

**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

Reroutes and Coordination Issues Associated with Volcanic Events

(Action Item CP18-02)

(Presented by the United States)

SUMMARY

This working paper presents information on issues raised by a case study provided by American Airlines at the 16th Meeting of the Cross Polar Trans East Air Traffic Management Providers' Work Group and seeks a way to harmonize the best practices for handling significant reroutes of numerous aircraft for the Group to consider.

1. Introduction

1.1 During the 16th Meeting of the Cross Polar Trans East Air Traffic Management Provider's Work Group (CPWG/16), American Airlines (AAL) presented a working paper (WP04) regarding events affecting an airborne flight during the eruption of the Kliuchevskoi Volcano on the Kamchatka Peninsula on 16 October 2013.

1.2 Updated information provided by Tokyo VAAC indicated that the original impact of the Kliuchevskoi eruption may have been greater than originally forecast. A decision to re-evaluate the published westbound Pacific Organized Track System (PACOTS) flex tracks was made with collaboration from airline operators, Anchorage ARTCC (ZAN), Oakland ARTCC (ZOA), and other stakeholders. A decision to amend the PACOTS about ten degrees south of where they were originally planned was reached and the tracks were reissued accordingly.

1.3 At the time the decision was made to reissue the PACOTS, AAL175 was approximately 45 minutes into their flight from KDFW to RJAA. AAL dispatch began working with their flight crew and ATC to reroute the aircraft. The AAL dispatcher issued a new routing to the aircraft via ACARS and sent the same routing to ATC.

1.4 There were several issues noted with coordination of the new routing and issuance of the route to the flight crew. AAL noted that while they submitted a new flight plan to US domestic ATC, the flight plan was not received by the facility currently working the aircraft or those facilities further along the aircraft's route in U.S. domestic airspace. Flight plan information was sent successfully to both Russia and Japan. However, it was noted that there were some coordination issues with Japan because they had already received departure message information on the original flight plan.

1.5 The Federal Aviation Administration (FAA) presented a working paper (WP/10) during the CPWG/17 meeting addressing some of the concerns raised by AAL. Based on the study

provided by AAL, it was noted that there are shortfalls in existing procedures during volcanic eruptions or other events where route changes need to be made. Several questions were raised, including the following:

- What is the best way to coordinate a reroute once an aircraft is airborne?
- What resources are available for coordination (e.g., MATMC, ATCSCC, etc.)?
- Who is responsible and what is the best mechanism for coordinating entry into airspace that was not originally part of the aircraft's flight planned route? For instance, in the case of AAL175, what would be the best way to assure timely coordination and approval to overfly Russian airspace?

1.6 In addition, Japan Civil Aviation Bureau posed the following questions:

- Does Flight Data deal with CHG messages or are they automatically updated in the flight plan?
- Do dispatchers and pilots agree when a CHG message is sent to an ATC facility?
- Are reroutes issued when a CHG message is received from an aircraft in flight?
- Are there any disadvantages when ATC receives a route change request directly from an in-flight aircraft?

1.7 In an attempt to answer the questions posed in 1.5 and 1.6 of this paper and seek a harmonized approach to handling airborne reroutes, the FAA presented a working paper (WP/12) at the CPWG/18 meeting. During review of WP/12, the airlines noted that the only message that they have available to send requested changes to a flight plan is a CHG message. The ANSPs noted various differences in how their respective systems process CHG messages and as to whether they were acceptable for airborne aircraft. There was also discussion about the implications of sending CHG messages and possible confusion between ATC and flight crews over routing (e.g. does an aircraft that was "cleared as filed" fly the route sent via CHG message even if ATC does not issue a clearance to fly the new route?).

1.8 It was suggested that a table be developed that examined how each ANSP processes CHG messages.

1.9 This paper presents the results of the CHG message survey that was sent to the various CPWG ANSPs and seeks to determine the following:

- What trends/information does the data indicate in trying to develop a harmonized approach?
- Is this an issue that requires a regional or global solution?
- What are seen as "best practices" for coordinating airborne reroutes?
- What resources are available for facilitating coordination?

2. Discussion

2.1 The FAA developed a change message data form that was distributed to ANSPs that covered seven questions. An overview of the responses can be found in Table 1. Detailed responses are available in Attachment A.

Table 1. Overview of Questionnaire Responses

| ANSP | CHG before dept | CHG prior to Ocean/Remote | CHG after Ocean/Remote | FP Processing pre-dept | FP Processing post-dept | Advanced approval? | Time for advanced approval |
|-----------|-----------------|---------------------------|------------------------|--|--|--------------------|----------------------------|
| State ATM | Yes | Yes | Yes | ACK/REJ to FPL sender. PLN sent to ATFM Centers and PLN re-addressed to other ACCs | Same as pre-dept. | Yes | 3-40 days with exceptions |
| JCAB | Yes | Unacceptable | Unacceptable | Airlines select addressees | Unable to accept CHG message after departure- JCAB system can't send CHG to other ANSPs | No | N/A |
| Edmonton | Yes | Yes | No | AFTN | AFTN | No | N/A |
| Vancouver | Yes | No | N/A | AFTN | CPL messages to Seattle and Anchorage via NAM interface. CNL used if re-route avoids airspace previously coordinated with CPL message. | No | N/A |
| Bodo | Yes | ACH message | No | IFPS | Manual coordination + AFP to IFPS (which sends | FPL from IFPS | N/A |

| | | | | | | | |
|-----------|-----|---|---|---|--|-----------------------------------|-----|
| | | | | | ACH/APL to affected ANSPs) | | |
| Reykjavik | Yes | No | No | AFTN | Adjacent facilities notified via ABI message, followed by CPL message. CNL messages used to notify of route change which invalidates coordination. | Per LOAs with adjacent facilities | N/A |
| FAA | Yes | No for domestic system. ATOP will accept. | No for domestic system. ATOP will send error message to controller. | Aircraft operator sends FPL information when filing to ANSPs. | AISR Service B message via AFTN. This is a manual process completed by the En Route facility at point of origin. Any changes after a/c departs coordinated via AIDC or manually. | No | N/A |

2.2 As discussed during the CPWG/17 and 18 meetings, there were several shortfalls noted in existing procedures. Some of these were noted as-

- What is the best way to coordinate a reroute once an aircraft is airborne?
- What resources are available for coordination (e.g. MATMC, ATCSCC, etc.)?
- Who is responsible and what is the best mechanism for coordinating entry into airspace that was not originally part of the aircraft's flight planned route? For instance, in the case of AAL175, what would be the best way to assure timely coordination and approval to overfly Russian airspace?

2.3 Based upon the information provided from ANSPs in the CHG message form, the CPWG is asked to consider the issues as noted in the introduction and in 2.2 above in attempting to resolve the concerns posed by aircraft operators and ANSPs in processing airborne reroutes, especially during significant events requiring numerous aircraft route changes.

3. Action by the Meeting

3.1 The meeting is invited to:

- a. review the information contained in this Working Paper;
- b. review/analyse results of the CHG message survey;
- c. consider whether the issue of use of CHG messages for airborne reroutes is a global or regional issue; and
- d. consider best practices and discuss what can be done to harmonize the airborne reroute process