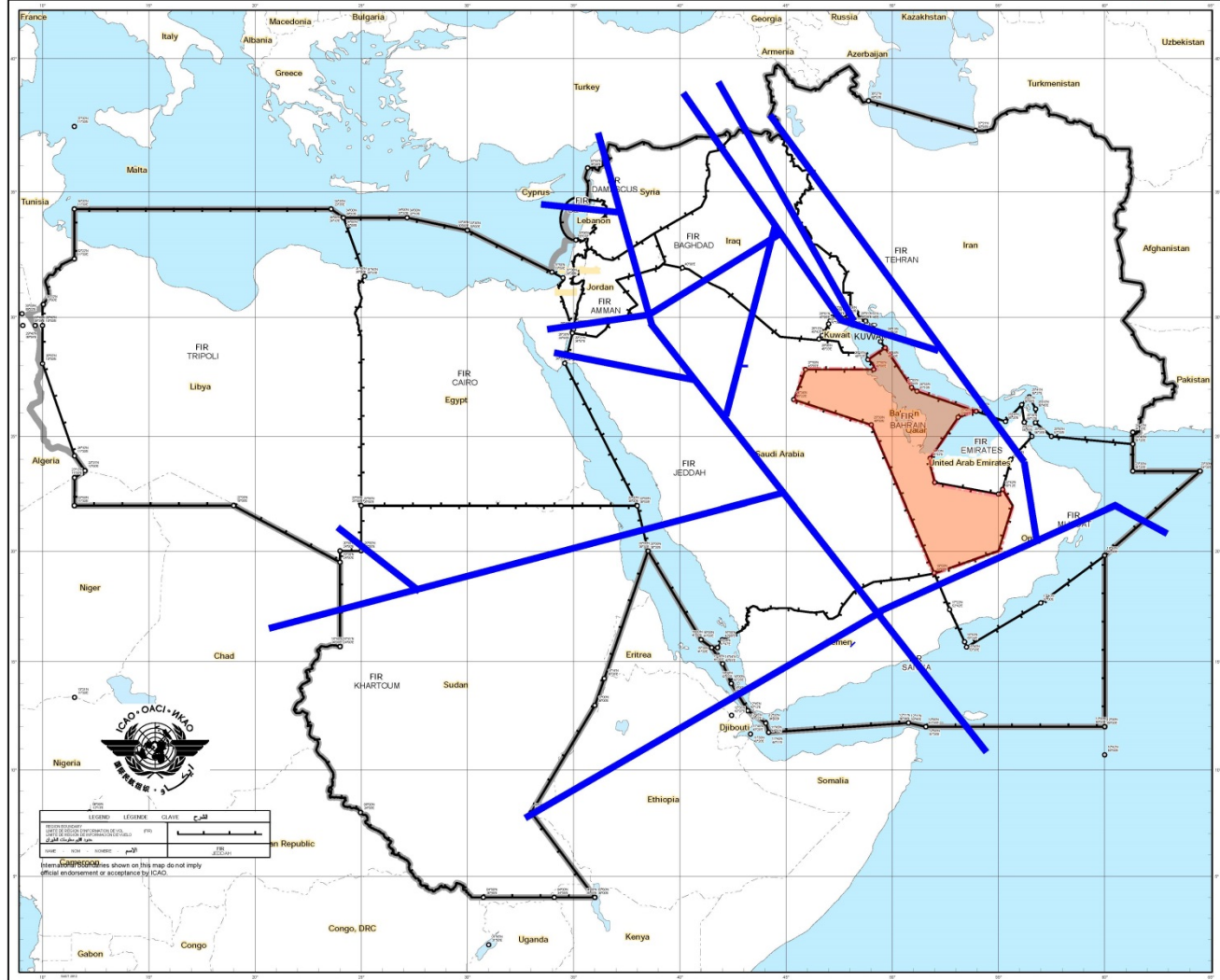
Table 3



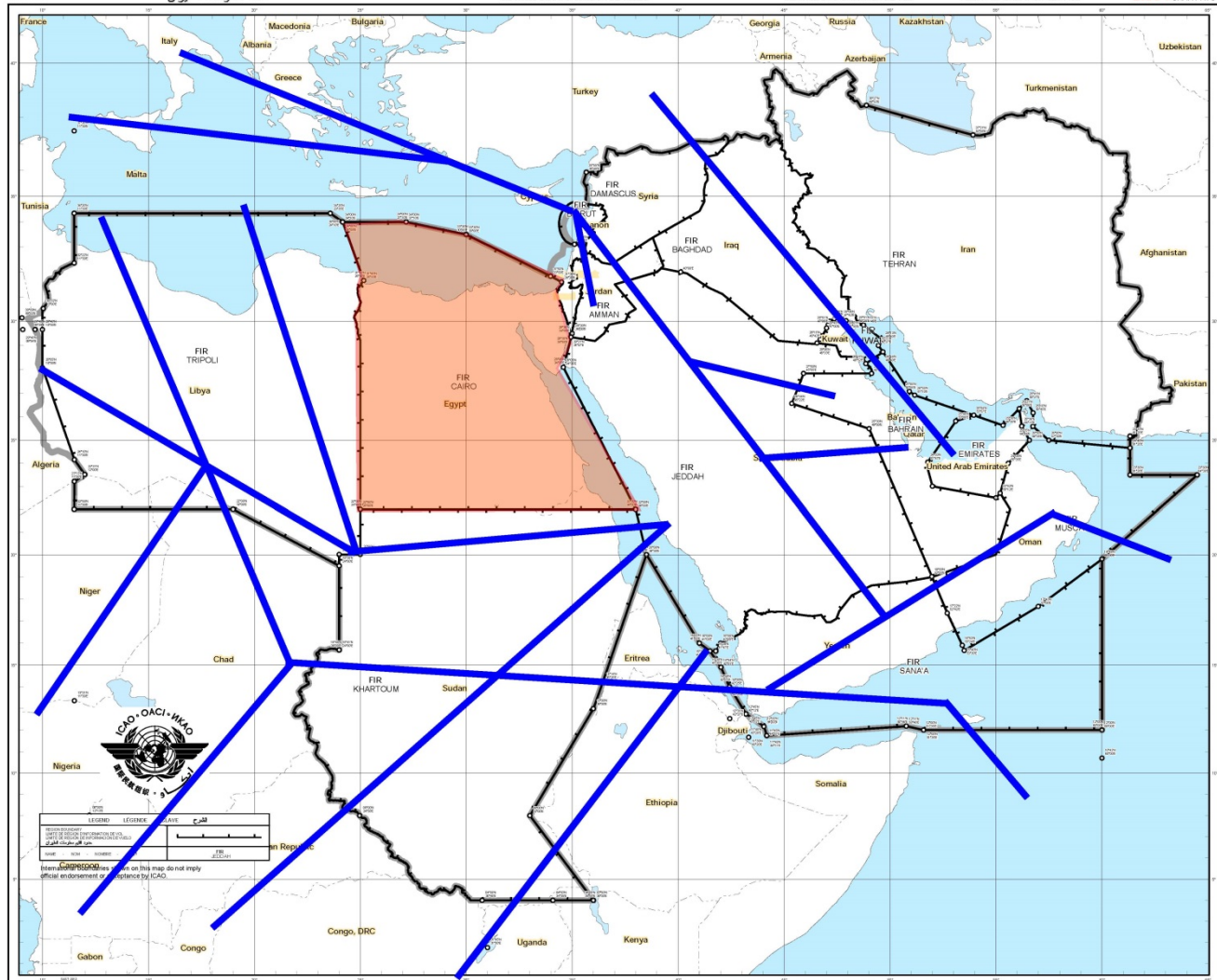
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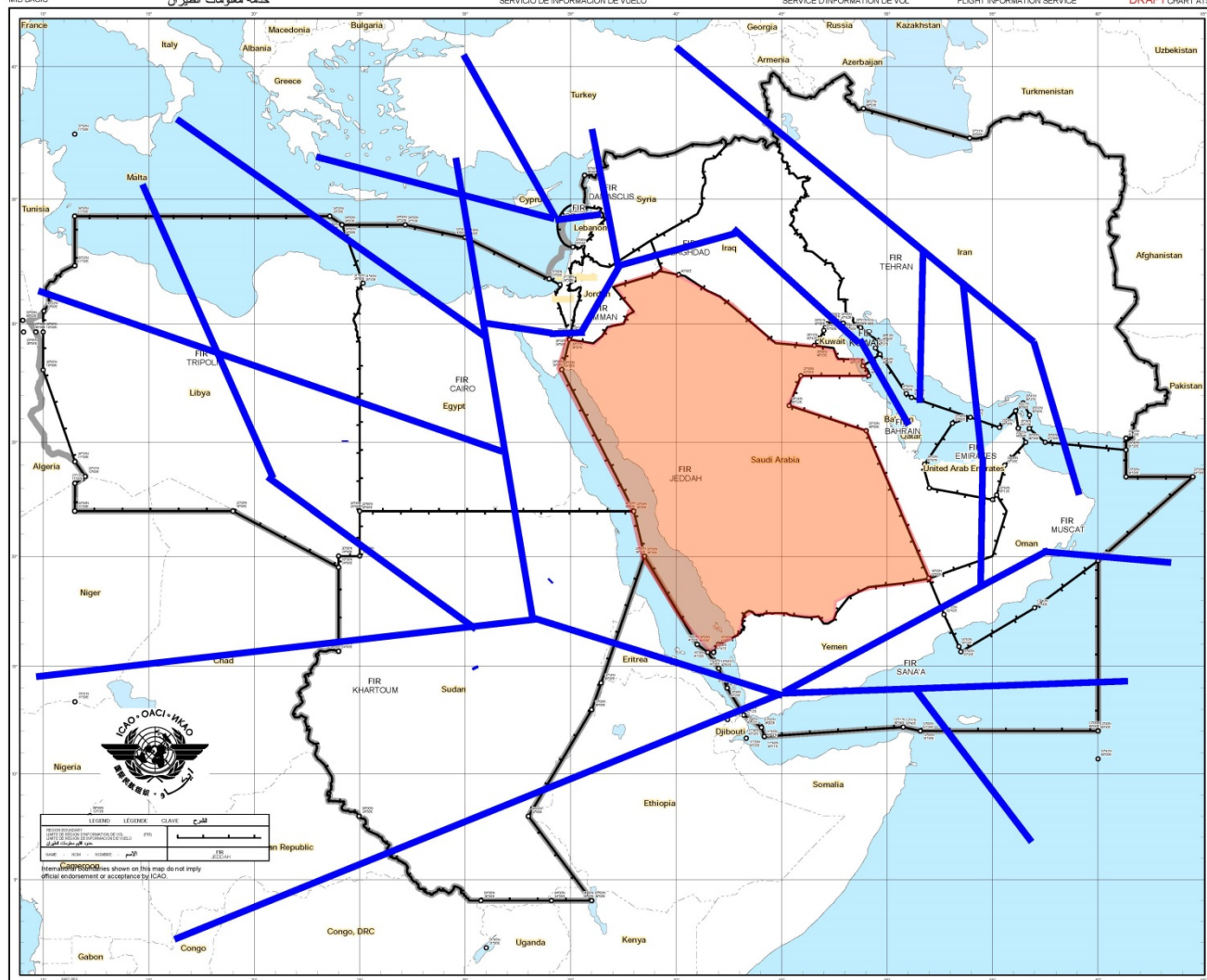


