International Civil Aviation Organization

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WORKING PAPER

INTERNATIONAL VOLCANIC ASH TASK FORCE (IVATF)

FIRST MEETING

Montréal, 27 to 30 July 2010

Agenda Item 3: Results of the EUR/NAT VATF Meeting (Plenary)
3.5: Follow-up action including recommendations

UNITED STATES PERSPECTIVE ON VOLCANIC ASH PRACTICES AND WHAT IS REQUIRED TO IMPROVE SERVICE

(Presented by the United States)

SUMMARY

This paper presents the U.S. understanding of the concerns that have resulted from the Eyjafjallajökull volcano and its impact on aviation and issues that need to be considered collectively for global harmonization of services in support of volcanic ash..

1. INTRODUCTION

1.1 Following the eruption of the Eyjafjallajökull volcano ("the Volcano") in Iceland on April 14, 2010, European countries began withdrawing air traffic service and closing airspace as the ash cloud spread eastward. The resulting restrictions on civil flights in 23 countries across most of northern and central Europe stranded passengers across the globe and severely disrupted air transport operations for several days. Over 300 airports, representing 75 per cent of European air traffic, closed. EUROCONTROL estimated that more than 100,000 flights were cancelled affecting the travel plans of around 10 million passengers. The airlines estimated their losses in the order of $1.7 billion, the airports at $400 million, and Air Navigation Service Providers at $200 million with wider impacts to the general economy.

1.2 The purpose of this paper is to share information on how the United States supports the ICAO International Volcano Watch Operations Program and suggested actions to address service improvement in the future.

2. DISCUSSION

2.1 The presence of volcanic ash is a recognized hazard in aviation. Several severe incidents occurred in the 1980s and 1990s at various locations throughout the world involving commercial jetliners. The common denominator in these incidents was the lack of awareness among the aircraft pilots that they were flying through areas contaminated by volcanic ash. The United States has considerable experience with volcanic eruptions, and the United States objective during volcanic ash episodes is to ensure that the aviation community receives timely, consistent information on the location of the ash cloud including its current position, flight level, and projected trajectory. Generally, Temporary Flight Restrictions are established only in areas where immediate danger exists: that is, in the vicinity of an erupting volcano. The United States procedures are consistent with the ICAO *Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List* (Doc 9766).

2.2 The United States supports the operation of two Volcanic Ash Advisory Centres and three Meteorological Watch Offices that provide advisories and in-flight warnings in accordance with ICAO Doc 9766 that are disseminated globally via the World Area Forecast System satellite broadcast.

2.3 The United States worked cooperatively with our European counterparts during the Eyjafjallajökull volcano eruption. The direct support included the sharing of information on established procedures such as the National Volcanic Ash Operations Plan for Aviation and the Alaska Interagency Operating Plan for Volcanic Ash Episodes. The Federal Aviation Administration's (FAA) Air Traffic Control System Command Center (ATCSCC) is the focal point for the U.S. National Airspace System, for providing guidance and direction on how best to manage traffic volumes impacted by constraints such as a volcanic ash cloud. Further, the FAA participated in industry discussions focused on developing plans to reopen European airspace and ensure safe operations. The FAA continues to participate with industry and European authorities relating to the operational effects from the Iceland volcano and on how best to manage airspace in and around volcanic ash concentrations. While there have been numerous meetings, ad hoc conferences/seminars, ad hoc task forces since the eruption and the disruption to air traffic, the FAA believes efforts are now best focused in working these issues through the ICAO Volcano Ash Task Force (IVATF). The goal is to allow for less flight disruptions while still ensuring the highest levels of safety.

2.4 Since the eruption there has been an outpouring of international reaction to better understand how volcanic ash disrupts the aviation community and how best to deal with this hazard in the future. It is not the purpose of this paper to detail or outline all the issues or lessons learned but rather to support the position that there is a need for ICAO to continue to support the IAVW in an expanded role. Specifically to ensure through a collaborative framework of Air Navigation Service Provider (ANSP), volcanologist and meteorologist on how to improve existing services to ensure communication of hazard information is timely and accurate so it can be incorporated into decision support tools for effective flight planning. This same principal applies to the engineering community as it relates to engine certification and tolerance to volcanic ash.

2.5 The current practices and standards as described in Annex 3 and also in ICAO Doc 9766 need to be reviewed based on the findings from the IVATF and by the IAVWOPSG and ATMRPP. The current standard that has been promulgated over the years is ash avoidance and most efforts have been focused on mitigating ash encounters. While we have not achieved 100 per cent, we can state we have an excellent track record of mitigating aircraft encounters with ash. In other words we know how many encounters we have but what we do not know is how many more encounters we would have had if the IAVW did not operate as effectively as it does. As the science advances in ground based and space

based detection with enhancements in model performance through collaborative decision making and ensemble modelling ANSPs will come closer to achieving a 100 per cent goal of ash avoidance. In working with engine manufacturers, ANSPs will have a better understanding of engine tolerance to ash and what levels of ash can an aircraft operate safely in without undue concern to the safety of flight which does not preclude the need to have oversight on engine performance and maintenance when ash is encountered.

3. CONCLUSION

3.1 Thus challenges put forth for this meeting is to continue to support work toward a better understanding of the following which are presented in the proposed draft action to be considered by the TF:

Action Agreed 1/… — Tasks for the IVATF and its sub-groups

That, the following tasks be included in the work programme:

a) improve collaborative decision making among the VAACs to improve harmonization of products and services;

b) improve model performance to a reasonable extent, and investigate the use of ensemble modelling;

c) better define source parameters for models by working with the International Union of Geophysics and Geodesy who support the world wide Volcano Observatories;

d) review of existing contingency plans in ICAO Regions to ensure there is harmonization between Regions and services provided;

e) further evaluation of engine tolerance to ash to better define areas of ash concentration that has to be supported with associated improvement in model output;

f) understanding of uncertainty or probabilistic forecasting of ash concentration and how it affects decisions on fly or no fly zones; and

g) review of existing procedures and practices on the provision of information to Flight Crews and Airline Operations Centres to support their operational decisions for time critical messages.

4. ACTION BY THE IVATF

4.1 The IVATF is invited to:

a) note the information in this paper, and

b) decide on the draft action.

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