



International Civil Aviation Organization

**The Sixth Meeting of the APANPIRG ATM Sub-Group
(ATM/SG/6)**

Hong Kong, China, 30 July – 03 August 2018

Agenda Item 5: ATM Coordination (Meetings, Route Development, Contingency Planning)

CIVIL/MILITARY COOPERATION UPDATE

(Presented by the Secretariat)

SUMMARY

This paper presents an overview on Asia/Pacific's civil/military cooperation status.

The paper includes examples of military operations or activity affected or controlled by military agencies, which were of concern, so lessons could be learnt and improvements implemented. Given that supporting the vital air navigation infrastructure of any State was consistent with the military mission to defend the nation's economy (which in turn supported the military, especially procurement of military equipment), States are invited to study the examples and initiatives as a matter of positive development for civil and military systems.

1. INTRODUCTION

1.1 Civil/military cooperation remains one of the highest priority items in the Asia/Pacific Region, as evidenced by the ten Seamless ATM elements on this subject. Given that the Asia/Pacific is now the largest aviation market in the world by several measures and the fact that the Region does not have the same civil/military cooperation structures in place that North America and Europe do, progress in this area is vital. The Asia/Pacific Seamless ATM Plan's elements are as follows:

- a) **Strategic Liaison.** This emphasises the creation of a permanent body and procedures such as participation at appropriate civil ATM meetings, to ensure long and medium-term planning for optimal civil and military operations (Priority Element).
- b) **Tactical Liaison.** The daily, safe and efficient tactical management of operations, including airspace scheduling through interaction and communications between civil and military units, which should include military representation within civil ATC Centres where necessary (Priority Element).
- c) **Military SUA.** The minimisation of airspace exclusively assigned for civil or military use in accordance with FUA principles, assessed by the percentage of military SUA within an FIR.
- d) **SUA Review.** The regular review of SUA, to ensure that the means and notice of activation provide adequate warning for other airspace users, and the airspace designations (SUA types) as well as the lateral and vertical limits are the minimum required to safely contain the activity therein. The review of airspace should be conducted by an airspace authority independent or a collaboration of civil and military airspace users (Priority Element).
- e) **International SUA.** The minimisation of SUA that affected international civil ATS routes. Restricted and prohibited areas must not be designated in international

airspace or airspace of undefined sovereignty.

- f) **Integrated Civil/Military ATM Systems.** The integration of civil and military ATM systems where practicable, including joint procurement of systems where possible.
- g) **Joint Civil/Military Aerodromes and Navigation Aids:** The operation of joint civil/military aerodromes if possible, and the provision of navigation aids that could be utilised by both civil and military aircraft where practical.
- h) **Shared Civil/Military Data:** The provision of ATS surveillance data from civil surveillance systems to military units to improve monitoring (thereby reducing the need for individual defence identification authorisation), trust and confidence. The provision of surveillance data from military surveillance systems where this would enhance ATS surveillance coverage and redundancy; suitably filtered as appropriate.
- i) **Common Civil/Military Training.** The familiarisation of civil and military ATM personnel in each other's systems and procedures where national security allows. Training and licensing of civil and military air traffic controllers to equivalent standards.
- j) **Common Civil/Military Procedures.** The implementation of the same or equivalent standards, procedures and policies for the provision of ATS and the management of air traffic.

2. DISCUSSION

New ICAO Document on Civil/Military Cooperation

2.1 The release of ICAO Document 10088 *Manual on Civil Military Cooperation*, which was intended to replace Circular 330, had unfortunately been delayed due to internal HQ processes.

2.2 The new document was written to strike the right balance between regional and global perspective, while bearing in mind the needs of military stakeholders. This was particularly difficult when discussing subjects such as High Seas operations. The document was written by a subgroup of the ATM Operations (ATMOPS) Panel at ICAO HQ composed of both civil and military experts on civil/military cooperation.

High Seas Airspace

2.3 At the recent combined South Asia and Southeast Asia ATM Coordination Group meetings (SAIOACG/8 and SEACG/25), IATA discussed the issues faced by airlines and international civil aviation, with regard to the recent promulgation of 'requirements' and 'restrictions' placed on international airspace by military authorities in the Asia/Pacific (APAC) Region.

2.4 A recent example of the imposition of an Air Defence Identification Zone (ADIZ) provided some lessons learned from an airline point of view. Details of the ADIZ were provided to the meetings, including the following concerns:

- the ADIZ was not consulted with ICAO, affected States or airspace users (notably, the ADIZ crossed a major traffic flow and was partly established within the Flight Information Regions (FIRs) of two neighbouring States, without consultation);
- the ADIZ extended into international (High Seas) airspace [apparently coincident with the Bangladesh Exclusive Economic Zone (EEZ), which had no effect on airspace according to the United Nations Convention on the Law of the Sea 1982] – this airspace being the responsibility of another State;

- the consequences of the ADIZ establishment – which was not defined in the ICAO Convention or its Standards and Recommended Practices (SARPs), despite assertions of this by Bangladesh – could lead to significant efficiency and safety issues;
- the ADIZ imposed conditions of flight which had no legal basis in international law (but which were subsequently withdrawn by Bangladesh);
- the promulgation included unclear references such as the need for an Air Defence Code (ADC) when aircraft ‘*fly towards the land mass of Bangladesh*’;
- the promulgation was non-compliant with Annex 15 in terms of promulgation of airspace information and procedures in airspace that was not the responsibility of Bangladesh; and
- responsibilities of aircrews were unclear, with major information missing such as ATS unit contact details and reference to guard frequency 121.5 MHz (such reference subsequently deleted by Bangladesh).