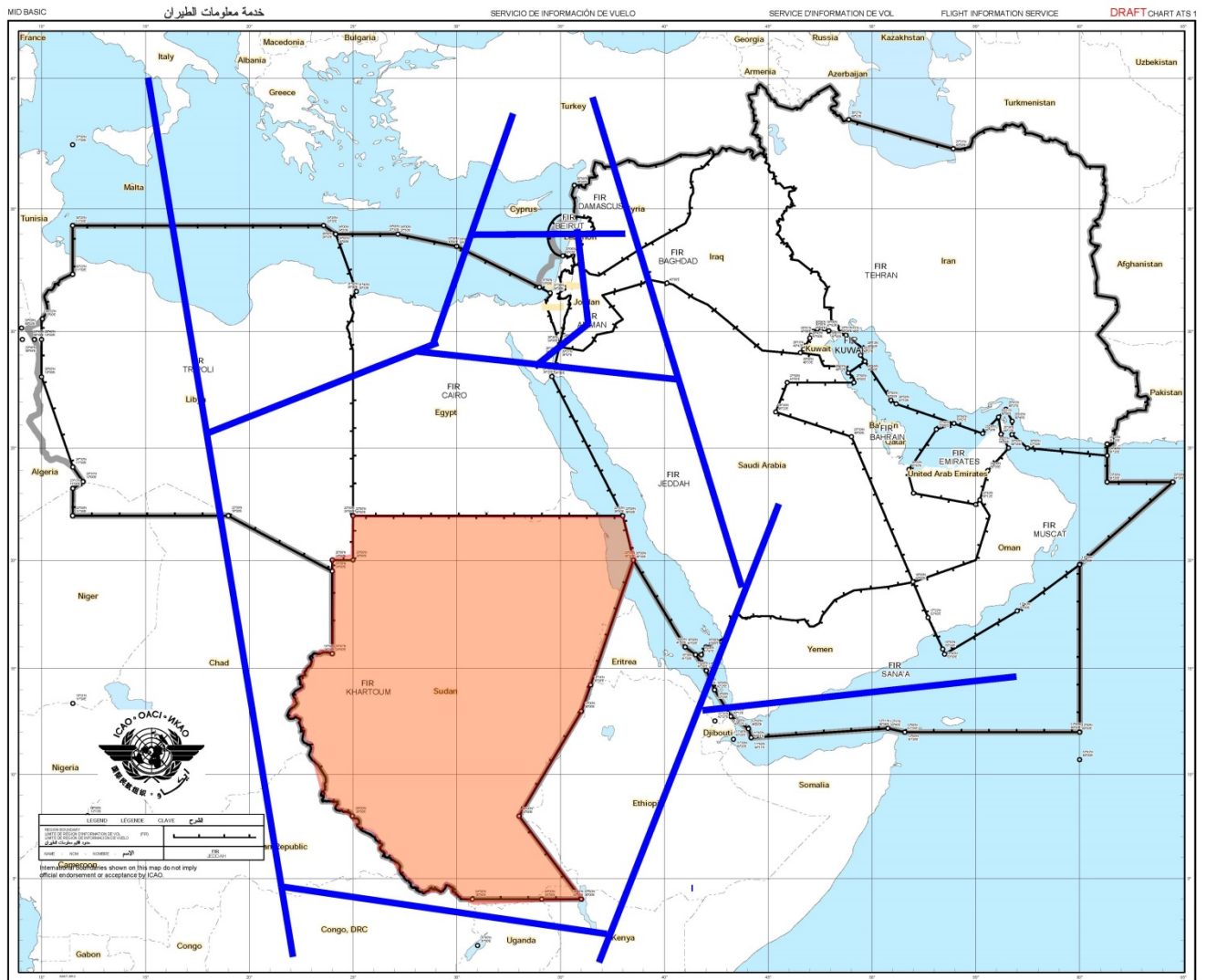
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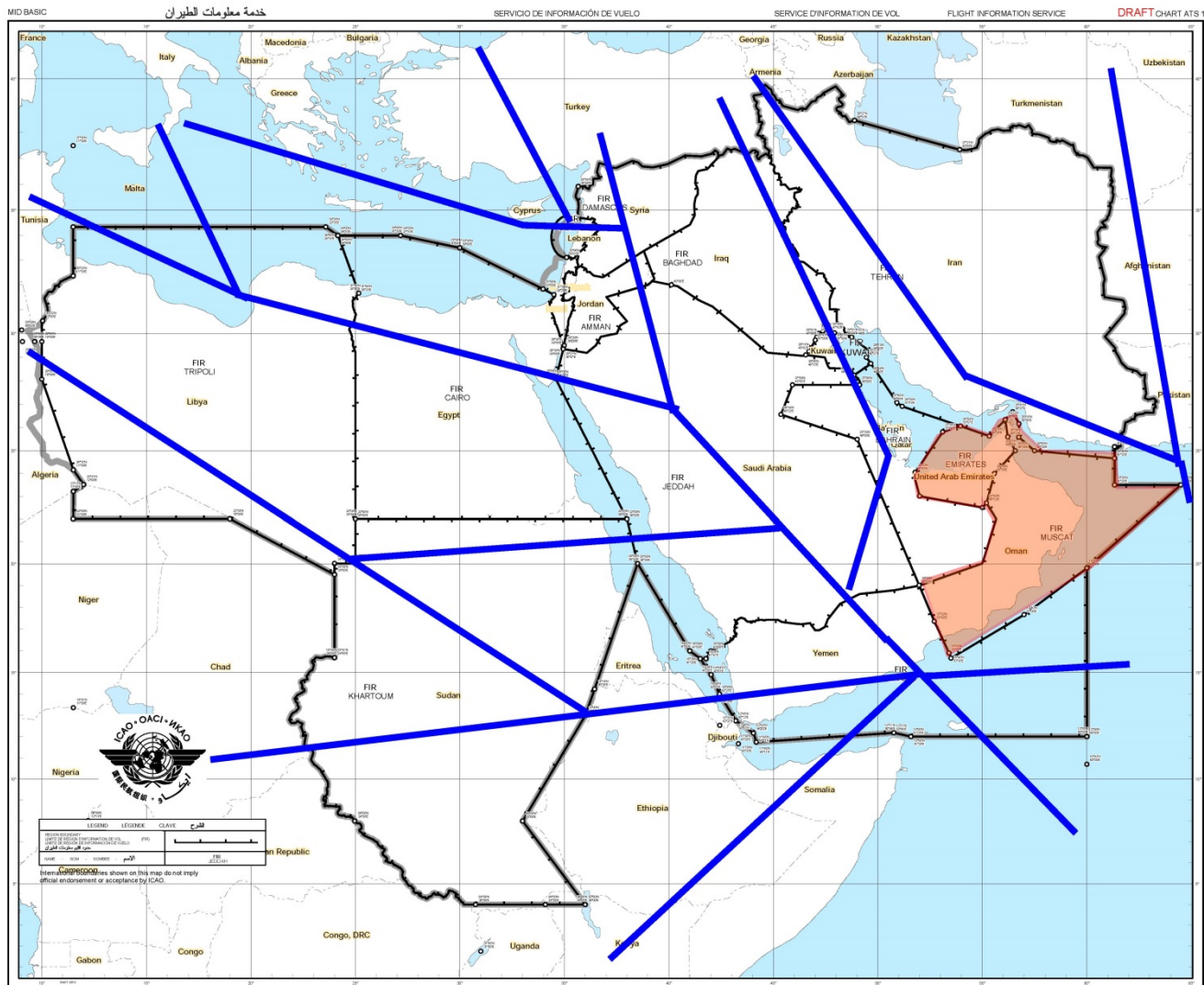
CR 3



