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12 JUL 2010

AIC B 27/10. Volcanic Ash Zones

(Replaces AIC B 20/10)

1. Introduction

The purpose of this AIC is to provide operators holding a Danish AOC and operators of Danish registered aircraft with information and recommendations on operations when volcanic ash may be present.

It is emphasised that a volcanic ash encounter is potentially extremely hazardous and areas of known contamination shall generally be avoided. Volcanic ash may extend for several hundred miles and the contaminated zone may not be visible. The decision to operate should be taken carefully.

Areas affected by volcanic ash will be notified by SIGMET and the associated airspace restrictions/closures by NOTAM.

Warning

This AIC must under no circumstances be considered to be a permit to conduct normal flight operations in volcanic ash conditions.

Note that EASA Safety Information Bulletin on this matter is guidance only. For further guidance, applications and approvals follow this AIC and/or AIC B 28/10 and B 29/10 depending on type of flight.

2. Background

This AIC has been issued on the basis of EUROCONTROL's proposal for new procedures for use of European airspace in connection with volcanic activity.

With reference to ICAO EUR DOC 019 Volcanic Ash Contingency Plan - EUR Region and the Volcanic Ash Advisory Centre (VAAC) it has been decided to differentiate between three (3) different volcanic ash contamination zones:

Zone 1: Limited No-Fly Zone: Area of High Density Volcanic Ash Contamination.

A "No fly zone" - which includes the main area/core of the volcanic fallout, with an additional buffer zone (60 nm). The area is established on the basis of meteorological conditions where wind direction, humidity etc. will result in a high intensity of particles.

Associated airspace restrictions/closures will be notified by NOTAM.

Zone 2: Potential Contamination Zone: Area of Low Density Volcanic Ash Contamination.

An area outside Zone 1 where flying can be conducted when actual conditions, risk assessment and test(s) can establish, that flights can be conducted at an acceptable level of safety and requires prior permission from the operators Authority.

Areas affected by volcanic ash will be notified by SIGMET.

Prerequisites and requirements for flying in this area are given below.

Zone 3: Non-Contaminated Airspace: Area Free of Volcanic Ash Contamination.

An area - free of contamination - where flights can be conducted without restrictions or special prerequisites.

Zone 1 is established in Volcanic Ash Advisories (VAA) by Volcanic Ash Advisory Centre (VAAC) and administrated by the Central Flow Management Unit (CFMU).

Zone 2 is established as a contaminated zone published by the VAAC and forms the basis of the current restrictions, not including Zone 1.

Note that these areas are/can be three dimensional and may in some cases be over-flown in accordance with the considerations stated below.

After the VAAC has issued the +6, +12, +18 hrs forecasts of contaminated areas, SIGMETs and NOTAMs based on the VAAC forecast will be issued.

Note that VAAs use Black, Grey and Red areas (defined in <http://www.metoffice.gov.uk/corporate/pressoffice/2010/volcano/forecasts.html>). Black and Grey areas are both to be considered as Zone 1.

3. Zone 1: Limited No-Fly Zone

Intentional flight in Zone 1 is prohibited.

4. Zone 2: Potential Contamination Zone

Approval from an operator's Authority for flight in Zone 2 will be based on the Operators risk assessment and acceptance to conduct flight operations in these areas with regard to the following Prerequisites, Requirements, Guidelines and Inspection outlined below

4.1 Prerequisites

Following requirements are prerequisite to an approval for operating in "Low density volcanic ash" conditions.

4.1.1 A "No technical Objection" (NTO) or equivalent document, stating maintenance requirements for regular operation in areas defined as "Low density volcanic ash contamination", must be obtained from the relevant aircraft and engine Type Certificate (TC) holder and all requirements related to the NTO or equivalent document, must be complied with.

4.1.2. Prior to any flight in Zone 2, an operator shall carry out a risk assessment, based on the NTO, above, including any operational and maintenance restrictions required by the relevant aircraft and engine Type Certificate (TC) holder.

The risk assessment shall include procedures to assess current and forecast areas of volcanic ash contamination zones and the associated risk involved in carrying out flight within a Zone 2 area and subsequent actions by crew members if an area of volcanic ash is entered unintentionally.

4.1.3. The decision to carry out a flight in a Zone 2 area will be at the sole risk of the operator.

4.2. Requirements - Preparation and planning

4.2.1. Operators can expect deviations to requested routes.

4.2.2 Selection of en-route and/or destination alternates and/or ETOPS requirements must be observed considering the special circumstances.