2.5 The original Bangladesh AIP SUP suggested that the imposition of an ADIZ was supported by the ICAO Convention. While matters of sovereignty are addressed in Articles 1, 2 and 3 *bis* of the Convention, it does not make any reference to ADIZ. ADIZ were referenced in Annex 4 *Aeronautical Charts* and Annex 15 *Aeronautical Information Services* solely to ensure that, where established, any necessary information is included in the State AIP and aeronautical charts. While ICAO Annex 2 *Rules of the Air* provides standards and recommended practices (SARPS) relating to the interception of aircraft, there were no ICAO SARPS or procedures for ADIZ.

2.6 Problems with obtaining ADC had persisted, including the reported case of one airline showing that 65% of their flights required multiple attempts, through various media, to obtain an ADC. The meeting was informed that other States that had established ADIZ or other non-ICAO military airspace did not require pre-authorization for every affected civil flight; unlike this example.

2.7 ICAO notes that ADIZ had no legal basis under international law over the High Seas where national law had no legal effect.

2.8 It should also be noted that the obligations of States with respect to aircraft operating over international waters, both civil and military, was the subject of a similar discussion at the ATM/SG/5 – regarding the alleged unlawful withholding of ATC clearance to State aircraft.

2.9 It was obviously necessary for the civil and military functions within a State to coordinate their activities, so the military could become aware of the State’s responsibility regarding civil operations and compliance with relevant international law and ICAO SARPs. In this case, it was unclear what the justification was for Bangladesh to impose an additional burden on international air traffic operating over the High Seas, but this example illustrates the importance of strengthening cooperation and understanding within a State about these aspects.

2.10 Regarding ADCs, ICAO’s view was that these should be unnecessary when data is readily available to military authorities from flight plans. APAC States that currently require an ADC are therefore urged to discuss the establishment of appropriate data sharing with their military authorities in accordance with the expectations of the Asia/Pacific Seamless ATM Plan, so that the need for an ADC can be superseded by more efficient arrangements.

2.11 The SAIOACG/8/SEACG/25 meeting was also provided with a detailed report on the danger area activities in the Bay of Bengal. Only danger areas may be designated in High Seas airspace – not prohibited and restricted areas, which may only be designated within sovereign territory consistent with the Annex 11 Special Use Airspace (SUA) definition (**Figure 1**).

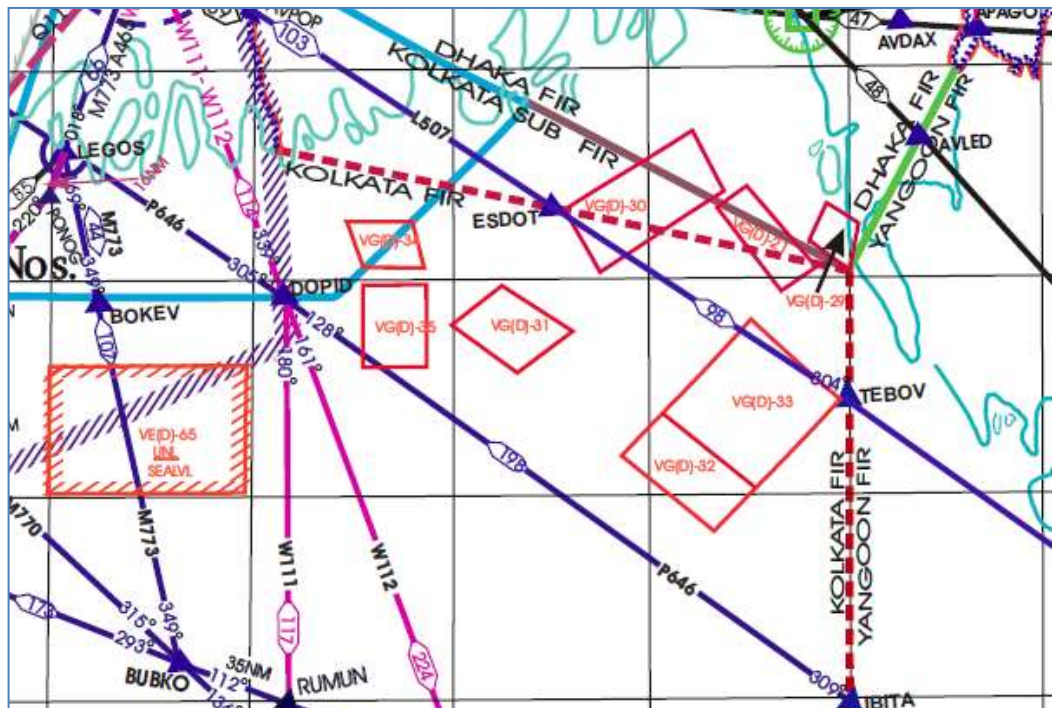


Figure 1: Bay of Bengal Danger Areas

2.12 Danger areas VGD 31/32/34 were active for extended periods each day (0000 to 1700 UTC and 2200 to 2359 UTC), and the status of activities was not always available to the Area Control Centres (ACCs) concerned, as they were activated by NOTAM and there was no process for tactical coordination. The danger areas were often active up to FL400, affecting even high level traffic.

2.13 Aircraft requiring weather deviations from Air Traffic Services (ATS) routes were affected as, due to the uncertainty about activity in the danger areas and insufficient information held by Dhaka and Kolkata ATC, Kolkata was unable to authorize weather deviations towards the danger areas.

