



International Civil Aviation Organization

MIDANPIRG/17 and RASG-MID/7 Meeting

(Cairo, Egypt, 15 – 18 April 2019)

Agenda Item 6.2: Air Navigation Planning and Implementation

**DISRUPTION OF AIR TRAFFIC FLOW CAUSED BY
PAKISTAN AIRSPACE CLOSURE
ON THE UAE AIR TRAFFIC**

(Presented by United Arab Emirates)

SUMMARY

The purpose of this Working Paper is to present the effects of the Pakistan airspace closure on Air Traffic Flow in the UAE.

Action by the meeting is at paragraph 3.

1. INTRODUCTION

1.1 Sudden and unpredicted events can cause substantial disruptions of the Air Traffic Flow beyond national and regional networks. Prominent examples are natural disasters such as the Icelandic volcanic eruption in 2010 with big impact on the air traffic in the northern hemi-sphere, or man-made events such as the recent UTM incident leading to the closure of Gatwick airport 2018 with impact to European network.

1.2 The effects caused by such serious incidents cannot be contained in a local environment but have consequences beyond the adjacent airspace.

1.3 This working paper presents how the closure of Pakistan airspace from the 28th February 2019 affected air traffic in the UAE, despite that UAE is not an immediately neighbouring FIR.

2. DISCUSSION

2.1 Under normal circumstances, Pakistan's airspace serves as an important crossroad between Europe and Northern India/South East Asia. After the airspace closure on 28th February 2019 and due to the difficulties of overflying Chinese territory, most flights rerouted South of Pakistan through Muscat and Mumbai FIRs. This caused the demand to drastically exceed the available capacities on the day of disruption, requiring immediate implementation of flow measures to balance traffic to a manageable level.

2.2 The initial flow measures were implemented with immediate effect in response to the unexpected rise of traffic numbers by the directly affected FIRs. These flow measures comprised miles-in-

trail combined with routing restrictions for flights depending on their destination. This caused further delays at upstream FIRs. In the UAE, these measures led to a situation of lower predictability for operations.

2.3 The immediate impact to the UAE following the Pakistan airspace closure was an increase in air traffic re-routing through UAE airspace peaking at 85 flights on the 28th of February and averaging out to 35 flights a day by the 9th of March.

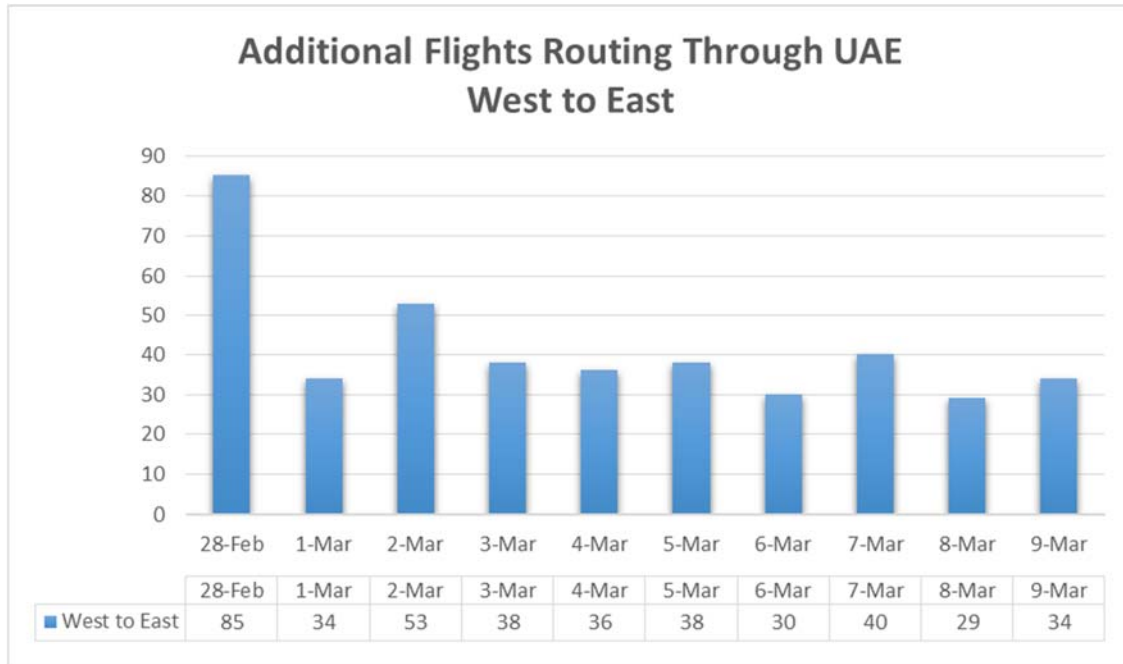


Figure 1: Traffic count of re-routed flights through Emirates FIR

2.4 Furthermore, many flights departing from the UAE were subject to flow measures causing a substantial increase of the ground delay, spiking from 76 hours on 28th February to 162 and 154 hours on 1st and 2nd March respectively.