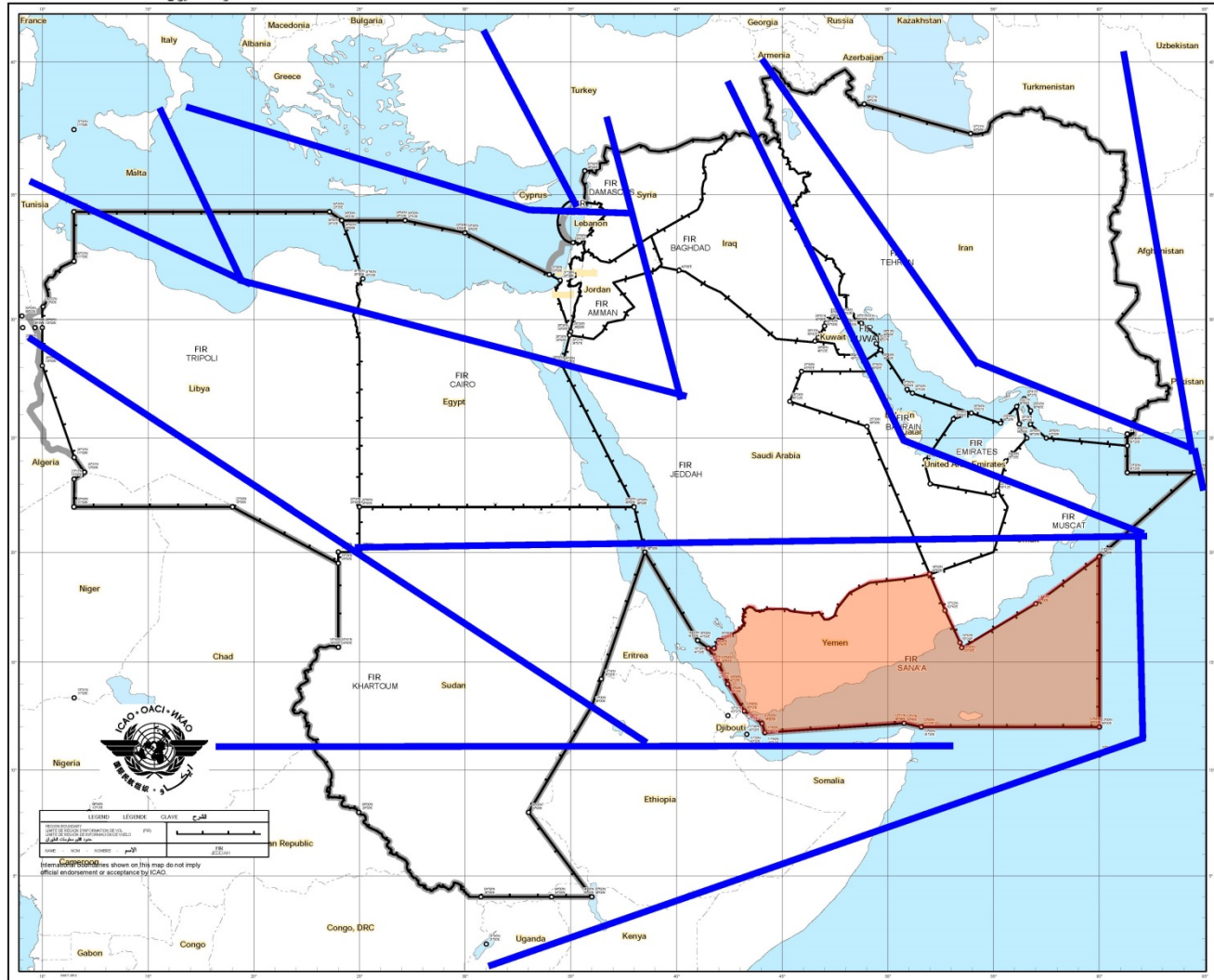


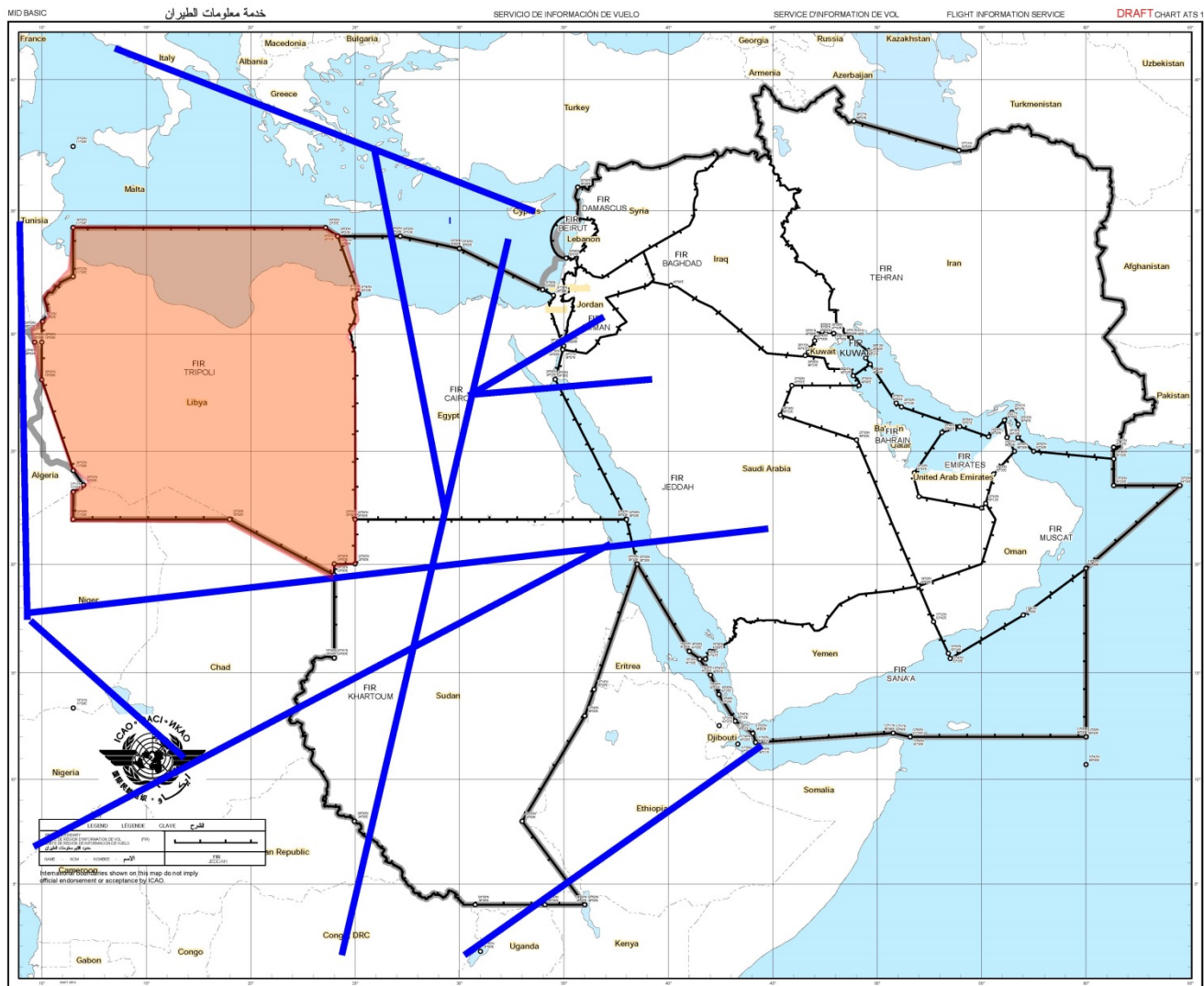


CR 8



CR 9





CHAPTER 5

MID REGION ATM VOLCANIC ASH CONTINGENCY PLAN

The MID Region ATM Volcanic Ash Contingency Plan (MID ATM VACP) was developed based on the VACP prepared by the International Volcanic Ash Task Force (IVATF) in August 2012. The MID ATM VACP sets out standardised guidelines and procedures for the provision of information to airlines and en-route aircraft before and during a volcanic eruption. The plan and its appendices are at **Attachment A** to this Document.

