International Civil Aviation Organization

The Twentieth Meeting of the APANPIRG ATM/AIS/SAR Sub-Group (ATM/AIS/SAR/SG/20)

Singapore, 05 – 09 July 2010

Agenda Item 5: Consider problems and make specific recommendations concerning the provision of ATM/AIS/SAR in the Asia/Pacific Region

Federal Aviation Volcanic Ash Response

(Presented by the United States of America)

SUMMARY

This Information Paper presents information on the FAA process related to Volcanic Ash.

1. Introduction

1.1 Vast amounts of volcanic gas, aerosol droplets, and ash are injected into the stratosphere during volcanic eruptions. Large volcanic eruptions inject water vapor (H2O), carbon dioxide (CO2), sulfur dioxide (SO2), hydrochloric acid (HCl), hydrofluoric acid (HF) and ash (pulverized rock and pumice) into the stratosphere. The operation of aircraft engine and airframe components in the areas containing these emissions is not recommended.

1.2 In particular, volcanic ash (VA) may travel thousands of miles from the eruption source, impacting numerous countries and continents isolated from the volcanic eruption. The presence of volcanic ash is a recognized hazard in aviation, and in the 1980s and 1990s, several incidents around the globe involved commercial jetliners that encountered volcanic ash and resulted in emergency responses due to volcanic ash exposure.

2. Background

2.1.1 ICAO established the International Airways Volcano Watch Operations Group, which consists of nine Volcanic Ash Advisory Centers (VAAC) that cover the majority of the globe. A VAAC provides Volcanic Ash Advisory (VAA) and Volcanic Ash Graphics (VAG) to Meteorological Watch Offices and Airline Operations Centers.

2.1.2 In the U.S., the Washington VAAC provides coverage for: the Continental United States; Pacific Ocean abutting Japan, Australia, and New Zealand; Central America, South America, and the Caribbean. The Anchorage VAAC provides coverage for the Alaska Region.

2.1.3 Similar to the current Eyjafjallajokull eruption, Alaska area volcanic eruptions have sent plumes and drifting ash clouds airborne causing disruption to flight operations. These eruptions have allowed VAACs, aircraft operators and FAA air traffic facilities to gain familiarity with ash cloud impacts and develop mitigation procedures. For example, the Anchorage VAAC was able to identify

enhanced capabilities that the Washington VAAC had with regard to their ability to detect and track VA. This resulted in the Anchorage VAAC collaborating with the Washington VAAC to obtain advanced satellite imagery, allowing enhanced detection and tracking abilities as well.

2.1.4 The FAA participates with other federal agencies in a national plan for dealing with volcanic ash with regard to aviation operations. Under the auspices of the Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM), led by the National Oceanic and Atmospheric Administration (NOAA), the *National Volcanic Ash Operations Plan for Aviation,* guides the FAA and other agencies in a collaboration to mitigate VA impacts.

2.1.5 The *National Volcanic Ash Operations Plan for Aviation* identifies four U.S. entities. The U.S. Geological Survey (USGS) provides seismic monitoring for early detection, and passes early warnings when an eruption is imminent, or has occurred. NOAA uses satellite monitoring as a core element in detection, tracking, and monitoring eruptions, and the resultant ash plume. The FAA disseminates pilot reports (PIREPS), along with Notices to Airman (NOTAM) and Significant Meteorological Information (SIGMETs). The Air Force Weather Agency (AFWA) is the DoD center for volcanic-ash advisories, and forecasts for U.S. Forces worldwide

2.1.6 The FAA's aim during volcanic ash episodes is to ensure the aviation community receives timely, consistent information about the ash cloud's position, altitude and projected trajectory and drift. The FAA also suggests flight operators avoid the area of known or forecast ash clouds, while recognizing that final responsibility for flight decisions rests with the pilot in command.

2.1.7 Two important aspects of FAA procedures are: 1) Establishing a temporary flight restriction, usually between 3 to 10 nautical miles (NM) around the erupting volcano, to ensure that pilots remain away from the eruption source. 2) The role that the FAA takes in areas which have suspected airborne ash contamination, by not restricting airspace, and by providing information to airports, aircraft operators, and pilots so that they can make the decision to operate, or not operate.

2.2 FAA actions taken during volcanic ash episodes include soliciting and disseminating PIREPs, NOTAMs, SIGMETs and METARs. In the U.S., volcanic ash management is largely based on making pilots aware of areas where they might encounter volcanic ash and in relaying pilot reporting of real time conditions. The FAA model is that the decision to operate rests with the pilots and the aircraft operators.

3. Conclusion

3.1 The meeting is invited to note the information presented in this paper.

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