Date	28 Feb	1 Mar	2 Mar	3 Mar	4 Mar	5 Mar	6 Mar	7 Mar	8 Mar	9 Mar
Delay (Hours:Min)	76:27	162:42	154:17	119:02	94:19	123:42	130:40	140:35	135:14	184:31

Figure 2: Total daily Ground Delay for effected Traffic departing from the UAE

2.5 In the days following the closure of Pakistan airspace, the flow measures were revised by the directly affected FIRs and communicated through NOTAM. The ICAO Contingency Coordination Team (CCT) shared some additional information in a timely manner. As of the date of this working paper these revised flow measures are still in place.

2.6 Overall, the on-ground pre departure time (off-block-time until actual take-off time) in the UAE has increased substantially in response to the contingency flow measures. The total daily average for the week prior to the airspace closure accounted for about 91 hours. This grew by about 60 hours totalling to 155 hours daily in the week following the airspace closure. In the subsequent week, the total daily average was still about 50 hours higher than before the airspace closure totalling to 145 hours per day.

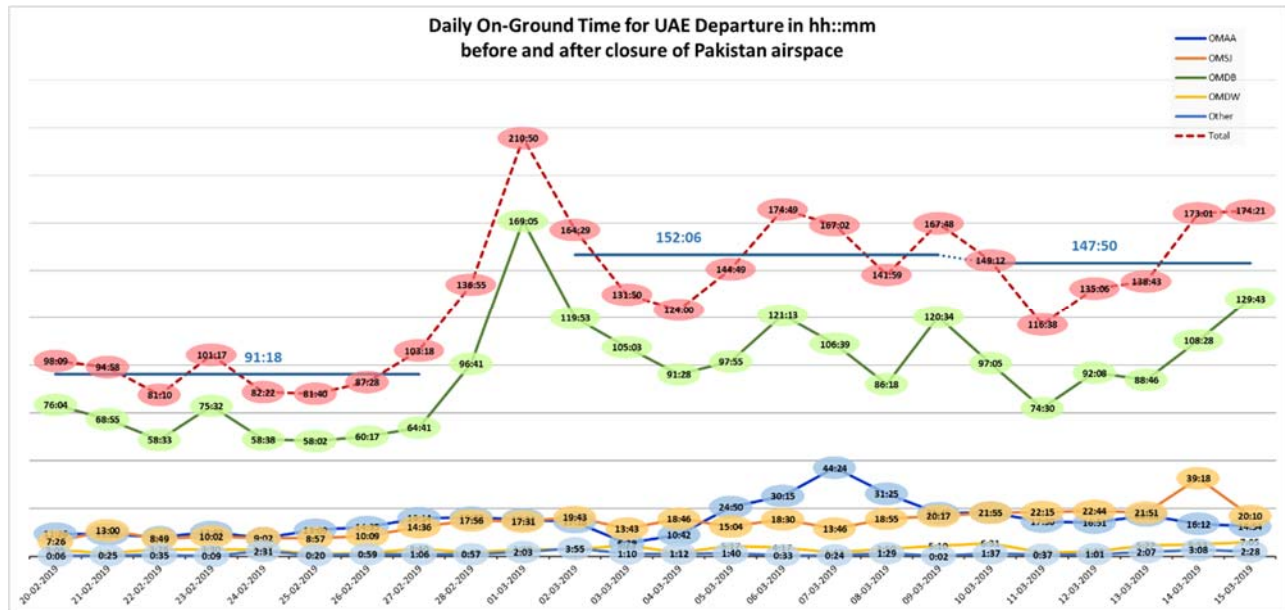


Figure 3: Daily on-ground time for UAE departures before and after the closure of Pakistan airspace

2.7 The current contingency measures are imposed on a portion of the directly affected FIRs which, while locally effective, are a prolongation of the increased strain on upstream FIRs. This is limiting the efficiency of the network. The tactical adjustments of these flow measures in particular reduce predictability in the upstream FIRs and consequently increase the workload on operational staff and reducing utilisation of available airspace capacity.