The MID ATM VACP includes the **pre-eruption, start of eruption, ongoing**, and **recovery** phases. It is to be highlighted that most MID States would practice the **ongoing** and **recovery** phases only as the **pre-eruption** and **start of eruption** phases would only apply to the States where volcanoes erupt. Furthermore, the MID Region would receive volcanic ash advisories and volcanic ash advisories in graphic form from the Volcanic Ash Advisory Center (VAAC) Toulouse.

Volcanic contamination, of which volcanic ash is the most serious, is a hazard for safe flight operations. Mitigating the hazards posed by volcanic ash in the atmosphere and/or at the aerodrome cannot be resolved in isolation but through collaborative decision making (CDM) involving all stakeholders concerned. During an eruption, volcanic contamination can reach and exceed the cruising altitudes of turbine-powered aircraft within minutes and spread over vast geographical areas within a few days. Encounters with volcanic ash may result in a variety of hazards including one or more of the following:

- a) the malfunction, or failure, of one or more engines leading not only to reduction, or complete loss of thrust but also to failures of electrical, pneumatic and hydraulic systems;
- b) the blockage of pitot and static sensors resulting in unreliable airspeed indications and erroneous warnings;
- c) windscreens rendered partially or completely opaque;
- d) smoke, dust and/or toxic chemical contamination of cabin air requiring crew to don oxygen masks, thus impacting verbal communication; electronic systems may also be affected;
- e) the erosion of external and internal aircraft components;
- f) reduced electronic cooling efficiency leading to a wide range of aircraft system failures;
- g) the aircraft may have to be manoeuvred in a manner that conflicts with other aircraft; and
- h) volcanic ash deposition on a runway may degrade aircraft braking performance, most significantly if the volcanic ash is wet; and in extreme cases, this can lead to runway closure.

Operators are required by ICAO Annex 6 – *Operation of Aircraft* to implement appropriate mitigation measures for volcanic ash in accordance with their safety management system (SMS), as approved by the State of the Operator/Registry. The guidelines provided in the MID ATM VACP document assume that the ICAO requirements regarding safety management systems have been implemented by the operators. Detailed guidance on Safety Risk Assessments (SRAs) for flight operations with regard to volcanic ash contamination can be found in the manual on *Flight Safety and Volcanic Ash – Risk Management of Flight Operations with Known or Forecast Volcanic Ash Contamination* (ICAO Doc 9974).

Distribution of applicable Aeronautical Information Services (AIS) and Meteorological (MET) messages related to volcanic ash are set out in relevant ICAO Annexes, specifically Annex 15–*Aeronautical Information Services* and Annex 3 – *Meteorological Service for International Air Navigation*.

Volcanic ash can also affect the operation of aircraft at aerodromes. Volcanic ash deposition at an aerodrome, even in very small amounts, can result in the closure of the aerodrome until all the deposited ash has been removed. In extreme cases, the aerodrome may no longer be available for operation at all, resulting in repercussions on the ATM system, e.g. diversions, revised traffic flows, etc.

Some aircraft types or engine technologies are more vulnerable to volcanic ash contaminants than others; therefore, any specific mitigation measures to be applied would have to take into account any such variance. Considering that a commercial aircraft travels about 150 km (80 NM) in 10 minutes and that volcanic ash can rise to flight levels commonly used by turbine-engine aircraft in half that time, a timely response to volcanic eruptions and volcanic ash in the atmosphere is essential.

It is imperative that information on the volcanic activity is disseminated as soon as possible. In order to assist staff in expediting the process of originating and issuing relevant AIS and MET messages, a series of templates should be available for different stages of the volcanic activity. For the list of ICAO registered volcanoes see the *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (ICAO Doc 9691)*. Volcanoes name, number and nominal position should be available at the State's International NOTAM office. Volcanic ash exercises (VOLCEX) should be conducted at a frequency determined by the ICAO Region concerned, in order to ensure the smooth implementation and effectiveness of the contingency plan in case of an actual volcanic eruption.

This document has been prepared, and is in line with a proposal for amendment to the *Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444)* paragraph 15.8 *Procedures for an ATC unit when a volcanic ash cloud is reported or forecast* — which is expected to become applicable in November 2014.

General considerations during the development of an ATM contingency plan for volcanic ash and anticipated flight crew issues when encountering volcanic ash are provided in Appendices A and B respectively.



INTERNATIONAL CIVIL AVIATION ORGANIZATION

MID REGION ATM VOLCANIC ASH CONTINGENCY PLAN

MID REGION AIR TRAFFIC MANAGEMENT VOLCANIC ASH CONTINGENCY PLAN

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1. TERMINOLOGY

1.1. Areas of Contamination

1.1.1. Information on areas of observed and/or forecast volcanic ash in the atmosphere is provided by means of appropriate MET messages in accordance with Annex 3 – *Meteorological Service for International Air Navigation*.¹

1.2. Danger Areas

1.2.1. If it is considered that the volcanic event could pose a hazard to aviation, a danger area² may be declared by NOTAM. However, this option should only be applied over and in the proximity of the volcanic source. Normally, clearances will not be issued through the danger area unless explicitly requested by the flight crew. In this context it should be noted that the final responsibility for aircraft safety rests with the flight crew. Therefore, the final decision regarding route, whether it will be to avoid or proceed through an area of volcanic activity, is the flight crew's responsibility. Wherever this document discusses the possible establishment of danger areas, States are not prevented from establishing restricted or prohibited areas over the sovereign territory of the State if considered necessary by the State concerned.

1.2.2. Although it is the prerogative of the Provider State to promulgate a danger area in airspace over the high seas, it should be recognized that restrictions to the freedom of flight over the high seas cannot be imposed in accordance with the United Nations Convention on the Law of the Sea (Montego Bay 1982).

1.3. Phases of An Event

1.3.1. The response to a volcanic event that affects air traffic has been divided into four distinct phases in this document: Pre-Eruption, Start of Eruption, On-going Eruption and Recovery Phases as follows:

Pre-Eruption Phase (when applicable): The initial response, “raising the alert”, commences when a volcanic eruption is expected.

Appropriate AIS and MET messages may be issued in accordance with Annex 15 and Annex 3 respectively, and disseminated to affected aircraft in flight by the most expeditious means. It should be noted that, sometimes volcanoes erupt unexpectedly without any alert being raised; hence the pre-eruption phase may be omitted.

Start of Eruption Phase (when applicable): The start of eruption phase commences at the outbreak of the volcanic eruption and entrance of volcanic ash into the atmosphere and mainly pertains to aircraft in flight. Appropriate AIS and MET messages may be issued as appropriate in accordance with Annex 15 and Annex 3 respectively, and a danger area may be declared by NOTAM. Normally, clearances will not be issued through the danger area unless explicitly requested by the flight crew.

¹ Principally this will include volcanic ash advisory messages (issued by volcanic ash advisory centres) and SIGMET information on volcanic ash (issued by meteorological watch offices).

² Depending on the State's regulation, the area may be established as a “danger area”, “restricted area” or “prohibited area”. Over the high seas only “danger area” may be established.

On-Going Eruption Phase: The on-going eruption phase commences with the issuance of the first Volcanic Ash Advisory (VAA) containing information on the extent and movement of the volcanic ash cloud following completion of the previous reactive responses. Appropriate AIS and MET messages may be issued as appropriate in accordance with Annex 15 and Annex 3, respectively.

Recovery Phase: The recovery phase commences with the issuance of the first VAA containing a statement that “NO VA EXP” (i.e. “no volcanic ash expected”) which normally occurs when it is determined that no volcanic ash is expected in the atmosphere and the volcanic activity has reverted to its pre-eruption state.

Note: These descriptions are amplified in Chapter 3 of this document.

1.3.2. Although the four distinct phases herein describe actions to be undertaken during an actual volcanic event, they are based on a theoretical scenario. Actual eruptions may not always be distinct with respect to ATM actions to be undertaken. Similarly, an eruption may occur without any pre-eruptive activity, or may cease and restart more than once. Hence, the first observation may be the presence of an ash cloud which is already some distance away from the volcano. It is essential that the contingency planning prepares the ATM system for an appropriate response depending on the actual conditions. Therefore, the “Pre-Eruption Phase” and “Start of Eruption Phase” described in this document are annotated “when applicable” in order to provide for flexibility in the application of the contingency plan in those parts of the world with insufficient volcano monitoring and alerting.

