Nineteenth Meeting of the Cross Polar Trans East Air Traffic Management Providers' Work Group (CPWG/19)

(Tokyo, Japan 11-15 May 2015)

Agenda Item 5: Status on CPWG/18 Actions

Coordination with Defense and Commercial Space Operators and Mitigating Impact on Other Airspace Operators

(Action Item CP15-09)

(Presented by the Federal Aviation Administration)

SUMMARY
This paper presents information on how the Federal Aviation Administration (FAA) works collaboratively with the United States Department of Defense (DoD) and commercial space operators during the launch of rocket or missile systems to ensure that they may accomplish their respective missions with minimal impact to other users of international airspace.

1   Introduction

1.1.   During the CPWG/18 meeting, a discussion on Notice to Airman (NOTAM) issuance and the impact of establishment of large danger areas to accommodate missile launch and commercial space activity took place. State ATM Corporation of the Russian Federation noted the specific impact of one commercial space operator that effectively closed a large portion of airspace in the Polar region for several days.

1.2.   Of concern to ANSPs was trying to accommodate the needs of one airspace user with those of others. A request for ICAO guidance on which operations have priority over others and if a request that has significant impact on numerous operators could be denied based on such a priority list. However, it was noted by ICAO that an ANSP cannot deny service to an airspace user even though the impact on others may be significant.

1.3.   The FAA noted similar difficulties in trying to balance the requests of DoD and commercial space entities with those of commercial/civil aviation interests. The FAA offered an example of how it has mitigated the impact on operators while accommodating such requests through a collaborative process. This paper illustrates the type of information developed and shared with DoD and commercial space entities

2   Discussion

2.1.   During the summer of 2014 a request for a Stationary Altitude Reservation (ALTRV) that would effectively close several thousand miles of airspace in both the North and Central Pacific from 0700-1430Z. The proposal would have required significant reroutes for aircraft flying between the Hawaiian Islands and Asia and closed most PACOTS routes with exception of a single corridor which need to accommodate bidirectional traffic.

2.2.   These requests made by the launch proponent to FAA's Central Altitude Reservation Function (CARF) at the Command Center and then forwarded to the appropriate ATSU for analysis and approval.

2.3.   In considering the request, Oakland conducted an airspace analysis that included regularly scheduled air carrier service and routes to/from Hawaii to Asia and across the NOPAC for the requested time period. The process used by Oakland in its evaluation can be found in Attachment A.

2.4.   Based upon its analysis, Oakland determined that the proposed launch window was not feasible due to its impact on other operators. Oakland developed a presentation for the launch proponent that explained basic air traffic rules/requirements, provided screenshots of actual traffic over several days from the Advanced Technologies and Oceanic Procedures (ATOP) systems in the areas to be impacted, and provided information on potential time and economic loss to operators per flight. An example of an ATOP screenshot and traffic reroute analysis can be found in Attachment B.

2.5.   With the information provided, Oakland was able to work collaboratively with the launch proponent to shorten the proposed launch window and modify their airspace request to allow transition corridors.

3   Recommendation

3.1.   The Meeting is invited to note the information provided in this paper.

Processing Stationary ALTRVs in Oceanic Airspace

1. When processing an ALTRV request in oceanic airspace, you must first remember that the majority of the Oakland Oceanic FIR is International Airspace and does not belong to the United States. In fact, the only portions of the FIR that are U.S. territories are the airspace within 12 nautical miles of:

- The islands that make up the State of Hawaii;

- The islands that make up the Northern Mariana Islands;

- Guam;

- Palmyra Atoll;

- Baker Island;

- Howland Island;

- Jarvis Island;

- Johnston Atoll;

- Kingman Reef;

- Midway Atoll; and

- Wake Island.

2. As custodians of this airspace, Oakland ARTCC must diligently strive to balance the usage and protect the rights of foreign air carriers to conduct free enterprise throughout the area.

3. Any Stationary ALTRV has and impact on oceanic operations. Some more than others. It is important to do everything possible to lessen the impact of requested mission through negotiation. In order to effectively negotiate, it will be necessary to determine what the projected impact is to non-military users of the airspace and attempt to reduce it through time changes, redesign of the airspace, or a combination of both.

4. The following is a guide to be used in processing an ALTRV request from receipt to approval:
> a. The ALTRV must be logged in so that everyone working the MOS position is aware of its existence. After the information is captured on the daily log spreadsheet, a copy should be placed in the appropriate handing folded that corresponds to the date of the event. This is important so that a physical copy is available should the original get misplaced during processing.

b. The ALTRV must next be classified with respect to its magnitude and potential impacts to air carrier operations. Based on this, you must decide whether impact analysis needs to be started immediately, or if it can take on a lessor priority. With that said, management has worked diligently to get airspace proponents to submit ALTRV requests as soon as they possibly can so that we can get back to them with any issues so that their final planning and preparation can continue. Frankly, nothing that goes on in the MOS needs any greater focus than these Stationary ALTRV requests. The best way to check the impact is to plot the airspace. There are several ways to accomplish this:

- Using the TSD, create an FEA

- Using an Ocean21 workstation, use the Annotation Window to create the airspace area. This works well because depending on the time you do this, actual traffic can be noted for the area.

