

**55<sup>th</sup> CONFERENCE OF  
DIRECTORS GENERAL OF CIVIL AVIATION  
ASIA AND PACIFIC REGIONS**

*Denarau Island, Nadi, Fiji  
22 — 26 October 2018*

**AGENDA ITEM 4: AIR NAVIGATION**

**AIRSPACE CLOSURES FOR BALLISTIC LAUNCHES-UPDATE**

Presented by the International Air Transport Association

**SUMMARY**

This paper presents an update on issues associated with ballistic launch/re-entry events and proposed regional guidance to improve the management of such events, particularly those involving multiple FIRs.

## AIRSPACE CLOSURES FOR BALLISTIC LAUNCHES-UPDATE

### 1. INTRODUCTION

1.1 IATA has previously raised problems associated with ballistic launch and re-entry at various ICAO forums and also at DGCA 52 2015 (DP/3.3/4) in Manila.

1.2 As a result of ICAO ATMSG/3 endorsement, high level guidance material was developed and included in the Asia Pacific Seamless ATM Plan.

1.3 From the Seamless Plan:

*5.68 Launch/Space re-entry activity management: the efficient management of rocket/missile launch and space re-entry activity to minimize disruption to other airspace users. The coordination of all the stakeholders will be enhanced by: coordination agreements between the State civil aviation authority, the ANSP, and the launch/re-entry agency concerned; strategic coordination conducted between the State civil aviation authority prior the activity and tactical management of the launch/re-entry activity. And:*

*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).*

1.4 The meeting's attention is especially drawn to 7.60 a) above - proactive co-ordination by civil aviation authorities with space agencies to increase understanding and awareness is critical to improved management of these events.

1.5 This paper highlights the need for further effort in managing rocket launch activities to ensure minimum disruption to 'normal' air transport operations.

## 2. DISCUSSION

2.1 While we have noted improvement in the process of managing these events, in general terms there are still many occurrences of less than optimal management of ballistic events – for example:

- Launch completed within first 30 minutes of the airspace closure, but the airspace remained closed for the full (NOTAMed) duration,
- Not all affected FIRs take timely NOTAM/NOTAMC action creating confusion among airspace users,
- Actual launch does not take place, but the airspace remained closed for NOTAMed duration,
- Notice of launch activity sent to a maritime agency and only by luck noted by an adjacent ANSP, which acted to alert other affected States.

2.2 A recent example (as detailed below) of an airspace closure involving multiple FIRs highlights the need for more detailed regional procedures and the need for States to be vigilant and proactive in managing these events.

### Recent example:

- The launch State (A) pre-coordinated the launch with affected FIRs/ANSPs (B and C) and issued a NOTAM which identified launch windows over a two-day period for four hours per day ✓
- On completion of the launch the launch State issued a NOTAMC – which was also followed by an email notification giving the ‘all clear’ ✓
- FIR B cancels NOTAM ✓
- Unfortunately, the email notification was not sent to all affected FIRs ✗
- FIR ‘C’ only acts upon receipt of email notification from the launch State - the Supervisory function responsible does not directly receive NOTAMs and therefore did not see the NOTAMC when it was issued ✗
- Launch State sends delayed email notification to FIR ‘C’ resulting in a 12-hour delay in cancelling the remaining airspace closure with a consequential impact on airlines’ schedules, the travelling public and the imposition of significant direct costs borne by airlines ✗

2.3 The process breakdown and other issues have been discussed with the States concerned and will be rectified, but this event does highlight the need for agreed processes and proactive vigilance by ALL States affected by ballistic activities.

2.4 When large areas of airspace are impacted due to an activity managed by another State it should be incumbent upon any State affected to ensure heightened monitoring of the situation and take proactive actions to ensure awareness of up to date situation indicators, such as NOTAMCs, to minimize the impact on airspace users.

**Suggested way forward for consideration:**

2.5 To reinforce the wording in the Asia-Pacific Seamless ATM Plan, and further encourage harmonized management of events, more detailed regional guidance and a planning checklist were proposed and accepted at ATMSG/6 in Hong Kong China, and subsequently endorsed by APANPIRG/29. The guidance covers the following:

- **Collaborative Launch Planning:** Temporary Danger Areas are created by launch States over high seas airspace across different FIRs, often without any formal pre-consultation with affected ANSPs or with the users of that airspace. Liaison with affected airspace users is required to minimize operational impact.
- **Robust Launch Co-ordination:** Why? - There is need for agreed processes and proactive vigilance between all stakeholders affected by ballistic activities. Standardized processes, along with agreed means of co-ordination and pro-active actions to ensure up to date situational awareness, need to be established/identified between:
  - Space/military authorities conducting the launch and the ANSP of that State,
  - ANSP of launch State and ANSPs of affected FIR/s,
  - ANSPs and airspace users (airlines) of the affected airspace.
- **Launch Performance Monitoring:** Each launch ANSP should monitor the airspace non-availability to gauge performance of each launch from start until finish.