1.3.3. Flight crews are required to report observations of volcanic activity by means of a special air-report (Special AIREP). Arrangements should be put in place to ensure that such information is transferred without delay to the appropriate aeronautical institutions responsible for subsequent action. The communication and dissemination of pilot reports on volcanic activity is described in Appendix C.

2. PRE-ERUPTION PHASE

2.1. General

2.1.1. Where flight operations are planned in areas that are susceptible to volcanic eruptions, ATS units may expect to receive from flight crews the ICAO Volcanic Activity Report (VAR) form (published in the *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444, Appendix 1).

2.1.2. The focus of this phase is to gain early recognition of volcanic events. This phase is frequently characterised by a very limited availability of information on the potential extent and severity of the impending eruption. The priority is to ensure the continued safety of aircraft in flight; this requires promulgating information as a matter of urgency. Notwithstanding the potentially limited extent of information available, the pre-eruption phase actions described below should be carried out for every expected eruption.

2.1.3. The initial response, “raising the alert”, commences when a volcanic eruption is expected. Initial awareness of the event may be by means of a Special AIREP/VAR and/or from information provided by meteorological or volcano-logical agencies. Arrangements in each State between designated volcano observatories, meteorological and air traffic management agencies

should ensure that alerting information is provided expeditiously by the most appropriate means to provide continued safety of flight.

2.1.4. Emphasis is placed on raising awareness of the hazard and to protect aircraft in flight. The actions are based on well-prepared, well-exercised contingency plans and standard operating procedures. Aircraft are expected to clear or avoid the volcanic ash affected area based on standard operating procedures.

2.2. Originating ACC Actions (*eruption expected in its own flight information region*)

2.2.1. In the event of significant pre-eruption volcanic activity, which could pose a hazard to aviation, an area control centre (ACC)³, on receiving information of such an occurrence, should carry out the following:

- a) ensure that appropriate AIS messages are originated in accordance with Annex 15. These must provide as precise information as is available regarding the activity of the volcano. It is imperative that this information is issued by the international NOTAM office and disseminated as soon as possible in accordance with the provisions of Annex 15;
- b) when so required by the State, define an initial, precautionary danger area in accordance with established procedures. The size of the danger area should encompass a volume of airspace in accordance with the information available, aiming to avoid undue disruption of flight operations;
 - i. if no such procedures have been established, the danger area should be defined as a circle with a radius of xxx km (xx NM)⁴. The circle should be centred on the estimated or known location of the volcanic activity;
 - ii. although ATC would not normally initiate a clearance through a danger area, it will inform aircraft about the potential hazard and continue to provide normal services. It is the responsibility of the pilot-in-command to determine the safest course of action.
- c) advise the associated MET service provider(s) in accordance with national/regional arrangements unless the initial notification originated from such provider(s), who will then inform the appropriate air traffic flow management (ATFM) units;
- d) alert flights already within the area concerned and offer assistance to enable aircraft to exit the area in the most expeditious and appropriate manner. Flight crews should be provided with all necessary information required to make safe and efficient decisions in dealing with the hazards in the defined area. Aircraft that are close to the area should be offered assistance to remain clear of the area. Flights which would be expected to penetrate the area should be re-cleared onto routes that will keep them clear;

³ Where the term “ACC” is used throughout this document, it is intended to also include all ATS facilities.

⁴ The size of the area is to be agreed in the region concerned and should be based on local knowledge as regards the volcano concerned.

- e) immediately notify other affected ACCs of the event and the location and dimensions of the area concerned. The ACC should also negotiate any re-routings necessary for flights already coordinated but still within adjacent Flight Information Regions (FIRs) and provide any information on potential implications on traffic flow and its capability to handle the expected traffic. It is also expected that adjacent ACCs will be asked to reroute flights not yet coordinated to keep them clear of the area. It should be noted that flight crews may make the decision not to completely avoid the area based on, for example, visual observations; and
- f) implement flow management measures if necessary to maintain the required level of safety.

Note 1. — In order to assist staff in expediting the process of composing the AIS messages, a series of templates should be available for this stage of the volcanic activity.

2.2.2. In addition to sending the relevant AIS messages to the normal distribution list, it will be sent to the relevant meteorological facilities.

2.3. Adjacent ACC Actions

2.3.1. During the pre-eruption phase, ATC will not normally initiate clearances through a danger area; however, it will inform aircraft about the potential hazard and continue to provide normal services. Adjacent ACCs should take the following action to assist:

- a) when advised, re-clear flights to which services are being provided and which will be affected by the area; and
- b) unless otherwise instructed, continue normal operations and:
 - i. if one or more routes are affected by the area, suggest re-routings to the affected aircraft onto routes clear of the area; and
 - ii. maintain awareness of the affected area.

2.4. ATFM Unit Actions

2.4.1. The ATFM unit and the associated Volcanic Ash Advisory Centre (VAAC) will determine how their initial communications will take place on the basis of bilateral agreements. Upon reception of preliminary information on volcanic activity from the lead VAAC, the ATFM unit should initiate actions in accordance with its procedures to ensure exchange of information in order to support CDM between air navigation service providers (ANSPs), Meteorological Watch Offices (MWOs), VAACs and aircraft operators concerned.

3. START OF ERUPTION PHASE

3.1. General

3.1.1. This phase commences at the outbreak of a volcanic eruption, with volcanic ash being ejected into the atmosphere. The focus of the processes in this phase is to protect aircraft in

flight and at aerodromes from the hazards of the eruption through the collection and use of relevant information.

3.1.2. In addition to relevant actions described under the pre-eruption phase, major activities of the start of eruption phase such as the issuance of relevant AIS and MET messages in accordance with Annex 15 and Annex 3, respectively and provision of information and assistance to airborne traffic. Danger areas will be declared via NOTAM, as appropriate. This phase will last until such time as the on-going eruption phase can be activated.

3.2. Originating ACC Actions (eruption in its own FIR)

3.2.1. The ACC providing services in the FIR within which the volcanic eruption takes place should inform flights about the existence, extent and forecast movement of volcanic ash and provide information useful for the safe and efficient conduct of flights.

3.2.2. If necessary, rerouting of traffic should commence immediately or may be in progress if the alerting time has been sufficient to facilitate activation of the pre-eruption phase. The ACC should assist in rerouting aircraft around the danger area as expeditiously as possible. Adjacent ACCs should also take the danger area into account and give similar assistance to aircraft as early as possible.

3.2.3. During the start of eruption phase, although ATC will not normally initiate a clearance through a danger area, it will inform aircraft about the hazard and will continue to provide normal services. It is expected that aircraft will attempt to remain clear of the danger area. However, it is the responsibility of the pilot-in-command to determine the safest course of action.

3.2.4. During the start of eruption phase the ACC should:

- a) ensure that a NOTAM is originated to define a danger area delineated cautiously so as to encompass a volume of airspace in accordance with the limited information available. In determining the area, information on upper winds should be taken into account, if available. The purpose is to ensure safety of flight in the absence of any prediction from a competent authority of the extent of contamination;
- b) maintain close liaison with MET facilities, who should issue appropriate MET messages in accordance with Annex 3;
- c) devise and update ATFM measures when necessary to ensure safety of flight operations, based on these forecasts and in cooperation with aircraft operators and the adjacent ACCs using the CDM process;
- d) ensure that reported differences between published information and observations (pilot reports, airborne measurements, etc.) are forwarded as soon as possible to the appropriate authorities to ensure its dissemination to all concerned;
- e) begin planning for the on-going eruption phase in conjunction with the aircraft operators, the appropriate ATFM unit and ACCs concerned; and

- f) issue appropriate AIS messages in accordance with Annex 15. Significant reductions in intensity of volcanic activity should take place during this phase and the airspace no longer is contaminated by volcanic ash. Otherwise, begin CDM planning for the on-going eruption phase in conjunction with aircraft operators, the appropriate ATFM unit and the affected ACCs.

3.3. Adjacent ACC Actions

3.3.1. During the start of eruption phase, adjacent ACCs should take the following actions:

- a) maintain a close liaison with the appropriate ATFM unit and the originating ACC to design, implement and keep up to date ATFM measures which will enable aircraft to ensure safety of flight operations;
- b) the adjacent ACC, in cooperation with the originating ACC and aircraft operators, should impose as required additional tactical measures to those issued by the appropriate ATFM unit;
- c) maintain awareness of the affected area; and
- e) begin planning for the on-going eruption phase in conjunction with the aircraft operators, the appropriate ATFM unit and ACCs concerned.

3.4. ATFM Unit Actions

3.4.1. During the start of eruption phase, depending on the impact and/or extent of the volcanic ash, the appropriate ATFM unit should organise the exchange of latest information on the developments with the associated VAACs, ANSPs, MWOs and operators concerned in order to support CDM.

4. ON-GOING ERUPTION PHASE

4.1. The on-going eruption phase commences with the issuance of the first volcanic ash advisory (VAA) by the lead VAAC which contains information on the extent and movement of the volcanic ash cloud in accordance with Annex 3 provisions.

Note 2 - Volcanic ash advisory information in graphical format (VAG) may also be issued by the VAAC, containing the same information as its text-based VAA equivalent.