- Use Microsoft Publisher or Word to draw the airspace on a section of the .pdf composite oceanic chart available at s:/MOS/Oceanic Airspace. Publisher is more powerful than Word when creating graphics and can actually be saved as a .jpg file for easy use in other publications.

- Hand plotting on a printout of the airspace.

c. The most severe impacts to oceanic traffic happen either within the CEP (the routes between CONUS and Hawaii) or in the airspace where PACOTS tracks normally run. If the requested airspace lies within these areas you can anticipate a heavy impact, based on timing.

d. To aid in the analysis of traffic, the Ocean21 Automation staff have developed snapshots of the heavy traffic areas for a 24-hour period, one day for each month. These snapshots can be used to analyze the impacts for specific times of the day. They are available at s:/MOS/Oceanic Airspace/Traffic Data. Alternatively, the airspace can be entered into Ocean21 as a reservation, assigned at an altitude where no conflicts could occur and run for a time period matching the request. Then, ask the Ocean21 Automation staff to create snapshots of the area for each hour of the time block.

e. If flow control will be necessary, due to the location of the requested airspace, determine the additional mileage required to be flown for each temporary route developed. Remember, each temporary route must miss the airspace to be released by at least 25 nautical miles. When routes are developed, take the following into consideration:

- Develop the shortest possible route around the airspace by getting as close as possible to the minimum distance required. The minimum distance is technically 25 nautical miles. However, there is a procedure in oceanic airspace, Strategic Lateral Offset Procedure (SLOP), allowing an aircraft to

offset either 1 or 2 nautical miles right of centerline and therefore it would be best to use a bare minimum of 27 nautical miles.

- When using latitude/longitude points to define the route use whole degrees whenever possible (e.g., 40N 140W, 25N 123W, etc.) or where necessary 15 minute increments (e.g., 4015N 14000W, 2500N 12330W, etc.). This simply makes it easier for dispatchers, controllers and pilots to avoid errors when inputting the data.

- When the desired reroute will be into a control extension along the West Coast, make sure that it will be available during the necessary time. This is most easily accomplished by coordinating with the POC for the ALTRV and making it his responsibility to ensure the control extension is available. Require added verbiage in the ALTRV approval that provides the necessary assurance.

f.　Once the planned reroutes are developed, test them in the Ocean21 Lab to ensure hat they do not conflict with the requested airspace. If there are conflictions, use the lab to develop the necessary revisions, keeping in mind the need to limit the latitude/longitude definitions to degrees and 15 minute increments of degrees to the extent possible. In no case should degrees:minutes:seconds be used!

g.　Whenever the requested ALTRV will have an extreme impact on air carrier operations, particularly when numerous foreign users are involved, the information needs to be shared with the Oceanic Airspace and Procedures office. That office will alert the users to the upcoming event and provide detailed briefing of the projected impacts. An example of ALTRV activities that consistently produce extreme impacts is the testing conducted by the Missile Defense Agency (MDA). Over the next several years, this testing is projected to require greater amounts of airspace, thus increasing the severity of it impacts.

h.　Especially for missions with extreme impacts, but also a good operating practice for other activities requiring flow reroutes to be utilized, the Flow NOTAM needs to be published five (5) days prior to the event for the primary date and first two back-up dates. This timing was requested by the users and guaranteed by the facility. To develop the Flow NOTAM, do the following:

- At an Ocean21 workstation or in the Ocean21 Lab, "draw" the requested airspace using the annotation window. Wherever the danger area blocks a published route, use the range-bearing tool (RBL) to determine where the 25 nautical mile point is from the airspace along the ATS Route, both heading towards the airspace and away from the airspace.

- Next, using the RBL, determine the mileage to clear the airspace starting at the gateway waypoint for that route and the mileage to the point at which an aircraft will encroach on the protected airspace. Calculate the flying time for these mileages in minutes. To buffer the estimates, two different speeds are used, one to estimate when an aircraft will exit the airspace on the backside which is 450 knots and the other for when an aircraft will encroach on the airspace which is 480 knots. The formulas are:

    - For the backside, $mileage*60/450 = minutes\ flying\ time$
    - For the frontside, $mileage*60/480 = minutes\ flying\ time$

- Once all the times are calculated for the routes affected, determine the earliest time and latest time. These times are used as the effective times for the NOTAM. There is a very basic NOTAM template available at s:/MOS/RRTE Templates/Flow RRTE Template.doc.

i. Develop an Information Sheet for each sector that will be affected by the mission. Also prepare one for the OMIC and FLM/CIC. The Information Sheet needs to have the information that is in the Flow NOTAM so that the controllers are aware of the temporary routes published in case they need to issue any reroutes and the times that the aircraft need to be on the temporary routes.