2.14 India had requested the development of operating procedures, and that a review of the vertical limit of the danger areas be conducted. India suggested that Bangladesh sensitize its military authorities to consider segregation of airspace based on actual needs. However, more importantly, ICAO noted that for those portions within the Kolkata FIR, India was the only entity legally able to establish a danger area within the Kolkata FIR if a SUA was needed, not Bangladesh.

2.15 It was noted by the meeting that the details of the danger areas were not published in AIP India, and the NOTAMs were issued by Bangladesh. Airspace users that planned to operate only in the Kolkata FIR may not be aware of the danger areas or their activity.

2.16 The Secretariat pointed out that it was not appropriate to publish information in a State AIP or NOTAM that pertained to the airspace assigned to a different State. Coordination between the States should ensure the information was published in the AIP and NOTAMs of all affected States. Bangladesh and India had agreed to coordinate further on this issue.

2.17 SAIOACG/8/SEACG/25 agreed to a Draft Conclusion for the ATM/SG's endorsement:

Draft Conclusion SAIOACG/8 and SEACG/25-3: Minimizing the Impact of Non-ICAO Procedures and Requirements for Military Activities Affecting Civil Aviation	
What: That, where the imposition of non-ICAO military requirements and procedures affecting international civil aviation is either planned or likely, States are urged to ensure that civil aviation interests are taken into account by: 1. Ensuring military authorities are fully informed of the obligations of all States that are signatory to the Convention on International Civil Aviation; 2. Conducting full and timely consultation with airspace users, adjacent States and ICAO; 3. Implementing the capability to tactically share FPL and ATS messages, civil ATC surveillance data and other relevant information between the ANSP and military authorities; 4. Implementing direct communications facilities between military organizations and the ANSP to permit the coordination of requests for information on any unknown aircraft; 5. Establishing civil-military coordination functions within civil air traffic control centres; and 6. Promulgating timely, clear and unambiguous information on the requirements and procedures, and accurate, detailed charts in accordance with the requirements of ICAO Annex 4 and Annex 15; and Where pre-authorizations for individual flights in affected areas are necessary, States are urged to either 1. Consider issuing authorizations with the seasonal schedule approval; or 2. Develop and rigorously test clear and, ideally, automated procedures for compliance.	Expected impact: ☒ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To avoid confusion increased workload and increased risk of military intervention for civil flights operating in airspace where non-ICAO military requirements and procedures are imposed.	Follow-up: ☒ Required from States
When: 3-Aug-18	Status: Draft to be adopted by Subgroup
Who: ☒ Sub groups ☒ APAC States ☒ ICAO APAC RO ☐ ICAO HQ ☐ Other:	

Special Use Airspace Activation

2.18 **Figure 2** and **Figure 3** illustrate an example of inadequate notice of a firing exercise that affected several key routes. The NOTAM issued by Myanmar in respect of a military firing exercise closed ATS routes P646, N895 and G472 and was issued with an 'unlimited' upper limit for 'gun firing'. Better civil/military cooperation would have provided notice that met the principles of Annex 15 to assist civil operators (7 days), as it was unlikely that any military exercise is planned in less than 24 hours. Moreover, the application of a judicious safety firing template may have allowed high level aircraft to continue operations, above a more reasonable upper limit.

CHA0036 250333
GG VYYYYAYX
250333 VYYYYNYX
(A0072/18 NOTAMN
Q1VYYF/QWNLW/IV/BO/W/000/999/1633N09416E020
A)VYYF B)1804252330 C)1805091130
D)BTN 2330/1130 UTC ON 25,26,27 APR AND 08, 09 MAY 2018
E)GUN FIRING EXER WILL TAKE PLACE AT AREA BOUNDED
BY 1633N 09416E, 1739N 09416E, 1739N, 09458E, 1633N, 09458E,
NO OVER FLYING ACTIVITY IS PERMISSABLE WITHIN ABOVE MENTIONED GU
N
FIRING AREA.DURING HOURS OF ACTIVITY THE FOLLOWING ATS ROUTES ARE
REROUTED/NOT AVBL IN YANGON FIR.
1)P646 NOT AVBL BETWEEN IBITA AND POXEM.ALTN ROUTES: IBITA DCT KAMK
Q
DCT POXEM (BIDIRETIONAL)
2)N895 NOT AVBL BETWEEN SAGOD AND POXEM.ALTN ROUTES:SAGOD DCT KAMKO
DCT POXEM (BIDIRETIONAL)
3)G472 NOT AVBL BETWEEN SAGOD AND BGO VOR.ALTN ROUTES:SAGOD DCT OTA
DA
DCT BGO VOR (BIDIRETIONAL)
4)W9 NOT AVBL
F)GND G)UNL)