4.2. The VAA/VAG should be used to:

- a) prepare appropriate AIS and MET messages in accordance with Annex 15 and Annex 3 provisions, respectively; and
- b) plan and apply appropriate ATFM measures.

4.3. The volcanic contamination may affect any combination of airspace; therefore, it is not possible to prescribe measures to be taken for all situations. Furthermore, it is not possible to detail the actions to be taken by any particular ACC. The following guidance therefore may

prove useful during the on-going eruption phase but should not be considered mandatory or exhaustive:

- a) ACCs affected by the movement of the volcanic ash should ensure that appropriate AIS messages are originated in accordance with Annex 15. ACCs concerned and the appropriate ATFM unit should continue to publish details on measures taken to ensure dissemination to all concerned;
- b) depending on the impact and/or extent of the volcanic ash, the appropriate ATFM unit may take the initiative to organize teleconferences to exchange the latest information on the developments, in order to support CDM, with the VAACs, ANSPs and MWOs and operators concerned;
- c) ACCs and ATFM units should be aware that for the purposes of flight planning, operators could treat the horizontal and vertical extent of the volcanic ash contaminated area to be over-flown as if it were mountainous terrain; and
- d) any reported differences between published information and observations (pilot reports, airborne measurements, etc.) should be forwarded as soon as possible to the appropriate authorities (see Appendix C).

5. RECOVERY PHASE

5.1. The recovery phase commences with the issuance of the first VAA/VAG containing a statement that “NO VA EXP” (i.e. “no volcanic ash expected”) — which normally occurs when it is determined that the volcanic activity has reverted to its pre-eruption state and the airspace is no longer affected by volcanic ash contamination. Consequently, appropriate AIS messages should be issued in accordance with Annex 15.

5.2. ACCs and ATFM units should revert to normal operations as soon as practical.

6. AIR TRAFFIC CONTROL PROCEDURES

6.1. If a volcanic ash cloud is reported or forecasted in the FIR for which the ATS unit is responsible, the following actions should be taken:

- a) relay all pertinent information immediately to flight crews whose aircraft could be affected to ensure that they are aware of the ash cloud’s position and levels affected;
- b) request the intention of the flight crew and endeavour to accommodate requests for re-routing or level changes;
- c) suggest appropriate re-routing to the flight crew to avoid an area of reported or forecast ash clouds; and
- d) request a special air-report when the route of flight takes the aircraft into or near the forecast ash cloud and provide such special air-report to the appropriate agencies.

Note 3.— The recommended escape manoeuvre for an aircraft which has encountered an ash cloud is to reverse its course and begin a descent if terrain permits.

Note 4. — The final authority as to the disposition of the aircraft, whether to avoid or proceed through a reported or forecast volcanic ash cloud, rests with the flight crew.

6.2. When advised by the flight crew that the aircraft has inadvertently entered a volcanic ash cloud, the ATS unit should:

- a) take such action applicable to an aircraft in an emergency situation; and
- b) do not initiate modifications of route or level assigned unless requested by the flight crew or necessitated by airspace requirements or traffic conditions.

Note 5.— General procedures to be applied when a pilot reports an emergency situation are contained in Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444, Chapter 15, 15.1.1 and 15.1.2).

Note 6.— Guidance material concerning the effect of volcanic ash and the impact of volcanic ash on aviation operational and support services is provided in Chapters 4 and 5 of the Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691).

7. ATFM PROCEDURES

7.1. Depending on the impact and/or extent of the volcanic ash and in order to support CDM, the appropriate ATFM unit should organize the exchange of the latest information on the developments with the associated VAACs, ANSPs, MWOs and operators concerned.

7.2. The ATFM unit will apply ATFM measures on request of the ANSPs concerned. The measures should be reviewed and updated in accordance with updated information. Operators should also be advised to maintain watch for relevant AIS and MET messages for the area.

APPENDIX A

GENERAL CONSIDERATIONS DURING THE DEVELOPMENT OF AN ATM CONTINGENCY PLAN FOR VOLCANIC ASH

1. In a contingency plan relating to volcanic ash contamination, certain steps need to be taken to provide a coordinated and controlled response for dealing with an event of this nature. Responsibilities should be clearly defined to ATS personnel. The plan should also identify the officials who need to be contacted, the type of messages that are to be created, the proper distribution of the messages and how to conduct business.
2. ATS personnel need to be trained and be made aware of the potentially hazardous effects if an aircraft encounters a volcanic ash cloud. Some particular aspects include:
 - a) volcanic ash contamination may extend for hundreds, or even thousands of miles horizontally and reach the stratosphere vertically;
 - b) volcanic ash may block the pitot-static system of an aircraft, resulting in unreliable airspeed indications;
 - c) braking conditions at aerodromes where volcanic ash has recently been deposited on the runway will affect the braking ability of the aircraft. This is more pronounced on runways contaminated with wet ash. Flight crews and ATS personnel should be aware of the consequences of volcanic ash being ingested into the engines during landing and taxiing. For departure, it is recommended that pilots avoid operating in visible airborne ash; instead they should allow sufficient time for the particles to settle before initiating a take-off roll, in order to avoid ingestion of ash particles into the engine. In addition, the movement area to be used should be carefully swept before any engine is started;
 - d) volcanic ash may result in the failure or power loss of one or all engines of an aircraft; and
 - e) aerodromes with volcanic ash deposition may be declared unsafe for flight operations. This may have consequences for the ATM system.
4. The area control centre (ACC) in conjunction with ATFM units serves as the critical communication link between affected aircraft in flight and the providers of information during a volcanic eruption. During episodes of volcanic ash contamination within the FIR, the ACC has two major communication roles. First and most important is its ability to communicate directly with aircraft enroute which may encounter the volcanic ash. Based on the information provided in SIGMET information for volcanic ash and volcanic ash advisories (VAAs), and working with MWOs, ATS personnel should be able to advise the flight crew of which flight levels are affected by the volcanic ash and the forecast movement of the contamination. Through various communication means, ATS units have the capability to coordinate with the flight crew alternative routes which would keep the aircraft away from the volcanic ash cloud.
5. Similarly, through the origination of a NOTAM/ASHTAM for volcanic activity the ACC can disseminate information on the status and activity of a volcano even for pre-eruption increases in volcanic activity. NOTAM/ASHTAM and SIGMET, together with AIREPs, are critical to dispatchers for flight planning purposes. Operators need as much advance notification as possible on the status of a volcano for strategic planning of flights and the safety of the flying

public. Dispatchers need to be in communication with flight crew enroute so that a coordinated decision can be made between the flight crew, the dispatcher and ATS regarding alternative routes that are available. The ACC should advise the ATFM unit concerning the availability of alternative routes. However, it cannot be presumed that an aircraft which is projected to encounter ash will be provided with the most desirable route to avoid the contamination. Other considerations have to be taken into account such as existing traffic levels on other routes and the amount of fuel reserve available for flights which may have to be diverted to other routes to allow for the affected aircraft to divert.

6. The NOTAM/ASHTAM for volcanic activity provides information on the status of activity of a volcano when a change in its activity is, or is expected to be, of operational significance. They are originated by the ACC and issued through the respective international NOTAM office based on the information received from any one of the observing sources and/or advisory information provided by the associated VAAC. In addition to providing the status of activity of a volcano, the NOTAM/ASHTAM also provides information on the location, extent and movement of the ash contamination and the air routes and flight levels affected. NOTAM can also be used to limit access to the airspace affected by the volcanic ash. Complete guidance on the issuance of NOTAM and ASHTAM is provided in Annex 15 — *Aeronautical Information Services*. Included in Annex 15 is a volcano level of activity colour code chart. The colour code chart alert may be used to provide information on the status of the volcano, with “red” being the most severe, i.e. volcanic eruption in progress with an ash column/cloud reported above flight level 250, and “green” at the other extreme being volcanic activity considered to have ceased and volcano reverted to its normal pre-eruption state. It is very important that NOTAM for volcanic ash be cancelled and ASHTAM be updated as soon as the volcano has reverted to its normal pre-eruption status, no further eruptions are expected by volcanologists and no volcanic ash is detectable or reported within the FIR concerned.

7. It is essential that the procedures to be followed by ATS personnel during a volcanic eruption, as well as supporting services such as MET, AIS and ATFM, should be translated into local staff instructions (adjusted as necessary to take account of local circumstances). It is also essential that such local staff instructions form part of the basic training for all ATS, AIS, ATFM and MET personnel whose jobs would require them to take action in accordance with the procedures. Background information to assist the ACC or Flight Information Centre (FIC) in maintaining an awareness of the status of activity of volcanoes in their FIR(s) is provided in the monthly Scientific Event Alert Network Bulletin published by the United States Smithsonian Institution and sent free of charge to ACCs/FICs requesting it.