2.8 Tactical re-routings and the allocation of non-economical flight levels as advised by NOTAM have reduced predictability to airspace users and made them carry extra fuel, which increases their costs. As an example, Emirates Airlines on the 19th of March added a total of 187 tonnes of extra fuel to flights to compensate for the unpredictability. The extra fuel causes substantial additional fuel burn with adverse effects on the environment. In addition, the current flow measures degraded the on-time performance for flights. Etihad Airways as an example reports a reduction from 88% before the disruption to now 41% on average.

2.9 The immediate and swift response to the disruption by the directly affected FIRs implementing flow measures in the short term is commendable and exemplary.

2.10 Due to the prolonged nature of the disruption, the collaboration between stakeholders is recommended in order to increase the effectiveness and efficiency of the measures undertaken with the objective of maximising the utilisation of the capacity. This collaboration requires the involvement of all stakeholders affected directly and indirectly by the disruption, specifically all major contributors to the traffic flow.

2.11 As the end of the disruption is not in sight and the situation is stabilising, the currently implemented flow measures do not guarantee enough predictability for planning by ANSPs and airspace users. However, increasing predictability requires collaboration at an inter-regional level to manage effective and efficient flow measures that assure predictability and improve network-wide efficiency.

2.12 It is advisable that the affected States agree to urgently collaborate on the implementation of guidelines identifying flow measures that progressively respond to excessive demands as required, but also release constraints in times with reduced traffic. The dynamics of how the flow measures are applied need to be transparently communicated.

2.13 The guidelines should be complemented by daily reviews and revisions of the flow measures as required to improve the effectiveness and to spread unavoidable delay in an equitable and manageable level with better planning for all stakeholders.

2.14 The progressive measures should be temporary until enhanced guidelines have collaboratively been developed and agreed.

3. ACTION TO THE MEETING

3.1 The meeting is invited to:

- a) note the information in this working paper;
- b) commend the involved FIRs and the CCT for their immediate and swift response to the disruption;
- c) request the MIDANPIRG ATFM Task Force to conduct a lessons-learned session with participation of all stakeholders reviewing the impact of the disruption to the network, allowing all stakeholders to present their view and feedback;
- d) encourage States to support the ATFM TF in gathering data and the required resources to assist the Lessons Learned session;
- e) agree on the urgent need for guidelines for the implementation of progressive flow measures for extended disruptions in the network;
- f) note that the region is expecting over the next decade a drastic growth of air traffic which will eventually generate similar demand to the network on daily basis as caused by the disruption in the recent days; and
- g) agree to the following Draft Conclusion:

Why	The current disruption documents the need for a regional collaborate ATFM solution. The incident can serve as a valuable source of information and can contribute to the development of an operational concept.
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What	The Data gathered after this disruption can provide better benefits to the tasks entrusted to the ATFM TF compared to examples from other Regions.
Who	All States and ATFM TF
When	TBD

DRAFT MIDANPIRG CONCLUSION 17/XX: DISRUPTIONS TO THE AIR TRAFFIC FLOW NETWORK

That:

- a) *the MIDANPIRG ATFM TF shall prepare and conduct a lessons-learned session with the participation of affected stakeholders reviewing the impact of the disruption to the network, allowing all stakeholders to present their view and feedback;*
- b) *all States shall support the ATFM TF by providing the relevant data for the analysis of the disruption and its impact to the network;*
- c) *the MIDANPIRG ATFM TF to prepare a report to be presented to MIDANPIRG/18;*
- d) *the States shall work together to develop and agree on guidelines on how extended disruptions in the network are to be managed in a balanced manner;*
- e) *the States shall in case of an extended disruption of the Air Traffic Flow jointly discuss with the airspace users and agree among the States on the progressive and appropriate flow measures in collaboration with the States concerned;*
- f) *the States shall mandate the MIDANPIRG ATFM TF to develop together with the airspace users an interim guidance with a progressive set of flow measures to address the current Air Traffic Flow disruption caused by the closure of Pakistan airspace as per 2.13, 2.14 and 2.15 above; and*
- g) *the States shall expedite the implementation of regional/sub-regional ATFM supporting a transparent collaborative management for routine Air Traffic Flow as well as any disruptions in the network.*

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