Figure 2: Firing Exercise NOTAM

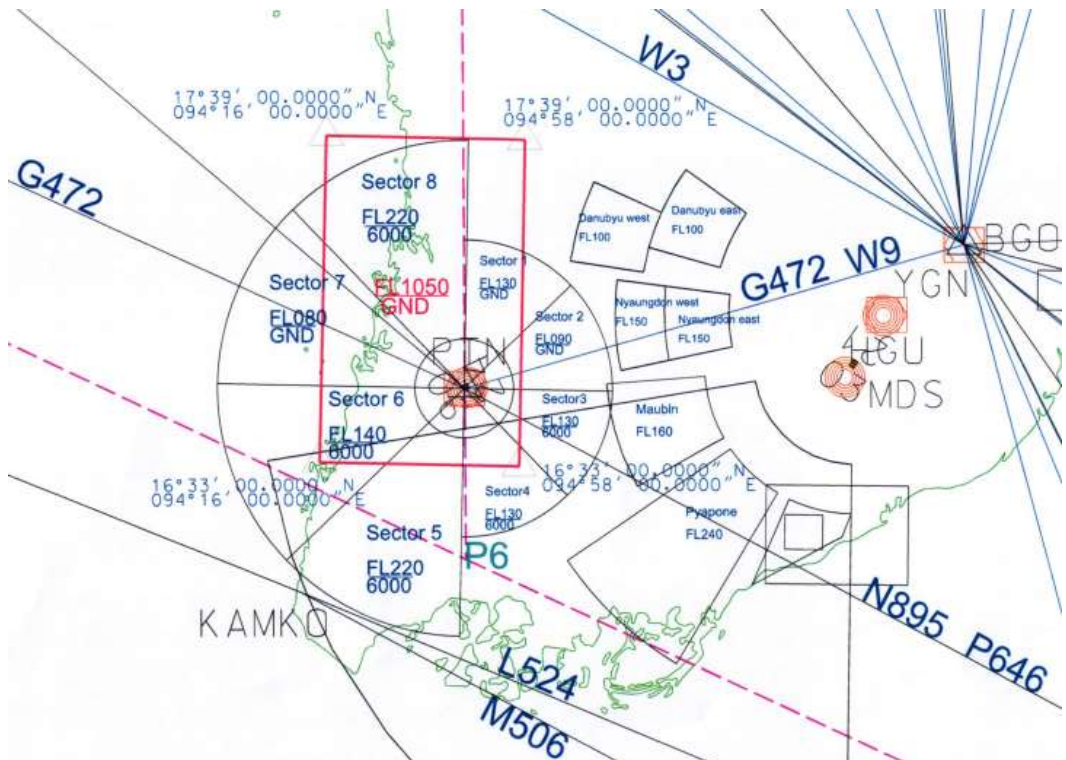


Figure 3: Firing Exercise Chart

Ballistic Missiles

2.19 On 29 November 2017, the Democratic People's Republic of Korea (DPRK) launched a ballistic missile eastward from the vicinity of Pyongsong on the west coast of the DPRK. It was estimated that the missile, after flying for approximately 53 minutes, fell into the sea within the Japan's EEZ (Exclusive Economic Zone), approximately 250km west of the mainland of Japan. The missile was also estimated to have flown approximately 1000km and reached an altitude of well over 4,000km (Figure 4).



Figure 4: Firing Exercise Chart

2.20 ICAO noted that no notification was provided by the DPRK as required by ICAO SARPs, and that the launch was non-compliant with ICAO Council decision (C-DEC 212/1).

2.21 **Figure 5** and **Figure 6** illustrated a long range missile test by Pakistan during 2017 that blocked multiple international air routes, with NOTAM advice of less than 24 hours.

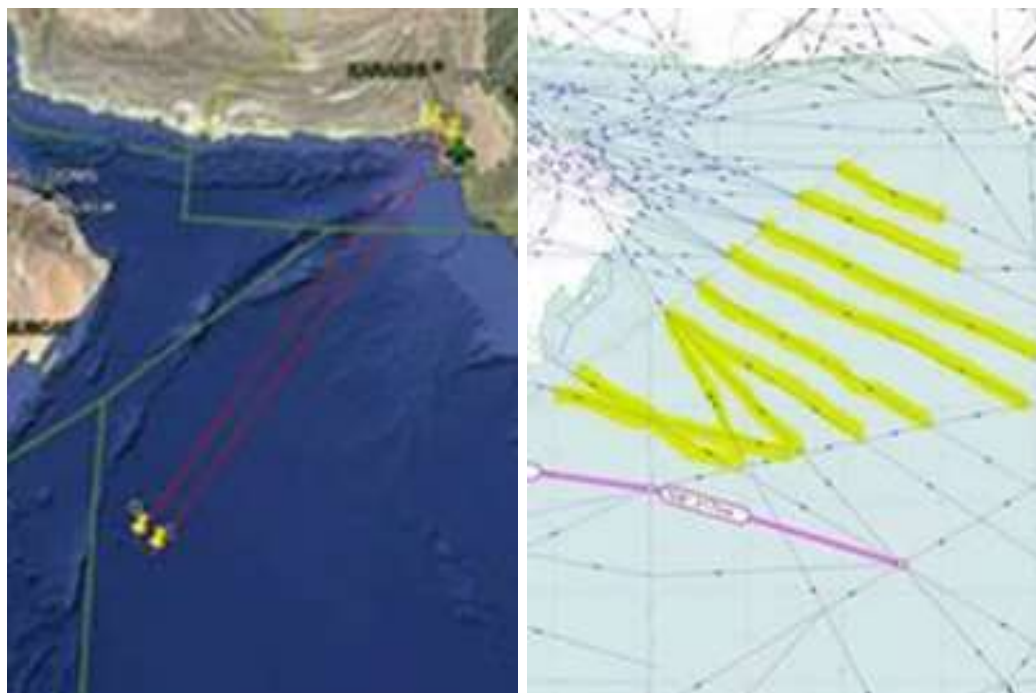


Figure 5 and Figure 6: Missile launch by Pakistan with affected ATS Routes

2.22 **Figure 7** is a copy of the NOTAM issued by India for the launch from Pakistan:

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VABF
A0112/17 NOTAMN
Q)VAXX/QWMLW/IV/NBO/W/000/999/2114N06350E303
A)VABF OPRR
B)1701240430 C)1701280800
D)JAN 24 25 27 28 0430-0800
E)NOTAM SUBJECT TO QUERY. UPPER LEVEL TO BE CONFIRMED
LONG RANGE MISSILE FRNG TEST WILL BE CONDUCTED BY
PAKISTAN IN INTERNATIONAL SEA. THE CORRIDOR TO BE
UTILIZED BY THE INTENDED FLT PATH IS BOUNDED BY
FLW GEOGRAPHICAL AREA BOUNDED BY COORD:
253239.2N0663002.9E 251759.7N0665503.1E
165227.2N0611835.5E 170704.3N0605450.3E
253239.2N0663002.9E
DRG THE ACT THE FLW ATS RTE ARE NOT AVBL IN
MUMBAI FIR
1. P518 BTN NOBAT AND KABIM
2. L301 BTN LADOT AND RASKI
3. N571 BTN DOGET AND PARAR
4. P574 BTN BOLIS AND TOTOX
5. N563 BTN KATBI AND REXOD
6. M300 BTN KADOL AND LOTAV
7. P570 BTN LATEB AND KITAL
8. L894 BTN BOLAR AND KITAL
9. L516 BTN IBVUB AND KITAL
10. T208 BTN BOLUR AND ASPUX
11. UL425 BTN MANDU AND ASPUX
F) SFC G) UNL
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Figure 7: Pakistan missile NOTAM (issued by India)

2.23 On 22 January 2018, more notice was provided of a launch expected from Pakistan during the period 28 – 29 January 2018. However, the large airspace ‘closure’ (from Karachi FIR through Mumbai FIR, and all the way south to the Seychelles FIR) affected a large number of flight operations over the Arabian Sea. Therefore, some consideration by Pakistan’s military authorities would have been appreciated to reduce the launch’s consequences to civilian air traffic.

2.24 The Asia/Pacific Seamless ATM Plan expects States to consider minimising the size and the position of the affected airspace to reduce the effect on civil operations. The Seamless ATM Plan’s expectations are as follows:

- 7.60 All States with Agencies that conduct ballistic launch or space re-entry activities should ensure:
- a) the development of written coordination agreements between the State civil aviation authority and the launch/re-entry agency concerned;
 - b) that strategic coordination is conducted between the State civil aviation authority and any States affected by the launch/re-entry activity at least 14 days prior to the proposed activity, providing notice of at least:
 - i) three days for the defined launch window; and
 - ii) 24 hours for the actual planned launch timing;
 - c) that consideration of affected airspace users and ANSPs is made after consultation, so that the size of the airspace affected is minimized and the launch window is optimized for the least possible disruption to other users ; and
 - d) that communication is established with affected ANSPs to provide accurate and timely information on the launch/re-entry activity to manage tactical responses (for example, emergencies and activity completion).

2.25 The disruptive profile of the launch from Pakistan can be compared with a multi-stage launch from India after its space agency was sensitized to the importance of minimizing the size of the airspace affected. The landing areas of individual stages were identified and alternative ATS routes devised accordingly to substantially reduce the consequences to civil air traffic [and presumably maritime operations as well] (**Figure 8**):

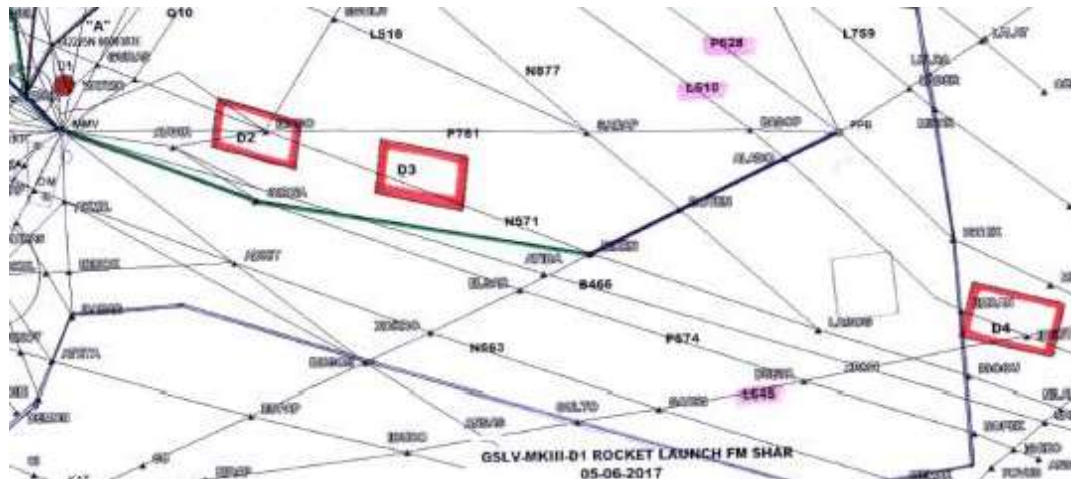


Figure 8: Example of cooperative planning between the launch agency and ATS

2.26 Recently, ICAO was advised of a ballistic launch allegedly from Shanxi Province, China that reportedly impacted the territory of another APAC State. An APAC State advised that eight flights had been vectored to avoid the affected area as warnings were either insufficient or non-existent. China had issued an advisory via its NOTAM Office (ZBBBYNYX) (**Figure 9**).