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APPENDIX B

ANTICIPATED FLIGHT CREW ISSUES WHEN ENCOUNTERING VOLCANIC ASH

1. ATS personnel should be aware that flight crews will be immediately dealing with some or all of the following issues when they encounter volcanic ash:

- a) smoke or dust appearing in the cockpit which may prompt the flight crew to don oxygen masks (could interfere with the clarity of voice communications);
- b) acrid odour similar to electrical smoke;
- c) multiple engine malfunctions, such as stalls, increasing exhaust gas temperature (EGT), torching, flameout, and thrust loss causing an immediate departure from assigned altitude;
- d) on engine restart attempts, engines may accelerate to idle very slowly, especially at high altitudes (could result in inability to maintain altitude or Mach number);
- e) at night, St. Elmo's fire/static discharges may be observed around the windshield, accompanied by a bright orange glow in the engine inlet(s);
- f) possible loss of visibility due to cockpit windows becoming cracked or discoloured, due to the sandblast effect of the ash;
- g) because of the abrasive effects of volcanic ash on windshields and landing lights, visibility for approach and landing may be markedly reduced. Forward visibility may be limited to that which is available through the side windows; and/or
- h) sharp distinct shadows cast by landing lights as compared to the diffused shadows observed in clouds (this affects visual perception of objects outside the aircraft).

2. Simultaneously, ATS personnel can expect flight crews to be executing contingency procedures such as the following:

- a) if possible, the flight crew may immediately reduce thrust to idle;
- b) exit volcanic ash cloud as quickly as possible. The shortest distance/time out of the ash may require an immediate, descend and/or 180 degrees turn (if terrains permit);
- c) don flight crew oxygen masks at 100 per cent (if required);
- d) monitor airspeed and pitch attitude. If unreliable airspeed is suspected, or a complete loss of airspeed indication occurs (volcanic ash may block the pitot system), the flight crew will establish the appropriate pitch attitude;
- e) land at the nearest suitable aerodrome; and
- f) upon landing, thrust reversers may be used as lightly as feasible.

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APPENDIX C

COMMUNICATION AND DISSEMINATION OF PILOT REPORTS OF VOLCANIC ACTIVITY

1. INTRODUCTION

1.1. ICAO Annex 3-*Meteorological Service for International Air Navigation* (paragraph 5.5, g and h) prescribes that volcanic ash clouds, volcanic eruptions and pre-eruption volcanic activity, when observed, shall be reported by all aircraft. The ICAO *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444) contain detailed provisions on this special air report requirement in paragraphs 4.12.3 and 4.12.5, and the Volcanic Activity Report form in Appendix 1.

1.2. Experience has shown that reporting and sharing of information on volcanic ash encounters in accordance with the above mentioned provisions (in-flight and post-flight) varies across the world. The efficiency and quality of reporting currently depends heavily on regional characteristics and the level of regional integration. A high level of global harmonization is essential to achieve the desired level of implementation and consistency of the information.

2. PURPOSES OF VOLCANIC ASH REPORTING AND DATA COLLECTION

2.1. The main purposes for volcanic ash reporting and data collection are to:

- a) locate the volcanic hazards;
- b) notify immediately other aircraft (in-flight) about the hazard;
- c) notify other interested parties: ANSPs (ATC, AIS, ATFM), VAACs, MWO, etc. to ensure the consistent production of appropriate information and warning products in accordance with existing provisions; and
- d) analyse collected reports from the post-flight phase in order to:
 - identify areas of concern;
 - validate and improve volcanic ash forecasts;
 - improve existing procedures;
 - assist in defining better airworthiness requirements; and
 - share lessons learned, etc.

3. PHASE OF OPERATIONS

3.1. The roles and responsibilities of the participants in the collection, exchange and dissemination of the volcanic information are distinctly different in two distinct phases:

- a) in-flight; and
- b) post-flight.

3.2. The following section analyses these separately.

4. PARTICIPANTS IN THE REPORTING PROCESS, THEIR ROLES AND RESPONSIBILITIES

4.1. Identification of the participants as well as their roles and responsibilities in general, but specifically during the two different phases of operations, is an important element in improving collection, exchange and dissemination of volcanic information. The number of participants and their roles and responsibilities depends on the phase of operations (in-flight, post-flight), their position in the information chain within one of these two phases and national/regional arrangements. One of the main issues regarding participants' roles and

responsibilities is that each of them is, at one time or another, both a data/information provider and user of the information.

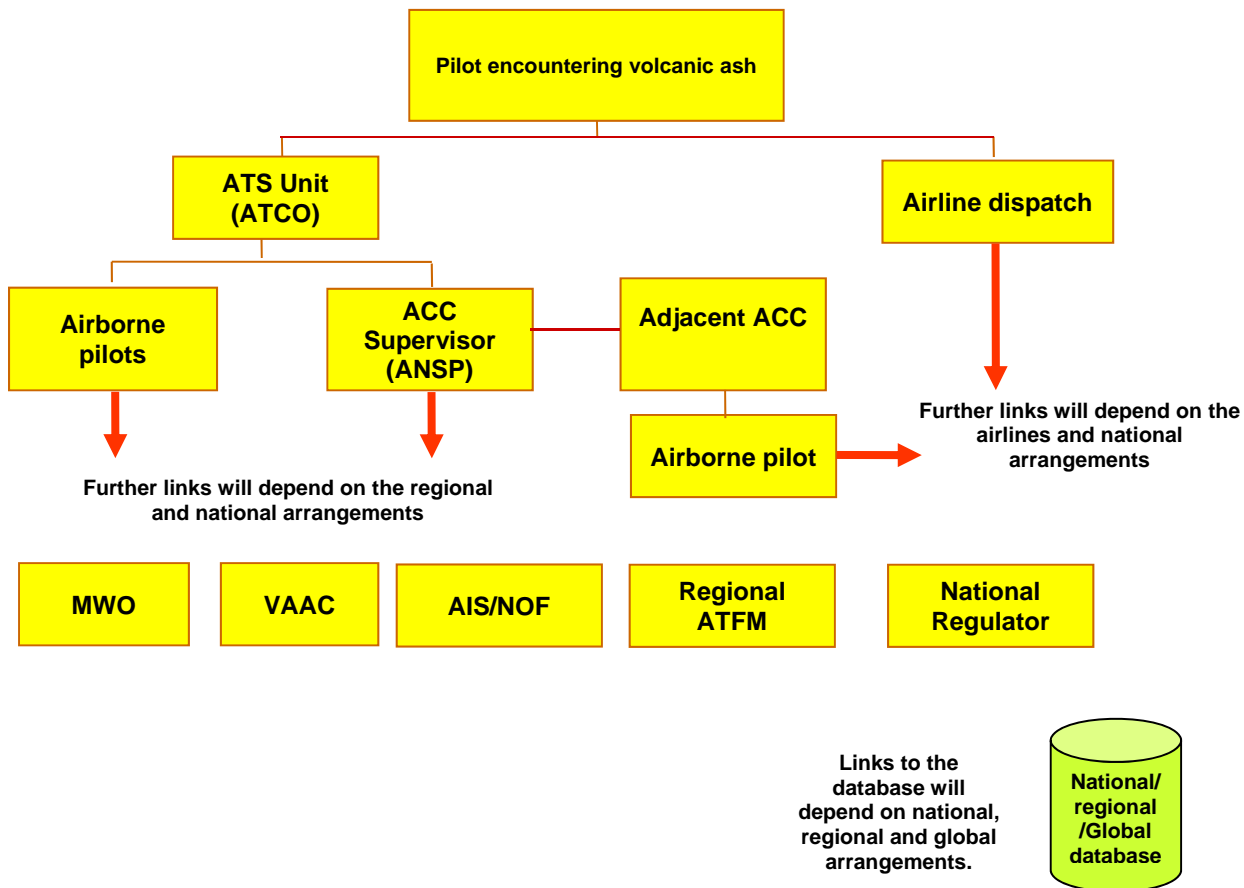
4.2. *In-Flight Phase*

4.2.1 Participants, Roles & Responsibilities:

Participants	Roles & Responsibilities
Pilots, civil and/or military, observing and/or encountering volcanic activity	To provide as much detailed information as possible about the type, position, colour, smell, dimensions of the volcanic contamination, level and time of the observation and forward VAR Part I immediately to the ATS unit with which the pilot is in radiotelephony (R/T) communication. Record the information required for VAR Part II on the appropriate form as soon as possible after the observation or encounter and file the report via data link, if available.
ATS unit receiving the information from the pilot encountering volcanic event	To ensure that information received by an air traffic controller from the pilot has been copied, clarified (if necessary), and disseminated to other pilots as well as to the ACC Supervisor. In addition, air traffic controllers could ask other pilots flying within the same area if they have observed any volcanic activity.
ATS unit/ACC Supervisor (if applicable) or other Air Navigation Service Provider responsible person	To use all means of communication and available forms to ensure that the information received from the air traffic controller has been: <ul style="list-style-type: none"> - passed on to the associated Meteorological organizations in accordance with national/regional arrangements; - fully and immediately disseminated across the organization, in particular to adjacent sectors and the associated NOTAM Office (NOF); - passed on to the neighbouring sectors and ACCs (if necessary); - passed on to the regional ATFM centre if existing (e.g. CFMU in Europe); - passed on to the national/regional authority responsible for the handling of contingency situations.
Neighbouring ANSPs (ACCs)	To ensure that information is provided to flight crews flying towards the area affected by the volcanic contamination; disseminated across the organization and the system prepared to cope with the possible changes of the traffic flows; and that the information is provided to the national authority responsible for the handling of contingency situations and passed on to the NOF and MWO as required.
MET Watch Office	To use the information originated by flight crews and forwarded by the ATS unit, in accordance with Annex 3.
VAAC	To use the information originated by flight crews, MWOs and other competent sources in accordance with Annex 3
AIS / NOF	To publish appropriate AIS messages in accordance with Annex 15
ATFM unit or centre (if existing)	To ensure that information received is stored and made available for information to all partners in its area of responsibility (ANSPs, airlines, VAAC, MET etc.). As part of the daily activity, coordinate ATFM measures with ACCs concerned.