4.2.3. Consideration to engine-out service ceiling must be given before flying over Zone 1.

4.2.4. The operator shall establish and maintain a system for registration of flt. Hrs in Zone 2.

4.2.5. The operator shall establish and maintain a system for technical follow-up after flt operations in Zone 2.

4.2.6. If volcanic ash activity is identified during a flight the following information shall be transmitted to the nearest ATS unit:

1. Call Sign
2. Position
3. Time
4. Flight Level
5. Position, bearing, distance to volcanic activity, level of contamination experienced
6. Vertical and lateral extent of ash cloud, rate, growth etc
7. Air temperature
8. Wind.

The report shall only be transmitted when the commander of the aircraft deems that it safe to do so.

4.3. Guidelines - Conduct of Flights

4.3.1. Airborne weather radar systems are not designed to detect volcanic ash clouds and extra precautions should be taken during flight, particularly during hours of darkness and in Instrument Meteorological Conditions (IMC) when volcanic ash may be present in the atmosphere. The following are signs that volcanic ash may be present during flight:

- Smoke or dust in the cockpit.
- An acrid or sulphurous odour.
- St Elmo's Fire and static discharges around the windshield.
- A bright white or orange glow in the engine inlets.
- Sharp, distinct beams from the landing lights.
- Any abnormal indications in airspeed and engine parameters.

Standard procedures for "Encountering volcanic ash" should be considered if any of these signs are observed.

4.3.2. If volcanic ash is encountered the procedures provided in the Operations Manual should be followed. General advice is to execute a 180-degree turn to leave the ash cloud. If possible, the engine thrust should be reduced to flight idle to minimise the build-up of deposits in the engines.

4.3.3. A precautionary landing should be made at the nearest suitable airport if it is suspected that the engines have been adversely affected or there is aircraft damage.

4.4. Follow up Inspection

For operators holding documentation as specified in 4.1.1. and holding an approved maintenance program containing specific tasks regarding operation in areas defined as "Low density volcanic ash contamination" may plan and operate in such areas.

As a minimum, the tasks shall cover the following:

- Wing leading edges.
- Stabilizer
- All extruding structure
- Pitot tubes & Static ports
- Windows
- Engine inlet and nacelles

The following items must be carried out with respect to T/C holders recommendation (OBS one Engine may apply for some T/C holders):

- Boroscope inspection of Compressors and Turbines,
- Engine oil filters.
- Inspection report shall be accomplished at the end of inspection.

For operators holding a NTO or equivalent document without specific description of maintenance tasks related to operation in areas defined as "Low density volcanic ash contamination" the following applies:

At a maximum of 3 accumulated flight hours in areas defined as "Low density volcanic ash contamination", the following inspection shall be carried out:

The inspection shall as a minimum include the following:

- Wing leading edges.
- Stabilizer
- All extruding structure
- Pitot tubes & Static ports
- Windows
- Engine inlet and nacelles

The following items must be carried out with respect to T/C holders recommendation (OBS one Engine may apply for some T/C holders):

- Boroscope inspection of Compressors and Turbines.
- Engine oil filters.
- Inspection report shall be accomplished at the end of inspection.

After take-off, a flight which experiences any delay which may cause the flight to exceed 3 accumulated flight hours may continue to the planned destination.

All observations which may indicate that the flight has encountered volcanic ash activity shall be reported to CAA-DENMARK as soon as possible, using the Mandatory Occurrence Reporting in accordance with BL 8-10.

5. Zone 3: Area Free of Volcanic Ash Contamination

Zone 3 is expected to have no restrictions.

6. Operator approval

6.1. Operators who intend to carry out flights in Zone 2 areas shall request approval from CAA-Denmark, TO-O (Operative tilladelse).

6.2. Operators shall provide documentation for the pre-requisites in paragraph 4.1 and for the considerations in paragraphs 4.2 & 4.3.

6.3. Procedures for compliance with paragraph 4.4 shall be established and documented.

7. Further information

Further information is available from the following sources:

<http://www.slv.dk/>

ICAO Document 9766 - 'Handbook on the International Airways Volcano Watch (IAVW): Operational Procedures and Contact List'

ICAO EUR Doc 019 - 'Volcanic Ash Contingency Plan - EUR Region'

Airbus Flight Operations Briefing Note - "Volcanic Ash Awareness"

http://www.metoffice.gov.uk/aviation/vaac/vaacuk_vag.html

<http://www.naviair.dk/>

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