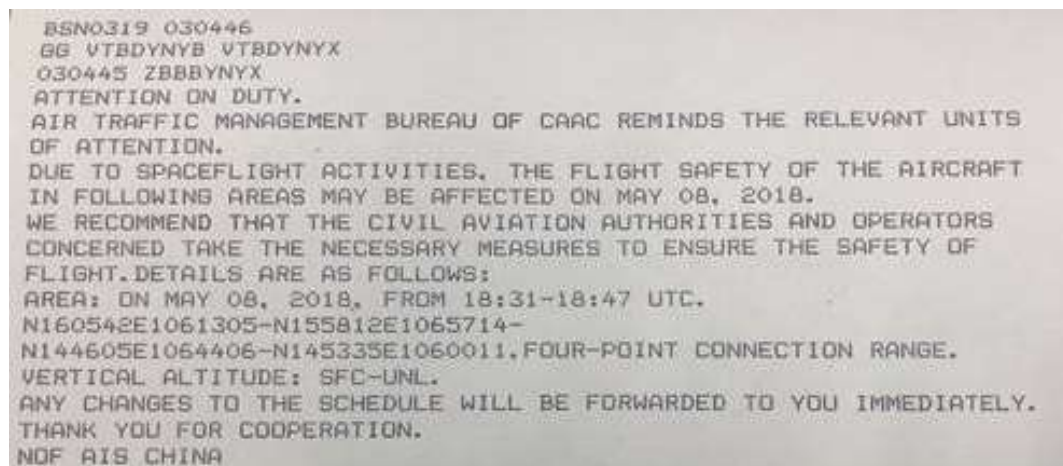


Figure 9: Notification from China

2.27 This notification was probably as a result of understanding that one State may not issue a NOTAM formally designating a danger area in another State's area of responsibility (although this happened from periodically). However, this case, if reports were verified as being correct, illustrated serious deficiencies that could have endangered the safety of civil aviation:

1. a ballistic trajectory or space re-entry was planned that straddled a major ATS route, and allegedly impacted the sovereign land territory of another State (**Figure 10**); and
2. insufficient notice was provided for proper planning (first sent 07 May 2018 for a launch on 08 May 2018, the actual launch took place on 09 May 2018); and
3. the notice was sent by an inappropriate means, using an unclear format, so the ATS function [and possibly the local authorities] of the affected State was unaware of the danger before being advised by a third party.



Figure 10: Impact zone and images of the debris, Lao PDR, Vientiane FIR

2.28 This example is provided to highlight why the provisions of the Asia/Pacific Seamless ATM Plan's ballistic launch/space re-entry element should be followed – so that affected States and ANSPs had an opportunity to send feedback to the space agency in order to modify the launch profile if necessary and to allow affected States and aircraft operators to prepare appropriately.

2.29 ICAO expressed its thanks to the ATFM team in the third APAC State that quickly determined what the situation was and alerted the Lao PDR authorities, but this should not be necessary if all States followed the agreed procedures in the Asia/Pacific Seamless ATM Plan.

Significant Delays in East Asia

2.30 Reports continued to reach the APAC Regional Office related to significant delays and disruption of East Asian civil air traffic. The ATM/SG/5 meeting had recognised that not all delays and capacity issues could be attributable to a lack of civil/military cooperation in China. However, the ATM/SG/3 (July 2015) and subsequent meetings had requested China to pay urgent attention to reducing flight delays by focusing on increasing airspace/airport capacity, permitting operational flexibility, improving ATFM predictability, strengthening civil/military ATM cooperation and adopting international best practice where appropriate. Suggested actions included:

Increase airport and airspace capacity: open Chinese domestic routes and conditional routes to international carriers, and study/implement industry best practices for maximizing airspace and airport runway capacity;

Permit operational flexibility: amend relevant regulations and procedures to allow the full use of all published air routes by airlines, based on the weather conditions on the day of operations;

Improve ATFM predictability: enable full situational awareness to all operators, including international carriers, to ensure the full participation of international carriers in a *truly collaborative* CDM process;

Strengthen civil-military ATC cooperation: ensure early notification of air route/airspace closures attributable to military activity and eliminate unnecessary administrative approvals regarding the use of alternate routes in urgent

operational situations or during periods of adverse weather/high military activity;

Adopt international standards and best-practice: implement infrastructure upgrades and adopt worlds' best new technologies, procedures and practices in compliance with international standards, to further improve ATC service quality.

2.31 At the AT/SG/5 (July 2016), ICAO had noted the apparent root causes of the capacity problems, which in simple terms were understood to be:

- the regional structure of China's Air Traffic Management Bureau (ATMB), which did not always result in a harmonised system (such as a centralised ATFM system to date – this often results in passengers being emplaned for hours on the ground without accurate information of the expected aircraft ground delay);
- a lack of application of global or regional ATC separation and policy standards (examples include being the only State to use metric flight levels due to military aircraft equipment issues, and conservative horizontal separations en-route instead of 5 NM/9.3 km in accordance with ICAO Doc 4444);
- as noted by IATA, a lack of availability of ATS routes for international airlines which made any weather-related issues worse due to the lack of a flexible route system and alternative routes, presumably due to military restrictions (**Figure 11** illustrates an example of the differences between the ATS routes available in China and Japan);
- a lack of access to airspace other than the routes that were available, with even requests for off-track diversions for safety being an issue, presumably due to military restrictions;
- a lack of FIR boundary waypoints, which was understood to be connected to military restrictions (example: the Russian Federation had requested a new waypoint near SIMLI for some five years, to alleviate a serious safety and capacity problem); and
- short-notice closures of airspace, which may in part be reflective of poor planning and coordination practices due to civil/military cooperation issues.