4.2.2 *In-flight reporting – Sample Flow Chart of the volcanic ash information*

4.2.2.1 The chart below is a graphical representation of a possible path of the in-flight volcanic ash information and may differ between regions depending on regional arrangements. It also gives the position of the volcanic ash participants in the reporting chain. The flow chart is not exhaustive and the path of the information can be extended and new participants could be added depending of the national and regional requirements:



4.3 Post-Flight Operations Roles & Responsibilities and order of reporting

Participants	Roles & Responsibilities
Civil and/or military pilots/airlines having observed or encountered an eruption or volcanic contamination	To file the volcanic ash report with as much detailed information as possible about the volcanic activity and/or encounter (position, colour, smell, dimensions, FL, time of observation, impact on the flight, etc.). Ensure that the VAR is filed and transmitted to the relevant recipients as soon as possible after landing (if not filed via data link already during the flight). Make an entry into the Aircraft Maintenance Log (AML) in case of an actual or suspected encounter with volcanic contamination.
ANSP	To provide a summary report of effects of the volcanic activity that affected its operations at least once per day to the national authority with as much detailed information as possible about the number of encounters, impact on air traffic management, etc.).
AOC Maintenance - Post flight Inspection	To report about the observation of the aircraft surfaces, engine, etc., and to provide the information to the national, regional or global central data repository, where applicable.

Investigation authority	All aeronautical service providers (including operators, ANSPs, airports, etc.) shall investigate the effects of a volcanic activity, analyse the information, search for conclusions, and report the investigation results and relevant information to the national supervisory authority and any central data repository.
National Authority	To handle the national central data repository and report to the regional/global central data repository if any. To analyse reports from its aeronautical service providers and take action as appropriate.
Regional Central Data Repository	To collect the national data and make them available to interested stakeholders under agreed conditions.
MWO	To use the national and regional information coming from national and regional central data repositories.
VAAC	To use the information originated by flight crews, and other competent sources to: a) validate its products accordingly and; b) improve the forecast.
Global Data Repository (and research institutes - where appropriate)	To analyse the information stored in the regional central data repository and provide the research outcomes for lessons learnt process.
Knowledge management (e.g. SKYbrary)	To use the post-flight lessons learnt and disseminate them to interested stakeholders.
ICAO	To review/revise ATM volcanic ash contingency plans.

4.4 *Tools for presenting and sharing the volcanic ash information*

4.4.1 To report, transmit and disseminate the volcanic ash encounter information, different types of tools can be used. The list below is provided to give ideas as to what tools can be used. It could also be split into regulatory and general information tools. At any case, it is not an exhaustive list and can be updated with new elements depending on regional experiences.

- a) Radiotelephony and Data link Communications;
- b) VAR;
- c) NOTAM/ASHTAM;
- d) SIGMET;
- e) VAA/VAG;
- f) Central data repository e.g. CFMU Network Operations Portal (NOP);
- g) Centralized web based sites with the regularly updated information and maps – e.g. <http://www.eurocontrol.int/>
- h) Teleconferences;
- i) Periodic Bulletins with the set of information defined by the data providers and data users; e.g. Smithsonian Institution Weekly Bulletin; and/or
- j) Centralized internet-based sites for the sharing of lessons learnt (Knowledge management – e.g. SKYbrary http://www.skybrary.aero/index.php/Main_Page).

APPENDIX D

SIGMET and NOTAM EXAMPLES DURING VOLCANIC ASH

Volcanic Ash (VA) Cloud (CLD) in Kuwait FIR

WVKW31 OKBK 030900
OKBK SIGMET 1 VALID 030900/031500 OKBK-
OKAC KUWAIT FIR VA CLD OBS AT 0840Z W OF E48 FL180/320 MOV E 45KT NC FCST1500Z VA CLD
APRX E OF E4730=

Cancellation SIGMET as volcanic ash cloud exits Kuwait FIR into Tehran FIR (sooner than expected)

WVKW31 OKBK 031400
OKBK SIGMET 2 VALID 031400/031500 OKBK-
OKAC KUWAIT FIR CNL SIGMET 1 030900/031500 VA MOV TO OIIX FIR=

VA CLD in Cairo FIR

WVEG31 HECA 030900
HECA SIGMET 1 VALID 030900/031500 HECA-
HECC CAIRO FIR VA CLD OBS AT 0840Z N OF LINE N3140 E2510 - N29 E30 W OF LINE N3150 E3359 –
N29 E30 FL100/290 MOV SE 35KT NC FCST1500Z VA CLD APRX N OF LINE N3140 E2510 – N2806
E3435=

Cancellation SIGMET as volcanic ash cloud exits Cairo FIR into Jeddah FIR (sooner than expected)

WVEG31 HECA 031330
HECA SIGMET 2 VALID 031330/031500 HECA-
HECC CAIRO FIR CNL SIGMET 1 030900/031500 VA MOV TO OEJD FIR=

Example NOTAM based on SIGMET issued for Cairo FIR

Q) HECC/QWWXX/IV/NBO/W/100/290/999
A) HECC B) 1311030900 C) 1311031500
E) ATM AND ACFT TAKE NECESSARY ACTION DUE TO VOLCANIC ASH AREA OF HIGH/MEDIUM
CONTAMINATION (FROM VOLCANO ETNA 211060, 37.734N 015.004E) AS FOLLOWS:
3400N 2410E – 3140N 2510E – 2900N 3000E – 3150N 3359E – 3330N 3000E – 3400N 2710E – 3400N 2410E
F) FL100 G) FL290

Special Air-Reports on Volcanic Ash

Special air-reports on volcanic ash sent to ACCs should then be sent via AFTN to the relevant Meteorological Watch Office (MWO) which is forwarded to the relevant Volcanic Ash Advisory Centre (VAAC) – for MID Region that is VAAC Toulouse.

SPECIAL AIREP → ACC → MWO → VAAC

Pilots should use the special air-reports format on volcanic ash as at Table A4-1 in Appendix 4 of ICAO Annex 3.



International
Civil Aviation
Organization

Organisation
de l'aviation civile
internationale

Organización
de Aviación Civil
Internacional

Международная
организация
гражданской
авиации

منظمة الطيران
المدني الدولي

国际民用
航空组织

Tel.: +1 514-954-8219 ext. 6659

22 March 2013

Ref.: AN 13/4.3.Open-13/25

Subject: Safety of civil aircraft operating in
Damascus FIR

Action required: Communicate to national civil aircraft
owners and operators, intending to operate within the
Damascus FIR, the need to fully assess the potential for
risks to flight safety

Sir/Madam,

1. I have the honour to address you as the appropriate State Authority of aircraft operator(s) which may use the airspace of the Syrian Arab Republic.
2. Taking into consideration the armed conflict that is currently taking place in the Syrian Arab Republic, I draw your attention to the possible existence of serious risks to the safety of international civil flights operating within the Damascus flight information region (FIR).
3. Information received by ICAO from certain States, based on reports originating from their operators, indicates that incidents have recently taken place involving civil aircraft transiting the Damascus FIR. Such incidents include situations whereby civil aircraft unexpectedly found themselves in close proximity to munitions and missile firings. In addition, unsubstantiated reports in the public media would suggest that munitions firings were also directed at an aircraft during its final approach to an aerodrome in the Syrian Arab Republic.
4. It has also come to my attention that several operators have already taken the decision, based on their assessments of the level of risk involved, to circumnavigate the Damascus FIR, availing themselves of alternate routings in neighbouring FIRs. An increase in the level of traffic on these alternative routings is expected to have a limited impact on the overall capacity of the system.
5. ICAO continues to actively coordinate with authorities of the Syrian Arab Republic and other States in the region as regards developments as they unfold, specifically those which could impact flight safety.
6. ICAO will continue to monitor the situation and I will notify you of any significant developments.

Accept, Sir/Madam, the assurances of my highest consideration.

Raymond Benjamin
Secretary General