2.6 The guidance and checklist will be published on the ICAO APAC website.

2.7 It is requested that the Directors General Conference endorse the guidance material and planning checklist (Appendix A and B) and take steps to ensure their organizations incorporate the material into their State documentation where applicable.

2.8 The need to establish close co-ordination, and where possible agreements with launch agencies in those States with frequent ballistic activities, is particularly highlighted to the Conference.

**3. ACTION BY THE CONFERENCE**

3.1 The Conference is invited to:

- a) Note the information in this paper, and
- b) Discuss any relevant matters, and
- c) Endorse the guidance material in Appendix A and the planning checklist in Appendix B and take steps to ensure their organizations incorporate the material into their State documentation where applicable.

## APPENDIX A

### **Proposed guidance for Collaborative procedures to improve the management and minimise the impact of, airspace closures due to ballistic launch/re-entry events:**

#### A.1 Launch Facilities:

- Generally ballistic launches take place from pre-defined locations. This should enable analysis and pre planning of contingency options that can be activated when a launch is notified
- Launch locations (whether mobile or static) should be positioned away from busy air traffic areas.

#### A.2 Pre-Launch Planning:

- Launch details should published with at least **two working weeks'** notice, if possible, and include
  - Extent and coordinates of proposed Danger Zone
  - Ensure planning and notification is in place for any re-entry/debris possibility
  - Tentative launch window (timing and dates)

To all affected FIRs and respective ICAO regional office.

- Ideally the launch State should have at least one conference call with affected FIR operational management to:
  - discuss impact and options for alternative dates/times that minimise operational impact
  - identify contingency routing/s if possible
  - coordinate NOTAM action
  - Discuss any possible re-entry issues and impact
  - Liaison with affected airspace users
  - Notify and agree process for actual activation and cancellation of any restrictions

#### A.3 Tactical Launch Co-ordination process:

- Actual launch 'window' published with ideally **three days' notice**; but not less than 24hrs notice
- Launch State to ensure ongoing collaborative information sharing with points of contact in affected FIRs:
  - Real activation time window: As the countdown begins / at least four hours prior;
  - Facilitating launch with minimal impact on civil air traffic: Launch authorities to clearly convey estimated normalcy time, e.g. flights beyond XX:XX (time in UTC) can expect normal routings, but can be advised to carry fuel for the alternate routings (to err on the safe side);
  - Notify lift off: As soon as the launch vehicle gets airborne; and
  - Notify end of activity through NOTAMC: coordinate and ensure immediate withdrawal of NOTAMs by all affected FIRs.

#### A.4 Launch Cancellations:

- Cancellations of a launch at any point in time needs to be disseminated as soon as possible to all affected FIRs;
- Ongoing information sharing should take place until the 'all clear' is given.

**APPENDIX B**

**Rocket Launch/Space re-entry activity management Planning Check list**

- Launch required by:
- Proposed Temporary Danger Area:
- Proposed launch reservation window:
- Date: DD/MM/YYYY to DD/MM/YYYY    Time: XX: XX to YY:YY UTC
- Proposed definitive launch window:
- Date: DD/MM/YYYY to DD/MM/YYYY    Time: XX: XX to YY:YY UTC
- Expected exact date of launch:

<b>Affected FIR</b>	<b>Affected AWYs</b>	<b>Affected flights in requested time window</b>	<b><u>Option 1:</u> Suggested revised time and date</b>	<b><u>Option 1:</u> Affected flights in revised time and date</b>	<b><u>Option 2:</u> Suggested revised time and date</b>	<b><u>Option 2:</u> Affected flights in revised time and date</b>

Pre-Launch Conference Call agenda:

- Notify latest launch details and logistics
- Identify contingency routing:
- Identify SUA, FUA options to improve ATM during launch:
- Coordinate NOTAM action among all affected FIRs:
- Discuss any possible re-entry issues and impact:
- Notify process for actual activation and cancellation of any restrictions: (AFTN/NOTAM/NOTAMC/email, Telephone Call),
- Any other business

Identify Points of Contact (POC) for airspace reservation co-ordination

<b>Affected FIR</b>	<b>POC (Name, Designation)</b>	<b>Tel, Mob, AFTN</b>	<b>Email</b>