Figure 11: Regional ATS route network comparison

2.32 The following NOTAM are a few examples of major delays emanating from Chinese airspace that had adversely affected adjacent FIRs, sometimes several FIRs from Chinese airspace:

YXA0453 200151
GG VHZZNMXX
200150 EUECYIYN
(B2653/17 NOTAMR B2652/17
Q) RPHI/QPFXX/IV/NBO/E /000/999/1216N12435E999
A) RPHI B) 1707200150 C) 1707201200EST
E) DUE TO FLOW CTL RESTRICTIONS IMPOSED BY GUANGZHOU ATCC, TFC OVERFLYING
MANILA FIR FM SINGAPORE FIR, KOTA KINABALU FIR AND UJUNG PANDANG FIR TO
HONG KONG FIR LDG ZSQZ, ZSFZ AND ZSAM (TREATED AS ONE STREAM) AP WITH RTE
SEGMENT A461 NOMAN-DOTMI A470 ARE SUBJECT TO FLOW CTL RESTRICTIONS OF AT
LEAST 60MIN REGARDLESS OF FL. (Manila FIR)

201122 RJAAYNYX
J4575/17 NOTAMN
Q)RJJJ/QPFCA/I/NBO/E/000/999/3310N14118E999
A)RJJJ B)1707201140 C)UFN
E)FLOW CTL AT FIR BDRY AS FLW,
1.RTE : G585
2.ACFT : WB FOR BEYOND ZBPE
3.PROC : 30 MIN INTERVAL REGARDLESS OF ALT WILL BE APPLIED AT SAPRA
(Fukuoka FIR)

200808 RJAAYNYX
J4566/17 NOTAMN
Q)RJJJ/QPFCA/I/NBO/E/000/999/3310N14118E999
A)RJJJ B)1707200840 C)UFN
E)FLOW CTL AT FIR BDRY AS FLW,
1.RTE : G585
2.ACFT : WB FOR ZBAA
3.PROC : 40 MIN INTERVAL REGARDLESS OF ALT WILL BE APPLIED AT SAPRA RMK/REF
AIP ENR1.9-1) (Fukuoka FIR)

200944 RJAAYNYX
J4568/17 NOTAMR J4566/17
Q)RJJJ/QPFCA/I/NBO/E/000/999/3310N14118E999
A)RJJJ B)1707200944 C)UFN
E)FLOW CTL AT FIR BDRY AS FLW,
1.RTE : G585
2.ACFT : WB FOR ZBAA
3.PROC : (1)UNTIL 1030
40 MIN INTERVAL REGARDLESS OF ALT WILL BE APPLIED AT SAPRA
(2)FM 1030 TO 1230 60 MIN INTERVAL REGARDLESS OF ALT WILL BE APPLIED AT SAPRA
(3)FM 1230 TO UFN 30 MIN INTERVAL REGARDLESS OF ALT WILL BE APPLIED AT SAPRA
RMK/REF AIP ENR1.9-1) (Fukuoka FIR)

2.33 **Figures 12 and 13, and Figures 14 and 15 and Figures 16 and 17** are also examples of major flight delays, with the weather data appended.



Figure 12 and Figure 13: Shanghai FIR significant delays example (restriction 02:30 – 11:00 local)

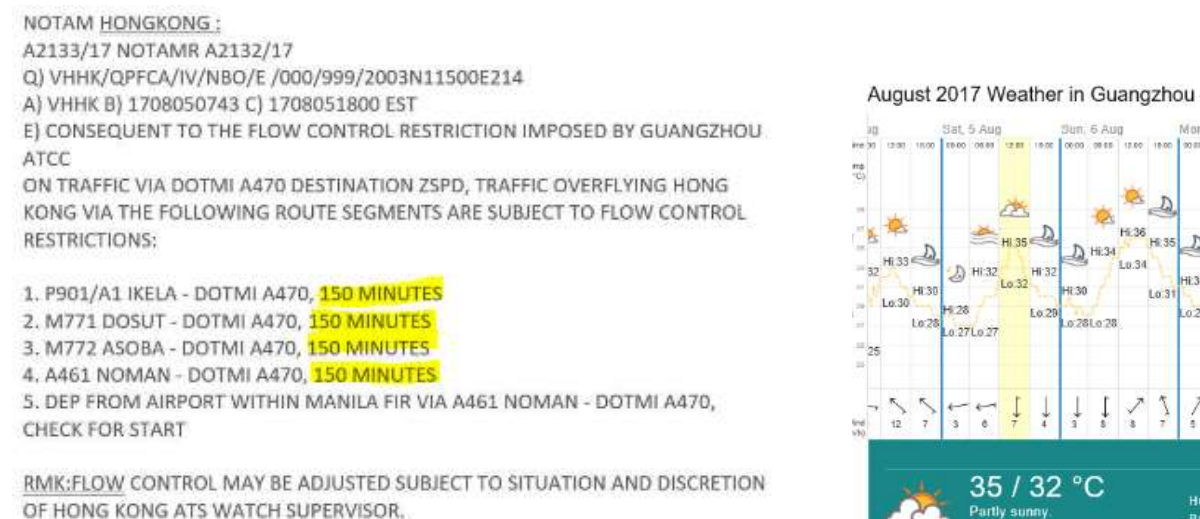


Figure 13 and Figure 14: Guangzhou FIR significant delays example (15:43 – 16:00)