Attachment B
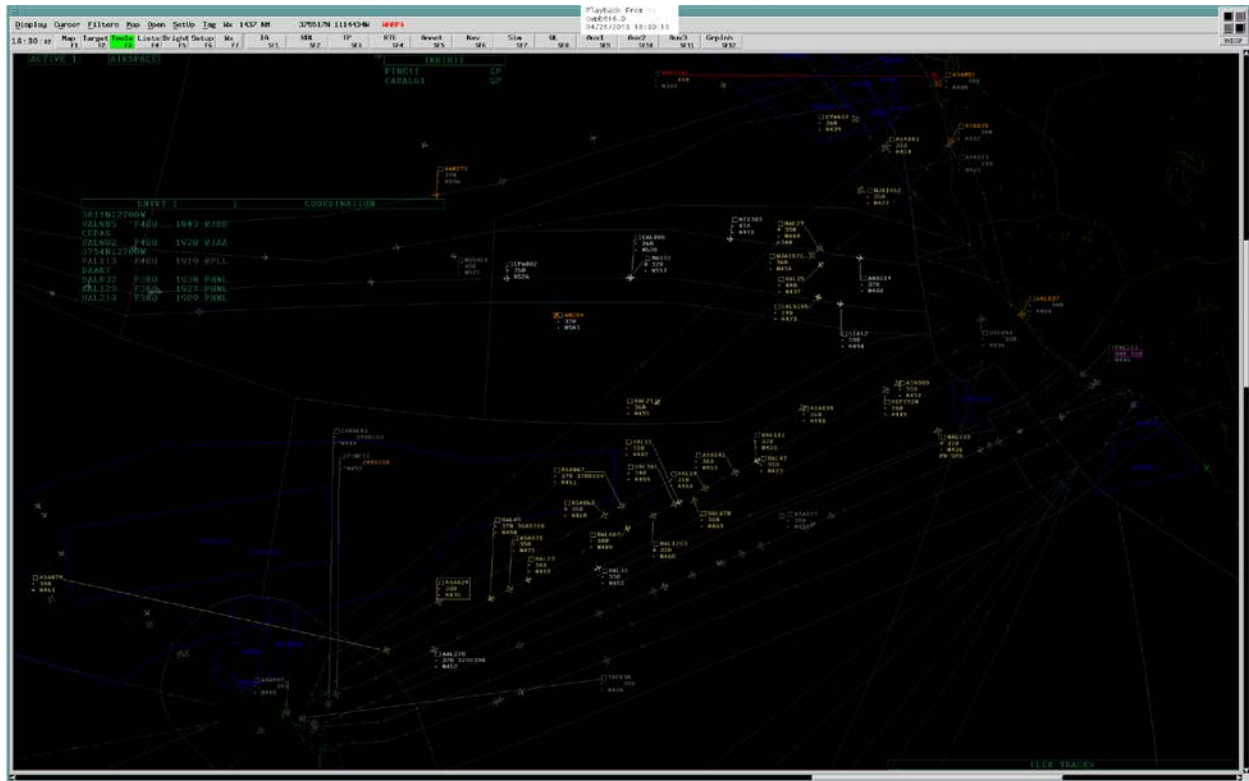
Traffic in Target Ascent or Target/Interceptor Areas at Specified Hours

OC4		OC9	OC4		OC9
	0600Z			**1100Z**	
*CFC3872		^ANA1061	*DAL1104		~E80122
*DAL836	12 Acft	^HAL457	*UAL633	11 Acft	
°ASA859		^JAL89	°ACA033		
°ASA863	7 New		°ASA822	6 New	
°ASA877			°ASA876		
°DAL2237			°ASA878		
°WJA1852			°ASA898		
°WJA1864			°WJA1853		
°WJA1874			°WJA1865		
			°WJA1875		
	0700Z			**1200Z**	
*CFC3872		^HAL457			
°ASA859	6 Acft		*UAL1722		^CAL001
°ASA863	0 New		°ACA033	6 Acft	~E80122
°WJA1852			°ACA034		
°WJA1864			°ASA898	3 New	
	0800Z			**1300Z**	
*UAL218			*UAL1722	4 Acft	^CAL001
	1 Acft			2 New	^HAL807
	1 New				~RCH7177
	0900Z			**1400Z**	
*UAL218			*UPS32	5 Acft	^CAL001
°°ASA871	9 Acft				^HAL807
°ACA048	2 New			2 New	~RCH7177
					~PAL103
	1000Z			**1500Z**	
*DAL1104		~E80122	*UPS32		^JAL8816
*TSC902	10 Acft			6 Acft	^TRDNT02
*UAL1724					^UAL880
*UAL396	9 New			3 New	~PAL103
*UAL633					~RCH7177
°°ASA871				**1600Z**	
°ASA876			*FDX1413		^CAL018
°DAL2246			*FDX9175	6 Acft	^DAL618
°WJA1875					^JAL786
				5 New	^TRDNT02

* Indicates reroute of ≈ 10 NM
° Indicates reroute of ≈ 48 NM
°° Indicates reroute of ≈ 437 NM

^ Indicates reroute of ≈ 184 NM
~ Indicates reroute of ≈ 300 NM