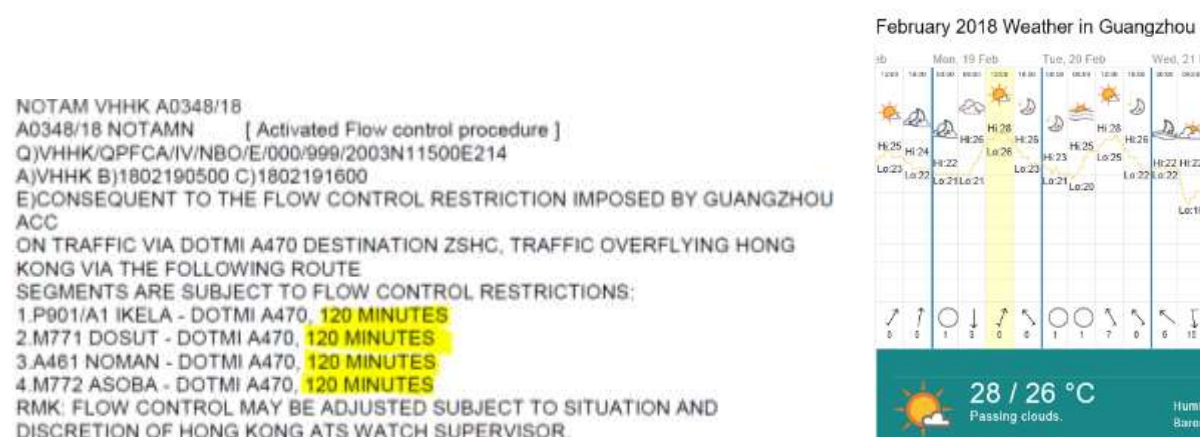


Figure 15 and Figure 16: Guangzhou FIR significant delays example (13:00 – 02:00)

2.34 According to data from the Civil Aviation Administration of China (CAAC), in 2016, at the busiest 10 airports in China, the arrival on-time performances (+15 minutes after scheduled off-block time or on-block time) were all below 57% (examples: Beijing 50.68%, Shanghai Pudong 46.13%, Shanghai Hongqiao 46.77%, Guangzhou 51.66%, and Shenzhen 46.77%).

Summary

2.35 Given that supporting the vital air navigation infrastructure of any State was consistent with the military mission to defend the nation's economy (which in turn supported the military, especially for the procurement of military equipment), States are invited to study the examples provided as a matter of positive development for civil and military systems.

2.36 It is clear that the many examples of poor coordination, restrictive actions and even impositions on civil air traffic without legal basis not only have negative consequences for the airlines (and thus economies), but also potentially for the safety of aviation and the reputations of the States concerned.

2.37 It appeared to be necessary to conduct more seminars and workshops to educate all parties about the win-win nature of civil/military cooperation. The Regional Sub-Office (RSO) previously held a 'Civil and Military Cooperation in ATM Seminar', during 6 – 7 April, 2017 in Beijing, but was actively working on assisting State implementation of civil/military cooperation (**Attachment A**). However, a planned high level ICAO Civil/Military Cooperation Conference in China was not able to be conducted due to a lack of internal funding.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) provide civil/military cooperation updates as appropriate;
- c) discuss the possibility of future civil/military cooperation forums; and
- d) update the Inter-regional Afghanistan ATM Contingency Arrangements if necessary (**Attachment A**); and
- e) discuss any relevant matters as appropriate.

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CMAC/FUA activities of ICAO APAC RSO

Civil and Military Cooperation is one of the key enabler, the Convention on International Civil Aviation (Doc 7300) establishes the privileges and restrictions of all ICAO Member States, and provides International Standards and Recommended Practices (SARPs) regulating and promoting Civil/Military Cooperation in the world. To enhance the implementation of CMAC/FUA, what ICAO APAC RSO offers to member States on CMAC/FUA implementation are mainly various workshops and technical assistances. The key documents are the Civil/Military Cooperation in Air Traffic Management (Cir330) and the Asia/Pacific Seamless ATM Plan (Version 2.0, September 2016).

1. CMAC/FUA Workshop

The CMAC/FUA Workshop aims to provide States/Administrations with concepts and applications of CMAC/FUA based on ICAO's provisions, the CMAC/FUA best practices and lessons learned are also shared with the expectation on providing practical reference for implementation. The typical duration of the workshop is 2 to 3 days, we can assemble a foundation or advanced workshop by selecting training modules from below:

- **Module-1** Airspace Management and Flexible Use of Airspace Concept.
- **Module-2** FUA Principles & Civil-Military Coordination at Three Levels of ASM.
- **Module-3** Flexible and Adaptable Airspace Structure.
- **Module-4** Conditional Route Concept & Coordination Process.
- **Module-5** CDM in Civil & Military Coordination.
- **Module-6** ICAO Regulatory Framework of Civil-Military ATM Cooperation.
- **Module-7** GANP and CMAC Elements in APAC ATM Seamless Plan.
- **Module-8** Global Challenges and Best Practices.
- **Module-9** Flexible Use of Airspace Manual Template of Asia and Pacific Region.
- **Module-10** Enhancement of Pre-tactical and tactical CMAC/FUA with supporting of Airspace Management Tool.

2. Technical assistance

Based on the demands of member State/Administrations, APAC RSO can assemble a technical assistance from below:

- **Step-1** Demands identify.
- **Step-2** Gap analysis.
- **Step-3** Requirements assessment and definition.
- **Step-4** Project plan.
- **Step-5** Training activities.
- **Step-6** Documentation and publication.
- **Step-7** Operation implementation.
- **Step-8** Post-implementation review.
- **Step-9** follow-up activities.

3. Contact information

The various levels of workshops and technical assistance on CMAC/FUA for States, military authorities, regulators, ANSPs and airspace users can be conducted by the request from member State/Administration. For further information, please contact the following officers at the RSO:

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